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 WHO European 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.
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, comparisons are made with other countries in the WHO European Region as one means of assessing the comparative strengths and weaknesses, what has been achieved so far and what could be improved in the future, similarly to the approach and rationale used for setting the 21 targets in HEALTH21, the health for all policy framework for the WHO European Region (WHO Regional Office for Europe, 1999). 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 Iceland, the reference countries are the 15 EU countries as well as Israel, Malta, Norway and Switzerland.

To make comparisons between countries as valid as possible, data for each indicator have been taken from one common international source (such as WHO, the Organisation for Economic Co-operation and Development, the International Labour Office or EUROSTAT), whenever possible. Nevertheless, 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. However, in a few cases, updated figures received from the country most recently have been used and these may not yet have been entered into the database. This applies only to indicators other than mortality, such as gross domestic product. Information on national policies has been obtained from national authorities, including 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, ranking can overshadow quite 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 or another geopolitical group, 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 moving averages have been used, as appropriate. For example, this is the case for maternal mortality for all reference countries.

Iceland has a comparatively small population and the yearly statistics on births, mortality and morbidity may therefore undergo substantial random variation. Three-year moving averages are therefore used for these statistics wherever possible and appropriate. The 3-year moving averages used in the text and in the figures are indicated. The year mentioned is the middle of the 3 years: the second latest year for which data were available when this document was prepared.

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 population of Iceland is small but demonstrates strong vital potential in terms of human reproduction and survival. The birth rates are higher than commonly expected for a Nordic country, and the death rates are lower than in any of the reference countries. The population growth is therefore high for an industrialized country, as is the proportion of children and younger adults. The country is sparsely populated, on average, but 92% live in urban centres with a population of 200 or more. The overall level of health is high, although this has become less exceptional recently given that the reference countries are performing relatively better. This relative deceleration of progress is mainly due to less progress or even deterioration in the health status of women and older people in general. For example, the mortality from cancer of women younger than 65 years is higher than in the EU and increasing. It is also higher than that for men in Iceland, which is unusual. The main cause of the high rate among women appears to be high mortality from lung cancer caused by tobacco smoking.

Corresponding to the high overall level of health, most health indicators in Iceland are favourable. Nevertheless, attention should be focused on some vulnerable population groups. Although data on socioeconomic differences in health are not currently available, some issues can be identified such as high rates of unemployment and suicide among young men, pregnancy among teenagers and cardiovascular mortality among older people. The high overall achievement also means that it would be useful to have indicators of positive health such as disability-free life expectancy and health-related quality of life, but information on these is scarce.

The coverage and quality of clinical health care is high, as indicated, for example, by the very low levels of maternal and perinatal mortality. Iceland has health policies to address priority problems such as disability, osteoporosis and rheumatic diseases. Health care reforms aim to improve the overall effectiveness of the health care system. Several health promotion programmes have been launched. Although there are relatively few data on lifestyles to assess trends, it is clear that the health of Icelanders would benefit from further improvement in diet and physical activity.
THE COUNTRY AND ITS PEOPLE

Iceland is a republic with a parliamentary government. Legislative authority is vested jointly in the Althingi (parliament) and the president. All legislation passed by the Althingi must receive the consent of the President before it becomes law. According to the Constitution, the President also holds the supreme executive power, but in fact the cabinet ministers exercise the powers ascribed to the president.

The president is elected for 4 years and is generally not a member of a political party. The 63 members of the Althingi are also elected at intervals of no more than 4 years. All Icelandic citizens 18 years of age and older on election day have the right to vote.

Iceland is divided into eight constituencies, which are defined by the Constitution and to some extent also function as administrative regions. There were 163 municipalities in 1997, but the number was reduced to 124 in 1998 as small, often sparsely populated municipalities merged. The state has the main responsibility for health care.

On 1 December 1918, Iceland became a separate state under the Danish crown, with only foreign affairs remaining under Denmark’s control. On 17 June 1944 the Icelandic republic was founded at Thingvellir, with Sveinn Björnsson as its first president. Iceland is a member of the Nordic Council and NATO. Iceland joined the European Free Trade Agreement in 1970 and the European Economic Area in 1994.

Demography

Iceland is the most sparsely populated country in the European Region. The Icelandic population was 276 000 at the end of 1998. The area of the country is 103 000 km². The Icelandic population is very homogeneous ethnically and socioeconomically.

The age pyramid (Fig. 1) presents the age structure of the mid-year population in 1970 and the population on 1 January 1999 (Council of Europe, 1999). It shows a substantial increase in the number of adults, especially those 25–50 years old as compared to the population some few decades ago. The age-specific population structure in Iceland does not differ much between males and females, and even in the oldest age groups, women do not outnumber men as much as in other countries. The proportion of the population aged 0–14 years is declining but is still the

<table>
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<th>Table 1. Basic data on Iceland and the EU (1998 or latest available)</th>
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<td><strong>Capital</strong></td>
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<tr>
<td>Reykjavik</td>
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<tr>
<td>Population (in millions)</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>• &gt; 65 years (%)</td>
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<td>Area in km²</td>
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<td>Density per km²</td>
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<td>Urban population (%)</td>
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<td>Births per 1000 population per year</td>
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<td>Deaths per 1000 population per year</td>
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<td>Natural growth rate per 1000 population per year</td>
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<td>GDP per person per year in US $ (PPP)</td>
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GDP: gross domestic product; PPP: purchasing power parity

* In Iceland, urban is defined as localities with 200 inhabitants or more
second highest among the reference countries after Israel. The same is true for the total fertility rate. The older age groups comprised a larger proportion of the population in 1999 than in 1970. But, again, Iceland has one of the lowest percentages among the reference countries. This pattern differs from that of the Nordic countries and western Europe but is similar, for example, to that of Israel.

The number of elderly people in the population is expected to increase in absolute terms, however, and, similar to other European countries, Iceland will be faced with a larger older population. Nevertheless, as the fertility rate and the natural population growth rate (Fig. 2) are relatively high, the increase in the number of elderly people will influence the overall age structure and the dependency ratio less severely than in other reference countries.
Household composition and family structure

From 1986 to 1990, Iceland had 4.8 marriages per 1000 population per year and 4.6 per 1000 were dissolved. The number of marriages increased to 5.6 per 1000 population in 1998, whereas the number dissolved declined to 4.2 per 1000 in 1998.

In 1998, Iceland had 67,393 nuclear families,\(^1\) with an average size of 2.9 people, of which 9132 (13.5%) were single-parent families (Statistics Iceland, 1999a). Among children 15 years and younger, 80.9% lived in a family with two adults (59.4% in a family with a married couple and 21.5% in a consensual-union family), and 19.1% lived with a single parent (Council of Europe, 1999).

Since 1993, Statistics Iceland has included questions in its labour market survey about other members of the household, their relationship with the respondent and their age and sex, along with several questions about labour force participation. The data reveal that the number of households in 1998 was 93,000, an increase of about 6700 households since 1993. Labour market participation was lowest in one-person households and greatest in the households of couples with children. There was no significant difference in unemployment according to type of household that year (Statistics Iceland, 1999b).

