

# The health status of the European Union

Narrowing the health gap



Health and consumer protection



EUROPEAN COMMISSION



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# Preamble

*The European Community is increasingly concerned with ensuring the physical wellbeing of its citizens by reinforcing its activities in the field of public health. One of the main pillars for Community action is to review and present accurate data on health status to a wider audience, achieved through the publication of Community Health Status Reports.*

*The aim of these reports is to improve public knowledge and understanding of major health problems in the Community in order to support the appropriate measures at Community, Member State or individual levels.*

*This is the fourth such report. The first report provided an overview of health status in the European Community in 1994. The second focused on women's health issues and the third one on the health status of young people. If the two first documents were published as Commission reports, and the third as a Commission services report, the present report is published as the output of a technical expert group composed of representatives of the Member States and financed by the Community health monitoring programme.*

*The report is based on the reliable data available in the Member States, which are not always as complete as one might wish. Nevertheless, they have permitted the group to provide an interesting overview of key features of the health status of the population and of health determinants. Citizens of the Community have never lived so long, and life expectancy is still increasing. However, there is still a significant level of preventable morbidity and mortality before the age of 65 years. This is associated with accidents and injuries, suicide and mental disorders, some types of cancers, circulatory diseases, infections, and respiratory illnesses. Many of these conditions are amenable to effective prevention, promotion and therapeutic interventions that delay either the age of onset or, as a result of better survival, push forward the age of demise.*

*Current trends seem favourable in the majority of Member States for most risk factors. Nevertheless, at a time of great wealth, there is still room to achieve gains in education, employment, per capita income and equity. Social exclusion has been acknowledged as an important issue in the Community and the fight against poverty also results in gains in health status. Recognising the importance of diet and nutrition as well as physical activity for health status should lead to adoption of appropriate strategies at Community, national or local level.*

*In addition, the report suggests some areas in which actions could be undertaken at the Community level to improve the situation. Health policy could aim to prevent not only premature mortality but also to improve conditions for the elderly and increase their quality of life, for example. However, these improvements which would result in health gains cannot be achieved without a common approach in the field of public health. This means that health impact of other policies needs attention in order to plan and implement a comprehensive health policy within the Union.*

DAVID BYRNE



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# Introduction

Since the XVIIth century health statistics have been used to tackle public health problems. From William Petty (1623–87) to Louis René Villerme (1782–1863), William Farr (1807–83) or the Swedish *Sundhetskommisionen* 'social physics' mapped out disease patterns of society and endeavoured to identify their determinants, in a quest for the means to improve them. Public health report writing emerged during this period. This report continues these European traditions.

The 1956 Treaty of Rome, reinforced by successive treaties, provides the Commission with a legal framework for its actions in the health field. The 1997 Treaty of Amsterdam focuses on health protection and disease prevention and identifies the need for further actions to 'achieve improvements in public health', as well as activities to 'prevent diseases and health problems' and the 'reduction of risks to human health'. The November 1993 'Framework for Action in the Field of Public Health' requires the Commission to publish regular reports on the state of health in the European Union (EU). In 1996, the first report was based on work done by the World Health Organization (WHO). This current report is an update and extension of the previous report <sup>(1)</sup>.

The overall aim is to identify the common problems and challenges associated with the health status of the EU Member States (MS). In Chapter 1 we describe the current health status, focusing particularly on the patterns and trends of morbidity, disablement and premature mortality. A number of determinants of the observed health status recur and are addressed in Chapter 2. They imply the need for a broad-range health policy that goes beyond the boundaries of traditional health policy. Chapter 3 points out a number of opportunities for joint action by all MS in order to reduce the problems identified and to narrow the health inequalities observed. Our focus is on the tools (laws, policies, standards, funds, programmes, regulations, reports, communications, fiscal action and public opinion) that the EU has at its disposal to plan and implement initiatives that will further improve the health of the populations of its MS.

## METHODS

This report was steered by nominated representatives from all 15 EU MS, the WHO and the Commission itself. It benefited from a large input by members of Commission-supported projects. Special material for the report was produced by a number of experts. Central coordination and authorship of a significant proportion of the report remained with the coordinators in Portugal and their support team. The overall text was reviewed, in part or in its totality, by a number of expert collaborators.

This report uses information from a wide range of sources. The principal ones were international health data collecting organisations — the Statistical Office (Eurostat) of the European Communities, the Organisation for Economic Cooperation and Development (OECD) and the European Regional Office of the WHO. Except where indicated, Eurostat is the source for data on population and demographics. The WHO is the source for morbidity and mortality and the OECD for socio-economic and healthcare provision data. Limitations of data quality and comparability will be highlighted in the text when relevant. Current data refer to 1997 and the historical reference years are 1970 and 1992 (the reference years for the first health status report).

<sup>(1)</sup> More targeted reports, covering specific population groups and health problems have, in the meantime, been commissioned and carried out, namely on youth, on women and on migrants.

Unless stated otherwise, a reference to mortality means age-standardised death rates. Trends are studied from 1970 to 1997. Trends and current (1997) values are compared between countries and with the EU average. In order to identify the national trends in relation to the EU average, we calculate some indicators for the ratio of the national value by the EU average for the same time period. Clusters of countries refer to groupings of countries as per cluster analysis using the hierarchical method.

# Chapter 1

## *Health status*

Health status is a broad concept. It goes beyond the mere presence or absence of disease. However, currently available data do not allow for the systematic measurement of health status in a way that does justice to the concept, by including measures of quality of life. Therefore, this chapter looks at life expectancy, morbidity, premature mortality and disablement. These indicate that EU citizens are living longer than ever. The extent to which these gains in life represent gains in quality of life is variable. Nevertheless, significant preventable morbidity and mortality before 65 years of age still occurs. Old problems, mostly of an infectious nature, are persisting or re-emerging together with new degenerative disorders and social pathology. Many of these problems result in death or in survival with permanent disablement. This chapter starts with life expectancy and then moves on to describe current patterns of the major causes of mortality and morbidity.

**Table 1** — Country clusters for life expectancy at different ages (1997)

|                                     | Highest life expectancy clusters                 |                                    | Intermediate life expectancy clusters   |  | Lowest life expectancy clusters                          |   |
|-------------------------------------|--|------------------------------------|---|--|--|---|
|                                     | Males  | Females                            | Males   | Females  | Males  | Females   |
| At birth,<br>1 year and<br>15 years | Sweden   | Spain,<br>France, Italy,<br>Sweden | Germany,<br>Spain,<br>France,<br>Greece, Italy,<br>Luxembourg,<br>Netherlands,<br>Austria<br>United Kingdom | Belgium,<br>Germany,<br>Greece,<br>Luxembourg,<br>Netherlands,<br>Austria,<br>Finland,<br>United Kingdom                             | Belgium,<br>Denmark,<br>Ireland,<br>Portugal,<br>Finland | Denmark,<br>Ireland,<br>Portugal                    |
| At 45<br>years                      | Spain,<br>France,<br>Greece,<br>Italy,<br>Sweden | France                             | Belgium,<br>Germany,<br>Luxembourg,<br>Netherlands,<br>Austria,<br>United Kingdom                           | Belgium,<br>Greece,<br>Spain,<br>Italy,<br>Luxembourg,<br>Netherlands,<br>Finland, Sweden  | Denmark,<br>Ireland,<br>Portugal,<br>Finland             | Denmark,<br>Ireland,<br>Portugal,<br>United Kingdom |
| At 65 years                         | France,<br>Greece,<br>Italy,<br>Spain,<br>Sweden | France                             | Belgium,<br>Denmark,<br>Germany,<br>Luxembourg,<br>Austria,<br>Portugal,<br>Finland,<br>United Kingdom      | Belgium,<br>Germany,<br>Greece,<br>Spain,<br>Italy,<br>Luxembourg,<br>Netherlands,<br>Austria, Finland,<br>Sweden,<br>United Kingdom | Ireland  | Denmark,<br>Ireland,<br>Portugal                    |

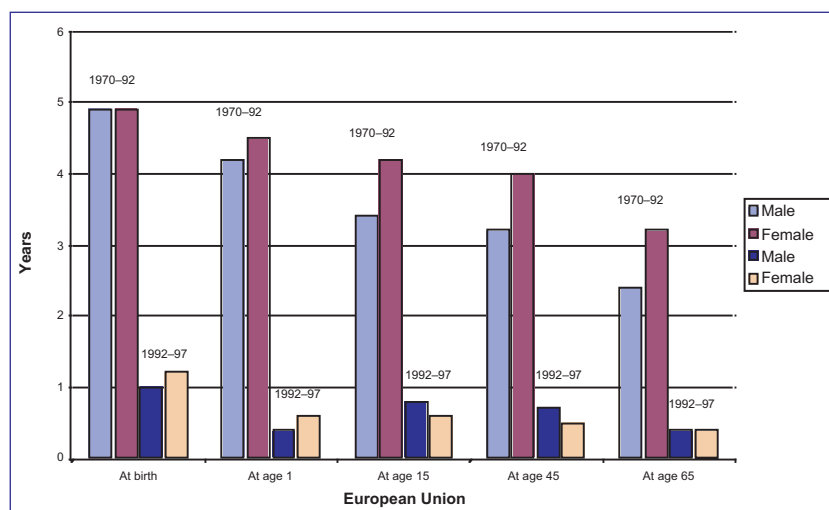
## LIFE EXPECTANCY

Year by year, EU citizens are living longer. Women are living longer than men, but this gap in life expectancy is narrowing. Inter-country differences are presently narrower than in 1970.

Since 1970, life expectancy at all ages has increased. Most importantly at birth however, in all MS. The EU average life expectancy at birth increased from 68.6 to 74.4 years for males and 74.9 to 81.0 for females. These increases have not been uniform, but there is a major convergence among MS. Until 1992, as age increased the male-female gap increased (exceptions include the United Kingdom at 45 and 65 years of age). In the period between 1992 and 1997, the gap stagnated, with the suggestion of a decrease in the oldest age groups (graph 1), particularly in countries such as Germany, France, Italy, Luxembourg, the Netherlands, Portugal, Austria and the United Kingdom.

### Graph 1

Gains in life expectancy:  
1970 to 1992 and 1992 to 1997



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

Denmark and Ireland at 45 and Portugal at birth, 1, 15 and 65 years of age are the MS with the lowest life expectancy. The highest life expectancy is observed in Sweden at birth; Sweden and France at 1; and France at 15, 45 and 65 years. The clustering of male and female life expectancies observed are summarised in table I.

Despite the gains observed, there is still room for comparative improvement for the worst performers in relation to the best performers and, for the best performers in relation to the life expectancy of countries such as Japan.

## MORTALITY AND MORBIDITY

Global mortality is described first. This is followed by a focus on mortality under the age of 65, which is often considered as giving a summary indication of the extent of avoidable deaths. These avoidable deaths will be the principal focus of attention in this section of the report and are presented in the sequence of the principal causes of mortality as per table II. These principal causes of mortality are complemented with information on health problems, considered important on the basis of perceived levels of associated morbidity (e.g. mental illnesses) or on the basis of administrative commitments to surveillance systems and control efforts (e.g. infectious diseases). Lastly, disablement is addressed.

Over 1 % of deaths occur before the age of 15 years and about 20 % before the age of 65. This identifies the 15–64 age group as an important target for the prevention of premature mortality.

**Table II** — Principal causes of mortality at different age groups

| Age in years | Principal cause of mortality                              |               |
|--------------|---|---------------|
|              | male  | female        |
| < 1          | Perinatal problems and sudden infant death syndrome       |               |
| 1–4          | Motor vehicle accidents                                   |               |
| 5–9          | Motor vehicle accidents                                   |               |
| 10–14        | Motor vehicle accidents                                   |               |
| 15–19        | Motor vehicle accidents                                   |               |
| 20–24        | Motor vehicle accidents                                   |               |
| 25–29        | Motor vehicle accidents                                   |               |
| 30–34        | Motor vehicle accidents                                   | Suicide       |
| 35–39        | Suicide   | Breast cancer |
| 40–44        | Ischaemic heart disease                                   | Breast cancer |
| 45–49        | Ischaemic heart disease                                   | Breast cancer |
| 50–54        | Ischaemic heart disease                                   | Breast cancer |
| 55–59        | Ischaemic heart disease                                   | Breast cancer |
| 60–64        | Ischaemic heart disease                                   | Breast cancer |
| 65–69        | Ischaemic heart disease                                   |               |
| 70–74        | Ischaemic heart disease                                   |               |
| 75–79        | Ischaemic heart disease                                   |               |
| 80–84        | Ischaemic heart disease                                   | Stroke        |
| >85          | Diseases of pulmonary circulation and other cardiopathies |               |

Adapted from Abel-Smith et al. 1997

### All cause mortality: all ages and both sexes

Mortality data are the most reliable for international comparisons. But it is always important to keep in mind that the data presented are extremely variable in quality. We will consider all-cause mortality before and after the age of 65 years. For all ages and both sexes, SDR are clustered in low SDR countries (Greece, Spain, France, Italy, and Sweden), in high SDR countries (Denmark, Ireland and Portugal) and the remainder fit into an intermediate category.

### All cause mortality after the age of 65 years

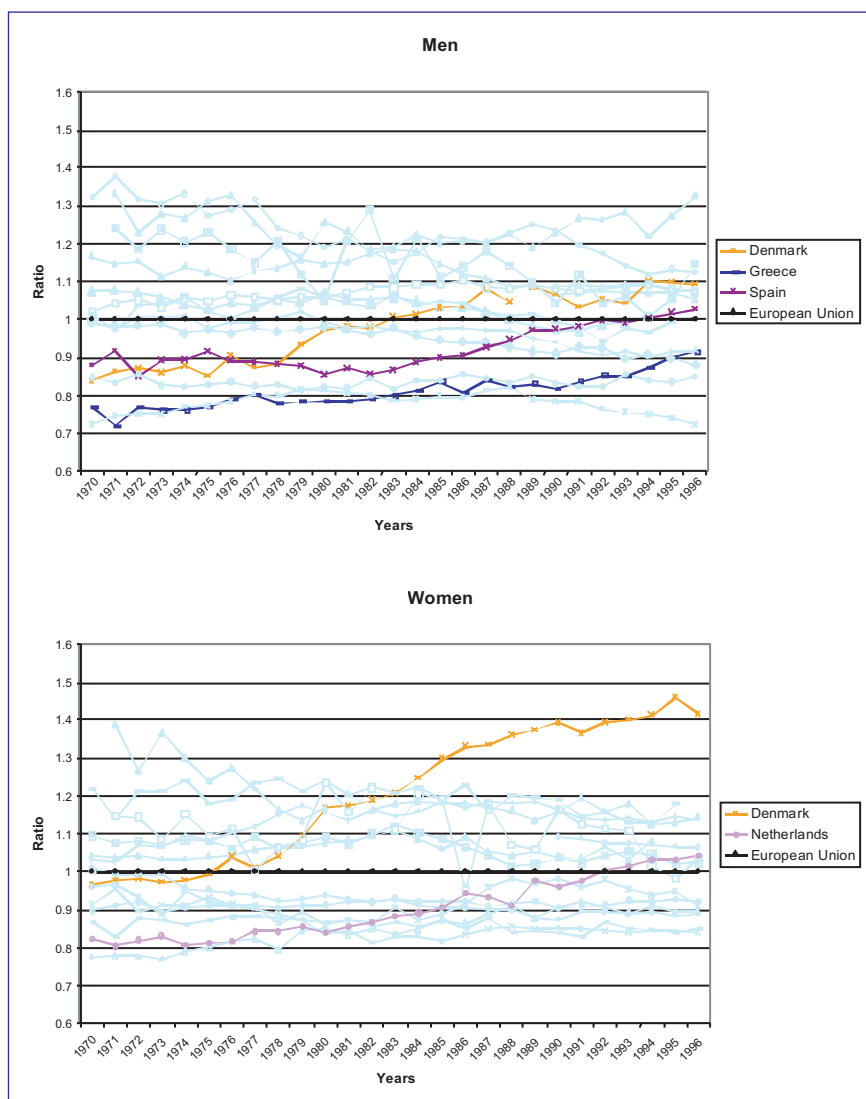
As the population of the EU ages, mortality in the over 65 years old age group will remain an important indicator of health status in the fastest growing population sector of the EU. This is particularly true as, with effective health promotion strategies and more effective medical therapy, the onset and/or the complications of many chronic diseases are deferred into this age group. Deterioration in the health status indicators of this group in the future may actually reflect health gains in the under 65 years of age. Portugal is the MS with the highest male and female mortality over the age of 65 years. France is the country with the lowest male and female mortality over the age of 65.

