Country Highlights give an overview of the health and health-related situation in a given country and compare, where possible, its position in relation to 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.

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This project to develop Highlights for the 15 EU countries received financial support from the European Commission.

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AN OVERVIEW OF THE HEALTH SITUATION

Positive trends

The infant mortality rate in Denmark was the fifth lowest among 18 European reference countries\(^1\) in 1993, as it was in 1980.

Danish men still have a fairly good record as regards avoiding premature death: in 1993 they lost roughly the same number of years due to deaths before the age of 65 as in the average for the countries of the European Union (EU), although improvement over the preceding decade was very small.

After an average decline, the standardized death rate (SDR) of men aged 0–64 years for all cardiovascular diseases was just below the EU average in 1993, while the SDR for ischaemic heart disease remained slightly above this average despite a considerable decrease since 1980.

Mortality in men aged 0–64 years from all cancers and from cancer of the lung has been dropping since the early 1980s, with SDRs for both causes ending about 10% below the EU average in 1993.

Mortality from suicide showed the largest decrease among the reference countries for Danish men, and the second largest for women. The male SDRs, nevertheless, remained among the highest and the female SDRs the highest.

Negative trends

Life expectancy at birth of Danish women, stagnating since the late 1970s was the lowest among the reference countries in 1993, and life expectancy at 65 years was the third lowest.

In 1993, women also lost more years of life through death before the age of 65 than women in any other reference country.

Mortality of women aged 0–64 years from all cardiovascular diseases showed only a small decline during the 1980s. As a result, in 1993 the SDR for these causes was 25% above the EU average, and the SDR for ischaemic heart disease was over 50% higher.

While the SDR for all cancers in women aged 0–64 years remained almost unchanged since 1980, the rate for cancer of the lung increased markedly. In 1993, both SDRs were the highest among the reference countries. Moreover, Denmark still has the highest rates of female smokers among both adults and adolescents.

Female mortality from all external causes (accidents, violent acts, poisoning and suicide) declined by less than the average in the EU, and in 1993 Danish women had the highest SDR among the reference countries for these causes.

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\(^1\) The 15 countries of the European Union (EU) plus Iceland, Norway and Switzerland.
Highlights on Health provide an overview of the health of a country’s population and the main factors related to it. Based on international comparisons, they present a summary assessment of what has been achieved so far and what could be improved in the future. In order to enlarge the basis of comparison beyond the EU, data for Iceland, Norway and Switzerland have also been included where available and relevant.

A special case of comparison is when each country is given a rank order. Although useful as summary measures, ranks can be misleading and should be interpreted with caution, especially if used alone, as they are sensitive to small differences in the value of an indicator. Also, when used to give an assessment of trends (e.g. the table at the start of the Health Status section), ranks can hide quite important changes within an individual country. Therefore bar charts (to show changes over a relatively short period) or line charts (to show time trends from 1970) have also been used. Line charts present the trends for all the 15 EU countries and their averages, although only the country referred to in a specific Highlight and the EU average are identified. This makes it possible to follow the country’s evolution in relation to that of other EU countries and to recognize how it performs in relation to observable clusters and/or the main trend.

In general, the average annual or 10-year percentage changes have been estimated on the basis of linear regression. This gives a clearer indication of the underlying changes than estimates based on the more simple and straightforward percentage change between two fixed points over a period. For mortality indicators, countries with small populations (e.g. Luxembourg or Iceland) can have fluctuating values, and in these cases three-year moving averages have been used. For maternal mortality, because the number of deaths is in general small, three-year moving averages have been calculated for all countries.

Where possible (and where relevant for trend comparisons), data for Germany up to 1990 refer to the Federal Republic within its current territorial boundaries.

To make the comparisons as valid as possible, data for each indicator have as a rule been taken from one common international source (e.g. WHO, OECD, International Labour Office) or from Eurostat (the Statistical Office of the European Communities) to ensure that they have been harmonized in a reasonably consistent way. It should also be noted that other factors (such as case ascertainment, recording and classification practices and culture and language) can influence the data at times. Unless otherwise mentioned, the source of the data used in the charts and tables is the WHO Regional Office for Europe’s HFA statistical database (June 1995, version with 1992 or 1993 data). The latest data available to WHO as of August 1996 are mentioned, as appropriate, in the text.
THE COUNTRY AND ITS PEOPLE

Denmark has been a constitutional monarchy since 1849, with the present written constitution in force since 5 June 1953. Legislative power lies with the Folketing, a single-chamber parliament. Of the 179 members, 135 are elected by proportional representation, while 40 seats are allocated to those parties that do not receive enough votes to get in under the proportional system. In addition, 2 seats each are reserved for Greenland and the Faroe Islands.

Executive power is formally vested in the Queen who exercises it through her ministers. On the recommendation of the Folketing, the Queen appoints the Prime Minister who then forms a government. Judicial power is with the courts.

Greenland and the Faroe Islands have extended home rule covering all local matters.

There are two other levels of government: counties and municipalities, which have councils elected by universal suffrage and proportional representation for four-year terms, headed by an elected mayor. The 14 counties and the cities of Copenhagen and Frederikshberg are under the authority of the Ministry of Internal Affairs. The 275 municipalities are superintended by 14 local supervisory committees headed by state county prefects who are civil servants appointed by the Queen (Hunter 1995–96). Both counties and municipalities have the right to collect their own taxes which finance most of their activities.

Denmark joined the European Union (EU) in 1973.²

² These introductory paragraphs are based on material from the Statesman's Year-Book (Hunter 1994, 1995)
Demography

The population pyramid illustrates the changes in the population structure between 1970 and 1993. There has been a marked increase in the population aged 25–54 years, reflecting higher fertility in the decades following the Second World War. The population aged 65 years and over has also increased, with the largest proportionate growth in those aged 75 years and older. On the other hand, some decrease was observed among men and women aged 50–59 years, and larger decreases in those aged 0–24 years.

Denmark’s total fertility rate (1.8 in 1994) was one of the lowest among the reference countries for a very long time until recently, when it started to rise again. The population growth rate (0.36% in 1994) is still very low (Council of Europe 1995). Also as a result of this low fertility the percentage of the population aged under 15 years has declined to 17%, but no further decline is expected (Eurostat 1995a). On the other hand, due to increasing longevity, the proportion of the very old population (aged 80 years and over) has been rising steadily and eventually the population at retirement age will increase.

This aging process is more pronounced for women, although this is less marked in Denmark than in other European countries. Nevertheless, over the age of 55 years women increasingly outnumber men. In 1994, 71% of the population aged 85 and over were women.

Household composition and family structure

Denmark has been a forerunner in the second demographic transition that is still taking place in many European countries. Rising divorce rates, low marriage rates, birth rates below replacement level, and nearly half the births taking place outside marriage have resulted in marked changes as regards household size and family structure. With an average of 2.2 persons, household size in Denmark was second smallest of the EU in 1991, only higher than in Sweden.

Couples with dependent children account for only 26% of all private households. Some 18% of households with dependent children are headed by a single-parent, which indicates that despite the high proportion of births outside marriage babies are mostly born to couples forming a consensual union.

One-person households represent more than a third of all private households. As a result of the aging of the population and higher female life expectancy these households often consist of single elderly women. The health and wellbeing of elderly people living alone can be significantly affected by the financial resources available for help with housekeeping and personal hygiene. Social exclusion may also result in isolation which can threaten mental health. These issues affect the costs and organization of health care.