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 is culturally and linguistically acceptable can also be difficult. Moreover, many immigrants have a higher risk of living in relative poverty and being marginalized in their countries of residence, which can result in reduced health status compared with non-immigrants. Illegal immigrants, in particular, can find it difficult to obtain health care, and following up any care given can be problematic.

Iceland has historically had very low immigration. The most recent figure for net immigration was 0.32% in 1998 (Statistics Iceland, 1999a). Other nationalities made up 2.3% of the population in 1998, of which 70% are from countries in Europe. Thus, the largest group among people of other nationalities has been Danes, with Poles becoming the largest group in 1998, comprising 16% of the approximately 6500 non-Icelandic citizens in Iceland. In recent years countries from which the greatest net immigration has arisen are Poland, the former Yugoslavia, the Philippines and Thailand.

About 20 or 30 refugees have arrived each year in Iceland in recent years.

Education

The relevance of educational attainment to health is well documented. In Europe, where primary education is nearly universal, the proportion of the population with secondary (International Standard Classification of Education (ISCED) category 3) or higher education (categories 5, 6 or 7) would be an appropriate indicator of educational achievement.

In Iceland, the proportion of the population 16–74 years of age in category 3 was 29% and, in categories 5–7, 25% (1998). The percentages were 29% for both sexes in category 3, but 32% of men were in categories 5–7 versus only 18% of women. A further examination of educational achievement by age shows that, the younger the people, the higher the proportion that has reached ISCED levels 6 and 7, and that the gender gap at that level is gradually decreasing. In 1998, 22% of women and 24% of men aged 30–39 years were at ISCED levels 6 and 7 compared with 7% of women and 13% of men 50–59 years old (Statistics Iceland, 1999b).

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\(^1\) A nuclear family refers to all couples (married or living in a consensual union), their children 15 years and younger and single men and women who live with their children 15 years and younger.
Economy and labour

Iceland is one of the most affluent of the reference countries. The gross domestic product (GDP) per person in 1998 was US $26,580 in purchasing power parity (PPP) (Fig. 3).

The main sectors of the Icelandic economy are services, industry and fishing. Fisheries and fish-processing accounted for about 14% of GDP in 1997, employing 10% of the labour force and accounting for more than 70% of exports. Icelandic manufacturing includes production of cement, aluminium, diatomite and ferro-silicon (Statistics Iceland, 1999c).

Iceland was faced with an overheated economy in the 1980s, with double-digit inflation (above 50% per year in the early 1980s and above 20% per year in the mid-1980s). The GDP growth rates peaked at close to 9% in 1987. During the 1990s, the economy developed favourably, although the deficit on the balance of payments is increasing. Inflation fell to a historic low of 1.5% in 1994 and was 3.4% in 1999.

The labour force participation rate among women is generally high: 77.4% in 1998. The corresponding figure for men was 87.1% in 1998. The difference between the genders primarily results from a lower participation rate among older women. Iceland has a very low overall unemployment rate: 2.7% in 1998, with some gender difference in recent years, such as 2.3% among men and 3.3% among women in 1998. Since 1991, unemployment for the age group 16–24 years has been significantly higher than for other age groups.

Nevertheless, the labour force participation rate is relatively high among both young women and young men.

Correspondingly, there are well established measures for the day care of children in either publicly run kindergartens or in family day care with registered and approved child-minders. In 1997, the percentage of children aged 0–2 years in pre-primary institutions was 25.1%, and 13.7% were in family day care. Among children 3–5 years old, 86.3% were in public day care 4 hours or more daily (Statistics Iceland, 1999a; Nordic Social-Statistical Committee, 1999).

If a family is incapable of taking care of a child, there are public measures to help in minding the child.

There are also well established measures for compensating for loss of income in connection with pregnancy, childbirth and adoption. The public authorities grant an allowance for families with children (if family income does not exceed a certain limit). Single parents receive a maintenance allowance from the parent who does not have custody of the child. If the noncustodial parent does not pay this, the public authorities pay the allowance to the parent with custody.
HEALTH STATUS

Life expectancy and health-related quality of life

For 1997–1998 the life expectancy in Iceland, according to national data, was 81.5 years for women and 77.0 years for men. Using 3-year moving averages, in 1994 the overall life expectancy was 78.8 years (Fig. 4).

This ranks third of the 20 reference countries. The 3-year moving averages were 80.9 years for females and 76.7 years for males. For males the life expectancy was the highest of the reference countries, whereas the rate for females was the same as the EU average (Fig 5, 6).

The life expectancy in Iceland was the highest in the European Region for several years. Especially after a leap in about 1975, Icelandic life expectancy departed substantially from the life expectancy of other European countries. Since then, however, the average life expectancy in the EU has been increasing somewhat faster than that of Iceland, and the advanced positions of previous years have narrowed, mainly related to deceleration in improvements in women’s health.

According to national data, the life expectancy at age 65 was 16.5 years for men and 19.8 for women in 1997–1998.

Especially for women, life expectancy has been showing less progress in the last two decades compared with the EU average (Fig. 7, 8).

The loss in life expectancy from mortality before 65 years of age is decreasing in Iceland (men 4.9 years; women 3.6 years, 3-year moving average, 1994), similar to the EU as a whole (Fig. 9, 10). However, progress among women in Iceland has decelerated, whereas the trend for men is particularly positive and noteworthy.

<table>
<thead>
<tr>
<th></th>
<th>Iceland</th>
<th>EU</th>
<th>Minimum among EU countries</th>
<th>Maximum among EU countries</th>
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<tr>
<td>Life expectancy (years)</td>
<td>79.2</td>
<td>77.8</td>
<td>75.4</td>
<td>79.3</td>
</tr>
<tr>
<td>Men</td>
<td>77.0</td>
<td>74.4</td>
<td>71.7</td>
<td>76.7</td>
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<tr>
<td>Women</td>
<td>81.5</td>
<td>81.0</td>
<td>78.6</td>
<td>82.8</td>
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<tr>
<td>Maternal mortality</td>
<td>0.0</td>
<td>7.1</td>
<td>0.7</td>
<td>10.8</td>
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<tr>
<td>SDR for cardiovascular diseases per 100 000 population</td>
<td>284</td>
<td>280</td>
<td>176</td>
<td>385</td>
</tr>
<tr>
<td>SDR for cancer per 100 000 population</td>
<td>185</td>
<td>191</td>
<td>160</td>
<td>226</td>
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<tr>
<td>SDR for external causes per 100 000 population</td>
<td>59</td>
<td>42</td>
<td>28</td>
<td>73</td>
</tr>
<tr>
<td>New cases of tuberculosis per 100 000 population</td>
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<td>13.7</td>
<td>5.3</td>
<td>51.4</td>
</tr>
<tr>
<td>New cases of AIDS per 100 000 population</td>
<td>0.7</td>
<td>3.5</td>
<td>0.3</td>
<td>10.6</td>
</tr>
<tr>
<td>Regular daily smokers, ≥15 years (%)</td>
<td>25</td>
<td>29</td>
<td>18</td>
<td>37</td>
</tr>
<tr>
<td>Registered alcohol consumption in litres per person</td>
<td>4.3</td>
<td>9.4</td>
<td>4.9</td>
<td>11.8</td>
</tr>
</tbody>
</table>

SDR: standardized death rate; AIDS: acquired immunodeficiency syndrome
Fig. 4. Life expectancy at birth in years, latest available data

Data for Iceland are 3-year moving averages
In summary, mortality among males in Iceland continues to be very favourable, whereas among females it has changed from very good to more average levels compared with the reference countries. This change was mainly caused by convergence of the mortality rates of older women with the EU rate.