### All cause mortality under the age of 65 years

The under-65 mortality for the EU dropped from 271 per 100 000 population for women and 498 for men in 1970 to respectively 153 and 314. Portugal has the highest male and Denmark the highest female mortality. Greece has the lowest female and Sweden the lowest male mortality. Although still decreasing, the under-65 mortality for Greece (males), Spain (males), Denmark (males and females), Portugal (males), and the Netherlands (females) are increasing relative to the EU average (graph 2).

**Graph 2**

Trends in ratios of standardised death rates for people under 65 years of age in MS and EU: 1970–96



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

## Perinatal and infant mortality

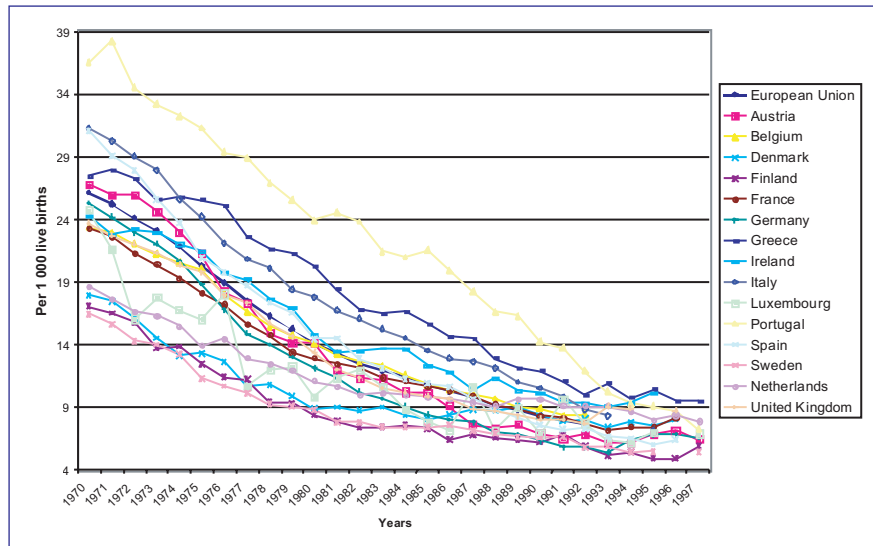
Low birthweight (birth weight under 2 500 grams) continues to be an important determinant of perinatal mortality and morbidity. Low birthweight is particularly prevalent in Belgium, Greece, Portugal and the United Kingdom, but less so in Ireland, Luxembourg and Finland, (since the mid-1980s the EU average rate of low birthweight babies has stabilised at around 6 %). Low birthweight babies are at a higher risk of morbidity and mortality and also reflect the health of the mother during pregnancy: maternal infections, her nutrition, smoking habits and alcohol consumption. An emergent field is that associated with new technologies, namely *in vitro* fertilisation and the associated multiple pregnancies, which may contribute to perinatal mortality and morbidity.

### Perinatal mortality

For more than three decades, there has been a sustained downward trend in perinatal mortality, with an apparent levelling off for the most recent years (graph 3). Germany, Spain, Italy, Luxembourg, Portugal, Austria, Finland and Sweden are clustered together as the countries with the lowest perinatal mortality and Greece and Ireland are clustered together as the worst performers.

**Graph 3**

Perinatal mortality rate:  
1970–97



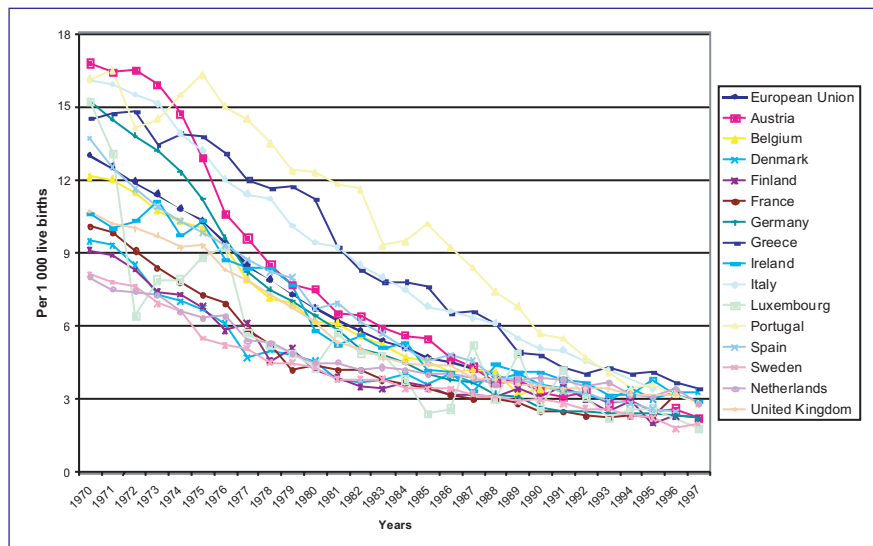
Source: Eurostat, New Cronos,  
1999

*Early neonatal mortality*

Early neonatal deaths are considered particularly amenable to effective medical care. Between 1970 and 1997 all MS experienced reductions in early neonatal mortality in excess of 70 % (graph 4). Country clusters of early neonatal mortality rate include Germany, Spain, Luxembourg, Austria, Finland and Sweden in the lowest mortality cluster; Ireland, the Netherlands and Portugal in the intermediate cluster; and Belgium, Denmark, Greece, France, Italy and the United Kingdom in the highest mortality cluster.

**Graph 4**

Early neonatal mortality rate:  
1970–97



Source: HFA Statistical  
Database, WHO Regional Office  
for Europe, Copenhagen,  
Denmark

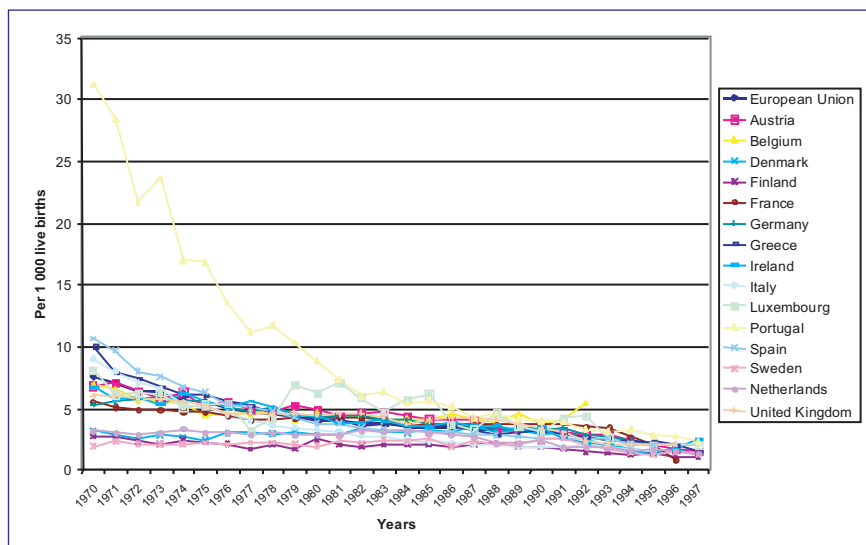
*Post-neonatal mortality*

Intensive perinatal care of high-risk pregnancies and premature babies reduces perinatal death rates but may slow the decrease in post-neonatal death rates (graph 5).

Denmark, Ireland, Luxembourg, the Netherlands, Sweden, and the United Kingdom instituted public health campaigns to reduce prone sleeping, maternal smoking, bacterial and viral infections, bottle

**Graph 5**

Post-neonatal mortality rate: 1970–97



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

feeding, heavy wrapping and bed sharing, all of which are associated with a high risk of sudden infant death syndrome (SIDS). A rapid decline in prone sleeping showed reductions of approximately 50 % in their SIDS rates. Post-neonatal mortality rates declined in these countries in the 1980s and 1990s, primarily as a result of the SIDS decline.

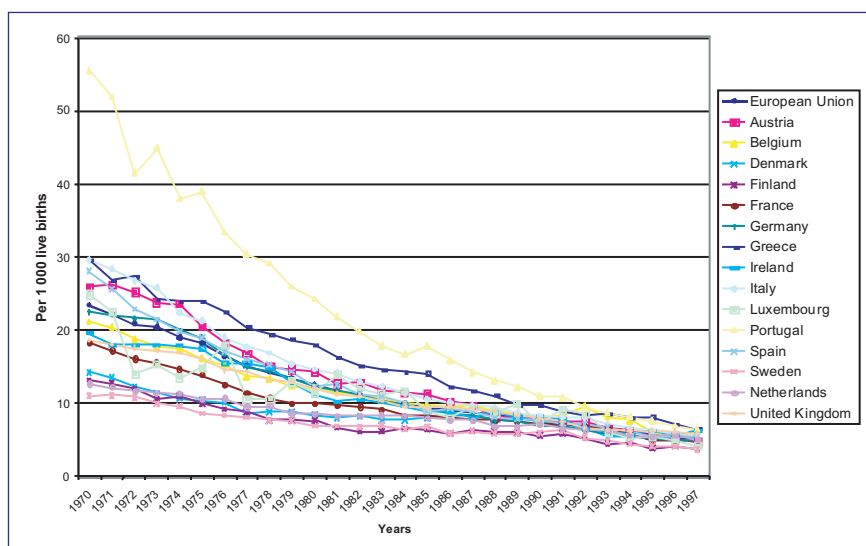
Country clusters of post-neonatal mortality include Denmark, Greece, France, Italy, Luxembourg, Austria, Finland and Sweden in the lowest post-neonatal mortality cluster; Germany, Spain, Ireland, the Netherlands, Portugal and the United Kingdom in the intermediate cluster; and Belgium in the highest post-neonatal mortality cluster.

*Infant mortality*

The IMR for the EU decreased by about three quarters between 1970 and 1997 (graph 6). As in 1970, Portugal and Greece share the highest and Sweden has the lowest IMR, but the differences among MS are very small. The gap between the countries with the highest and the lowest rates has narrowed from 38.8 per 1000 live births in 1970 to 4.1 per 1 000 live births in 1992 and 3.0 per 1 000 live births in 1997.

**Graph 6**

Infant mortality rate: 1970 — 1997



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark



The bulk of infant mortality occurs in the first month of life, reflecting the predominance of neonatal problems (mostly prematurity) that account for about 60 % of all IMR.

Country clusters of IMR include Finland, Luxembourg and Sweden in the lowest IMR cluster; Austria, Denmark, France, Germany, Italy and the Netherlands in the intermediate IMR cluster; and Belgium, Greece, Ireland, Portugal and the United Kingdom in the highest IMR cluster.

### Maternal mortality and morbidity

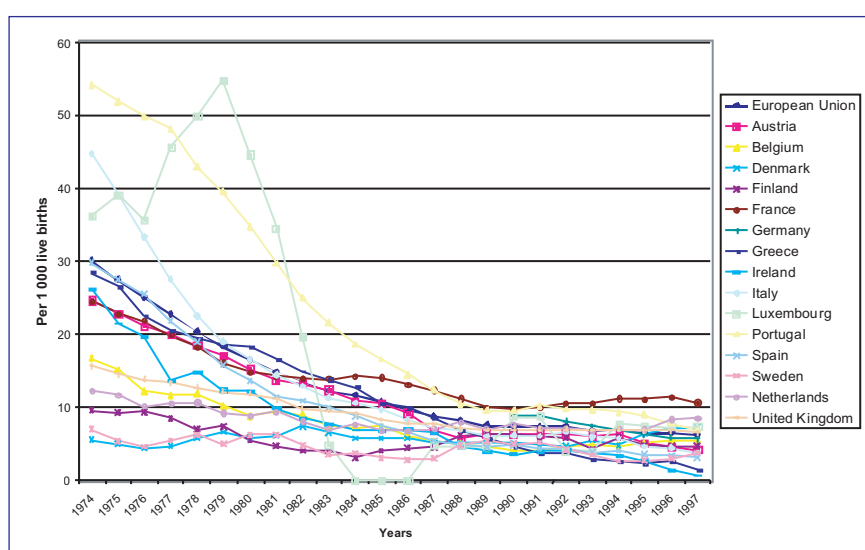
The maternal mortality rate (MMR) is considered an indicator of the quality of obstetric care in a country. Pregnancy related diagnoses are by far the principal cause of hospital admission in women aged 15–64 years. This indicates that reproductive health remains a priority issue for MS even at a time when pregnancy related mortality rates indicate that, although at historically low levels (graph 7), there is still room for improvements in reproductive healthcare in the EU.

**Graph 7**

Maternal deaths, all causes: 1974–97

5-year moving averages

Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark



The MMR of France has been edging up since the late 1980s <sup>(2)</sup>. Although still decreasing, the MMR for Belgium and the Netherlands <sup>(3)</sup> are increasing relative to the EU average (graph 8).

Three MMR country clusters are identified in 1997. The lowest mortality cluster includes Greece, Spain Ireland, Italy, Luxembourg, Austria, and Finland. The highest mortality cluster includes France. The intermediate mortality cluster includes Belgium, Denmark, Germany, the Netherlands, Portugal, Sweden, and the United Kingdom <sup>(4)</sup>.