Demographic trends and structure

<table>
<thead>
<tr>
<th></th>
<th>1995</th>
<th></th>
<th>2015</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>DEN</td>
<td>EU</td>
<td>DEN</td>
<td>EU</td>
</tr>
<tr>
<td></td>
<td>1000s</td>
<td>%</td>
<td>1000s</td>
<td>%</td>
</tr>
<tr>
<td>Population</td>
<td>5 216</td>
<td>371 563</td>
<td>5 639</td>
<td>393 243</td>
</tr>
<tr>
<td>Urban populationf</td>
<td>85</td>
<td>78</td>
<td>85</td>
<td>78</td>
</tr>
<tr>
<td>Distribution by age:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–14 years</td>
<td>901</td>
<td>17.3</td>
<td>65 423</td>
<td>17.6</td>
</tr>
<tr>
<td>15–64 years</td>
<td>3 516</td>
<td>67.4</td>
<td>249 000</td>
<td>67.0</td>
</tr>
<tr>
<td>65+years</td>
<td>799</td>
<td>15.3</td>
<td>57 140</td>
<td>15.4</td>
</tr>
<tr>
<td>85+ years</td>
<td>88</td>
<td>1.7</td>
<td>6 015</td>
<td>1.6</td>
</tr>
<tr>
<td>Total fertility rated</td>
<td>1.8</td>
<td>1.5</td>
<td>1.8</td>
<td>1.5</td>
</tr>
<tr>
<td>Dependency ratio</td>
<td>48.3</td>
<td>49.2</td>
<td>54.9</td>
<td>54.2</td>
</tr>
</tbody>
</table>

* As per 1st January 1995 (Eurostat 1996)
* Forecast, Eurostat intermediate scenario
* 1993 (UNDP 1996)
* 1993 (Council of Europe 1995)
Migrant population and ethnic profile

On 1 January 1994 there were 189,014 foreigners in Denmark, i.e. 3.6% of the total population. The biggest foreign groups are Turks and Yugoslavs, followed by Norwegians, UK citizens, Germans and Iranians. Illegal immigration is not thought to be high. Immigrants from ethnic minorities can have specific patterns of disease and health needs because of genetic and behavioural factors and exposure to different environments in their countries of origin. Access to health care that can meet such specific needs or that is culturally and linguistically acceptable can also be difficult. Moreover, immigrants can be at a higher risk of living in relative poverty and being marginalized in their host countries, which can exacerbate their diseases. Illegal immigrants in particular can find it difficult to use health care, and follow-up to any care given can be problematic.

Education

The relevance of educational attainment to health has been well documented. In Europe, where primary education is universal, the proportion of the population with more than a lower secondary education would be the appropriate indicator for educational achievement. A recent survey on education of the workforce in the former 12 EU countries (Eurostat 1995c) shows that the Danish record is excellent: the development of higher secondary and tertiary education means that the country now has the most educated workforce in the EU. Particular emphasis has been given to vocational education and training, as well as the problems of student drop-out and failure to gain vocationally useful qualifications (OECD 1995b). However, the gender divide in favour of males still exists even though it has been greatly reduced (Eurostat 1995c).

As today’s families are relatively small and many children are growing up without siblings or (at least...
Economy

Denmark is a high-income industrialized country, one of the ten richest countries in the world in terms of GNP per head. In the early 1990s:

- agriculture and fisheries still employed 5.2% of the population, although they only represented 4% of the GDP;
- services employed 67% of the population and represented 68% of GDP;
- industry represented a lower proportion (27%) of both GDP and employment than the EU average.

Women form 46% of the civilian working population, which is the second highest percentage in the EU after Finland. Many women are employed in part-time jobs.

Unemployment stood at 10.3% in 1993, decreasing to 8.9% in 1996. In 1993, some 21% of all unemployed people were under the age of 25 years (well below the EU average), while 51% were women (Eurostat 1995a).

The comprehensive welfare state covers most of the population and the percentage of the GDP spent on social protection is one of the highest in the EU. In particular, much has been done to facilitate the lives of working mothers (e.g. extensive maternity leave, parental leave, subsidies to day care institutions).

### Basic economic data

<table>
<thead>
<tr>
<th>Indicator</th>
<th>DEN</th>
<th>EU</th>
</tr>
</thead>
<tbody>
<tr>
<td>GNP per head (US$,1992)</td>
<td>26 310</td>
<td>20 043</td>
</tr>
<tr>
<td>Real GDP per head (PPP US$,1992)</td>
<td>19 080</td>
<td>17 792</td>
</tr>
<tr>
<td>Income share of lowest 40% households (%,1980–92)</td>
<td>17.4</td>
<td>...</td>
</tr>
</tbody>
</table>
HEALTH STATUS

A description of the population’s health status shows that since 1980 Denmark has made less progress than most of the 18 European reference countries with respect to some key health indicators. This is reflected in death rates that are generally higher than the EU average and a drop in Denmark’s relative position compared to the reference countries (see chart below):

• life expectancy of the total population in 1980 was equal to the EU average, while in 1992 it was one year and a half below it;
• mortality of the population aged 0–64 years from all cardiovascular diseases (CVDs) and from ischaemic heart disease declined more among Danish men than women, whereas the decrease was only minimal (the smallest among the reference countries) with respect to cerebrovascular diseases. Therefore, the standardized death rates (SDRs) for the three groups were above the EU average in 1993;
• SDRs in people aged 0–64 years for all cancers and cancer of the lung remain the highest and second highest, respectively, among the reference countries, but this is the effect of consistently high female rates (rising for lung cancer) while the male rates declined, remaining below the EU averages;
• mortality from all external causes (mainly accidental and violent deaths) decreased only slightly, remaining at a high level in 1993, and the suicide rate was the second highest among the reference countries, despite a sizeable decrease in both sexes.

\(^3\) See footnote 1 on page 3.

Denmark relative to 18 European countries in 1980 • and latest available year (1991–1993)

<table>
<thead>
<tr>
<th>POSITION</th>
<th>BEST</th>
<th>WORST</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life expectancy at birth (years)</td>
<td>75.3</td>
<td>76.0</td>
</tr>
<tr>
<td>Male/female difference in life expectancy at birth (years)</td>
<td>74.2</td>
<td></td>
</tr>
<tr>
<td>Infant mortality rate per 1000 live births</td>
<td>52.0</td>
<td></td>
</tr>
<tr>
<td>Maternal death, all causes, per 100 000 live births</td>
<td>5.4</td>
<td></td>
</tr>
<tr>
<td>SDR(^c) cardiovascular diseases, age-group 0–64</td>
<td>4.3</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, ischaemic heart disease, age-group 0–64</td>
<td>4.1</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, cerebrovascular disease, age-group 0–64</td>
<td>4.0</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, cancer, age-group 0–64</td>
<td>3.8</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, trachea/bronchus/lung cancer, age-group 0–64</td>
<td>3.6</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, cancer of the cervix, age-group 0–64, females</td>
<td>2.3</td>
<td>3.6</td>
</tr>
<tr>
<td>SDR, cancer of the breast, age-group 0–64, females</td>
<td>2.2</td>
<td>3.6</td>
</tr>
<tr>
<td>SDR, external causes of injury and poisoning</td>
<td>0.4</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, motor vehicle traffic accidents</td>
<td>0.2</td>
<td>6.0</td>
</tr>
<tr>
<td>SDR, suicide and self inflicted injury</td>
<td>0.1</td>
<td>6.0</td>
</tr>
</tbody>
</table>

\(\text{\footnotesize Note: a) Lowest value observed among 18 European countries. b) Highest value observed among 18 European countries. c) 3 years moving averages. d) SDR: Standardized death rate.}\)
Measures relating to the health of the total population often hide important differences between segments of that population. In general women have lower death rates than men, but in Denmark the differences are not as great as in other European countries because in many cases the female death rates are some of the highest in Europe. Considerable differences can be observed between social classes. Thus, a newborn baby’s chances of survival vary markedly with its father’s social class (Ministry of Health 1994, Bakketeig et al. 1993).

When asked in the early 1990s how they perceived their health, 80% of the population answered good or very good while only 5% reported poor or very poor health, although 37% complained about stress in their daily lives. Over 50% of people aged 75 years and more considered their health as good or very good. Given the overall high mortality in Denmark compared to other countries, the population’s perception of its health seems remarkably good in both absolute and relative terms.
Life expectancy

Contrary to Denmark’s good record as regards life expectancy up to 1980, the rise since then has been very slow: men experienced the second lowest and women the lowest increases in life expectancy at birth and at 65 years among the reference countries. Since 1980 male life expectancy at birth increased by only 1.3 years while there was hardly any improvement for women. As a result, although Denmark was among the leading countries in 1970, in 1993 female life expectancy at birth was the lowest among the reference countries (over two years below the EU average), and for men it was 0.7 years below average. Life expectancy at 65 years is one of the lowest among the reference countries for both sexes.