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. In general, Iceland’s age- and sex-specific death rates by cause are equal to or below the EU rates. The main causes of premature death are cardiovascular diseases, cancer and external causes of death and injury.

Cardiovascular diseases

The most frequent cause of death overall is cardiovascular diseases (CVD). The SDR from CVD declined from 435 per 100,000 population in 1972 to 282 in 1994 (3-year moving average) (both genders), similarly to the EU rates.

In the age group 65 years and older, CVD are also the most common cause of death. Although mortality from CVD has declined since 1970, it was previously much lower than the EU rate, but the rates have converged.

In the age group 0–64 years, the CVD mortality among men was above the rate for the EU in the 1980s (Fig. 11), but this rate is now below the EU average. The CVD mortality among women 0–64 years is lower than the level in the EU (Fig. 12).

The mortality from ischaemic heart disease is higher among men and lower among women than in the EU in the age group 0–64 years (Fig. 13, 14). Among people 65 years or older in Iceland, both genders have higher mortality than in the EU.

The mortality from cerebrovascular disease is lower in Iceland than in the EU among people 0–64 years old (Fig. 15, 16). Among people 65 years or older, mortality was previously lower than for the EU. In recent years, however, the gap has narrowed because of less progress in Iceland.
Fig. 13. Mortality from ischaemic heart disease among males aged 0–64 years, latest available data

Fig. 14. Mortality from ischaemic heart disease among females aged 0–64 years, latest available data

Fig. 15. Mortality from cerebrovascular diseases among males aged 0–64 years, latest available data

Fig. 16. Mortality from cerebrovascular diseases among females aged 0–64 years, latest available data

Data for Iceland are 3-year moving averages
Cancer

The mortality from cancer among males is lower than in the EU, but the time trend is not clear. The rates among females have been increasing, in contrast to the declining trend in the EU. In the age group 0–64 years, the mortality among males is lower than the rate in the EU, whereas among females, the SDR has exceeded the rate in the EU since 1985 (Fig. 17, 18).

Notably, the rates among males are lower than among females in Iceland, whereas the EU rate among males is much higher than that among females.

The mortality from cancer among people 65 years or older has tended to converge with the EU rate from previously lower levels, and the rate among females is higher than in the EU. Mortality from cancer among females is thus an important part of the relative deceleration of progress in mortality, and probably in the general health of females, mainly of older age, in Iceland.

The same pattern is displayed, even more significantly, for cancer of trachea, bronchus and lungs (SDR among people 0–64 years) (Fig. 19, 20). In 1994, the SDR from lung cancer among Icelandic men aged 0–64 was 14 per 100 000 population (3-year moving average), less than half the EU average of 31 per 100 000. Among women aged 0–64 years, the SDR in Iceland was 18 per 100 000 population (3-year moving average), 2.6 times the EU average of 7 per 100 000 population. The SDR for cancer of the cervix and breast, however, do not deviate significantly from the EU averages. Thus, the high mortality among women is primarily caused by lung cancer. The Icelandic Cancer Society (personal communication) attributes this to the early and significant increase of smoking prevalence among Icelandic women. In 1965, for example, Icelandic women smoked more than women in other Nordic countries, where the prevalence of smoking was among the highest in the world anyway. The smoking patterns of Icelandic men were, however, similar to those in other neighbouring countries.

A comparison of SDR and incidence rates can indicate the chances of surviving a particular disease. The Icelandic Cancer Society (personal communication) reported 1995 standardized rates (world standard) of cancer incidence of 38 and 34 per 100 000 population for males and females respectively; for cancer mortality, 29 and 21 per 100 000 population, respectively.
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 trend for mortality from these causes, and in particular from road traffic accidents, has been declining in western Europe since 1970.

Mortality from external causes in Iceland was 45 per 100,000 (3-year moving average) in 1994, close to the EU rate (Fig. 21). For both genders, the SDR from external causes was much higher than the EU and Nordic averages in the early 1970s. Since then, it has declined more rapidly than in the other reference countries. A targeted effort aimed at enhancing road safety, safety at home and safety at sea is one reason for the decline.

Among both men and women aged 0–64 years, the SDR from external causes is close to the level for the EU, down from higher levels (Fig. 22). In the age group 65 years or older, the mortality from external causes among men has not shown a clear trend, and remained at a level slightly higher than the declining EU rate since the 1980s. Among women, the rate is clearly declining but remains at levels higher than the EU average.
The mortality from external causes can be divided into four groups: motor vehicle accidents, suicide, homicide and other external causes. The mortality from motor vehicle traffic accidents (Fig. 23, 24) is lower than the EU rate and also follows the overall downward trend.

The SDR from homicide and purposeful injury has been mainly below the level for the EU in recent years and displays a fluctuating trend and very low figures in the latest years (Fig. 25).
Mental health

Although mental and psychosocial wellbeing is an important aspect of health-related quality of life, too little information is usually available to allow these very important dimensions of the population’s health to be described reliably. Suicide can be used as an indicator of the overall level of mental health.

Mortality from suicide was rising until the early 1990s in practically all age groups in Iceland (Fig. 26). Since then the rates have declined in most age groups. However, this is not yet true for men aged 15–24 years. Evidence of increasing suicide rates among young males in a sparsely populated part of Iceland in the early 1990s was followed up by detailed investigations and policy changes.

Unfortunately, several other reference countries have such a rising trend in suicide rates.

The use of antidepressant drugs in Iceland is high compared with the other Nordic countries. The sales of antidepressants have increased substantially in all the Nordic countries. However, the level is higher for Iceland than for any of the other countries. In 1997, the number of defined daily doses per 1000 population was about 45 in Iceland and ranged from 21 to 34 for the other Nordic countries.

AIDS and HIV infection

The acquired immunodeficiency 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. There is a delay of about 10 years or more between initial infection with the human immunodeficiency virus (HIV) and the development of the clinical illness of AIDS in untreated individuals.

One new case of clinically diagnosed AIDS was registered in Iceland in 1997, two new cases in 1998 and none in 1999. The upward trend seems to have been reversed since the early 1990s, similar to the EU average, although at significantly lower levels of incidence. This suggests that preventive measures aiming to change people’s behaviour have had an effect, but another reason is the wide use of effective antiretroviral treatment, similar to other countries in western Europe.

Because the clinical manifestation of AIDS is delayed, these figures do not give an accurate picture of the new infection trend. According to the HIV case reporting for Iceland (European Centre for the Epidemiological Monitoring of AIDS, 1999), from 1995 to 1999 between 7 and 12 individuals have been diagnosed annually as having HIV infection (8.4 per year on average). Traditionally, HIV has primarily affected homosexual and bisexual men, similar to other countries in western Europe, but more recently heterosexual transmission accounts for an increasing proportion of new cases of infection.