The mean age of mothers at (any) birth is increasing throughout the EU. In 1995, three country clusters could be identified: the cluster of the lowest mean ages of mothers (Belgium, Germany, Greece, Portugal, Austria and the United Kingdom), the intermediate cluster (Denmark, France, Luxembourg,

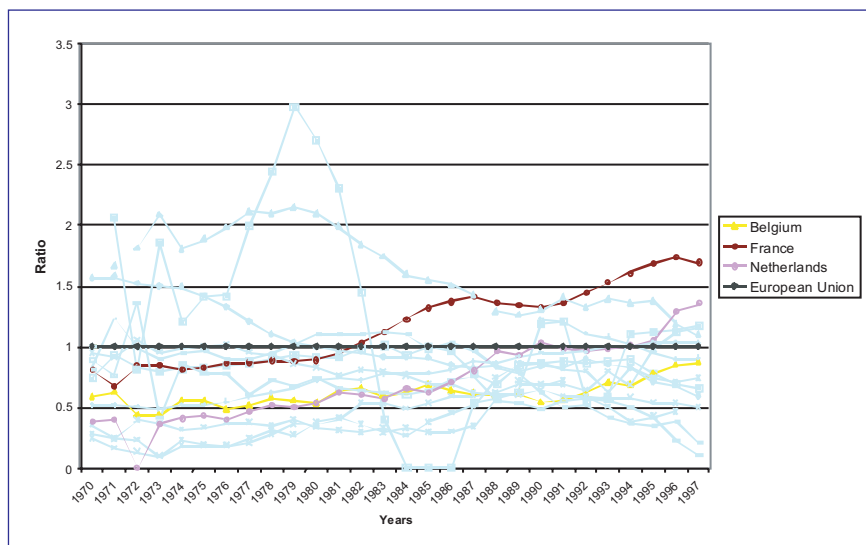
<sup>(2)</sup> This has been previously reported. See for example Bouvier-Colle et al. 1991.

<sup>(3)</sup> This trend in the Netherlands is attributed to changes in registration practices (Peter Achterberg, personal communication April 2001).

<sup>(4)</sup> As discussed by Salanve et al. some of these differences in MMR, but probably not the observed trends, may be attributed to coding differences and under-reporting differences among MS (Salanve et al. 1999).

**Graph 8**

Trends in ratios of MS' and EU's maternal death rates, all causes: 1970–97



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

Finland, and Sweden) and the cluster with the highest mean ages (Ireland, Italy, the Netherlands and Spain). This is in contrast to the equally worrying persistent increase (United Kingdom) or stability in teenage pregnancies (in some countries these may be due to the existence of ethnic minorities for whom early marriage and child bearing is culturally acceptable). There is an increasing proportion of 'first borns' and multiple births. These are all factors that contribute to perinatal mortality and morbidity of the neonate and the mother.

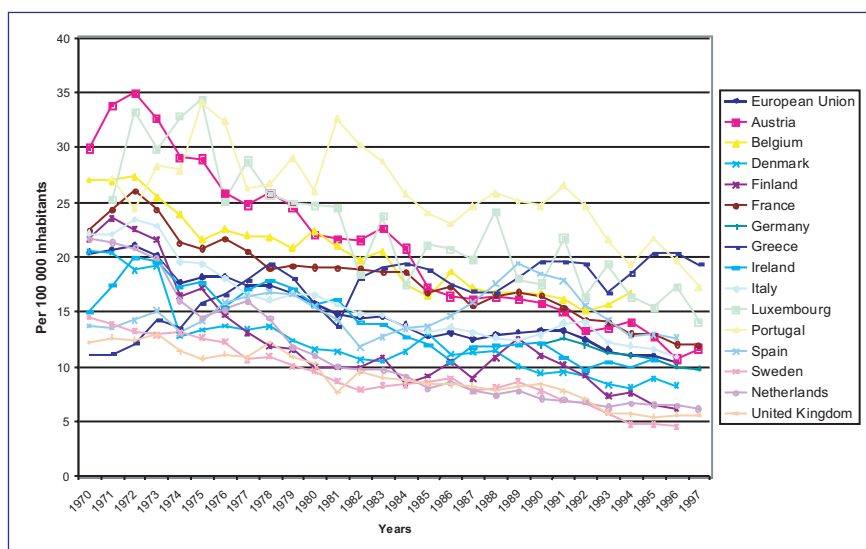
**Accidents**

Accident-associated deaths are preventable. They are the main cause of death in young people. Because they occur at early ages, they offer a potential for further improvements in life expectancy and reductions in chronic disability.

The number of road traffic accidents per 100 000 inhabitants and the associated mortality under 65 years of age show important variations. The lowest mortality cluster of countries includes the Netherlands, Finland, Sweden, and the United Kingdom, and the highest mortality cluster includes Belgium, Greece and Portugal (graph 9).

**Graph 9**

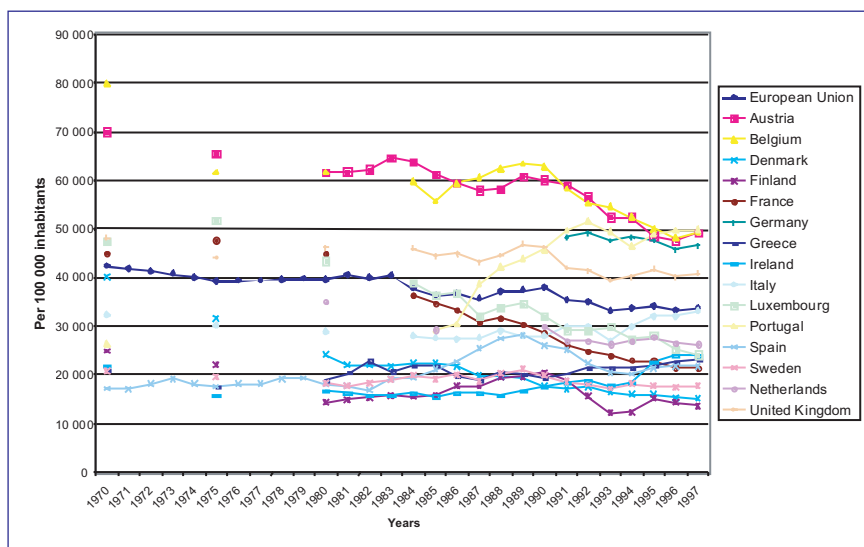
Standardised death rate resulting from motor vehicle traffic accidents, under 65 years of age: 1970–97



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

In general the trend for number of road traffic accidents with injuries per 100 000 inhabitants is downwards with the exception of upward trends for Greece, Ireland, Italy and Portugal (graph 10). A great proportion of these accidents involve alcohol intoxication. The available data are too unreliable to allow firm comparative conclusions, but drunk driving is acknowledged as an important public health problem in France, Belgium and Portugal.

**Graph 10**  
Rate of road traffic accidents with injury: 1970–97



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

Among children under five and the elderly, most accidents occur at home. For older children and young adults most accidents occur where they play or on the roads. Fatal occupational accidents have been reduced to a very low level, but the morbidity associated with these types of accidents is not insignificant.

### Psychiatric disorders, neurological disorders and suicide

Many of the most important causes of morbidity in the EU range from mild forms of depression through to complex psychiatric disorders. Between 15 % and 20 % of adults and from 17 % to 22 % of teenagers under 18 suffer some form of mental health problem. Eating disorders, such as anorexia and bulimia, seem to be increasing among adolescents.

The prevalence of dementia increases from 1 % at the age of 65 years to 30 % at age 85 years or older. Between the ages of 60 and 95 years, the prevalence of dementia nearly doubles every five years.

Another important psychiatric problem is schizophrenia, supposed to have a prevalence of about 1 %, although hard data to vindicate this figure are not readily available.

The prevalence of epilepsy in the EU varies between 3 and 6 per 1 000 inhabitants. The limited data available suggest that the incidence and mortality of epilepsy are declining.

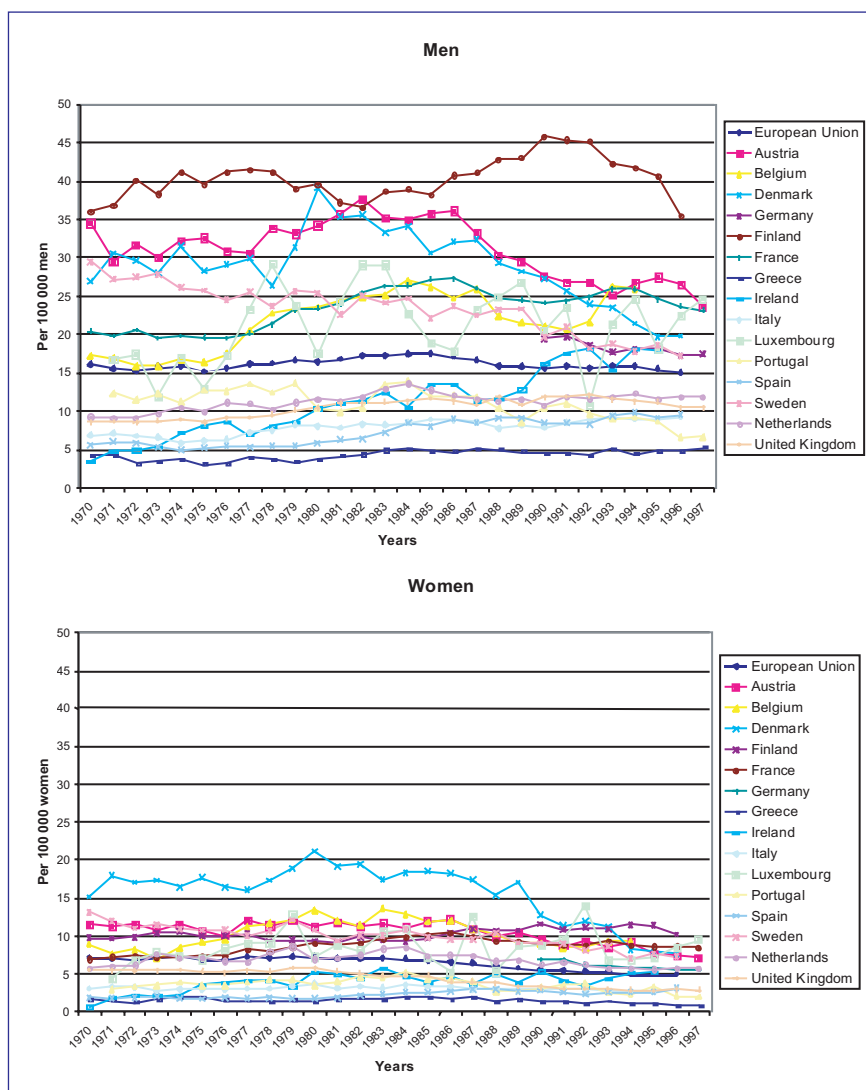
The prevalence of Parkinson's disease increases from 0.6 % at age 65 years to 3.5 % at age 85 years or older, without significant differences between men and women. It is one of the most common chronic neurodegenerative diseases in elderly people. Differences among countries do not seem significant<sup>(5)</sup>.

<sup>(5)</sup> Data available for France, Italy, Spain and the Netherlands (Rijk et al. 1997).

**Graph 11**

Standardised death rate by suicide and self-inflicted injuries: 1970–97

Under 65 years of age



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

**Suicide**

Because it frequently occurs among young people, suicide is an important contributor to life years lost. However, mortality is still usually higher over, rather than under, 65 years of age (exceptions include men in Ireland, women in Ireland and Luxembourg). Under the age of 65 the lowest mortality cluster of countries includes Greece, Spain, Ireland, Italy, Portugal and United Kingdom and the highest mortality cluster includes Belgium, Luxembourg and Finland. For males and females under or over the age 65 years, the overall EU trend is currently stable (graph 11).

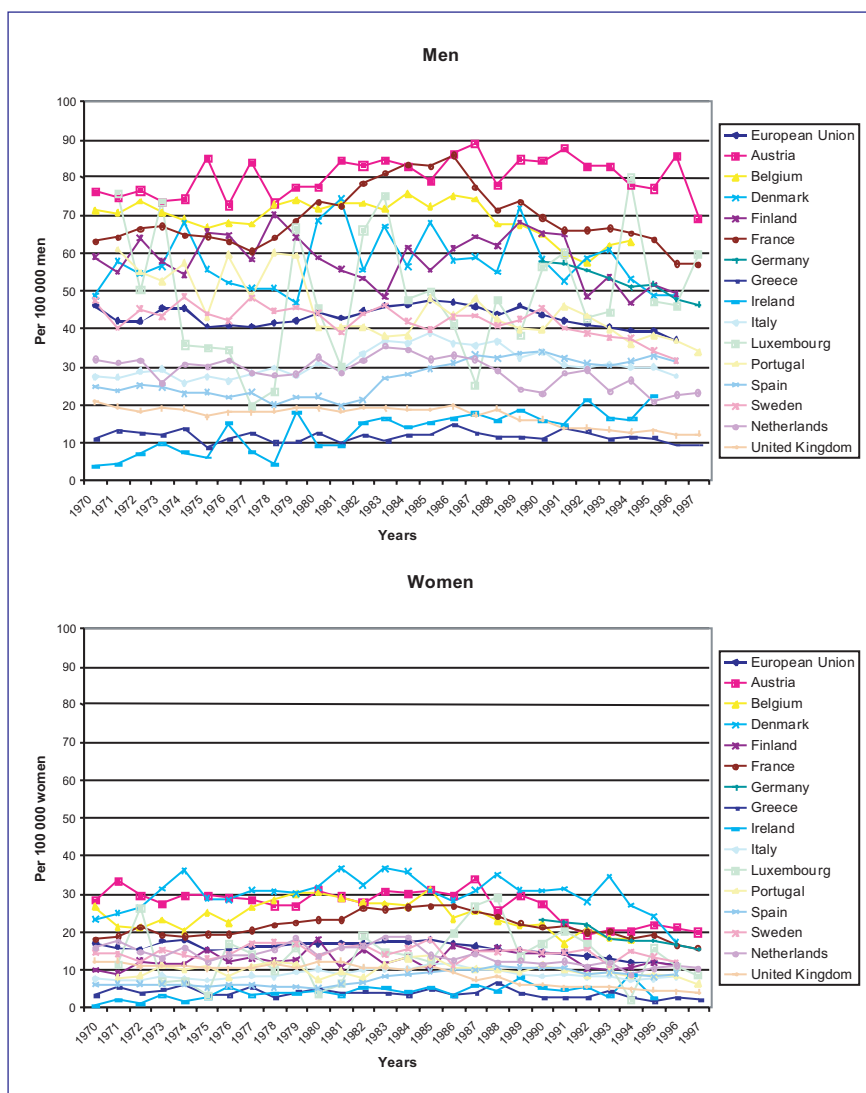
Over the past two decades suicide rates have generally increased in young males and decreased in young females (exceptions include Sweden where suicide decreased for both young males and females) <sup>(6)</sup>.

<sup>(6)</sup> Suicide has important negative cultural, religious, social and legal connotations. Therefore, death certification practices must be compared with extreme caution.

**Graph 11**

Standardised death rate by suicide and self-inflicted injuries: 1970–97  
(continued)

At 65 years of age or more



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

## Cancers

Overall cancer incidence is increasing slightly in the EU. Exceptions are Belgium, Denmark, Spain Ireland, Luxembourg, Austria and the United Kingdom for women, and France, Ireland, Luxembourg, Sweden and the United Kingdom for men, with available data for the period 1990–95.