While men lose relatively few years of life due to premature deaths (deaths occurring before the age of 65), the number of years lost by women is the highest among the reference countries. This partly explains why the gap between male and female life expectancy is the second narrowest. Among the reference countries only in Iceland is this gap smaller, reflecting high male life expectancy. In Denmark, however, the small gender differential is basically the result of a poor female performance. In summary, the stagnating life expectancy seems to have two components:

- high mortality after the age of 65 for both sexes, and
- a high number of premature deaths among women (with the most years of life lost before the age of 65 among the reference countries).

The Danish Ministry of Health convened the so-called Life Expectancy Committee (LEC) to investigate the reasons for this slow improvement in life expectancy compared to other countries. The LEC found that on average there was an absolute excess mortality of more than 5300 deaths per year (in comparison to Norway and Sweden) among people under 75 years of age. For Danish men the excess mortality was concentrated in the 25–64 year-old age group, whereas for women it was most pronounced among the age group 45–74 years (LEC 1994).

The primary sources of excess mortality were: cancer (especially lung, intestinal and breast cancer), CVDs, chronic bronchitis, accidents, suicide and, to a lesser extent, infant mortality. The LEC estimated that if mortality from these causes were reduced to the level found in other western European countries, the excess mortality in Denmark would all but disappear.

The LEC found that although life expectancy developments in Denmark were clearly influenced
by a number of interdependent factors, it was still possible to conclude that smoking, alcohol consumption and unemployment had contributed independently to the stagnating life expectancy. On the other hand, there was little evidence to suggest that the health care sector and its capacity to treat patients had a bearing on the situation. The evidence concerning the impact of other factors, such as diet, exercise, living conditions, etc., was inconclusive.
Main causes of death

Cancers are the most frequent cause of death under the age of 65 years, followed by CVDs. However, over all ages the situation is reversed and CVDs cause more deaths than cancers. An analysis of age-specific mortality patterns shows that the causes of up to 80% of all deaths in each age group can be classified in three main groups: accidental or other injuries (by far the most prominent causes until the age of 35), cancer and CVDs.

A comparison between countries of death rates related to these causes can indicate how far the observed mortality might be reduced. As almost all causes underlying those deaths are influenced by collective and individual behaviour, a wide variety of health promotion and prevention measures can be applied to bring about changes that will reduce health risks and thus diseases and premature deaths.

The charts show that the higher female premature mortality applies to women aged 35–64 years but not to those aged 15–34 years, whose overall mortality is close to the European minima. The differences between men and women, which are negligible during childhood, are most marked between 15 and 34 years; thereafter they tend to be less important.

- At 1–14 years, overall mortality for males is the third lowest in the EU, while for females it is just above the EU average. The SDRs for congenital anomalies are among the highest for both sexes. A reduction in the rate of deaths from external causes could also be possible.

- At 15–34 years, the total SDR is one of the lowest in the EU for both sexes. However, the high mortality of young men from external causes is noticeable. In 1993, 472 young men died from these causes, representing 23 342 potential years of life lost, although the situation has improved slightly during the last decade (Chenet et al. 1996).

- At 35–64 years, women have the highest age-specific mortality among the EU countries. The SDR for cancer is the highest, for CVDs and for external causes of death the third highest, and for both respiratory diseases and diseases of the nervous system (including the sensory organs) the second highest. Male mortality from all the main causes of death is, however, around the EU average.

- Over the age of 65 years, women have the highest SDRs for cancer and external causes in the EU (about 30% and 80%, respectively, above the average), while men have the fourth and third highest rates, respectively. The female SDR for respiratory diseases is third highest (over 40% above the EU average).

The analysis of age-specific mortality patterns shows that the greatest potential for reducing mortality lies in reducing the incidence of deaths from external causes among young men and of cancer among women.
These charts show age- and sex-specific death rates for the main causes of death in Denmark in 1993. These rates are compared with the lowest corresponding rate observed in any country of the EU, which can thus be considered as a reference value potentially attainable by other countries. The sum of these minima, however, has to be considered as an artificial value which is sensitive to different national coding practices or coding errors. The dashed lines show the smallest overall SDR observed in any one EU country.
Cardiovascular diseases

Overall SDRs from CVDs have been decreasing in the population aged 0-64 years since 1970 in western Europe. In Denmark:

- there has been an important decrease in the male SDR since the early 1980s and a lesser reduction for women – the latter showed the smallest improvement among the European reference countries;
- the situation as regards ischaemic heart diseases for both men and women has markedly improved;
- there has been virtually no improvement in SDRs from cerebrovascular diseases, while other European countries managed reductions of over 40%.

As in many other countries, strong social inequalities have been found: the lower the social class, the higher the risk of CVDs. This is attributed to behavioural as well as endogenous, social and environmental factors (Moller et al. 1991).
Cancer

Denmark has the highest death rate from cancer for the total population before the age of 65 years, but there are important gender differences. Male mortality is around average, while the female rate is the highest among the reference countries. More detailed analysis shows that respiratory cancers account for a large proportion of this difference. While male mortality from cancer of the lung has been falling since the early 1980s, there has been a dramatic 40% increase in the female rate: the impact of this on life expectancy has been estimated at an actual loss of a quarter of a year between 1980 and 1990 (Chenet et al. 1996). The female rate is now nearly three times higher than the EU average and seven times higher than the lowest rate observed in the reference countries.

A Danish longitudinal study has shown that the substantial social inequalities in the risk of lung
cancer may be due not only to social class differences in tobacco-smoking habits, but also directly to social class, reflecting vulnerability following earlier exposure to factors such as involuntary smoking, environmental pollution, poor housing conditions and specific nutritional patterns (Hein et al. 1992).

The incidences of cancer of the bladder, prostate and testicles are also rising even if age-standardized mortality rates remained stable or actually decreased due to medical screening and treatment. The testicular cancer incidence rate is now above 20 per 100,000 for men aged 25–35 years even though the mortality rate at those ages is below 2 per 100,000 population. The same can be said about cancer of the breast: the incidence is still rising despite stabilization of the mortality rate (for more details on cervical and breast cancer see the section on women’s health below). Malignant melanoma is also claiming more lives every year, and at very young ages (Haunstrup Clemmensen/Storm 1993).
External causes of death and injury

This category covers all deaths that are not due to somatic deficiencies such as illness but mainly to accidents, poisoning, violence and suicide. The trend within the EU for mortality from these factors, in particular from road traffic accidents, has been going down since 1970. In Denmark, the decrease in mortality rates has been small compared to the reference countries. For the total population, Denmark ranks fourth highest for mortality from external causes. Once again, this observation hides important gender differences: female mortality is the highest among the reference countries, while male mortality is closer to (if somewhat higher than) the EU average. However, there have been important improvements in terms of road traffic accidents, at least for men: their death rate has nearly halved since 1970.
While the risk of accidental or other violent death is among the highest in Denmark, the risk of dying in a road traffic accident is below the EU average (10 against 13 per 100 000 population in 1993), and the risk of being injured in such an accident is under half the EU average: 203 against 477 per 100 000. The fall in these rates since 1980, despite an increase in traffic over that period, is some evidence of progress in road safety.

**Psychosocial and mental health**

Although mental and psychosocial wellbeing are important aspects of health-related quality of life, too little information is generally available to allow a reliable description of this very important dimension of the population’s health. Suicide can be used as an indirect measure of mental disorder or lack of psychosocial wellbeing.