Other infectious diseases

Several vaccine-preventable diseases of childhood have been eradicated through comprehensive immunization programmes. The recommended schedule includes immunization for measles, mumps, rubella, diphtheria, tetanus, pertussis, poliomyelitis and Haemophilus influenzae b (the most common cause of meningitis among young children in Europe) since 1989. The immunization
schedule has been successful; incidence rates are declining for pertussis and measles and are below the EU average. No cases of diphtheria, tetanus or poliomyelitis have been reported from at least 1974 to 1998 in Iceland. Most of these diseases do not represent a serious threat to children’s health, except for meningitis.

Rubella is still not under complete control. There were epidemics in 1993 and 1994 (610 cases per 100 000 population in 1993 and 353 in 1994) and a smaller one in 1996 (120 cases per 100 000 population) among unvaccinated children.

Iceland’s hepatitis incidence rate is below that of the EU but has increased in recent years. In 1998, the rate was 20 per 100 000 population versus 24 for the EU.

Syphilis has been virtually eliminated in Iceland: in 1998 the incidence rate was 1.8 per 100 000 population (five cases). Similar to other countries, the incidence of gonococcal infection has declined sharply in recent years: 1.1 cases per 100 000 population (three cases, all imported) in 1998, versus 7.3 for the EU.

The incidence rates for tuberculosis are low: 6.2 in 1998 and 3.7 in 1997 per 100 000 versus 13.2 in the EU in 1997 (Fig. 27). Iceland has mostly refrained from BCG vaccination (offered to some high-risk groups) and emphasized early detection of new cases and their vigorous medical treatment (Sigurdson, 1976).

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. In 1995, Iceland had 268 newly recognized cases of disability per 100 000 population. This was close to half the Nordic average, which was about 500 per 100 000 population.

Health of children and adolescents

The first year of life is a critical stage of life in terms of survival; only after the age of 55 years do death rates in most countries in the European Region return to the same level. In Iceland, the infant mortality rate was 2.6 per 1000 live births in 1998 (the latest 3-year moving average is 3.9) versus 5.6 for the EU in 1996 (Fig. 28). Iceland has traditionally scored very well on this indicator.


The percentage of live births with low birth weight is probably one of the lowest among the reference countries (2.9% in 1992), but this indicator is not regularly reported in Iceland or in the reference countries.
Mortality among children 1–14 years old decreased steadily from an SDR of 47.3 per 100,000 population in 1972 (versus 54.2 for the EU) to 16.0 in 1993 (3-year moving average) versus 21.6 in the EU in 1995. The main causes of death in this age group are cancer and accidents. The mortality from accidents is similar to the EU level.

Children’s oral health improved significantly from 1986 to 1996, contributing to long-term benefits for general health. The caries rate started to decline steadily in western Europe in the 1970s and 1980s, but the oral health of Icelandic children was very poor. A survey carried out in 1983 revealed that Iceland had one of the highest prevalence rates of tooth decay in the world. This was so despite a public dental health programme for all children initiated in 1974 (based on reimbursement of fees for restorative services in private dental offices, except in the City of Reykjavik, where a school dentistry programme had been provided free of charge). Unfortunately, preventive treatment was not generally included. Since the mid-1980s, substantial improvement has taken place following dental health campaigns and preventive measures, such as sealants and fluoride varnish as a treatment option. The average number of decayed, missed and filled teeth (DMFT) for 12-year-olds was 6.6 in 1986, 3.4 in 1990 and 1.5 in 1996, a reduction of 77% in 10 years (Fig. 29). The number of caries-free 12-year-olds increased from 3.6% in 1986 to 47.5% in 1996 (Eliasson, 1998).

Adolescents make efforts to take on adult roles. This transition involves experimentation and imitation, which can make young people vulnerable to damage to their health. Acute health problems can result from accidents, experiments with drugs, unsafe sex or unwanted pregnancies. In the longer run, adopting unhealthy lifestyles can lead to chronic degenerative diseases. This is also a transition phase in the life cycle when social insecurity compounded by, for example, unemployment, can lead to mental health problems.

In Iceland, the unemployment rate in the age group 16–24 years, as mentioned above, is significantly higher than for other age groups (6.0% in 1998) and about twice as high as the overall unemployment rate (2.7% in 1998). This is especially true for young men. In this age group, the labour force participation rate is higher and the unemployment rate lower for women than for men. The reverse situation exists for all other age groups (Statistics Iceland, 1999c). Unemployment is one of many factors that influence suicide rates. An increased suicide rate among young men was reported in the early 1990s. The mental health services for children and adolescents are probably also somewhat insufficient, as indicated by the long waiting lists in this area.

One of the few routinely available indicators of 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. The births to mothers under 20 years of age have declined in almost all the reference countries in recent decades (Fig. 30).
This is also the case in Iceland; in 1998, 6.3% of live births were to mothers below the age of 20 years. This represents a major improvement compared with 1980, when the proportion was 13.9%. Nevertheless, the birth rate among young women is still higher in Iceland than in other Nordic countries and in most of the reference countries.

The frequency of all teenage pregnancies, as indicated by the sum of births and legally induced abortions, is presented for 12 reference countries in Fig. 31. Iceland has relatively many teenage pregnancies, but relatively few end in abortion: 898 abortions per 1000 live births among women under 20 years in 1997 (Fig. 32). Although the trend in the abortion rate is increasing, it is likely that teenage pregnancy has been more accepted socially in Iceland than in many other countries. There are, however, several indications of changes in attitudes, such as the founding of the Icelandic Association for Sexual and Reproductive Health in 1992. Their main purpose is to promote healthy sexuality and planned parenthood. The Association has developed counselling services for young people and believes that such services should be within a broadly based health service for youth.
Women’s health

Women as a group live longer than men and have lower mortality rates for most causes of death. However, women have higher rates of morbidity and utilization of health care services (especially related to childbirth), and they can be more affected by social welfare policies than men are. As described earlier, the life expectancy at birth for females in Iceland is 81.5 years (1997–1998), about the same as in the EU. The gender gap in life expectancy at birth is 4.5 years (1997–1998), smaller than in most other countries because of the relatively higher longevity of men in Iceland. At age 65, the gender gap is 3.3 years (1997–1998), also smaller than that in most countries.

The mortality from lung cancer is relatively high among women, similar to Denmark but much higher than in the other Nordic countries, in which the rates are close to the EU average. As mentioned, the rate of increase among women 0–64 years old is also higher than the increase in the EU (Fig. 20).

There are very few maternal deaths in Iceland: there have been no maternal deaths since 1991 (through 1998). The rate of abortion is a little below the EU average. However, the trend is increasing, while especially the Nordic average has been decreasing over the last decade (Fig. 33).

Overall, Iceland’s rate of mortality from cancer of the cervix is declining, although the absolute number of deaths is very low and fluctuation is large (Fig. 34).