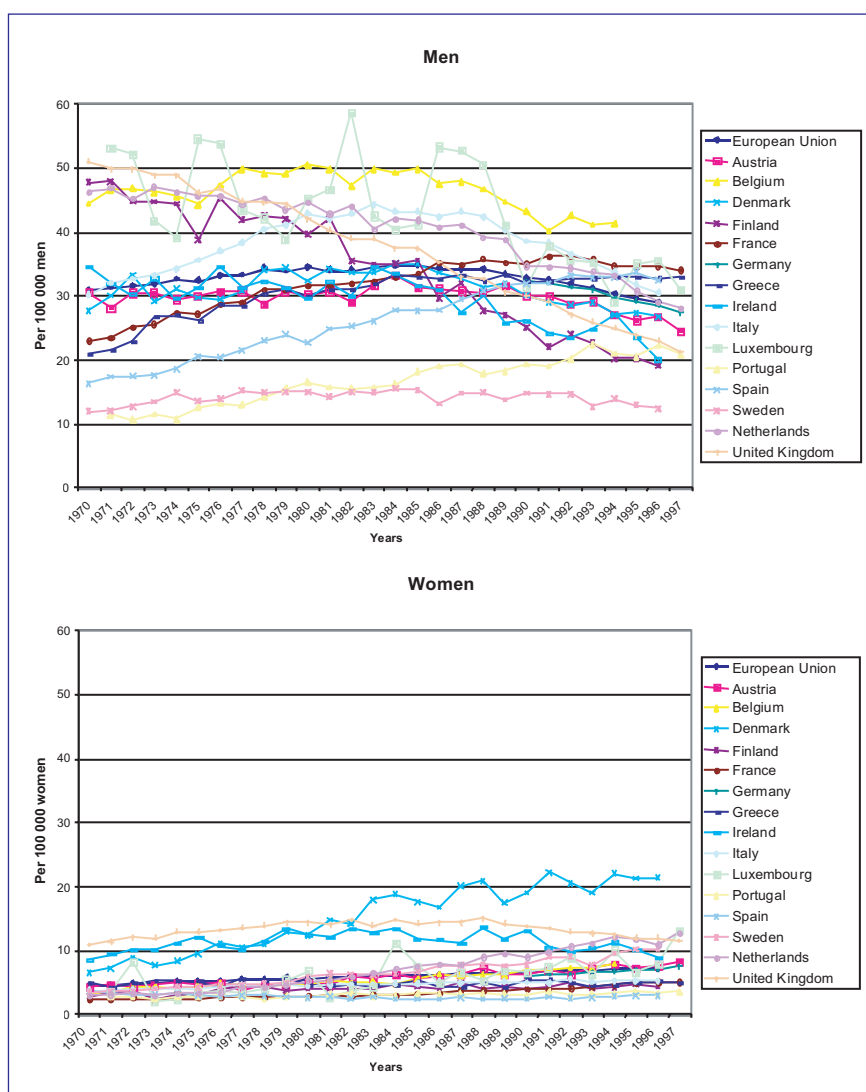
Cancers are still among the major causes of death in all EU MS. Cancer deaths begin to dominate at middle age, but among children aged 1–14 they are the second leading cause of death. This is not due mainly to the increases in cancer, but rather to the decrease in other causes of death. Overall, cancers cause 35 % of all deaths before the age of 65 years.

Overall cancer mortality is higher in men than in women. In most MS the observed all-cancer mortality shows a consistent downward trend. Exceptions are Denmark for women and men; and Greece, Spain, Ireland and Portugal for men. For males, the lowest mortality cluster of countries includes Greece, Finland and Sweden, whilst the highest mortality cluster consists of Belgium alone. For females, the lowest mortality cluster of countries includes Greece, Spain, France, Italy, Austria, Portugal, Finland and Sweden, whilst the highest mortality cluster consists of Denmark alone.

**Graph 12**

Standardised death rate by trachea, bronchus and lung cancer: 1970–97

Under 65 years of age



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

Deaths most frequently result from cancers in the lungs, prostate and colon-rectum in men and in the breasts, colon-rectum and lungs in women.

The incidence of lung cancer is 54.1 per 100 000 men and 11.1 per 100 000 women <sup>(7)</sup>. Although the incidence rate of lung cancer is decreasing in Belgium, Denmark, France, Ireland, the Netherlands, Austria and Finland, it is still increasing in the other MS. Cancers of the lungs/bronchus are the most common cause of cancer mortality in men and the third most common in women. The lowest mortality cluster of countries includes Portugal and Sweden and the highest mortality cluster includes Belgium, Denmark, Luxembourg, the Netherlands and United Kingdom. For men, lung cancer mortality is highest in Belgium and lowest in Sweden. For women the highest mortality is in Denmark but the lowest observed is in Spain. Overall, lung cancer mortality is decreasing. However, it is still increasing for women in most MS (decreasing in the United Kingdom for women under 65 years of age) and for men in Portugal and Spain (graph 12).

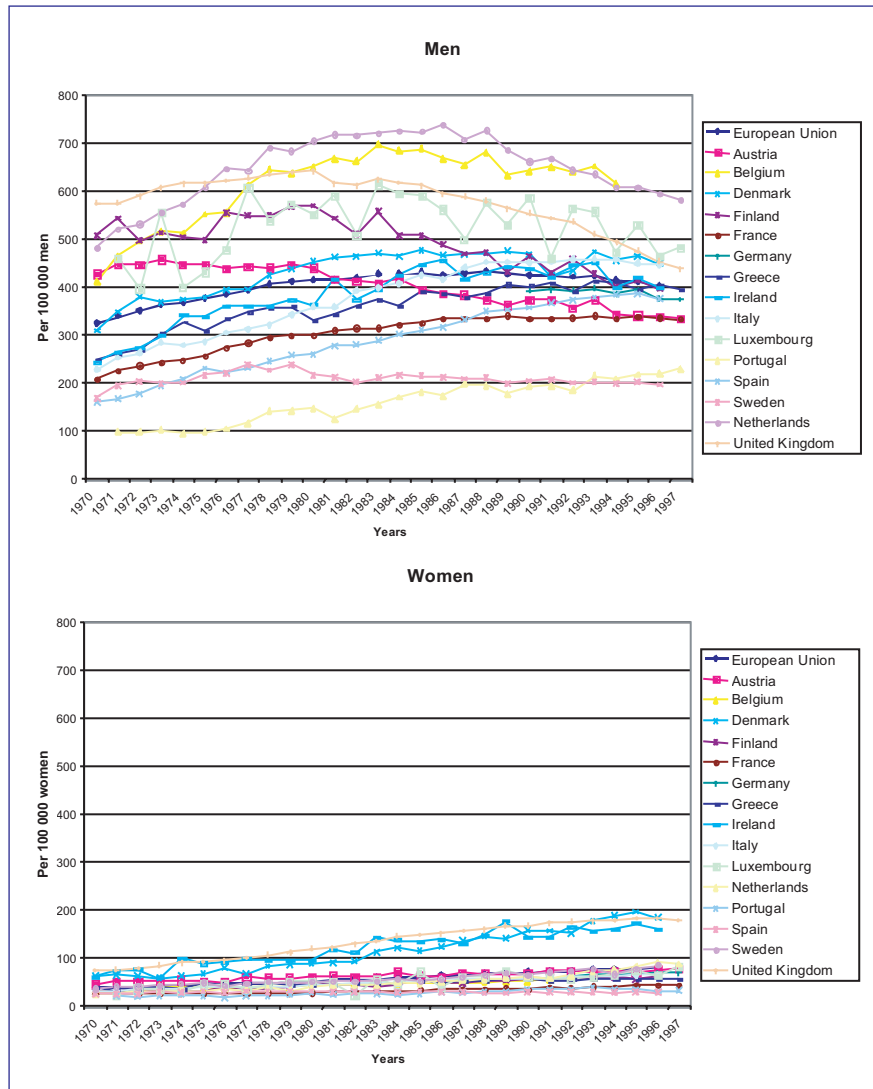
The incidence rate of cancer of the female breast is increasing in all MS with available data. It remains the most common cause of cancer mortality in women. The lowest mortality cluster of countries

<sup>(7)</sup> European Commission, 2000.

**Graph 12**

Standardised death rate by trachea, bronchus and lung cancer: 1970–97  
(continued)

At 65 years of age or more



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

includes Greece, Spain, Portugal, Finland and Sweden and the highest mortality cluster includes Belgium, Denmark, Ireland, the Netherlands and the United Kingdom. Mortality is decreasing in six MS — Germany, Luxembourg, the Netherlands, Austria, Sweden and the United Kingdom (graph 13). In at least three of these countries (Luxembourg, the Netherlands and Sweden), these drops in breast cancer mortality are partially attributed to the introduction of effective general screening programmes.

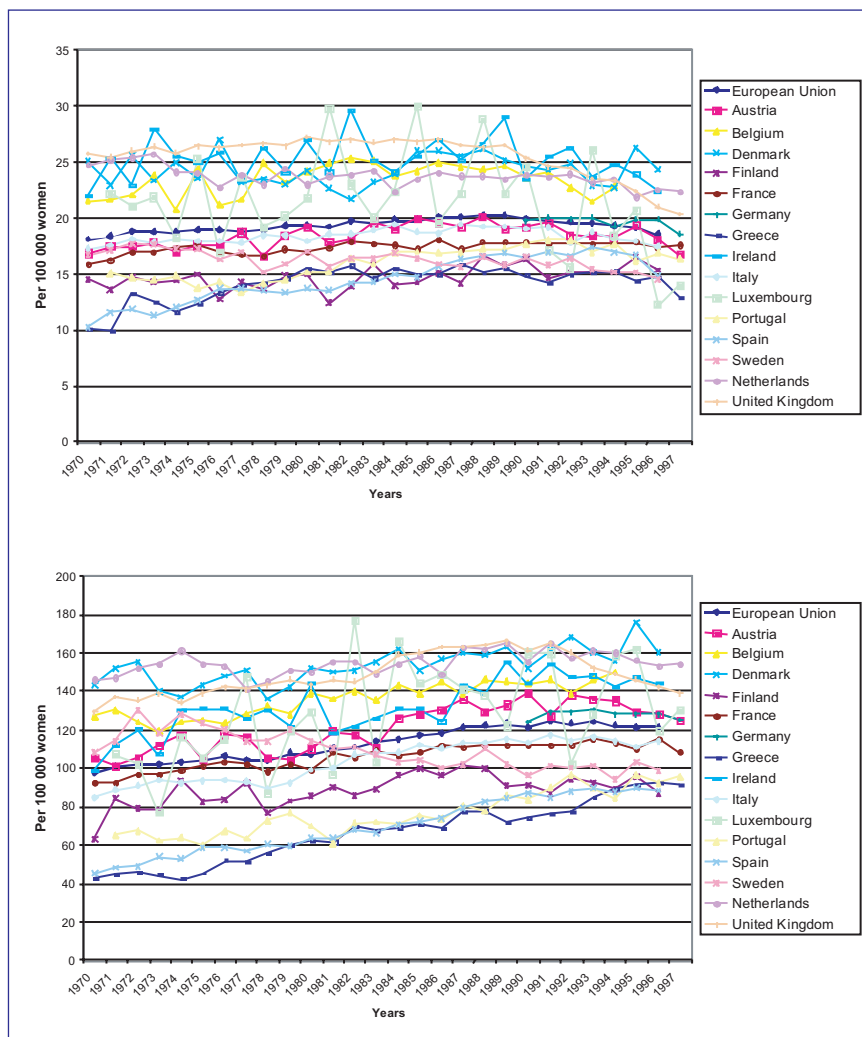
Cancer of the prostate is currently the second most common cause of cancer mortality in men but, with the current downward trend in male lung cancer mortality, it will predictably soon become the most common cause of cancer mortality in men. The lowest mortality cluster of countries includes Greece and Italy; and the highest mortality cluster includes Belgium, Denmark, Ireland, the Netherlands, Portugal, Finland, and Sweden. Prostate cancer mortality is increasing in most MS (decreasing in France, Luxembourg, Austria, and the United Kingdom).

Colon-rectal cancers are the third most common cause of cancer deaths for men and the second for women. The lowest mortality cluster of countries includes Finland and Greece and the highest mortality cluster includes Denmark, Germany and Ireland.

**Graph 13**

Standardised death rate by cancer of the female breast: 1970–97

Under 65 years of age:



At 65 years of age or more:

Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

### Circulatory diseases and diabetes

The principal circulatory diseases are ischaemic heart disease (half of deaths from circulatory diseases) and stroke (one third of deaths from circulatory disease). Hypertension is both a disease on its own and a determinant of other circulatory diseases. Diabetes mellitus is included under circulatory diseases as it is one of its principal determinants.

#### *Ischaemic heart disease*

Ischaemic heart disease, in addition to being the main single cause of circulatory disease-associated mortality, is the single main cause of death before the age of 65 years.

The lowest mortality cluster of countries includes Spain, France, Italy, Luxembourg, Portugal, and the highest mortality cluster includes Ireland and the United Kingdom.

Mortality under the age of 65 years for ischaemic heart disease is decreasing for both sexes in all MS. Irish males and United Kingdom females have the highest and French males and females the lowest mortality. The ratio of national mortalities to the EU average shows that some countries' mortalities (Austria, Belgium, Germany, Greece, Portugal and Spain) are increasing relative to the EU average (graph 14).



### Graph 14

Trends in ratios of MS' and EU's standardised death rates by ischaemic heart disease: 1970–96

Under 65 years of age:



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

### Stroke

For stroke, the lowest mortality cluster of countries includes all countries except Portugal (alone in the highest mortality cluster) and Greece (alone in the intermediary cluster).

Mortality under the age of 65 years for stroke is decreasing for both sexes in all MS. Portugal has the highest mortality for both men and women. Dutch males and French women have the lowest mortality. The ratio of national mortalities to the EU average shows that some countries' mortalities (Denmark, Greece, the Netherlands and the United Kingdom) are increasing relative to the EU average (graph 15).

Strokes are a very important cause of serious disablement in the EU, particularly at older ages.

### Hypertension

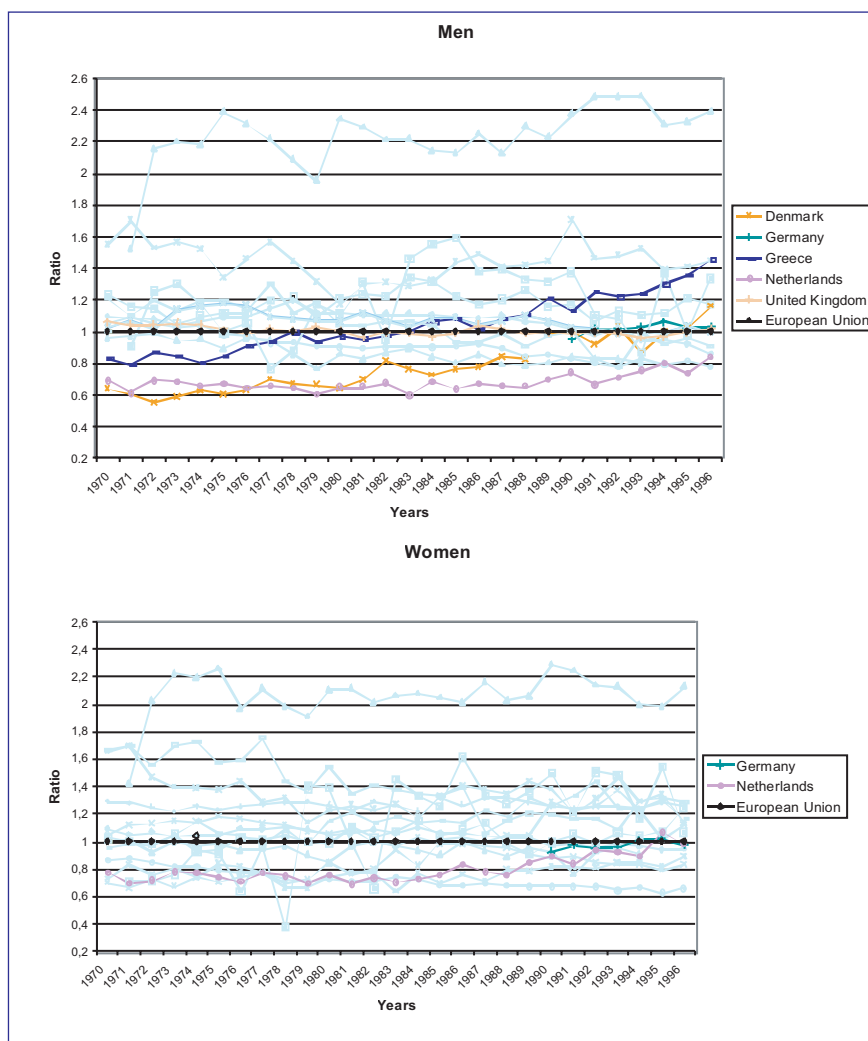
Hypertension is a major cause of suffering on its own, but also an important determinant of other pathologies, namely circulatory diseases and renal failure. The prevalence of hypertension in MS seems to be around 20 %<sup>(8)</sup>. Limited trend data suggest a downward trend for Finland, although the trend is still at a high level, and an upward trend for Germany.