The suicide rate in Denmark for the total population is the second highest among the reference countries. However, it has been going down steadily since its peak in 1980 and is now below the 1970 level. While women are more likely to attempt suicide, the rate of men actually committing suicide is double that of women. However, this male/female ratio is the lowest recorded in Europe (the EU average is three males to one female). This may be partly explained by the fact that the female suicide rate is the highest in the 18 reference countries even though it is now only 61% of its 1980 level. Another possible explanation is the lethality of the methods used by Danish women. Typically, women commit suicide by poisoning; this is less true in Denmark, where women have a greater tendency to use more violent methods such as hanging and drowning while men most frequently poison themselves (Bille-Brahe/Jessen 1994). This has important implications in terms of prevention, since the theory of availability (which now seems to have been confirmed (Marzuk et al. 1992, Fischer et al. 1993) implies that the availability of means has an important impact on suicide rates. Reducing access to lethal drugs could contribute to reducing the suicide rates of both men and women.

According to an international study, which in Denmark was carried out in the county of Funen on a sample representing some 10% of the Danish population, attempted suicide also appears to be decreasing. In 1992, the person-based, age- and sex-specific rate of parasuicide was 169 per 100 000 men aged 15 and over, and 175 per 100 000 women aged 15 and over. These rates are among the highest observed even if they had fallen from 188 and 233 per 100 000, respectively, in 1989 (Bille-Brahe et al. 1994, Schmidtke et al. 1994). Suicide attempts should always be treated seriously since they are the sign of serious moral suffering, and people attempting suicide are more likely actually to commit suicide than the general population.
AIDS

The acquired immunodeficiency syndrome (AIDS) is essentially a sexually transmitted disease which can also be transmitted through blood (transfusion of infected blood or blood products, use of non-sterile injection equipment). There is a delay of six months to ten years or more between initial infection with the human immunodeficiency virus (HIV) and development of the clinical illness of AIDS. The number of notified cases of AIDS is rising all over western and northern Europe, although annual rates of new cases are far higher in the south. Denmark has a relatively high rate of HIV infection, especially when compared to the other northern European countries. The reported cumulative number of AIDS cases was 1662 by the end of March 1995. The expected annual incidence in the mid- and later 1990s is 250 cases per year (European Centre for the Epidemiological Monitoring of AIDS 1994 and 1995). The mode of contamination follows a northern European pattern, with nearly 72% of AIDS cases being the result of transmission through homo/bisexual contact, followed by people infected through heterosexual contact (14%). The proportion of people infected through intravenous drug use is relatively small (7%). As no data about the incidence of infection are available, the prevalence of HIV infection can only be estimated. According to recent
estimates (*European Centre for the Epidemiological Monitoring of AIDS 1994*), there were some 3600 HIV-positive people in Denmark by the end of 1993. HIV prevalence reflects the changing pattern of transmission of the virus: according to estimates based on back-calculation, the proportion of those contaminated through homo/bisexual contact went down to 59%, while contamination through heterosexual contact and intravenous drug use has been rising, representing, respectively, 21% and 12% of the HIV-positive people. One particularity of the Danish HIV epidemic is the high case-fatality rate (73%), the highest in the EU. Another feature is the small number of women who have developed AIDS: only 8% of the cases. However, women represent 25% of the registered HIV-positive population.

**Disability**

The prevalence of long-term illness and disability is an important criterion of a population’s health-related quality of life. However, internationally comparable data are not generally available. The proportions of Danish people aged over 16 years suffering from long-term disability are given in the following table:

These figures are similar to the figures for other EU countries (*Eurostat 1995b*), except for those relating to the higher age group, which seem very low.

Denmark has the highest percentage of people under the age of 60 years receiving an invalidity pension. However, this proportion is highly dependent on the eligibility criteria used in each country.

### Health of children and adolescents

The first year of life is one of the most critical phases as regards mortality; only after the age of 55 years do death rates return to the same level as in the neonatal (during the first 28 days after birth) and postneonatal (from 28 days to 1 year after birth) periods. Decreasing on average by almost 35% over the last 10 years, infant mortality rates have converged throughout the EU. The Danish rate has fallen by over 15% during this period to 5.4 per 1000 live births in 1993 – one of the lowest rates among the reference countries. Neonatal deaths contribute to approximately three quarters of all infant deaths, occurring most often in very low-birth-weight babies. In 1992, 4.5% of newborn babies weighed under 2500 g, one of the lowest recorded proportions in the EU.

A review of antenatal care found that women from the lowest social groups made less than the minimum of nine visits officially recommended for all pregnant women. The risk of stillbirth and neonatal death varied substantially between social groups, even after taking into account the number of antenatal visits (*Kristensen 1992*). Another recent study demonstrated that socioeconomic differences have implications for perinatal and postneonatal survival: the lower the parents’ education level, the higher the mortality risks for their offspring (*Bakketeig et al.*).
Reviews of antenatal and obstetric care offered to immigrant women have suggested that adding more trained interpreters, increasing health professionals’ knowledge of immigrant women’s cultural backgrounds, and improving continuity of care would prevent misunderstandings which could otherwise increase the risk of delayed or missed obstetrical interventions (Jeppesen 1993). Even though 85% of immigrant women live in metropolitan areas, they had fewer examinations by a midwife and made fewer total antenatal visits compared with the average number of visits made by Danish women (Knudsen et al. 1990). Thus, findings from this study suggest that immigrant women have less contact with the free antenatal care system during their pregnancies than do Danish women.

The three major causes of death in the group aged 1–14 years are accidents, neoplasms and congenital anomalies. The death rate for external causes including accidents for boys is lower than the EU average, while for girls it is close to 40% above the EU average. Mortality from congenital causes is the highest for boys among the reference countries, over 65% above the EU average. Mortality from other causes is generally lower than the EU average.

Immunization coverage of children against most childhood and other communicable diseases has been consistently high over the past 10 years, reaching 100% for diphtheria, tetanus and poliomyelitis, and about 90% for pertussis and measles in 1994. The incidence of rubella decreased by one third since 1990 to one of the lowest rates in western Europe.

Children’s oral health has also improved by the greatest degree among the reference countries over the past decade, contributing to long-term benefits for general health, particularly for the functioning of the digestive system. In 1990, the reported average number of decayed, missing or filled teeth (DMFT index) in 12-year-olds was 1.3, the second lowest value.

Adolescence is characterized by 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, the adoption of specific lifestyle patterns can lead to chronic degenerative diseases. This is also the phase when social insecurity can be compounded by, for example, unemployment.

One of the few routinely available indicators of adolescents’ sexual health and behaviour is the frequency of teenage pregnancies, which can reflect social factors as well as access to and use of contraceptive methods. The number of births to young women aged 15–19 years has been falling in
almost all the reference countries since 1980. In Denmark the fertility rate (in 1992: 9.5 per 1000) for this age group is relatively low, although it is about 50% higher than the lowest rate observed in one of the reference countries (Council of Europe 1995). Since the mid-1970s the number of live births to teenage girls has almost halved and at the same time a 20% reduction in the number of abortions for this age group has been reported. However, the legal abortion rate, including the repeat abortion rate, is relatively high for this age group at 16–24 per 1000 live births in 1992 (Segest 1994). Even though information on contraceptives is available from several sources, adolescents may not be availing themselves of it.

Teenage pregnancy rates also shed light on the availability and correct use of condoms, which must also be considered with respect to the risk of contracting sexually transmitted diseases, including HIV. In western Europe, more than two thirds of all reported cases of gonorrhoea occur among people aged under 25 years (WHO 1992). Some 30% of teenage girls seeking abortion in Denmark were infected with Chlamydia trachomatis (Sorensen et al. 1992). A recent survey of the impact of the AIDS campaign on teenage sexual behaviour found that the number of Danish adolescents reporting that they had not used any form of contraception on the occasion of their first sexual intercourse dropped from 20% to 10% between 1984 and 1989, and the prevalence of condom use increased significantly from around 40% to over 60% during the same period (Wielandt 1993).

Women’s health

After age, the second strongest correlate of mortality is gender. Women generally live longer than men and have lower mortality rates for all causes of death in the EU. However, women have higher reported rates of morbidity and utilization of health care services, and can be indirectly more affected by population and other social welfare policies. The range of female mortality levels varies greatly: women in Denmark had the highest overall death rate in the reference countries in 1993, close to 40% higher than the EU average. This is reflected in the country’s lowest female life expectancy at birth and third lowest at age 65. Specifically, death rates from the main causes of mortality for the group aged under 65 years (cancers, CVDs, cerebrovascular diseases and ischaemic heart diseases) are 25–55% higher than the EU averages.