The Icelandic Cancer Society considers the mortality from breast cancer to have been relatively stable from 1955 to 1985, but it seems to have increased since then. Other countries have also had increasing rates since the early 1980s. Iceland’s mortality from breast cancer among women is above the EU level (Fig. 35).
The number of diagnosed cases of *Chlamydia* infection in Iceland is much higher than any other Nordic country, and the trend is increasing, especially for women (*Nordic Medico-Statistical Committee, 1998*).

In 1997, a committee on domestic violence and other forms of violence against women and children produced a report for the Ministry of Justice and Ecclesiastical Affairs based on a telephone survey of 3000 people carried out in April 1996. The results showed that 2.8% of women and 9.4% of men reported having experienced physical violence of all types (refers to being hit, pushed, shaken or severely attacked) in the past 12 months, but 1.3% of the women and 0.8% of the men experienced physical violence from a present or former spouse (*Statistics Iceland, 1997*). Further work has been carried out regarding domestic violence, and the results of the work of several committees are now available. These committees were established to examine which improvements needed to be made in this area: how these cases were treated by the police and the judiciary, which preventive measures needed to be taken, assistance for the victims and treatment for offenders.
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 cancer. 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, 1999).

Tobacco consumption

The percentage of regular daily smokers among the Icelandic population aged 15 years or older was 25% in 1998 versus 29% in the EU in 1995 (Fig. 36). The trend is steadily falling. The difference between men’s and women’s rates in Iceland is very small.

As mentioned previously, in international comparison the mortality from lung cancer is high among women and low among men. Although the rate for men is still higher than that for women, the difference is the smallest in the WHO European Region. For women, the difference from other parts of the European Region is striking. As mentioned, the Icelandic Cancer Societyattributes this to the early and significant increase of smoking prevalence among Icelandic women.

Recent milestones in curbing tobacco consumption in Iceland include the following.

1994. Smoking was prohibited in cinemas.
1995. A regulation was issued prohibiting smoking on all international flights. Smoking was prohibited on domestic flights in 1984.
1996. A new Act on the Prevention of the Use of Tobacco was adopted (Tobacco Control Task Force of Iceland, 1996). It has the objectives of reducing the consumption of tobacco and thereby its damage to health and of protecting people from the effects of tobacco smoke. The Act sets out a framework for action. Prior to 1996, the sale of tobacco was prohibited to people younger than 16 years, but this was raised to 18 years.
1999. A regulation prohibiting smoking in or at schools, health centres and other health institutions was issued. An exception was made for patients and inmates at old-age homes. Smoking was further prohibited in all
public places where general service is provided, but special rules apply to restaurants. Advertising tobacco is prohibited in Iceland.

**Alcohol consumption**

The consumption of alcoholic beverages in the EU has slowly but steadily declined since 1980 following an increase in the 1970s. In Iceland the amount of registered pure alcohol consumed is very low. It was almost constant during the 1980s. Towards the end of the 1980s, consumption rose slightly, partly because beer was introduced to Iceland (see below). After a small decrease in the mid-1990s, it rose again to 4.2 litres of pure alcohol per person per year in 1998. The level of consumption remains, however, considerably lower than that in the EU (Fig. 37) according to international statistics based on sales figures; national figures are at times slightly different.

The alcohol consumption in Iceland by types of beverage differs from that of other countries. The beer consumption is less than half the averages for the European Region, the EU and the Nordic countries. The wine consumption is one sixth the EU average and one third the Nordic average, whereas the consumption of spirits is the same as the Nordic average. The consumption of spirits in Iceland is, however, following the same downward trend as in other countries.

The sale of beer has only been permitted in Iceland since 1989. This may explain the comparatively low consumption of beer. Alcohol legislation includes a monopoly system, an advertising ban in all Icelandic media and a 20-year minimum age for purchasing and consuming alcohol. When Iceland became a member of the European Economic Area in 1994, the monopoly on the import of wholesale alcohol was lifted. The prices of alcohol are high compared with other European countries, because of taxes. The new regulations from 1999 gave the municipalities the right to decide on establishing the monopoly retail shops and the right to govern the opening hours of outlets and restaurants with permits to serve alcohol.

The SDR from chronic liver diseases and cirrhosis are very low in Iceland compared with other European and Nordic countries. The SDR from chronic liver diseases and cirrhosis varies around 1.5 (both genders, all ages), whereas the EU average is above 15 and the Nordic average is above 8. The number of road accidents involving alcohol in Iceland, 24 per 100 000 population, is somewhat higher than the Nordic average of 16 per 100 000. The EU average is considerably higher: 65 per 100 000.

**Illicit drug use**

According to the European School Survey Project on Alcohol and other Drugs (ESPAD) in 1995 and 1999 (Hibell et al., 1997; Bjarnason & Sigfusdottir, 1999), cannabis is the illicit drug most used by the 15- to 16-year-olds surveyed. In the 1999 survey, 16% of the respondents said that they had tried cannabis, but the use of other illicit drugs was much lower. The police report that cannabis and amphetamines, including Ecstasy (3,4-methylenedioxymethylamphetamine), are the drugs they most frequently encounter. No recent study of illicit drug use among the general public is available. However, the number of people in treatment for cannabis dependence declined by 50% from 1986 to 1996, which could indicate a shift in consumption patterns. An estimated 90 per 100 000 population use cannabis. Cannabis use is most prevalent among people 18 to 35 years.
old, and the two genders are equally represented among the users. Mixed substance abuse is also reported in Iceland, as about half of the cannabis users also use amphetamines (Harkin et al., 1997).

Icelandic policies towards reducing the harm of illicit drug use are manifested in the government’s policy on measures to prevent the abuse of drugs, alcohol and tobacco, which was approved in 1996. Among the priorities is to increase preventive measures, especially those intended to protect individuals in high-risk groups; to restrict the access of children and adolescents to alcohol and drugs; to increase public safety by reducing the incidence of drug-related crime; and to expand the range of treatment remedies available for young people who need them.

In accordance with the government’s policy, Iceland became a member of European Cities against Drugs (ECAD) in 1997, and the Alcohol and Drug Abuse Prevention Council was established in January 1999. The Council is intended to develop and reinforce preventive measures against drug and alcohol abuse, especially among children and teenagers, and to combat the damaging effects of drug abuse in Iceland. The Council’s tasks include monitoring the application of legislation and the government’s policy on preventive measures, acting in an advisory capacity to the government and other authorities on preventive measures, supporting studies and projects in the field of preventive measures and stimulating the publication of information on these matters.

Other measures towards reducing the harm of illicit drug use include outreach services for young people, a Red Cross shelter and information service and a telephone help-line. HIV testing for drug users is voluntary. Needles and syringes for intravenous drug use as well as condoms are not distributed free but can be purchased at pharmacies at low prices (Harkin et al., 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 be converging.

The historical differences in Europe between the northern and southern dietary patterns are confirmed by national food balance sheets (data relating to the amount of food available within each country) collected since the 1960s by the Food and Agriculture Organization of the United Nations. Typical for northern Europe is a high availability of saturated fat accompanied by a low availability of fruit and vegetables. In contrast, in southern Europe, the diet typically consists of large quantities of fruit and vegetables and small quantities of saturated fat. Unfortunately, the data from the Food and Agriculture Organization are often considered incorrect for Iceland, except for fruit and vegetables (Fig. 38).