<sup>(8)</sup> MONICA data.

**Graph 15**

Trends in ratios of MS's and EU's standardised death rates by stroke: 1970–96

Under 65 years of age:



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

*Diabetes mellitus*

Diabetes is a major cause of suffering on its own, as well as a determinant of other pathologies, namely circulatory diseases and renal failure. Obesity-associated adult onset diabetes seems to be entering an epidemic phase in MS, occurring more and more frequently at younger ages. Juvenile onset diabetes also seems to be a growing problem in some of the MS such as in Finland. Current trend data fail to differentiate between the two types of diabetes.

Trend data available for five MS suggest that the prevalence has increased slightly in three MS (Greece, Finland and Sweden), remained stable for the Netherlands and decreased in Portugal.

Mortality under the age of 65 years for diabetes appears to be decreasing for both sexes in all MS, but some countries (Greece, Germany, Portugal, Finland and Sweden) seem to be losing ground in relation to the EU average. Portuguese males and females have the highest mortality. Greek men and French women have the lowest <sup>(9)</sup>.

<sup>(9)</sup> Differences in coding practices may explain some of the differences observed in SDR (Jougla et al. 1992). These coding practices may actually explain 35 % of the variation in the diabetes mortality rates (Balkau et al. 1993).

## Infectious diseases

Because of the potential of infectious diseases to cross borders and for quick transmission among susceptible populations, the MS have committed themselves to rather extensive legal obligations in regard to this still important and changing area. These legal obligations have resulted in important investments in regulations and surveillance systems. They also reflect an area with a great potential for better coordination of inter-sector policies (e.g. safety of blood products, agricultural policies, travel regulations, etc.).

The infectious diseases will be described as three groupings: specific agents, according to the mode of spread and policy related.

### *Specific causative agents*

#### Acquired immunodeficiency syndrome (AIDS), HIV infections and other sexually transmitted diseases

The reported EU AIDS incidence rate is 63.7 per million inhabitants. Finland is the country with the lowest (3.8), whilst Spain registers the highest value (116.5 per million population), followed by Portugal (83.0) and Italy (58.4). Incidence rates from Belgium, Germany, Greece, Ireland, Austria, Finland, Sweden and the United Kingdom are under 20 cases per million.

Since 1989, most new cases in the EU have been amongst intravenous drug users. In some MS, such as Denmark, a growing proportion is associated with immigration and travel abroad. Data do not allow firm estimates of what is happening in terms of infection with the human immunodeficiency virus (HIV) (rather than 'AIDS disease'). During 1994–95 the estimated incidence of AIDS stabilised, followed by decreases after 1996 in all transmission groups. The decline in AIDS incidence is largely due to an increase in the number of cases already diagnosed with HIV infection prior to AIDS onset that had the opportunity of receiving effective anti-retroviral treatment. In parallel with the trends in AIDS cases, AIDS deaths have been declining since 1996. As a result the number of persons living with HIV or AIDS will increase in the medium term.

Other sexually transmitted infections still remain an important problem. Some are important in specific groups, such as genital chlamydial infections for women in the age group 15–29 years. *Neisseria gonorrhoea* remains one of the most common sexually transmitted infections; it is a useful proxy indicator of relatively recent high-risk behaviour. The incidence rate of syphilis is low and seems to be decreasing in all MS except Finland. The Finnish trend reflects the re-emergence of sexually transmitted infections in the EU as travel-associated infections.

### Hepatitis C

Hepatitis C is a growing problem. There is a north-south gradient with an infection rate of 0.5 % in the northern MS and of 2 % in the Mediterranean MS. The potential burden on society is comparable to that of the HIV epidemic. It is currently responsible for 30 % of liver transplants. The main risk factor is intravenous drug abuse.

### Tuberculosis

The notification rate of tuberculosis decreased regularly between 1974 and 1986, but stabilised or increased transiently between 1986 and 1996 in several countries (Denmark, Ireland, Italy, the Netherlands, Austria and United Kingdom). The notification rate is as low as 5.6 per 100 000 head of population in Sweden and lower than 18 in all countries except Portugal (53.5) and Spain (21.0 new respiratory cases only). Tuberculosis in the EU seems to be a greater problem in urban areas. This urban trend seems to be particularly marked in countries like Germany, the Netherlands, Austria and the United Kingdom. Tuberculosis is also emerging as an imported infection. Another emergent problem is

that of drug resistance, including multi-resistant strains. This resistance problem is associated particularly with HIV infections, inadequate therapeutic regimens and poor compliance with treatment.

#### *According to the mode of spread*

##### Imported and travel related infections <sup>(10)</sup>

Imported and travel related infections are an important cause of morbidity in the EU.

The potential for inter-country spread has increased with the creation of an EU within which goods and people can move freely. This has resulted in the resurgence of some infections such as vaccine preventable diseases (measles, diphtheria) and sexually transmitted diseases. Frequently these are associated with travel to and from Eastern Europe.

Germany, France, Italy, Portugal and the United Kingdom report high and increasing numbers of malaria. Most are caused by *Plasmodium falciparum*. Over 70 % are imported from Africa. A great proportion of fatal cases failed to comply with malaria prophylaxis.

##### Foodborne infections

Food is an important vehicle for the spread of frequent as well as rare, but serious, diseases. This spread is frequently associated with the transport of food (e.g. meat) across borders.

A decline in the incidence of *Salmonella enteritidis* infections has been observed since 1993. This is not uniform for all MS. *Campylobacter* is now the most frequently diagnosed bacterial cause of acute gastro-enteritis in Denmark. The incidence of a specific form of *Escherichia coli entéro-hémorragique* (EHEC) in Belgium, Germany, Sweden and United Kingdom is increasing.

The new variant of Creutzfeldt Jakob Disease, believed to be transmitted by BSE infected cow's meat is a rare emergent foodborne disease. It illustrates the economic impact of the threat of emergent infections and reflects the importance of pooling data and information to better characterise and study rare diseases in the EU.

#### *Policy related*

##### Antibiotic resistant infections

Indiscriminate medical use of antibiotics in hospitals, in ambulatory services and self-care, are important sources of antibiotic resistance. The widespread use of anti-microbial agents in animal production also promotes the development of resistant bacteria or resistance genes that can be transferred to bacteria that cause disease in humans. Mostly as a result of these pressures, antibiotic resistance is a serious problem and is on the increase.

##### Vaccine-preventable diseases

Vaccine-preventable diseases are controlled through the delivery and maintenance of immunisation programmes. Broadly speaking there are three groups. These groupings hide some stories of successful control efforts in specific MS. It represents an area where harmonisation of vaccination policies would be of great benefit.

<sup>(10)</sup> These infections include diphtheria, gonorrhoea, hepatitis A, hepatitis B, measles, poliomyelitis and tuberculosis, the foodborne infections discussed in a previous section, giardiasis, amoebiasis, shigellosis, HIV, typhoid, methicillin resistant *Staphylococcus aureus*, yersiniosis, paratyphoid, legionellosis, syphilis, cholera, brucellosis, leprosy, viral encephalitis, dengue fever, African tick bite fever, murine typhus, Lassa fever and Q-fever.

The first grouping is of diseases for which there is an effective vaccination, which are controlled and on their way to eradication (e.g. measles and poliomyelitis) in all MS.

The second grouping includes diseases that are re-emerging as public threats due to inadequate surveillance and/or vaccination policies/practices (e.g. influenza, pertussis, diphtheria, mumps). There are nevertheless some success stories. Denmark, France, Luxembourg and Finland have achieved a high level of control of pertussis. From 1987 until 1997, no or very few, cases of diphtheria were reported in Denmark, Germany, Spain, France, Ireland, Italy, Luxembourg, Portugal, the Netherlands, Austria, Finland, Sweden and the United Kingdom. Nevertheless, small outbreaks were still observed among drug users and alcoholics. Imported cases, mainly from Eastern Europe, were also observed in countries such as Germany, Finland and the United Kingdom. Denmark, the Netherlands, Finland and Sweden have virtually eliminated mumps <sup>(11)</sup>.

And lastly, diseases where incidence data are not systematically monitored and/or for which vaccination policies are not defined, despite the availability of cost-effective vaccines (e.g. meningococcal infections, pneumococcal infections, varicella-zoster and hepatitis A and B).

These last two groups represent important opportunities for health gains.

### **Respiratory system diseases**

Mortality under the age of 65 years for some of the most prevalent respiratory diseases (bronchitis, emphysema and asthma) is decreasing in most MS, for males and females (being postponed to the over 65 years of age). The ratio of national mortalities to the EU average reflects a relative increase for Danish females (graph 16). Denmark also has the highest mortality for both men and women.

Asthma is a common chronic disorder, perceived as a growing EU health problem, but this perception is not backed up by systematic and comparable data. The prevalence of asthma symptoms varies widely. These are generally higher in the United Kingdom than in other MS <sup>(12)</sup>.

### **Disablement**

Many of the health problems reviewed above (e.g. cancers, strokes, accidents, dementia and perinatal problems) and others such as osteoporosis and arthritis, result in chronic disablement. The variability in prevalence rates of activity restriction is large among MS. However, most of the MS have a percentage close to 12 %. Nevertheless, data are usually limited, not comparable and fail to give an accurate reflection of what is happening in the EU.

The elderly are an important group disablement-wise. Although most elderly people are not disabled, the majority of disabled people are elderly.

Data on life expectancy without disability are limited, but suggest that life expectancy without disability is either stagnating (United Kingdom) or increasing (Germany and France). These data also suggest that increased life expectancy is not accompanied by an increase in the time spent with severe handicap or severe disability. At worst, there may be a pandemic of light or moderate handicaps or disabilities <sup>(13)</sup>.

<sup>(11)</sup> Despite a high vaccination coverage the incidence of mumps in Luxembourg is not known, as it is not notifiable (Mady Roulleaux, personal communication April 2001).

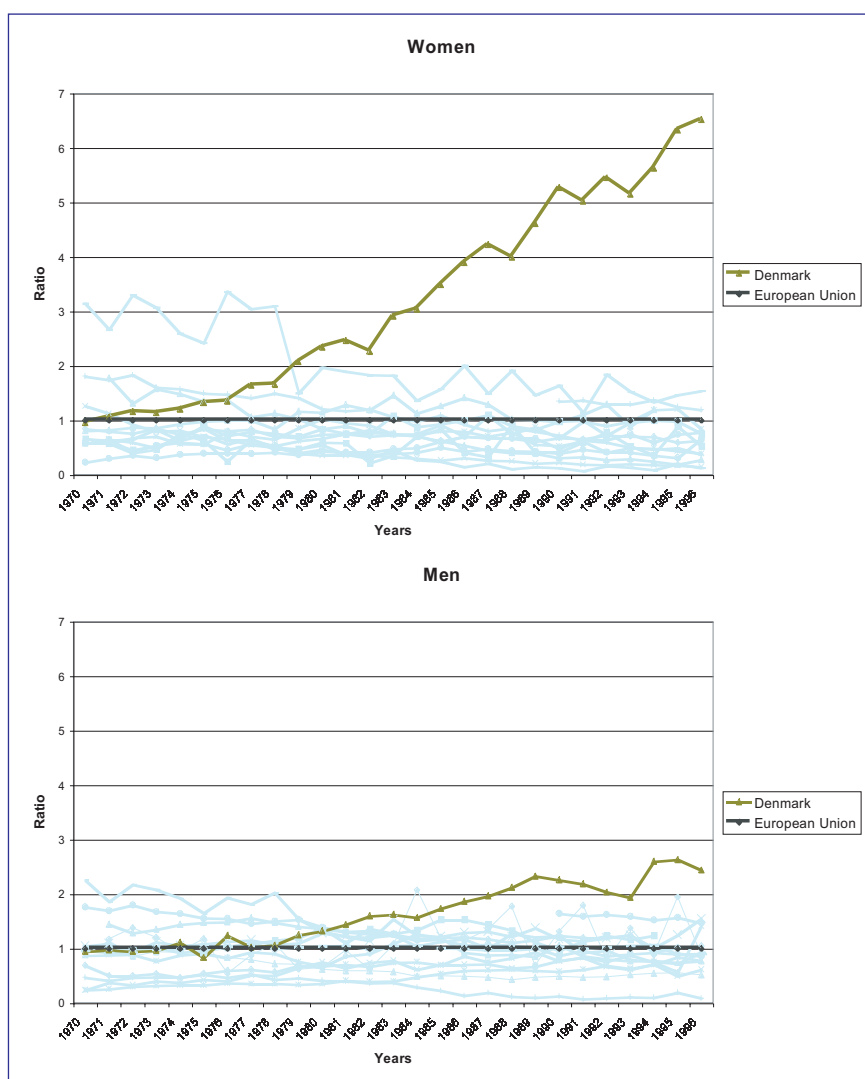
<sup>(12)</sup> European Community Respiratory Health Survey 1996.

<sup>(13)</sup> Robine et al. 1999.

**Graph 16**

Trends in ratios of MS' and EU's standardised death rates by bronchitis, emphysema and asthma: 1970–96

Under 65 years of age:



Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

## HEALTH STATUS OF SPECIFIC GROUPS

A number of social groups are considered in need of special attention. These include, *inter alia*, the elderly living in poverty, the unemployed, migrants, refugees, single parent families, the homeless and out-of-school youth. Some of these are discussed in the next chapter. The elderly and the migrants merit special attention here, as they are a growing minority in several MS.

Demographic changes observed in MS are important when explaining some of the patterns of morbidity, mortality and disablement previously discussed. Over the past two decades, ageing of the population has resulted in more people over 65 years of age, with more women than men at older ages, especially at 85 years of age or older. The elderly share of the population is amongst the highest in the world. This elderly population will continue to increase, while the proportion of adults aged 15–64 is expected to decline and the proportion of under-15 to remain stable. These demographic changes partially explain the growing burden of chronic diseases and the necessary volume of healthcare. These changes can be used to predict a still growing need for healthcare throughout the EU, although not all MS are ageing to the same extent. According to the 'elderly index', Italy is the 'oldest' EU country, followed by Germany and Greece. Ireland is the 'youngest' EU country.