The reduction in mortality levels over the past decade has been minimal in comparison with the reductions achieved by women in other western European countries, and there has been no reduction in cancer mortality. Cancer mortality in fact remains the highest in western Europe, 40% above the EU average. Although mortality from cervical cancer decreased significantly over the past decade, it remained 60% higher than the EU average in 1993. The situation as to breast cancer is somewhat similar: owing to improved survival rates, the death rates are going down despite increasing incidence rates. Even so, in 1992 they were still 15% higher than the EU average, resulting in almost 1400 deaths per year.

Mortality from lung cancer is the highest for women among the reference countries and has increased by over 40% since 1983. Of paramount concern is that this rate is three times the EU average and seven times the lowest observed rate. Given the current trends and the fact that the prevalence of smoking has been consistently high among Danish women, at least for the last 45 years, mortality from lung cancer (19 per 100 000) is expected to exceed mortality from breast cancer (23 per 100 000). Denmark is the only country in western Europe where such high levels of mortality
associated with tobacco usage are currently observed for women. In conjunction, women have the highest mortality rate from asthma- and emphysema-related deaths of the reference countries, five times over the EU average. Mortality from external causes, including injury and poisoning, is also the highest among the reference countries and 60% above the EU average. Although the absolute level of suicide has decreased, Denmark has had the highest female suicide rate for the past ten years – double the EU average.

A focus on preventable deaths, particularly those due to lung and breast cancer, as well as a reduction in the risk factors for chronic diseases will lead to

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**Health Status**

**Standardized death rates, cancer of the breast, females aged 0–64**

![Graph showing standardized death rates for cancer of the breast, females aged 0–64](image)

**Standardized death rates, cancer of the cervix, females aged 0–64**

![Graph showing standardized death rates for cancer of the cervix, females aged 0–64](image)

**Percentage change over most recent 10 years**

<table>
<thead>
<tr>
<th>Country</th>
<th>Percentage Change</th>
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<td>63.6%</td>
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Rank order from country with highest SDR to country with lowest SDR in 1992

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**Highlights on Health in Denmark**

- Standardized death rates
- Cancer of the breast, females aged 0–64
- Cancer of the cervix, females aged 0–64
- Percentage change over most recent 10 years
- Rank order from country with highest SDR to country with lowest SDR in 1992
improvements in women’s health. A study investigating the regional differences in breast cancer incidence and mortality before screening programmes were implemented in the 16 Danish counties found regional differences of up to 22% (Andreasen et al. 1994). A case-control study confirmed an overall increased risk of breast cancer associated with urban residence, high social status, nulliparity (no live births), and high dietary fat intake, among other variables (Ewertz 1993). The first population-based mammographic screening programme began in 1991 in Copenhagen municipality. Screening for cervical cancer also varies across the 16 counties; approximately 70% of the target population aged 23–75 years is now invited, although the percentage of women screened in the group aged over 60 years is quite low. Women living in counties where organized screening started in 1987 or earlier have a statistically significant reduced risk of cervical cancer (Lynge et al. 1992, 1994).

Danish women have adopted male behaviour patterns to a large extent since the 1960s, which is postulated as another reason for their stagnating life expectancy. At approximately 40%, the prevalence of female smoking is the highest among the reference countries and contributes significantly to lung cancer mortality (Osler 1992b) particularly as among Danish women this prevalence has been consistently high, at least for the last 45 years. In addition, 18% of households with dependent children are headed by a single parent, usually a woman; this is the fifth highest rate of female-headed households with dependent children among the reference countries (Eurostat 1995a). At over 46%, Danish women also form the second highest proportion (after Finland) of the civilian working population in comparison with women in other countries of the EU, a pattern which has persisted for several decades (Eurostat 1995a).

The level of maternal mortality has remained fairly constant over the past decade at 6.0 maternal deaths per 100 000 live births, less than the EU average. The reported frequency of abortions and unplanned pregnancies has decreased since the mid-1980s. In 1992, the ratio of abortions to 1000 live births was 278 (more specifically, 217 for women aged 20–34 years and 475 for women aged 35 years or older), one of the highest rates reported in the EU.

Some 17% of women seeking abortion in Denmark were infected with Chlamydia trachomatis, with the majority having no symptoms of the infection; without treatment, 10–60% would develop pelvic infections after an abortion (Sorensen et al. 1992). Safer sex campaigns initiated in the mid-1980s, which resulted in a reportedly higher use of condoms and lower prevalence of gonorrhoea, have been only partially successful, as the prevalence of Chlamydia, genital herpes and cervical dysplasia remained unchanged between 1984 and 1988 (Olivarius et al. 1992). A general reduction in all sexually transmitted diseases should be expected as a result of the increased use of condoms.

Other female health problems are not limited to women’s reproductive function or reproductive age. The cessation of ovarian function at menopause puts women at special risks, notably of osteoporosis due to bone loss. Osteoporosis-related morbidity, including pain, loss of mobility, periodontal disease and tooth loss, and fractures of the hip, vertebrae and wrist, is affecting increasing numbers of people, in particular women (von Wowern et al. 1994). In western Europe hip fractures are common in elderly people, affecting one in four women up to the age of 90 years, twice the rate for men (Armstrong/Wallace 1994).

Violence against women has in general received limited attention as a public health issue. Recent World Bank estimates indicate that in established market economies gender-based victimization is responsible for one out of every five healthy days of life lost to women of reproductive age (Heise 1994).
Data on the occurrence and type of such violence are scarce but a prospective study investigating accidents due to violence in Arhus showed that violence against women was most frequent in the home, with the husband as the most common perpetrator; in 30% of cases, the injuries were serious (Charles et al. 1991). Compared with five years earlier, a considerable increase in the number of registered violent accidents to women was observed, although this may be due to more frequent reporting rather than to an increase in the extent of violence against women. A recent study of women in Copenhagen aged 15–45 years who attempted suicide found that they had experienced a high degree of psychological and physical violence. In addition, many had attempted to change their relationship with a husband or boyfriend but failed, often due to financial and emotional dependence. Their feelings of helplessness contributed to their attempted suicide, which was viewed as a means of escape from the situation (Arcel et al. 1992).
Among the wide variety of factors influencing health (genetic disposition, the physical and social environment, etc.), behaviour has a major impact on each individual’s and the population’s health and wellbeing. Lifestyle patterns such as nutritional habits, lack of physical activity, and smoking or heavy drinking of alcohol, play an important role in premature mortality, mainly from CVDs and cancers. These diseases alone are responsible for the largest share of deaths under the age of 65 years. Unhealthy behaviour also contributes to a wide range of chronic illnesses and thus affects the quality of life in general, especially in older age. Lifestyle, however, is also influenced by collective behavioural patterns common to a person’s social group and by more general socioeconomic conditions. In most European countries, improvements in lifestyles have largely been confined to the more socially and economically privileged middle classes who are better placed to live healthy lives (WHO 1993).

Somatic risk factors

The extent to which lifestyle is likely to influence morbidity and mortality in a population can be approximated by the prevalence of well known medical risk factors such as raised blood pressure, high cholesterol level or overweight. These are some of the most common determinants associated with CVDs.

The prevalence of hypertension in a representative sample of the Danish population aged 16–59 years was assessed to be 4.4% (Norgaard et al. 1990). In the Copenhagen City Heart Study, between 1976 and 1983 a significant increase in systolic and diastolic blood pressure was recorded among both men and women above 40 years of age who were not using antihypertensive medication. In a recent population sample survey of adults aged 30–60 years, differences in blood pressure apart from age and sex were positively associated with body mass index (BMI) and high alcohol consumption (and not other risk factors). The findings suggest that high blood pressure can cause CVDs independently of other factors (Kirchhoff et al. 1994).