According to the Icelandic Nutrition Council, even though the Icelandic diet has undergone considerable change in recent decades, it still retains some of the characteristics rooted in

![Fig. 38. Vegetable and fruit consumption patterns, 1970–1997](image-url)
traditional food production. Fish, lamb, milk and potatoes have been the main foods produced in the country, and these foods still weigh heavily in the diet. No grains or fruit are grown in Iceland, and vegetable production has been limited until recently. Iceland still ranks among the heaviest consumers in Europe of milk and dairy products, fish and lamb, as well as sugar and soft drinks. The consumption of fruits and vegetables, however, is among the lowest in Europe.

Nutrient intake in the population reflects in part these dietary characteristics. Thus, protein and saturated fat intake are relatively high according to a national nutrition survey from 1990.

However, during the last two decades, consumption of two major contributors to fat in the diet, whole milk and margarine, have decreased considerably. Whole-milk consumption has declined from 221 kg per person in 1981 to 98 kg in 1997 and margarine from 12.0 to 7.2 kg, while vegetables have increased from 32.4 kg per person to 44.5 kg and fruit from 48.8 kg to 61.6 kg. At the same time, according to national studies, serum cholesterol levels have dropped 7% among men and 11% among women and mortality from myocardial infarction has decreased 57% for men and 42% for women.

Despite these positive trends, body mass index and the prevalence of obesity have increased in Iceland during recent decades, both among children and among adults. A recent study of 9-year-old children shows that the mean body mass index has increased from 16.5 to 17.7 since 1958. The prevalence of both overweight and obesity among adults has also increased in the last two decades. The prevalence of obesity (body mass index exceeding 30) among 45- to 64-year-olds in Reykjavik just about doubled from 1975 to 1994. By the end of the period, 18.0% of men and 19.3% of women in that age group were classified as obese, and 53.1% of men and 42.1% of women were classified as overweight. Thus, energy intake has not decreased sufficiently to compensate for the diminished energy expenditure in the population.
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. 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 well-being either directly or indirectly by causing discomfort and stress, giving rise to unhealthy coping behaviour such as the use of intoxicating drugs or heavy drinking.

Air quality

The amount of sulfur dioxide emitted in Iceland (excluding geothermal energy emissions, which far exceed the emissions caused by humans) did not change significantly from 1990 to 1998 at an average of about 30.9 kg per capita (30.4 in 1998). This was still higher than the Nordic average, which was about 16.5 in 1995, but below the EU average (39 kg per capita in 1990). The situation with emissions of nitrogen oxides is similar (average 106.3 kg per capita from 1990 to 1998; somewhat higher in the middle of the period; 100.8 in 1998), and greenhouse gases (average 10.6 tonnes per capita from 1990 to 1998; 11.0 in 1998). Per capita emissions of greenhouse gases from mobile sources are, however, high because the fishing fleet is relatively large and domestic transport is substantial in a sparsely populated country. However, carbon monoxide emissions have decreased significantly in recent years, from 231 kg per capita in 1992 to 144 kg per capita in 1998.

Air pollution is not considered a serious problem in Iceland, given the country’s sparse population, relative lack of heavy industry and distance from industrialized areas in Europe and North America. In addition, Iceland relies heavily on non-polluting energy sources: hydroelectric energy for electricity and geothermal energy for space heating. Iceland relies on clean and renewable energy sources for about two thirds of its total energy needs and about 95% of its stationary energy needs, which is very high by international standards.

Water and sanitation

In the EU, over 97% of the population has access to a supply of drinking-water at home. One hundred percent of the Icelandic population has home connection to water. Marine pollution is an important issue in Iceland, as it could become a threat to utilization and sustainability of Iceland’s marine resources, exemplified by recent decline or collapse of important fish stocks in some places. Thus, fishing quotas have been applied, and the Icelandic government is working to reduce persistent organic pollutants in the sea by such measures as improving wastewater treatment and the disposal of toxic substances and supporting international agreements to reduce marine waste discharges. The treatment of wastewater in Iceland has not been a major issue. Pollution by sewage has been minimal, because of the sparse population and the strong ocean currents that quickly disperse sewage. Nevertheless, several measures to improve the treatment of wastewater have been implemented in recent years.

Waste

Increasing quantities of waste are being generated in almost all countries, with serious implications for health from the resulting pollution of the air, water and soil. In Iceland, 560 kg of municipal waste is generated per
capita per year, whereas the average for the European Region is estimated to be 250 kg (United Nations Economic Commission for Europe, 1998; WHO Regional Office for Europe, 1998).

Solid-waste management in Iceland has been transformed in recent years. Open-pit incineration, once common in many municipalities, has almost completely ceased, and recycling of solid waste has greatly increased. The aim of the government has been to reduce by 2000 the amount of waste that goes to ultimate disposal (incineration or deposition) to 50% of the 1990 level, by generating less waste and recycling and reusing more waste. By 1996, 37% of all solid waste was being recycled. Imposing a return fee on beverage containers has resulted in a rate of return of over 80%. Recycling of some other waste, such as paper, is less advanced.

Housing

Housing conditions affect people’s health and wellbeing. The purpose of Icelandic housing legislation is to direct lending towards housing and to organize housing and building activity so as to bring about security in the provision of housing for all citizens. The aim is, moreover, to increase equality in housing in such a way that financial resources are utilized to increase people’s chances of either owning or renting a dwelling at a reasonable price.


The average age of dwellings in Iceland is one of the lowest in Europe. Only 4% of the total stock consists of houses built before 1918, and more than 40% was built since 1970. Generally speaking, dwellings in Iceland are spacious and well equipped and Icelandic housing standards rank high, measured by all customary housing indicators. As early as 1970, 99% of all dwellings had piped water, 97% central heating, 94% toilets, almost 80% bathrooms and 96% had an electric or gas stove.

In recent decades, geothermal energy has replaced imported oil for space heating, and now about 85% of all households are heated with geothermal energy, 12% by electricity and 3% oil. Oil imports (fuels and lubricants) accounted for 7% of the total value of merchandise imports in 1995 versus 19.3% in 1979. The average size of dwellings completed in the past 40 years has fluctuated considerably, but in the past 20 years new dwellings have, on the average, been considerably larger than the average for the housing stock as a whole. In 1995 the average size of dwelling units was about 130 m² and the median usable living space per person was about 50 m².

Iceland’s first home for homeless children started operating during the summer of 1993. The home was set up by the association Barnaheill (the Icelandic equivalent to the Save the Children foundation) and the Ministry of Social Affairs, and it is for children aged 6–12 years. Many homeless children in this group have unstable families and long histories of being moved between institutions and temporary homes. It is envisaged that each child will stay in the home for at least 2 years. After this period they will either return to their parents or be placed in permanent adoption with foster parents.

Nevertheless, in 1999, the United Nations Committee on Economic, Social and Cultural Rights expressed concern about the lack of family solidarity and the increasing resort to foster homes, which may give rise to problems of custody, homelessness and delinquency, the fact that 10% of the population live below the poverty line and that the problem of poverty particularly affects single parents, parents with children, farmers, students and household workers (United Nations Committee on Economic, Social and Cultural Rights, 1999).