The health status of migrants may be better or worse than the status of the native population of the host country and may, on occasion, mimic the status of the countries of origin. People who migrate are, on average, healthier than the population they originate from. Nevertheless, the data point to major needs associated with circulatory diseases, diabetes mellitus, reproductive health, child health, infectious diseases, mental health and accidental injuries and suggest low utilisation of health services.

## CONCLUSIONS

The EU has achieved significant health gains over the past three decades and since the previous report on the health status in 1992 (table III).

There is still a significant level of preventable morbidity and mortality before the age of 65 years. This is associated with accidents and injuries, suicide and other mental disorders, some types of cancers, circulatory disorders, infections, asthma and other respiratory illnesses. Many of these are amenable to effective preventive, promotive, and therapeutic interventions that delay either the age of onset or, as a result of better survival, push forward the age of demise. Prolonged survival is frequently associated with survival with disablement. This is particularly true for the elderly.

If we consider the best mortality results in the MS and compare those best results with the worst result and the EU average we get an idea of the significant room that still exists for improvement. Significant room for improvement is also identified when comparing women's and men's mortality (table IV).

If we consider the main determinants of these major causes of morbidity and mortality a number of them keep recurring (table V).

**Table III** — Health gains over the past three decades and since the previous report on the health status in 1992

| Health problem  | EU average |       |       | EU average gains for the period (%) |         |         |
|---|------------|-------|-------|-------------------------------------|---------|---------|
|   | 1970       | 1992  | 1997  | 1970–92                             | 1992–97 | 1970–97 |
| Life expectancy (in years)  | 71.8       | 77.0  | 77.8  | 7.2                                 | 1.0     | 8.4     |
| Overall premature mortality (per 100 000 inhabitants)                             | 378.0      | 253.0 | 233.0 | -33.1                               | -7.9    | -38.4   |
| Perinatal mortality rate (per 1 000 live births) <sup>(14)</sup>                  | 26.1       | 7.6   | n.a.  | -70.9                               | –       | –       |
| Infant mortality rate (per 1 000 live births)                                     | 21.9       | 6.9   | 5.5   | -68.5                               | -20.3   | -74.9   |
| Low birth weight (%)  | n.a.       | 5.8   | 6.2   | –                                   | 6.9     | –       |
| Maternal mortality rate (per 100 000 live births)                                 | 34.8       | 7.4   | 7.1   | -78.7                               | -4.1    | -79.6   |
| Premature mortality by road traffic accidents (per 100 000 inhabitants)           | 20.4       | 12.5  | 10.4  | -38.7                               | -16.8   | -49.0   |
| Premature mortality by suicide (per 100 000 inhabitants)                          | 11.4       | 10.5  | 10.0  | -7.9                                | -4.8    | -12.3   |
| Premature mortality by cancer (per 100 000 inhabitants)                           | 92.4       | 87.1  | 81.3  | -5.7                                | -6.7    | -12.0   |
| Premature mortality by cancer of the lung (per 100 000 inhabitants)               | 16.8       | 19.0  | 17.8  | 13.1                                | -6.3    | 6.0     |
| Premature mortality by cancer of the female breast (per 100 000 women)            | 18.1       | 19.6  | 18.5  | 8.3                                 | -5.6    | 2.2     |
| Premature mortality from ischaemic heart disease (per 100 000 inhabitants)        | 46.6       | 31.7  | 26.9  | -32.0                               | -15.1   | -42.3   |
| Premature mortality by stroke (per 100 000 inhabitants)                           | 23.0       | 11.4  | 9.9   | -50.4                               | -13.2   | -57.0   |
| Premature mortality by diabetes mellitus (per 100 000 inhabitants)                | 4.8        | 3.1   | 3.1   | -35.4                               | 0.0     | -35.4   |
| Premature mortality by asthma, bronchitis and emphysema (per 100 000 inhabitants) | 9.2        | 3.0   | 2.4   | -67.4                               | -20.0   | -73.9   |

Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark

NB: Premature mortality = under 65 years of age  
n.a. = non available

<sup>(14)</sup> Eurostat, European Commission.

**Table IV** — Potential for further health gains

| Health problem  | Women                        |                        |               | Men                |                   |               | Both sexes                   |                            |               |
|---|------------------------------|------------------------|---------------|--------------------|-------------------|---------------|------------------------------|----------------------------|---------------|
|   | Best value                   | Worst value            | Average value | Best value         | Worst value       | Average value | Best value                   | Worst value                | Average value |
| Life expectancy at birth (in years)   | 83.2<br>France               | 78.4<br>Denmark        | 81.0          | 76.7<br>Sweden     | 71.6<br>Portugal  | 74.4          | 79.3<br>Sweden               | 75.4<br>Portugal           | 77.8          |
| Overall premature mortality (per 100 000 inhabitants)                             | 126.0<br>Greece              | 217.0<br>Denmark       | 153.0         | 227.0<br>Sweden    | 399.0<br>Portugal | 314.0         | 182.0<br>Sweden              | 281.0<br>Denmark           | 233.0         |
| Perinatal mortality (per 1 000 live births) <sup>(15)</sup>                       | n.a.                         | n.a.                   | n.a.          | n.a.               | n.a.              | n.a.          | 5.4<br>Sweden                | 9.5<br>Greece              | n.a.          |
| Infant mortality rate (per 1 000 live births)                                     | n.a.                         | n.a.                   | n.a.          | n.a.               | n.a.              | n.a.          | 3.6<br>Sweden                | 6.4<br>Portugal,<br>Greece | 5.5           |
| Low birth weight (%)  | n.a.                         | n.a.                   | n.a.          | n.a.               | n.a.              | n.a.          | 3.5<br>Luxembourg            | 7.5<br>Belgium             | 6.2           |
| Maternal mortality rate (per 100 000 live births)                                 | 0.0<br>Greece,<br>Luxembourg | 9.6<br>France          | 7.1           | '—'                | '—'               | '—'           | '—'                          | '—'                        | '—'           |
| Premature mortality by road traffic accidents (per 100 000 inhabitants)           | 3.1<br>Finland               | 8.4<br>Greece          | 4.9           | 6.2<br>Sweden      | 30.1<br>Greece    | 15.9          | 6.1<br>Netherlands           | 17.3<br>Portugal           | 10.4          |
| Premature mortality by cancer (per 100 000 inhabitants)                           | 52.3<br>Finland              | 97.5<br>Denmark        | 65.7          | 70.8<br>Finland    | 117.0<br>France   | 97.7          | 61.2<br>Finland              | 95.3<br>Denmark            | 81.3          |
| Premature mortality by cancer of the lung (per 100 000 inhabitants)               | 2.9<br>Spain                 | 21.3<br>Denmark        | 7.0           | 19.1<br>Finland    | 41.3<br>Belgium   | 28.9          | 11.5<br>Finland,<br>Portugal | 24.2<br>Belgium            | 17.8          |
| Premature mortality by cancer of the female breast (per 100 000 women)            | 12.9<br>Greece               | 24.3<br>Denmark        | 18.5          | n.a.               | n.a.              | n.a.          | n.a.                         | n.a.                       | n.a.          |
| Premature mortality by ischaemic heart disease (per 100 000 inhabitants)          | 3.7<br>France                | 17.6<br>United Kingdom | 10.2          | 22.1<br>France     | 78.3<br>Ireland   | 44.0          | 12.7<br>France               | 47.7<br>Ireland            | 26.9          |
| Premature mortality by stroke (per 100 000 inhabitants)                           | 4.9<br>France                | 14.9<br>Portugal       | 7.5           | 9.6<br>Netherlands | 28.5<br>Portugal  | 12.4          | 7.3<br>France                | 13.3<br>Finland            | 9.9           |
| Premature mortality by suicide (per 100 000 inhabitants)                          | 0.8<br>Greece                | 10.5<br>Finland        | 5.0           | 5.2<br>Greece      | 35.5<br>Finland   | 15.0          | 2.9<br>Greece                | 17.6<br>Belgium            | 10.0          |
| Premature mortality by diabetes mellitus (per 100 000 inhabitants)                | 1.1<br>France                | 2.5<br>Portugal        | 2.2           | 1.7<br>Greece      | 5.3<br>Portugal   | 3.9           | 1.6<br>France                | 4.7<br>Portugal            | 3.1           |
| Premature mortality by asthma, bronchitis and emphysema (per 100 000 inhabitants) | 0.1<br>Greece                | 10.7<br>Denmark        | 1.6           | 0.3<br>Greece      | 7.8<br>Denmark    | 3.2           | 0.2<br>Greece                | 9.3<br>Denmark             | 2.4           |

Source: HFA Statistical Database, WHO Regional Office for Europe, Copenhagen, Denmark.

NB: Premature mortality = under 65 years of age  
n.a. = non available

<sup>(15)</sup> Eurostat, European Commission.



**Table V** — Determinants of observed morbidity and mortality

| <b>Health problem</b>                 | <b>Determinants</b>   |                                    |
|---------------------------------------|---|------------------------------------|
| Low birth weight and prematurity      | Smoking, alcohol abuse, drug abuse, access to quality healthcare                                      | Age, gender, socio-economic status |
| Accidents/injuries                    | Alcohol abuse, drug abuse, environmental, access to quality emergency care                            |                                    |
| Neuropsychiatric                      | Alcohol abuse, drug abuse   |                                    |
| Cancers                               | Smoking, nutrition, obesity, exercise, alcohol abuse, access to quality healthcare                    |                                    |
| Circulatory disease                   | Smoking, alcohol abuse, nutrition, obesity, exercise, access to quality healthcare                    |                                    |
| Infections                            | Nutrition, food and water safety, drug abuse, sexual behaviours, travel, access to quality healthcare |                                    |
| Asthma and other respiratory problems | Environmental conditions, smoking, access to quality healthcare                                       |                                    |



## Chapter 2

# Determinants of health

The major determinants of the major health problems are behavioural (tobacco smoking, alcohol abuse, inadequate diet, drug addiction, physical inactivity), poor environmental conditions and low socio-economic status. These and health promotion, disease prevention and the provision of curative care are discussed in this chapter. It is important to acknowledge that these determinants interact with each other in a complex way and that what counts in terms of health status outcomes is the combined impact of all determinants.

### SOCIO-ECONOMIC DETERMINANTS OF HEALTH STATUS

Health status is an important determinant of socio-economic development. But socio-economic status is also an important determinant of health status. In all MS <sup>(16)</sup> rates of mortality, morbidity and disablement are highest among the lowest socio-economic groups. The same pattern applies to socio-economic differences in risk factors for morbidity and mortality. Socio-economic status refers to the position of each person in society. This is stratified according to many criteria. The criteria frequently utilised in the health literature are macroeconomic determinants, level of education, family patterns, other social networks, income and employment.

#### Macroeconomic determinants

Macroeconomic determinants (GDP *per capita*) partly explain the expenditure power of countries and individuals on healthcare. The chances of premature death are highest amongst people with the lowest expenditure power. The prevalence of ill health increases regularly with decreasing income level. The trends of these determinants in the EU have been mostly positive. The late 1980s registered high GDP real growth rates (about 4 %). After a clear slowdown during the early 1990s, the economy started to recover in the late 1990s.

Nevertheless, important income inequalities are still observed amongst MS. The GDP per capita has three clear clusters — highest-income cluster (Luxembourg), middle-income cluster (Belgium, Denmark, Germany, France, Ireland, Italy, the Netherlands, Austria, Finland, Sweden and United Kingdom) and lowest-income cluster (Greece, Spain and Portugal).

Earnings are most equitably distributed in the Nordic MS. The greatest inequities are in Spain and the United Kingdom. Regardless of the approach used to measure poverty, Denmark, the Netherlands and Germany always have the lowest poverty rates and Spain, Greece, and Portugal the highest.

#### Education

Education on its own, or as a proxy for social status, is an important determinant of health behaviours and of health status.

<sup>(16)</sup> No data for Belgium, Greece and Luxembourg.

The prevalence of ill health increases steadily with decreasing educational level. People with chronic diseases and low education appear to have a more unfavourable course of chronic health problems, with more disabling outcomes, than the more educated patients.

Dutch and Finnish studies demonstrate that the higher the educational level, the higher the life expectancy and 'positive health expectancy' <sup>(17)</sup>. The chances of premature death are highest among people with the lowest educational achievements. The mortality for circulatory diseases is highest among the least educated. In Nordic countries, children of mothers having had only primary school education, have a higher risk of health problems than children of more educated mothers. These findings suggest that inequalities already exist at very young ages, and are likely to continue and even accumulate over the life-course. Interventions and policies aimed at reducing inequalities in health at young ages may therefore have important multiplier effects.

Education is also significantly associated with health behaviours. The more advanced the smoking epidemic curve in a country, the more smoking is concentrated among the least educated of that country. In contrast to southern MS, the most educated in the northern MS consume wine with meals more frequently and more often than the least educated. Regarding beer consumption, beer is consumed most often in the Nordic countries by the least educated. In all MS the least educated consume fresh vegetables less frequently, are on average shorter and are more obese than the most educated. The dimension of these differences varies sometimes between men and women and in accordance with the drinking and diet culture.

Education represents an area of important progress over the past three decades for all MS. Nevertheless, there still remain great differences in educational achievements among MS.

### **Households, families and other social networks**

Traditionally, the family represents the first source of informal healthcare and the major support system for the young and the old. They also represent a major repository of social values and mores that are important determinants of health behaviour. Family structures are important sources of companionship and are associated with patterns of mental health, as well as other morbidity and mortality.

Partly due to the changes in family structures, the elderly cannot rely as much as in the past upon the traditional support given by their relatives. The most common living situations of elderly people in the EU are: (i) living alone, not being able to rely upon their relatives for help and care or financial assistance; (ii) living as a couple in the community; (iii) living or staying in an institution. In Greece and Italy, grandmothers play a very important role in looking after children.

### **Employment**

Stable employment provides not only income and a share of material well-being, but also structures one's social life and gives specific meaning to personal existence. Regular and sufficient income from work gives people a perspective for the future, shaping the households' long-term plans. On the other hand, the costs of work-related illnesses are high.

Employment may be connected with poor working conditions. There is a direct relationship between health status and number of hours worked. About one third of the EU workforce is exposed to intensive noise or is required to handle heavy loads, 40 % work in painful or tiring positions and more than half have no personal control over comfort factors at their workplace, such as lighting, ventilation and

<sup>(17)</sup> Robine et al. 1999.

temperature. The most commonly reported health problems related to their work include back pain (30 %), stress (28 %) and muscular pains in the arms or legs (17 %).

Because men are more likely than women to work in high-risk sectors, such as construction, they suffer 10 times more fatal and three times more non-fatal accidents than women do.

Working conditions of precarious workers are worse than those of permanent workers. Workers in precarious conditions report more physical health problems, namely fatigue and musculo-skeletal disorders. Precarious work is most commonly associated with construction, manufacturing and agriculture, but also with some service sectors, namely transport and in hotels and catering, where skilled and unskilled manual workers are most represented. The percentage of working hours in precarious work is particularly high in Greece, Spain, Italy and Portugal.

## **Unemployment**

The relationship between unemployment and health is a complex one. The detrimental effects on health can be attributed to economic, social and psychological consequences. Unemployment results in a loss or reduction of income that may or may not hasten the unemployed under the poverty line. Sudden redundancy and long-term unemployment and the associated loss of social status and social contacts and increasing hopelessness of the situation may lead to stress with consequent psychological problems. Unemployment may also be associated with a loss of occupational health services and reduced access to other sources of healthcare. On the other hand, the health of unemployed young people is not much different from health of young people with a job or undergoing education and training. Although nervous and depressive symptoms occur more frequently, compared with elderly unemployed these problems are less severe.