Overweight and obesity are commonly assessed with the BMI, calculated as weight (kg) divided by height (m)². Defining obesity as a BMI of 30 or more, roughly 6% of men and women over the age of 18 in Denmark are obese. A recent study of body fat in the population aged 35–65 years found that the proportion of body fat increased by 36% in women and 30% in men during this age interval. In addition, waist to hip ratio increments in this age group took place before the age of 55 years in men but after 55 years in women. This difference may help to explain gender differences in morbidity and mortality with increased age (Heitmann 1991).
Physical activity

As physical activity in daily life and at work has declined, exercise in leisure time has become more important in order to maintain an activity level beneficial to health. Over the past decade, the proportion of people taking part in physical activity in Denmark has increased by 15%, both as regards sports activities and moderate exercise involving walking or cycling to work, a common practice for many Danes. In 1991, the exercise profile of individuals over the age of 16 indicated that 29% of men and 14% of women participated in heavy physical exercise or athletic training, and an additional 59% of men and 72% of women engaged in moderate physical exercise every week. As can be expected, the intensity and frequency of physical activity declines with age, yet in 1991 67% of men and 55% of women over the age of 67 years continued to participate in moderate physical activity (Ministry of Health 1995). However, of the 70–80% of the population taking part in leisure sports, the most active physically are those with the best education and who live in their own houses (Osler et al. 1991).

Nutrition

Nutritional habits are deeply rooted in cultural traditions and agricultural production. Nevertheless, in recent decades changes have occurred as food markets have opened up, transport has become more rapid and new and efficient techniques of food conservation have been developed. As a result the highly different nutrition patterns of northern and southern Europe are tending to converge, with Denmark generally following the northern trends. Contrary to the other northern countries, however, the intake of vegetables and fruits remains relatively low and has actually declined slightly over the past decade.

Specifically, between 1980 and 1990 the average amount of energy available daily from fats was the second highest among the reference countries, representing 43% of total energy. Energy available from protein has also increased slightly, while from carbohydrates it has decreased (Ministry of Health 1994). During the same period, the daily intake of milk products and fat decreased by 8% and 11%, respectively, while the intake of meat and cereals increased by 22% and 6%, respectively (Ministry of Health 1994). An investigation of dietary awareness in Danish adults has shown that the dietary recommendations of recent years, which consist of avoiding fat and including coarse bread, vegetables and fruits, are not fully understood.
and fruits in the diet, are more likely to be followed by women aged 25–44 years, people with high net incomes, or inhabitants of the suburbs of Copenhagen or of the three largest provincial towns (Osler et al. 1990).

**Alcohol consumption**

In the EU as a whole, the consumption of alcoholic beverages has steadily declined since 1980 following an increase in the 1970s, but in Denmark it has moderately increased. The changes mostly reflect a tendency towards “homogenization” of drinking patterns and diversification of beverages throughout Europe. Specifically, between 1980 and 1992, a slight drop in beer consumption and a moderate drop in the consumption of spirits was offset by an almost 100% increase in wine consumption per person (Produktschap voor Gedistilleerde Dranken 1994). In 1985, some 3% of men and 7% of women reported that they did not drink alcohol. A longitudinal study between 1976 and 1987 investigating alcohol consumption in Copenhagen noted an overall downward tendency in the frequency of consumption among men but the opposite in women. The change towards a greater wine intake in relative and absolute terms is most noticeable in women. In 1992, the total consumption of alcoholic beverages measured by pure alcohol intake was 9.8 litres per person, a slight increase since 1980, with spirits, wine and beer accounting for 12%, 30% and 58% of total consumption, respectively (Ministry of Health 1994).

Although Denmark has a slightly lower death rate from cirrhosis and other liver diseases compared to the EU average, the rate has increased over the past decade by 31% for women and 18% for men. In 1991, 1103 people died (some 2% of all deaths) from cirrhosis of the liver, alcoholism, alcohol psychosis, alcohol poisoning, or pancreatitis, and an additional 1553 people (2.5% of all deaths) had such an alcohol-related illness as second or third diagnosis (LEC 1994).

**Tobacco consumption**

Nationwide population surveys of health and morbidity note that between 1953 and 1991 the prevalence of men smoking fell from 78% to 47% but among women it remained constant at around 40% (Osler 1992a). More recent trends based on a Eurobarometer survey (BASP 1994) show that the overall prevalence of smoking decreased from 57% in 1970 to 43% in 1993, although this reflects a reduction in the number of pipe- and cigar-smokers rather than cigarette-smokers. Denmark is the only
country in the EU where there is almost no difference in smoking prevalence according to gender, mainly because it has the highest rate of women smoking in the EU, 48% in 1994 and the lowest proportion of nonsmokers (54%) in the EU (BASP 1994).

Between 1953 and 1991 the proportion of heavy smokers (15 g of tobacco or more daily) remained constant at around 25% in men but increased from 3% to 14% in women (Osler 1992a). Analysis of the type of tobacco products consumed shows that the
per head consumption of manufactured cigarettes decreased between 1985 and 1992 by nearly 20% to 1574 units, although between 1990 and 1991 sales of fine cut tobacco (<1.5mm) increased almost fivefold and sales of other tobacco products, including cigarettes, remained constant (BASP 1994). The results of two cross-sectional studies in 1982 and 1992 show that smoking prevalence declined predominantly among people with a vocational education. Existing social differences widened and the narrowing of the gender differential was once again confirmed. (Osler/Kirchhoff 1995).

The number of tobacco-related deaths was estimated in different ways and varied for 1990 between, on the one hand, 4400 for Danish women and 7500 for men (BASP 1994) and on the other hand, 4361 deaths in women (15% of all deaths in women aged over 35 years) and 8935 deaths in men (30% of all deaths in men aged over 35 years) (LEC 1994). The mortality rate due to lung cancer and other tobacco-related cancers is the second highest among the reference countries; over the past decade, it has dropped by 14% for men but increased by 42% for women.

Despite the well documented link between smoking and cancer of the respiratory organs, and the recommendations of national and international health agencies such as WHO, there has been no general ban on tobacco advertising, which aggressively targets women.

Between the ages of 14 and 15 years the prevalence of daily smoking increases only slightly for boys, to 9%, whereas it more than triples for girls, reaching 17%, the highest rate found in the EU (Van Reek/Adriaanse 1995). Another survey, the WHO study on health behaviour in schoolchildren, found that among 15-year-olds, 24% of girls compared to 14% of boys smoked cigarettes once a week or more in 1993/1994 (King et al. 1996). In 1991, more people had started smoking before the age of 15 than in the mid-1950s. Therefore, health promotion specialists propose that future initiatives to reduce smoking should focus on the psychosocial factors related to the early start of smoking (Osler 1992a).

Illicit drug use

Between 1990 and 1993, some 10,000–20,000 individuals were believed to be addicted to illicit drugs (Council of Europe 1994). In 1991, 917 people were admitted for the first time for treatment related to drug abuse, nearly a third of them men. Intravenous drug users admitted for treatment are on average 31–32 years of age, while non-intravenous drug users are on average 25 years of age at the time of admission (Ministry of Health 1994). By 1992, some 208 deaths related to the use of illicit drugs had been reported (162 men and 46 women), an 80% increase since 1990. The death rate appears to be stable in Copenhagen but has increased for the remainder of the country in recent years (Council of Europe 1994). According to a general population survey carried out in 1990, some 22% of the population had ever used cannabis (5% of them within the preceding year) and some 3% had ever used amphetamines and 1% cocaine (less than 1% using either drug within the previous year) (Ministry of Health 1994). A national representative survey of 9th grade school classes in 1990 indicated that 16% had used cannabis (7% were still doing so), 1% had used amphetamines, 1% had used cocaine, and there had been some use of heroin (Ministry of Health 1994). However, local studies have estimated an increase in the smoking of heroin, particularly by young people (Council of Europe 1994).
ENVIRONMENT AND HEALTH

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

Air quality

The Danish Environmental Protection Act is designed to regulate air pollution from industry, energy production and transportation. Measures taken to reduce the sulfur content in fuel and lead content in petrol have led to a reduction in air pollution from sulfur dioxide and soot as well as from lead (in 1993 unleaded petrol accounted for 75–80% of all sales) in urban areas since the 1970s, despite an increase in energy consumption (Ministry of Health 1994). In 1990, sulfur dioxide emission per head of the population was the same as the EU average. On the other hand, per head carbon dioxide emissions from combustion of fossil fuels has only very slightly decreased since 1980 and in 1991 was second highest among the European reference countries (36% above the EU average), while emissions of nitrogen oxides markedly increased during the 1980s to reach the fourth highest level among the reference countries (57% above the EU average) in 1990 (Eurostat 1995d). High levels of secondary pollutants such as ozone or nitric acids will thus continue to be generated until more comprehensive measures have an effect.