It is difficult to obtain comprehensive data on home accidents. Data on contacts with the emergency ward of the Reykjavík City Hospital (a predecessor to the National University Hospital that treats most accidents in the Reykjavik area, and more severe
accidents in other parts of Iceland, serving about two thirds of the entire population at different levels) show, somewhat surprisingly, an equal distribution by gender. By age, the rate per 1000 of the total population is about 30 per year, while for children 0–9 years it is twice that high (about 57 per 1000 population per year), most of the accidents occurring in the living room or bedroom.

**Occupational health and safety**

Exposure to environmental hazards at the workplace is an important cause of ill health and accidents.

The Occupational Safety and Health Administration made 5374 visits to the 11 396 workplaces in the year 1998. Restrictive measures were needed in less than 3% of these workplaces because of occupational hazards to health.

The register covering occupational diseases in Iceland has never been functional. This has primarily been related to the fact that physicians have not fulfilled the obligation of reporting these diseases to the Occupational Safety and Health Administration. The reported cases have primarily been related to hearing impairment. Currently there are plans to re-establish the register of occupational diseases.

The number of people injured from work-related accidents in Iceland and reported to the occupational accidents register was 443 per 100 000 inhabitants in 1998, the highest value measured in Iceland so far. The trend is upward, most probably because of improved reporting, whereas the trend for the EU countries is downward. However, the level is very low. The EU average was 1252 in 1996.

The trend in deaths due to work-related accidents in Iceland is very unstable, due to the small population. By and large, however, the trend follows the Nordic average, which in turn is lower than the EU average.

The number of deaths caused by work-related accidents in Iceland was 0.7 per 100 000 inhabitants in 1998 (two cases). The EU average was 1.6 in 1996. Data on sea and air traffic accidents are not included in the above figures (20 cases in 1996–1998).
HEALTH CARE SYSTEM

Institutional structures and resources

The Icelandic central government is responsible for the health care sector. The administration is divided between the government and local boards. Hospital treatment requires referral from a physician in the health centres or a specialist. Primary health care is provided by health centres and to a lesser degree by private general practitioners. Health centres are responsible for general treatment and care, examinations, home nursing and preventive measures such as family planning, maternity care, child health care, school health and immunizations.

Public health expenditure as a percentage of total health expenditure was 83% in 1997. The share has only declined slightly since 1978, when it peaked at 90%. The total health care expenditure in Iceland comprises about 8% of GDP (Fig. 39). The rate of 326 physicians per 100,000 population is close to the EU average of 345 (Fig. 40). The respective rates for dentists, pharmacists and nurses are: 105 (above the EU average); 83 (at the EU average) and 865 (similar to Denmark and Sweden, but many fewer than in Norway; EU average not available).

The organization and financing structure of the health care system in Iceland is similar to the other Nordic countries: financing is based on taxes, and services have no user charges except for specialist care, day surgery, pharmaceuticals, dentistry and some services in primary health care. The normal charge for a consultation with a general practitioner or health centre is ISK 700 (ISK 100 was equivalent to US $1.33 in June 2000) during normal working hours, ISK 1100 for house calls and ISK 1600 outside normal working hours. The charge ranges from ISK 300 to ISK 600 for children under 18 years, pensioners, disabled people and long-term unemployed people. The user charges for primary health care treatment are not applied to preventive care.
Primary health care

Primary health care provided by the health centres includes primary medical care, preventive care, physiotherapy and home nursing. Iceland has 83 health centres. Fifty-six are H1 and H2 centres employing at least one (H1) or two (H2) general practitioners, nurse(s) and other staff according to regulations. Fourteen of these are located in the Reykjavík area. In addition, there are 27 small branches (H centres) employing a nurse and other staff. General practitioners (from H1 or H2 centres) come on a regular basis to see patients at H centres. There have periodically been problems in recruiting personnel for health centres in remote areas. Several measures have been implemented to improve compensation and work conditions to attempt to correct this problem.

The user charge for a consultation with a specialist is normally ISK 1400 plus 40% of the remaining costs of the consultation up to ISK 5000. Patients can, however, also visit a specialist physician without referral. Reduced charges of ISK 500 plus one third of the remaining costs apply to children under 18, pensioners, disabled people and long-term unemployed people. The charges also apply to outpatient treatment in hospitals. In addition, the maximum annual total user charges are ISK 12 000 for an adult, ISK 12 000 for all children together in one family and ISK 3000 for the people who pay reduced charges.

Private practising dentists provide most dental care. Some health centres have clinical facilities for private practising dentists.

The national health insurance scheme offers reimbursement for dental treatment for children, pensioners and disabled people. For children under 18 years, 75% of expenses are reimbursed. People who receive an old-age or disability pension get partly or fully reimbursed for dental treatment. The rest of the population receives no public insurance benefits for dental treatment (Nordic Medico-Statistical Committee, 1998). Gold, fittings and bridges are not included in the above schemes. Orthodontics is reimbursed up to ISK 100 000.

Different user charge rates for pharmaceutical products apply both to different products and different patient groups. The national health insurance scheme pays for 100% of pharmaceuticals considered life-saving and used on a regular basis (such as insulin) and 0% of others such as short-term antibiotics and tranquillizers. The remaining pharmaceuticals that are subsidized in part are in two categories. For the year 2000, the user pays the first ISK 1200 of the cost of the pharmaceuticals in the first category plus 60% of the remaining cost up to a maximum total user charge of ISK 2400, after which the national health insurance scheme pays all costs. In the second category (including 60% of all pharmaceuticals), the user pays the first ISK 1200 of the cost of the pharmaceuticals plus 80% of the remaining cost up to a maximum total user charge of ISK 3800. For pensioners and disabled people, the charges are the first ISK 400 plus 30% (first category) or 50% (second category) of the remaining costs but maximum ISK 800 (first category of pharmaceuticals) or ISK 1100 (second category). Overall, the total user charges amount to about 45% of the total pharmaceutical expenditure in 2000 (Nordic Medico-Statistical Committee, 2000).

Pharmacies are privately owned. They have grown in number in recent years because of deregulation. The Ministry of Health and Social Security has evaluated the effect of a new act on the establishment of pharmacies and on licences to sell pharmaceuticals that came into force in 1996. Lively competition between the pharmacies began, which led to lower prices for medication to consumers in the form of a discount granted from the maximum permissible price. In 1997, Statistics Iceland introduced monthly surveys of the prices of pharmaceuticals and a consumer price index for medication. The consumer price index started at 100: the maximum permissible price. Since then the consumer price index for medication has averaged 80 points (highest 82, lowest 74). The State Social Security Institute therefore submitted three proposals, approved by the Ministry of Health and Social Security, to reduce government subsidies on medication, amounting to ISK 900 million over 3 years. In addition, the wholesale and retail margin was
reduced in January 1997 (reducing public expenditure by ISK 300 million over 3 years). Thus, the costs to the State Social Security Institute for medication have been reduced by about ISK 1200 million over 3 years. In the view of the Institute and the Ministry of Health and Social Security, the main reason for this is the discounts offered to patients by pharmacies as competitive conditions were introduced.