The highest unemployment rates are in Spain, with a consistent two-digit rate since 1980. The lowest rates are in Luxembourg and Austria. There are, however, clear signs of improvement in all MS.

In the under 25 years of age group, the average unemployment rate is around 20 %. In Belgium, Greece, Spain, France, Italy, Finland and Sweden, the harmonised unemployment rate of young people (under 25 years of age) has been higher than 20 % and, at times, higher than 40 %. For this group of the population, the lowest harmonised unemployment rates cluster includes Denmark, Germany, Ireland, Luxembourg, the Netherlands, Portugal, Austria and the United Kingdom. The intermediate cluster includes Belgium, Finland and Sweden and the highest rates cluster includes Greece, Spain, France and Italy <sup>(18)</sup>.

Long-term unemployment represents about 50 % of total unemployment in the EU (25.2 % for Denmark to 66.2 % for Italy). There is a great overlap among countries regarding overall unemployment rates and long-term unemployment: Spain's 10.8 % rate contrasts with the 0.9 % rate from Luxembourg, while the EU average for long-term unemployment rate by working population is 5.2 %.

## **HEALTH BEHAVIOURS**

This section reports on the behavioural determinants of health. Behaviour-related risk factors include tobacco smoking, alcohol abuse, drug abuse, inadequate diet, sedentary life styles and sexual behaviour. These are particularly important to consider in relation to the young.

<sup>(18)</sup> European Foundation for the Improvement of Living and Working Conditions, 1997.

## Smoking

Tobacco smoking is harmful not only to the individual smoker but, because of passive smoking, also to others. Smoking is associated with a wide range of diseases. These include ischaemic heart disease, stroke, chronic bronchitis, emphysema, cancers (lung, bladder and kidney, pancreas, oral cavity, pharynx, larynx, oesophagus, body of the uterus and cervix of the uterus), aortic aneurysm, atherosclerotic peripheral disease, peptic ulcers, low birth weight babies, SIDS and lower fertility. Passive smoking contributes to SIDS, low birth weight, acute respiratory illness in early childhood, reduced lung function in children and adults, increased lung symptoms in asthmatics, decreased lung function in asthmatics, lung cancer and ischaemic heart disease. About 90 % of lung cancers, 80 % of chronic obstructive lung disease and 25 % of heart disease deaths are associated with smoking. Smoking represents the largest single determinant of avoidable deaths. Smoking-associated female deaths are still increasing.

### *Incidence and prevalence of smoking*

Among men the percentage of smokers has decreased since the 1980s, but has increased among women. This increase is particularly true of Greece, Spain, Italy, Luxembourg, Austria and Portugal, mostly because of the upward trend among the youngest women. Danish women have one of the highest smoking rates in the world.

Differences in smoking prevalence between male and female are smallest in Denmark, Ireland, the Netherlands, Sweden and the United Kingdom. These differences are also diminishing in Belgium, Germany, France, Luxembourg and Austria. In the south (Italy, Spain, Portugal) they are still significant.

In MS where there is a high prevalence of young women smokers there is also an increase in the number of pregnant smokers. In the United Kingdom the proportion of women smokers during pregnancy is increasing while in Sweden it is decreasing.

### *Light cigarettes*

There is a tendency among women to smoke 'light' cigarettes on the false assumption that they cause less harm, which is not true. In Denmark, France, Ireland, Italy, Austria, Finland and Sweden more than half of the women smokers smoke 'light' cigarettes.

## Alcohol abuse

Alcohol is also another important health determinant amenable to policy intervention. Although we do not have a good indicator for alcohol-related deaths that has been agreed upon (a Eurostat task force is working on it), there is, nevertheless, a strong relation between accidents with a fatal outcome on MS roads and alcohol abuse. In some MS there is an important alcohol effect on the suicide rates of males (Belgium, Austria, Portugal, Finland and Sweden) and females (Belgium, Germany, Netherlands, Austria and Sweden). Homicide rates are also influenced by alcohol drinking patterns. **Per capita** consumption is a key factor in explaining changes in cirrhosis mortality for men and women and for different age groups. Alcohol also contributes to cancer of the mouth and of the oesophagus. Sustained heavy drinking progressively increases the risk of raised blood pressure and stroke and the possibility of ischaemic heart disease. Excessively high consumption substantially increases the risk of ischaemic heart disease although, if taken moderately can reduce its risk. Alcohol abuse during pregnancy also results in an increased number of children born with foetal alcohol syndrome.

### *Alcohol consumption patterns and trends*

There are differences between MS in relation to the prevalent drinking cultures. In fact, three groups of MS can be identified: the wine drinking region of the south, the beer drinking culture of the centre and the spirits drinking culture of the north. These differences are becoming less distinct. The extent to which these are changing is difficult to establish because there are no good comparable statistics on the number of drinkers or patterns of consumption. The commonly used proxies are sales figures from the World Drink Trends.

Alcohol sales are decreasing in the predominantly wine-drinking south and increasing in the predominantly beer-drinking MS. France and Luxembourg have the highest average alcohol sales (about 15 litres per capita per year). Finland, Sweden and the United Kingdom have the lowest average alcohol sales (7.9 litres per capita per year). The EU average is 9.4 litres per capita per year. These figures do not discriminate between men, women, age and factors such as tourism, import/export and non-commercial or illegal production, and therefore should be interpreted with caution.

Alcohol consumption among the very young (15 years of age) is not negligible. The highest level is found in Greece with 52 % of boys admitting to alcohol consumption compared with 31 % of girls. The lowest levels are found in Finland with 11 % of boys admitting to consumption compared to 8 % of girls. The highest level of boys and girls of 15 years of age reporting having been drunk twice or more is found in Denmark (71 % of boys and 63 % of girls) and the lowest level is found in Greece (21 % of boys and 21 % of girls), followed by Portugal (35 % of boys and 16 % of girls). There is a geographical pattern with young people from Mediterranean countries reporting lower levels of drunkenness.

### **Drug abuse**

Drug addiction damages the physical and mental health of consumers and may lead to de-socialisation. Crime, especially burglary and prostitution, may be used to pay for the costs of addiction. Among drug users, sharing of contaminated injecting equipment is the main transmission route for HIV and hepatitis. In many MS, injectors have reduced such sharing. The number of ecstasy seizures is increasing in all MS where these are reported. In northern MS they remain well below those for amphetamines; in the other MS the reverse is the case. The limited data suggest that the decline in drug fatalities observed in recent years is slowing down and that mortality may even be increasing.

Throughout the EU, cannabis is the most commonly used illegal drug. However, use is commonly occasional or intermittent rather than frequent and the drug rarely appears as the primary drug in health and social care indicators. Amphetamines are usually the second most frequently used illegal drug. Among young adolescents, lifetime prevalence of solvent misuse ('glue sniffing') may be higher than any other drug apart from cannabis. EU populations usually have less experience of heroin than of any other drug. Among younger adults in major cities heroin addiction is more prevalent than the national average. Heroin dominates amongst populations identified as having problems related to drug use.

MS with a high cannabis-consumption rate also have high amphetamine and ecstasy consumption rates. MS with a low cannabis-consumption rate also report a low rate of hard-drug consumption.

### **Diet and nutrition**

Diet is of great importance in disease prevention and health promotion. In fact, a poor unbalanced diet has serious long-term health effects such as circulatory disease, cancers and non-insulin dependent diabetes, some of the major causes of premature death.

### *Dietary patterns and trends*

There is a large dietary variety in the EU. This variety can be grouped into northern food cultures and southern food cultures, the Mediterranean diet. Notwithstanding these two dietary patterns there is a growing convergence of dietary habits and cultures. The dietary pattern is more important for health and longevity than single nutritional components.

There is a socio-economic gradient in dietary habits, since fats are relatively cheap foods. Consumption of cereals and cereal products has decreased whilst that of vegetables, meat and fat consumption has increased. Sugar consumption in Greece, Italy and Portugal is significantly lower than in Finland, Sweden and the United Kingdom. Fruits and vegetables are gaining in popularity in the north, namely among the younger generation.

### *Nutritional status*

Recent trends show that women, particularly young women, worry more about their weight than men do. The increase in sedentary life-styles and a high fat intake often result in an excess intake of energy and being overweight. Therefore, obesity is a growing problem, with figures pointing to an increase from 10 % to 40 % in most MS for both women and men. The United Kingdom is leading this tendency.

### **Physical activity**

At all ages, physical activity improves health and the quality of life. Physical activity in childhood and adolescence plays an important role in reducing the development of osteoporosis later in life by enhancing peak bone mass. For the elderly, exercise within the limits of their physical capacity and on the advice of their physician, reduces bone loss and increases muscle mass and strength. It can also improve mental functioning and contributes to an overall sense of well-being. Exercise reduces death rates from circulatory disease and cancer.

### *Patterns and trends*

For most people, walking, rather than a sport, provides the most frequent exercise. A substantial proportion of young adults play sport regularly, but the numbers fall steeply after the age of 30. This can be partly explained by work and domestic commitments.

The limited data available suggest that 42 % of the population over the age of 15 years spend over 3 hours a week in various physical activities; 26 % spend between 1 and 3 hours per week and 32 % do not spend any time with exercise.

### **Sexual behaviour**

Sexual behaviour is an important determinant of physical and mental well-being. Sexual behaviour, specifically 'unsafe sex', also has implications for undesired teenage pregnancies, fertility, infectious diseases (HIV infection, hepatitis B and C, gonorrhoea, syphilis, etc.) and other reproductive health problems, namely pregnancy-related morbidity and mortality.

The improvement of family planning programmes has reduced the number of unwanted pregnancies, but there still is a significant demand for induced abortions, predominantly among teenagers. The demand for induced abortion is associated with cultural factors, failure of contraceptive methods, pregnancy resulting from rape, malformation of the foetus, health risk to the mother and socio-economic circumstances.



### *Patterns and trends*

The 1960s and 1970s were times of changes in sexual behaviour, namely the decreasing age of first intercourse and increasing use of reliable contraceptive methods. These changes continued at a slower pace in the 1980s and 1990s: the use of oral contraception and condoms steadily increased and the trends toward early loss of virginity levelled off. This slowdown started before the onset of HIV/AIDS epidemic in the mid-1980s, but it was reinforced by the emergence of AIDS.

Regarding the age of first sexual intercourse, there are great differences between the MS. In Mediterranean MS, men start their sex lives well before marriage, while women have their first sexual intercourse latest in the EU. But during the past few years, this difference has narrowed. In the north, men and women have their first sexual intercourse at about the same age. Belgium, Germany and the Netherlands are characterised by a comparatively late sexual initiation for both sexes.

These patterns and trends are important when planning health promotion initiatives and school sex education programmes.

## **PHYSICAL ENVIRONMENT**

The evidence on the link between physical environment and health is limited. This makes it difficult to develop evidence-based health policies.

The available evidence suggests that air pollutants are possibly associated with 40 000–150 000 deaths of adults, per year. Outdoor (dioxins, particulate matter, lead, nitrogen dioxide, sulphur dioxide, benzo(a)pyrene, and ozone) and indoor (radon, damp and tobacco smoke) air pollution, water pollution (microbiological, lead, pesticides and nitrates), noise, food contamination and ozone depletion are the principal environmental risk factors impacting on people's health. These impacts are felt in association with hearing problems, sleeping disorders, stress leading to hypertension and other circulatory disease, skin and other cancers, asthma, birth defects and gastro-intestinal problems.

The EU is making progress in stabilising emissions of greenhouse gases. The available data indicate a decrease in population exposure to sulphur dioxide over the last decade. However, the level and trends of exposure still remain a problem for air pollution with particulate matter and nitrous dioxide, ozone depletion and chemical water pollution from agriculture and landfills. Significant gains may still be expected from more efficient use of energy and from more rational transport policies.

## **HEALTH PROMOTION**

Effective health promotion leads to changes in the impact of the determinants of health. Health promotion activities are addressed from four intervention perspectives: health protection, disease-oriented, risk-oriented and settings-based.

### **Health protection interventions**

Health protection is an explicit treaty mandate of the European Commission. A lot has been achieved. The best health protection effects are obtained when legislative developments are coupled with well-targeted information campaigns on safety devices such as seat belts, helmets, smoke detectors, fireguards, stairgates, child restraint container closures, and thermostat control of tap water. Evaluation of a three year, Swedish accident prevention programme saw accidents reduced in the home by 27 %, in the workplace by 28 % and traffic-related accidents by 28 %. Legislation in this field is a key strategy. Other areas of significant developments are in blood and food safety.

## Disease prevention

The interventions for disease prevention fall into two categories: vaccination and screening. The position regarding vaccination is summarised under vaccine preventable infectious diseases. Screening is carried out antenatally, during childhood and for some cancers in adulthood.

All MS consider antenatal care a priority. The extent to which antenatal screening procedures are effective has been a recent source of much debate, and many conclusions on what is effective or not have still not permeated the routine practices in antenatal care. If pregnancy termination is involved, differences of ethical considerations prevail within and between MS.

The first years of life are also considered a prime period for the detection of metabolic, developmental and other health problems. These vary somewhat among MS, but there is no systematic review of the comparative practices of the different MS.

Cancer screening is effective in reducing breast and cervical cancer mortality. Germany, Greece, Luxembourg, the Netherlands, Finland, Sweden and the United Kingdom report the existence of national screening programmes for cancer of the female breast. No such formal programmes are reported by Denmark, Ireland, Italy or Austria. Denmark, Greece, Germany, the Netherlands, Finland, Sweden and the United Kingdom report having a national screening programme for cervical cancer in women. No such formal programmes exist in Ireland, Italy, Luxembourg, Austria and Portugal. Only Austria (digital rectal examination and faecal occult blood testing), Germany (digital rectal examination and faecal occult blood testing) and Greece (faecal occult blood testing) advise routine screening for colorectal cancer and Austria and Germany for skin cancer. Finland reports screening for gastric cancer on an experimental basis. Austria, Germany and Greece recommend mass screening for cancer of the prostate by digital examination (Greece also advises the serological estimation of the prostate-specific antigen). For most of these programmes, standardisation is low and coverage of the target groups is far from being universal <sup>(19)</sup>.

Worksite screening and screening for hypertension and intestinal and prostate cancers are frequent practices, but cost-effectiveness and national best practices have not been documented.

## Risk approach

The effects and the prevalence of each different risk factor are not independent of the effects and prevalence of other risk factors. There is an interaction between smoking and alcohol consumption. The effects of alcohol are potentially exacerbated by problematic social conditions. Domestic violence is associated with drinking problems. Therefore the risk approach has been switching from a focus on affected individuals to a greater population emphasis, addressing a multiplicity of risks.

Hence, the emphasis regarding alcohol-related problems is on a population approach aiming at reducing global consumption (*per capita*), coupled with a complementary individual high-risk approach directed at excessive drinkers.

For illicit drug consumption, there is a shift from the predominantly medical approach to a more community-based approach that includes social factors and the determinants of drug trafficking. Increasingly, prevention strategies apply a two-pronged complementary preventive strategy: a broad, population-targeted, intervention and life skills training approach, and a narrower, specific action targeting high-risk groups. The broad strategy aims to identify and strengthen factors that promote healthy lifestyles and facilitate the development of autonomy, responsibility and critical sense.