Water and sanitation

Over 99% of drinking-water comes from public waterworks using groundwater. Nitrate concentrations in drinking-water have been considerably reduced since the mid-1980s, and in 1993 only 10% of total water supply exceeded the limit of 25 mg nitrate per litre, including 3% with a content of 50 mg or more (Danmarks Statistisk 1995: 27).

Measures taken to preserve the quality of surface and
groundwater and protect the marine environment include the control of waste deposits and industrial wastewater as well as use of fertilizers and pesticides in agricultural production. Some 98% of the population is connected to public sewerage networks (Eurostat 1994). Monitoring of recreational water sites shows that water quality improved during the 1980s. In 1992, recreational waters met the national standards for bathing water quality at 93% of the almost 1300 measurement points (Ministry of Health 1994).

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. The amount of municipal waste generated in Denmark during the 1980s increased by roughly 20%, in line with the EU average increase, to 475 kg per head in 1990, which is 36% above the EU average. Action plans aim to stabilize waste production and to increase the recycling rate to 50% by the year 2000. In 1985 both the recycling and incineration rates were just over 20% and the remaining 57% of waste was landfilled (Danmarks Statistik 1995: 29). Some 35% of paper and cardboard is recovered against 50% in other EU countries, whereas the proportion of glass recovered 60% in 1990 is one of the highest (Eurostat 1995d).

Housing

Housing conditions generally have an impact on people’s health and wellbeing but the health situation of homeless people is particularly critical: they often suffer from health problems typically associated with poverty (malnutrition, infectious diseases, psychosocial stress caused by solitude and insecurity, etc.) and they may be more vulnerable to health problems than the rest of the population owing to traumatic events or personality traits which may play a part in their becoming homeless.

Based on a one-day prevalence of almost 3000 homeless people counted on 15 January 1992, the total number of homeless people in any one day of the year was estimated to be 4000 – less than 1 per 1000 population (Avramov 1995: 92). In 1991 some 12.5% of the total population were estimated to be living in dwellings which did not meet the minimum national criteria of good quality (own kitchen, cold and hot water supplies, own toilet, bath and central heating) (Avramov 1995: 113). According to another source, in 1986 the minimum standards for a modern residence were not met in 7% of Danish dwellings (LEC 1994).

Increasing urbanization and road and air traffic has...
brought to the fore the issue of noise and its effects on health. However, a comparative study has revealed that in Denmark traffic noise was much less of a problem in 1991 than in the other EU countries: 16% of the urban population were seriously disturbed and an additional 10% found the noise level at home unbearable.

Safety at home and during leisure-time activities, sports and so on is not well documented. No data are available about the incidence of such accidents and their health consequences, but a study in the EU countries which compared cases treated by health care services between 1990 and 1992 showed that in Denmark the number of sports accidents in men up to 45 years of age and in women up to 25 years are much higher than the EU average (EHLASS 1995). This figure may well reflect both the comparatively high proportion of Danish people who take physical exercise and the potentially adverse effects of health-enhancing behaviour. A simultaneous survey of a representative sample of the Danish population aged 16 years and over found that 8% had suffered from sequelae following an injury or accident in the 12 months preceding the interview, and 4% had had to be treated by a physician or other health professional because of an accident in connection with physical exercise (Ministry of Health 1994).

Occupational health and safety

Exposure to health risks at the workplace is still an important cause of ill health and death. However, information about exposure in terms of type, frequency, the intensity of hazardous conditions and the number of workplaces or people affected is scarce. The incidence rates of recognized occupational diseases attracting disablement benefit awards provide an estimate of risk levels, although such figures are generally lower than the actual number of cases. Usually only a small proportion of reported cases are recognized, although delays between reporting and recognition may be considerable.

The number of occupational diseases increased during the 1980s, probably largely due to improved reporting, and then decreased again. In 1991, some 8000 cases of male and 6250 of female occupational diseases were reported, a rate of 5.4 in 1000 employed people (Ministry of Health 1994). Diseases of the musculoskeletal system, hearing problems, and diseases of the respiratory system and the skin are most commonly reported. Some 11% of the active population interviewed in 1990/1991 experienced physical strain in their occupational environments, 14% found their work situation involved mental strain and another 14% found it involved both physical and mental strain. Some 10% reported that they had no influence on the organization of daily work and 6% found their work monotonous (Ministry of Health 1994).

The risk of damage to health through an accident at work is considerably higher than the risk of occupational illness, although the occurrence of occupational accidents is comparatively low in Denmark. In 1993, 853 people per 100,000 population were injured in a work-related accident just half the average rate for the EU, and 61 people 1.2 per 100,000 population against the EU average of 2.2 were killed in such an accident.
HEALTH SYSTEM

Institutional structures and resources

A national health service covering the whole resident population has been operating since 1973.

Health care services have been decentralized:

- to the 16 counties, including the cities of Copenhagen and Frederiksberg, for the planning and running of hospital and primary care services;
- to the 275 municipalities for the planning and running of social care systems and certain parts of the local health services such as home nurses, infant health visitors, and school health and dental services.

The Ministry of Health is the principal authority and is responsible for health legislation. As a part of the Ministry the National Board of Health has an administrative, advisory and supervisory role (HOPE 1993).

The financing of the health services reflects this strong decentralization. The public health insurance scheme is financed through general and local taxes. The costs are split between 5% received from central government and 95% from county and municipal authorities.

The ratios of doctors and dentists to the population are average, while the number of nurses per 1000 population is above average.

Primary health care

The primary health care system encompasses several free preventive health services.

- Pregnant women can get antenatal care from their family doctors and from midwives at local midwifery centres.
- The municipal authorities are notified of all births and offer mothers and children health care from public health nurses.
- All children aged from five weeks to five years are entitled to preventive health examinations by a doctor.
- All children are offered free immunization against diphtheria, poliomyelitis, whooping cough, measles, mumps and rubella, and haemophilus influenza type b.
- Municipal health services are responsible for home health care for infants and young children and for school health services, including medical examinations, as well as special services for children with special needs.
- Dental examinations and treatment are free for all children aged up to 18 years (adult patients have to pay part of their fees).

In contrast to other Nordic and EU countries, Denmark has no nationwide screening programmes for cervical or breast cancer; the counties are responsible for these activities.

Occupational health services are organized by companies through committees consisting of employers and employees (NOMESKO 1995).

<table>
<thead>
<tr>
<th>Health personnel per 1000 population</th>
<th>DEN</th>
<th>EU</th>
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</thead>
<tbody>
<tr>
<td>1991-92 % of 1980</td>
<td></td>
<td></td>
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<tr>
<td>Physicians</td>
<td>2.8</td>
<td>127</td>
</tr>
<tr>
<td>Dentists</td>
<td>0.5</td>
<td>100</td>
</tr>
<tr>
<td>Nurses</td>
<td>6.7</td>
<td>131</td>
</tr>
<tr>
<td>1991–93* % of 1980</td>
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</tr>
<tr>
<td>Physicians</td>
<td>2.7</td>
<td>143</td>
</tr>
<tr>
<td>Dentists</td>
<td>0.6</td>
<td>125</td>
</tr>
<tr>
<td>Nurses</td>
<td>6.0</td>
<td>129</td>
</tr>
</tbody>
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* Or latest available year
Source: OECD 1995a
General practitioners
In 1992 there were 3661 general practitioners (GPs) or 0.7 per 1000 population (OECD 1995a). Their distribution across the country is thought to be fairly equitable.