**Hospital care**

All 23 hospitals in Iceland are publicly owned, including one highly specialized hospital and three regional hospitals with some degree of specialization. The 19 other hospitals are local hospitals, connected to a health centre also functioning as old-age and nursing homes. Until recently Reykjavík had three main hospitals. They have now been merged into one hospital under one board and one director called the National University Hospital (Landspitalinn). Patients have to be referred to a hospital by a health centre physician or a specialist. Inpatient hospital treatment is free of user charges; outpatient treatment has user charges (Nordic Medico-Statistical Committee, 1998) and is financed through a fixed budget financed from tax revenues. Nursing homes, rehabilitation centres and institutions for treating alcoholics are privately run and publicly financed.

There are some problems with waiting lists in Icelandic hospitals, especially within orthopaedic surgery, ear, nose and throat surgery and psychiatric care for children and adolescents. In other areas, such as heart surgery and urology, waiting lists are getting shorter. The long waiting lists result from financial cutbacks.

The average length of stay in hospital (Fig. 41) in Iceland does not differ from the pattern of the other Nordic countries and is converging with the lower EU average. For most disease groups, the average length of stay in Iceland is the same as in the other Nordic countries. However, for diseases of the respiratory system, the average stay is significantly longer in Iceland. For example, for bronchitis, emphysema, and other chronic obstructive pulmonary disease, the average length of stay in Iceland is 12 days versus about 8 days in the other Nordic countries (Nordic Medico-Statistical Committee, 1998). The number of hospital admissions per 100 population is the highest among the reference countries, which results from more geriatric and rehabilitation cases in the hospitals in Iceland than in the other countries (Nordic Medico-Statistical Committee, 1998). The rate of acute admissions is close to the EU average (Fig. 42) (Nordic Medico-Statistical Committee, 1998).
**Private sector**

The private health care sector in Iceland consists of private practising dentists and specialists and a few private practising general practitioners, nurses and physiotherapists. Private health care expenditure comprises about 17% of total health care expenditure: most of this is payment for pharmaceuticals, day surgery and specialist care.

Requests for home nursing care are usually referred to health centres. However, if the health centre cannot provide the service because of limited resources, independent nurse practitioners are contacted. These nurse practitioners also provide consultancy services to health centres. Since 1993, independent nurse practitioners have provided specialist (geriatric, paediatric and psychiatric care) as well as general nursing. There are individual practitioners as well as group practices. A rate per hour per type of visit has been negotiated, and payments are made through the State Social Security Institute.

In 1989, the Icelandic Nurses’ Association negotiated a contract with the State Social Security Institute to allow direct payment to selected independent nurse practitioners who had received formal post-basic training in general home nursing care.

**Health care expenditure**

International comparisons of health care expenditure are difficult because the definitions underlying health statistics as well as accounting practices vary from one country to another. The following data on health expenditure should therefore be used with caution, as the boundaries of what constitutes health care can vary substantially between countries.

As mentioned, Iceland’s total health care expenditure amounts to 8% of GDP. Inpatient care accounts for about 55% of this. Pharmaceuticals account for about 16% of total health care expenditure, and this proportion has not changed much since the 1970s.

**Health care reforms**

In the last few years, there have been cutbacks and attempts to increase cost–effectiveness in Iceland’s health care system. This has influenced the hospital sector in particular. Among the changes are the above-mentioned merger of three Reykjavík hospitals into one. In rural areas, health centres are being merged with local hospitals. In addition, the small rural hospitals in some areas have been increasing their collaboration with larger hospitals. For example, the surgeons in Akureyri go on a regular basis to smaller district hospitals and operate there. There are also attempts to decentralize health care, such as experiments to transfer the responsibility for health services to the municipalities. One recent change was the merger of all health centres and hospitals in eastern Iceland under one board with one director.

A major initiative in health policy in Iceland has been the establishment of a comprehensive database including all medical records and other information on patients, to be used both as an information system and for research purposes (Nordic Medico-Statistical Committee, 1998). In 1998 the Act on a Health Sector Database was passed (Ministry of Health and Social Security, 1998). In January 2000, a licence was issued for the creation and operation of a centralized database of non-personally identifiable health data derived from medical records, both new ones and records reaching some time back. Individuals may prevent information concerning their health from being included in the database by signing a specific form supplied by the Directorate of Health. The database licence was granted for a maximum of 12 years. The Data Protection Commission has laid down rules for the recording and handling of personal data and on the security of data in the database, besides monitoring compliance with these rules. A committee has been appointed to supervise the operation of the database. Health authorities are to have access to statistical information from the database for health reports, planning, policy-making and other purposes (Nordic Medico-Statistical Committee, 2000).
Another topic of health policy is the aim of carrying out as many health care procedures (invasive as well as noninvasive) in Iceland as possible. Previously several procedures were performed abroad. Organ transplants are still performed in Copenhagen but paid for by the State Social Security Institute.

Health promotion and disease prevention

The Health Promotion Project in Iceland started in 1994. It was a joint project of the Ministry of Health and Social Security and the Directorate of Health in Iceland but is now under the Directorate of Health. The Project is based on Iceland’s health policy, which is in accordance with the European policy and targets for health for all. Health promotion is implemented in health care centres and through several government and nongovernmental organizations. Various projects have been started in communities, schools, hospitals and workplaces, including a project on enhancing physical activity.

Disease prevention and health promotion have received increasing attention in Iceland recently, and health promotion is finding its way into most aspects of everyday life. The priorities in health promotion and disease prevention are: nonsmoking, preventing rheumatic diseases, decreasing disability, fighting osteoporosis, controlling diabetes, decreasing the rate of Chlamydia infection and making preventing HIV infection an integral part of preventing other sexually transmitted diseases.

As mentioned, a law to curb tobacco smoking was launched in 1996. Institutional treatment is available for heavy smokers to help them to quit smoking. Health professionals are also prepared to help people to quit smoking. A special programme against breast cancer was launched in 1997. A new law on preventing communicable diseases came into force in 1998 under which a specialist in communicable diseases would be employed to coordinate actions, register and disseminate information and organize preventive measures. The specialist is established at the Directorate of Health.

Policy-makers are emphasizing environmentally sound transport networks, including paths for walking and cycling. The paths are intended to have recreational use and also to improve the opportunities for playing sports.

The Icelandic Nutritional Council is running a campaign to get people to eat more fruit and vegetables. The campaign is called “five per day”. In order to promote physical activity, Sports for All has engaged in various projects and activities. The National Association for the Prevention of Heart Diseases and the Icelandic Cancer Society are cooperating in the campaign.

Community care

The health centres provide home nursing, whereas home help is part of the municipal social service system.

Most of the nursing and old-age homes function as private foundations. They are run by the municipalities, charitable organizations and others. They are partly financed by user charges, but the government provides most financing either through the national pension scheme for old-age homes or through the health insurance scheme for the nursing homes (Nordic Medico-Statistical Committee, 1998).
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GLOSSARY OF SELECTED TERMS

**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 one 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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