Legal residents in Denmark must choose between two health plans. Some 98% of the population is estimated to belong to Group 1, which provides free physician and hospital care (i.e. no deductible charges or co-insurance) but limits access to care by assigning each person to a primary care GP who acts as a gatekeeper to the rest of the system. Patients may change their GPs once in six months. Group 1 patients may see an ear, nose and throat specialist or an ophthalmologist without referral, but they must be referred by the GP for hospital admission and all other specialist treatment. A Group 1 patient seeking other specialist care without a referral will be liable for the entire fee. The remaining 2% of the population belongs to Group 2, which allows patients free choice of provider but requires co-payments for all medical services except hospital care. Group 2 patients do not need a referral for specialist care (Stæhr Johansen 1995).

Primary dental care
Dental care is free for children aged below 18 years. Adults have to pay a fee, although the national health insurance scheme subsidizes dental treatment and covers 26% of the dentist’s fee. Most dental care is provided by private dentists (NOMESKO 1995).

Primary health care nurses
Primary health care nurses work in areas such as maternal and child health and school health. Home care is provided by trained home nurses who visit chronically ill and physically handicapped patients living at home, carry out procedures prescribed by the responsible physician and provide general nursing.

Community pharmacy
Pharmacies are independent and have a monopoly on the sale of drugs. The retail price is fixed by the Ministry of Health and is uniform all over the country. Pharmacists negotiate the wholesale price with the manufacturers. There is no numerus clausus for pharmacy, but pharmacists must receive a certificate from the government (Berthod-Wurmser 1994).

There are four categories of medicine for financial purposes: those that are not reimbursed by the national health insurance scheme, those that are reimbursed at 50%, those that are reimbursed at 75%, and (since 1 January 1990) insulin preparations, which are reimbursed at 100%. Since 1993 reimbursement of medicines has been limited to a fixed amount, regardless of their price, when cheaper alternatives are available (NOMESKO 1995).

Hospital care
The Hospital Act requires each county to provide hospital services that meet the public’s needs. Most hospitals are owned by the counties, and the county councils are responsible for organizing services. Since 1993, people have been free to choose their hospital regardless of where they live.

There is no cost-sharing and expenditure on the hospital services is financed directly from taxes, partly through government grants and partly through taxes levied by the county authorities. Direct expenditure is divided between approximately 8% by the government and 92% by the county authorities and Copenhagen and Frederiksberg municipalities (NOMESKO 1995). Hospitals are given global budgets.

Besides the specialized hospitals for psychiatry, long-term care is offered outside hospital in nursing homes or residential homes run by the municipalities. These are usually considered part of the social rather than the health care services.

Private sector
There are only 100 hospital beds in the private sector. Limited private insurance schemes cover part payment, together with the patient, of medical and dental fees. Some 30% of the population take out such complementary insurance.

Health expenditure
International comparisons of health care indicators are extremely difficult because the definitions underlying health statistics as well as accounting practices vary from one country to another. For example, Denmark does not count the care of elderly people in nursing homes as health expenditure, which could partly explain why, according to OECD, its
A recent comprehensive study (Schneider et al. 1995) tried to improve comparability by presenting a set of indicators based on adjusted national data. According to this study, in 1992 Denmark spent 8% of its GDP on health expenditure (6% according to OECD). This percentage fell slightly during the period 1980–1992 (in contrast to all other EU countries except Ireland), and as a result the share of GDP spent on health in Denmark, in 1992, was one of the lowest among the reference countries.

Source: Schneider et al. 1995

Data for Finland not available
Denmark dropped below the EU average. Although Denmark still spends the largest share of its GDP on hospital care, it is (together with Ireland and Sweden) one of the few countries to have reduced this expenditure since 1980. Also in contrast to most other EU countries, the amounts spent on ambulatory medical care and medication have hardly increased in Denmark since 1980, and in 1992 were the lowest. The only area where spending is the highest in the EU is on nursing care (together with Sweden and the United Kingdom).

A breakdown of total health expenditure by services and goods provided underlines the relatively large shares of the health budget spent on hospital and nursing care, in contrast to the relatively small proportions spent on medication and ambulatory medical care (some 8% for each) and dental care (only 5% of the total health bill).

**Recent developments and future trends**

**Health care reforms**
On 1 January 1995 the hospitals in the Copenhagen and Frederiksberg municipalities, including the state-owned Rigshospital, were merged into the Joint Metropolitan Hospital Service. This Service is governed by a board of 15 members appointed by the two municipalities and the state. The purpose of the merger was to bring together specialist services, to establish selective functions and to reduce the number of departments giving 24-hour coverage. In addition, the merger aimed to ensure a wider catchment area for the specialist departments and to strengthen clinical research and teaching at the University of Copenhagen. The Service has the same responsibilities as those formerly discharged by the hospitals separately.

A hospital commission is currently investigating potential alternatives for restructuring the hospital sector nationwide.

Emphasis has been placed on primary care and on outpatient care, and the information system has been improved (particularly as regards outpatients) with the aim of enhancing the use of resources. Departments have been given financial responsibility, in order to make health professionals more aware of economic considerations.

**Health promotion**
At national level, health promotion and disease prevention are dealt with by the Intersectoral Council for Health Promotion, the Danish Council on Smoking and Health, and the Council on Alcohol.

The Intersectoral Council for Health Promotion is responsible for preparing proposals for health promotion policies and programmes. Its most recent report (*ICHP 1996*) included the following suggestions for action:

- establishment of a Master of Public Health (MPH) degree
prevention of severe birth defects
• prevention of firework accidents
• prevention of eating disorders among young women
• prevention of drug abuse/addiction.

The first suggestion establishment of an MPH degree has been accepted and is currently being implemented at three universities.

The primary goal of the Danish Council on Smoking and Health is to reduce the high level of smoking in Denmark. It is working towards this through a variety of activities, including antismoking campaigns in public schools, the development of smoking cessation courses, etc.

The Council on Alcohol is headed by the Minister of Health and consists of representatives of all the political parties in Parliament, as well as the various alcohol abuse prevention organizations. Its role is to identify particular activities related to the prevention of alcohol abuse. Over the last decade significant progress has been made in limiting alcohol consumption at work.

In addition to these activities, specific health promotion programmes have recently been developed to prevent musculoskeletal diseases, asthma and allergies which have been increasing rapidly and now account for a significant proportion of morbidity in Denmark.

Finally, all the existing individual health promotion programmes for children and young people were recently replaced by a single municipality-based health programme for children and young people. This programme has incorporated the previous public health nursing programmes for infants, the well child health examinations for preschool children, and the school health programmes into one programme which is intended to provide continuity for children of all ages and across institutions. The new programme is also coordinating services for children with special needs, who often receive services from a variety of public programmes.
REFERENCES


Council of Europe. Papers from the Cooperation Group to Combat Drug Abuse and Illicit Trafficking in Drugs (Pompidou Group) (1994), including:


REFERENCES


EUROSTAT. Eurostat yearbook '95. Luxembourg, Office for Official Publications of the European Communities, 1995d.


HOPE. Hospital services in the E.C. Leuven, Hospital Committee of the European Community, 1993.


REFERENCES


MINISTRY OF HEALTH. Denmark’s report to the WHO Regional Office for Europe on the 1994 Health for All monitoring exercise (unpublished).


REFERENCES


Cardiovascular diseases (CVDs): all diseases of the circulatory system, including coronary heart disease and cerebrovascular diseases.

Dependency ratio: The ratio of the population defined as dependent (those under 15 and those over 64 years of life) to the working-age population, aged 15-64 years.

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

Infant mortality rate (IMR): 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 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.

Loss of life expectancy due to deaths before the age of 65 years: describes the effect of premature death on life expectancy, and it measures the potential number of years that could be added to life expectancy at birth if all deaths before the age of 65 were eliminated.

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$). The EU unit of PPP is PPS (purchasing power standard).

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 (TFR): 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 accord with prevailing age-specific birth rates.