<sup>(19)</sup> Based on Kupsch 2000. No data are reported for Belgium, Spain, France and Portugal.

For smoking the most cost-effective health promotion is where various strands delivering a single message come together — in the workplace, in schools, in the out-of-school youth sector and with elderly people. When a smoker quits, it is because of a combination of factors: the price went up, he was banned from smoking at work, he read an article in a newspaper or his doctor told him the consequences of not stopping. A resolution of the Council and the ministers of health invited MS to ban smoking in places open to the public.

In the Netherlands, a 'Fat Watch' campaign, run in partnership with supermarkets and other private sector allies, brought favourable changes in consumption of saturated fats (from 16.4 % to 14.1 % of energy intake over a five-year period). Mainly due to such changes in fat intake, the prevalence of hypercholesterolaemia, an important determinant of circulatory diseases, dropped by 6 %.

### **Health promotion in key settings**

Health promotion has, for many years, been concerned with settings. However, the concept of an actual settings-based approach has only begun to take shape in the last 10 years. The settings most commonly considered have included the workplace, schools, universities, prisons, cities and healthcare institutions.

During the 1980s, health and safety at work became one of the most active aspects of EU social policy in the employment field. The Single European Act adopted in 1986, gave a new impetus to the occupational health and safety measures taken by the Community. Article 118 of the Treaty of Amsterdam establishes the minimum requirements for health and safety at work in the MS. Following the Single European Act, various other pieces of legislation were adopted, the cornerstone was the 'Framework directive' on health and safety at work, on which all subsequent directives have been built. Over recent years, many MS have embraced an increasing number of workplace health promotion programmes.

Evidence indicates greatest effectiveness where school health programmes are comprehensive and 'holistic', linking the school with agencies and sectors dealing with health, and where they last several years. The European Network of Health Promoting Schools is operational in 38 countries. Whilst its potential is great as a model for development of programmes, the evidence is clear that schools cannot be looked upon to solve health and social problems in isolation from other forms of public health action.

The key objectives of the health-promoting university concept are: to promote healthy and sustainable policies and planning throughout the university, to provide healthy working environments, to offer healthy and supportive social environments, to establish and improve primary healthcare, to facilitate personal and social development, to ensure a healthy and sustainable physical environment, to encourage wider academic interest and developments in health promotion and to develop links with the community. A network of health-promoting universities already involves at least six universities in the EU.

'Healthy cities' provides a strong multi-agency framework and philosophical model for the support of community development and health approaches in Europe. Programmes have shown evidence of effectiveness including generating increased income through work opportunities, improved community support with counselling services, better community involvement and improved, closer links with professional services.

The healthcare sector is an essential partner in creating the right conditions for health in society. It has an important leadership role in society. This leadership role can be exercised by providing examples of what can be done to achieve a healthy environment, as an advocate for healthy public policies and

as a source of advice to individuals on healthy behaviour, screening programmes and health protection technology. Evidence indicates success by the health sector through interventions to promote smoking cessation and to deal with problems of alcohol abuse. Despite this evidence, the health services in many MS still do not live up to their health promotion responsibilities.

## HEALTHCARE SERVICES

It is acknowledged that healthcare services are not, under the most recent treaty agreements, included among the responsibilities contemplated for the EU institutions. It is also clear that national governments and the EU agree that the 'European Union has neither the desire nor the ability to run (or to harmonise) national health systems', but 'what we cannot escape from, though, is the continuous convergence of these health systems' <sup>(20)</sup>. Nevertheless, in the absence of an explicit common policy and strategy, the European Court of Justice has, through numerous rulings, filled the empty policy niche and, by default rather than by intent, has been creating a de facto emergent healthcare policy.

It is also important to focus on healthcare services, in order to give them their rightful place amongst the determinants with a positive impact on the health status of the populations they serve. The question of the impact of healthcare services on the health status has been the focus of a growing body of literature since the 1970s. Early economic models suggested that a 1 % increase in the quantity of medical services is associated with a reduction in mortality of 0.1 % <sup>(21)</sup>. Some studies suggest that reducing differences in the effectiveness of medical care may be more important for narrowing the life expectancy gap than has hitherto been assumed <sup>(22)</sup>. There is a growing consensus that healthcare — comprehensively understood to include curative care and prevention, promotion and rehabilitation — has a not insignificant impact on health status. The measurement of this impact is hampered by methodological issues, by unclear definitions of health status, by lack of clarity on what is meant by healthcare (its scope, its technology, its organisations, its financing and its quality) and by difficulties in accessing the necessary data.

Equally as important is the lack of acknowledgement that healthcare services are also an important source of suffering, morbidity and mortality. Although this has not been quantified in most MS, where it has been done the figures are staggering. In a department of internal medicine in Spain, 4.2 % of admissions were for iatrogenic disease <sup>(23)</sup>. In another example from Spain, an analysis of deaths in a department of internal medicine showed that 8.6 % were associated with iatrogenic disease, with 3.8 % directly contributing to death <sup>(24)</sup>. Weingart et al. cite six studies that found that iatrogenic injury accounts for 5–36 % of admissions to medical services and for 11–13 % of adult admissions to intensive care units at university hospitals <sup>(25)</sup>. Another recent Italian study of the frequency of adverse drug reactions in children reports an incidence of 15.1 per 1 000 defined daily-doses, but consider that their observations underestimate the problem <sup>(26)</sup>. One report from Germany identifies 300 unnecessary mastectomies associated with medical error <sup>(27)</sup>. When associated with professional negligence, iatrogenesis may become a court matter. Litigation in Europe started in the early 20th century (first cases in Norway in 1907 and in Sweden in 1937) and is a growing business. Obviously, litigation comes too late to prevent harm.

<sup>(20)</sup> Fischer 1999.

<sup>(21)</sup> Auster et al. 1969.

<sup>(22)</sup> Velkova et al. 1997.

<sup>(23)</sup> Sampereiz Legarre et al. 1994.

<sup>(24)</sup> De Escalante et al. 1994.

<sup>(25)</sup> Weingart et al. 2000.

<sup>(26)</sup> Menniti-Ippolito et al. 2000.

<sup>(27)</sup> Cooper-Makhom 2000.

Lastly, the quality of the care movement gained momentum in the 1990s. There is a European society for quality in healthcare. There are EU directives for the licensing of medical doctors and other health professionals. In all MS there exists legislation and regulations on licensing that are in accordance with these directives. Within the EU, the common regulations for medical equipment and pharmaceuticals quality are comprehensive. Many MS have developed quality of care policies and created or identified institutions responsible for their promotion. Peer reviews are becoming more frequent and, in several MS, 'quality registries' have been established. Even so, MS still have to define quality indicators and minimal levels of performance in quality criteria for healthcare. Continuing education programmes and re-licensing requirements lack a systematic approach in most MS. Existing quality assurance programmes are laboratory- and hospital-focused and receive unequal priority among the MS.

For all of the above reasons, healthcare services are considered an important area to be contemplated in this report. Therefore, this section describes the resources available for healthcare and its organisation.

### **Expenditure on and resources available for the provision of healthcare**

Total health expenditure as a percentage of the GDP increased for most MS during the 1970s. It continued to increase for most during the 1980s and stabilised in the 1990s (with increases for Germany, Greece, France, Luxembourg, Austria and Portugal) at around values ranging from 6.7 % to 10.4 %. These percentage variations are associated with a sustained, since the 1970s, increase of total health expenditure.

Total health expenditure in USD PPP per capita increased for most MS. There are three country clusters. The cluster with the highest per capita expenditure includes Germany, France and Luxembourg and the cluster with the lowest per capita expenditure includes Greece, Spain, Ireland, Portugal, Finland and the United Kingdom. The MS with the highest annual health expenditure per capita are not necessarily the same as those whose populations enjoy the highest life expectancy.

Since 1970 Austria and Finland have shown a sustained decrease in hospital expenditure as a percentage of total health expenditure. This downward trend has also been observed in Denmark and the United Kingdom since the 1980s. Spain, France, Italy and the Netherlands showed significant decreases during the 1980s but had variable trends in the 1970s and during the 1990s. Nevertheless, inpatient healthcare expenditure *per capita* has shown a sustained increase since 1970 (stabilising in the 1990s for Finland). The rate of this increase has been fastest during the 1990s, except for Italy. Public inpatient expenditure for Denmark has accounted, since the 1970s, for 100 % of all inpatient expenditure. For Belgium this figure has decreased since 1970. During the 1980s it also decreased for Austria and Portugal. During the 1990s this same trend has been observed in France and Italy.

As expected, pharmaceutical expenditure *per capita* has shown a sustained increase since 1970. The rate of this increase has been fastest during the 1990s (the exception being Italy).

### *Human resources*

The human resources scenario is that of a health sector that is increasingly employing more and more resources. These resources are characterised by a slow increase of nurses as a percentage of the health personnel, increasing feminisation, specialisation, and a decreasing concentration of the health personnel in hospitals. Although the number of general practitioners (GP) per 1 000 head of population increased, its share of the percentage of total health employment decreased.

## Healthcare facilities

Data on healthcare facilities are limited and of limited comparability. The apparent trends suggest a stable number of primary healthcare (PHC) units per 100 000 head of population.

At hospital level, the number of inpatient, psychiatric care and acute care beds per 1 000 head of population has decreased since the 1970s. Nevertheless, the acute-care beds, as a percentage of the total bed stock, has decreased for France and the Netherlands, but has increased or is stable for other MS.

## Technological resources

The technology scenario is that of a marked increase of the technological equipment (lithotriptors, mammographers, MRI units, radiation therapy equipment and scanners) available per million head of population. The inequality of access to healthcare technology is significant among MS, suggesting that either under-utilisation, or supply induced over-utilisation of heavy medical technology, may in some MS be reaching epidemic proportions.

## CONCLUSIONS

There have been major health gains since 1970 and since the reference year (1992) for the last report. The major risk factors responsible for the current levels of morbidity, mortality and disablement were reviewed. Current trends seem favourable in the majority of MS for most risk factors. Nevertheless, at a time of great wealth, there is still room to achieve gains in education, employment and unemployment, *per capita* income and equity. A simple comparison of the best and worst values for available indicators reflects the tremendous potential for improvement that still exists.

A number of other issues emerge that merit attention. The first is the postponement of morbidity and mortality from the age group under 65 to the over 65 years of age. The second is that the major potential for health promotion interventions is amongst the youth. The third, that a settings approach in schools, at the workplace, in universities and in prisons should receive increasing attention. The fourth, that there is no right approach, but it seems that the most successful health promotion approaches mix methodologies and engage many social partners. The fifth, that other policies (environment, traffic, education, employment, poverty alleviation, agriculture, etc.) may have a significant impact on health. This inter-sector understanding of health is important in the context of new forms of organising work (more home-based and more precarious), which have implications for the development of occupational health standards and services and, the transformation of the social support systems, namely the family, that has implications for the development of healthcare services, namely of community and home-based care.

# *The need for further action*

This chapter is far from being prescriptive. It re-emphasises the principal opportunities for health gains, the factors that have to be influenced to achieve those health gains, the tools and the possible strategies that, with some specificity, can be used by the EU to influence policies to achieve the desired gains.

### **PRINCIPAL THEMATIC AREAS**

The principal thematic areas have to do with the major determinants of the principal causes of mortality, morbidity and disablement. These are summarised in table IV. They are also the determinants of the outline of a multi-pronged plan of action with the overall aim of increasing autonomy, reducing human suffering and mortality.

The need for comparable data remains at the centre of the preoccupations emerging from this report. Lack of reliable data on morbidity, disablement and health services point to the need for further data and information-related improvements. Even mortality data is sometimes of questionable comparability. It is quite possible that some of the trends described in this report are a reflection of the data collection and registration practices. These limitations are not a reason not to use the available data. On the contrary, they are a very good reason to use it, with caution. Only attempts at using the data will highlight the limitations of said data, piling up the pressure to improve on current data-related practices.

### **WHAT ARE OUR EXPECTATIONS OF THE COMMISSION?**

The resolution of many of the principal thematic issues is clearly the responsibility of national governments. But there is obviously ample room for Commission intervention.

This 'room for intervention' includes, *inter alia*, areas such as standardisation of indicators, infra-structural development for data exchange, stimulation of exchanges on evidence-based developments and best practices and promoting quality benchmarks and supporting networking for greater coordination among different national and international groups.

The work on health protection needs to continue, even beyond current areas of work such as occupational, food, road and blood products safety.

Primary disease prevention is important in the area of infectious disease. There is still ample room here for health gains. The Commission could, among other activities, promote an effort to ensure greater harmonisation of national vaccination policies.

The potential of recent developments in genetics should be closely followed up by the Commission, not only for their ethical importance, but above all for their potential for new developments for disease prevention, primary and secondary.

In most MS (with some notable exceptions acknowledged earlier) secondary disease prevention is still sub-optimal. Again, the Commission could play an important role in facilitating the exchange of best practices, namely in areas such as breast, cervical, colo-rectal and prostatic cancer screening.

Most important of all, is the acknowledgement that health status significantly depends on exposure to an array of determinants amenable to policy intervention — e.g. tobacco, alcohol, food, water, air, etc. This requires the acknowledgement by policy-makers that policies to tackle health determinants fall outside the scope of conventional health sector policies. Policy developments concerning these cross-cutting issues should take into account their health impact. The Commission should have an important brokering role concerning these inter-disciplinary policy developments.

## **WHAT TOOLS?**

Whilst respecting the subsidiarity principle, the EU still has a number of tools that may effectively contribute to further health gains in the EU. These tools include Treaty commitments, enactment of legislation, directives, recommendations, resolutions, conclusions, communications and reports. These contribute to the definition of policies, taxes, standards, charters of basic rights for patients, criteria for disbursement of funds, evaluation and monitoring practices, research agenda and the definition of programmatic lines for Commission-initiated work. The establishment of consortia and of networks could serve as an important tool for the integrated operation of actions defined by the above tools. Further, through direct appeals to public opinion, it is possible to influence decisions that fall outside the scope of the formal work of the Commission.

The previous sections imply that policies and corresponding programmes of action should be criteria-driven and target-related. Expected health gains and narrowing the health gap among countries, and socio-economic strata, should play a decisive role in setting the criteria and defining the targets.

Standards are particularly important for issues that have to do with the environment, professional standards, medical technology, quality of care and with health protection and settings based health promotion. The EU has significant experience in this respect and it should remain one of its principal tools in achieving health gains for the European Communities.

Another priority remains the improvement of the data available for decision-making by the EU. This implies continuous funding of the development of health information systems and of research to base decision-making on sound evidence.

At a time of globalisation the media has a significant impact on public opinion, even across borders. Effective use of the media may contribute to important health gains. Reports such as this one, and many other reports on key health issues, should continue being produced. However, their media exposure should be greatly increased.

## **WHAT STRATEGIES?**

A strategy is a method (a combination of steps logically linked to reach a specified goal) to place a system within a situation where the actors in that system have their performance options clarified and limited to a reduced number of allowed alternatives.

### **Steering and coordination**

The need for more steering, coordination and transparent procedures for the development of common EU health policies is broadly perceived as important. This steering capacity could be enhanced through the establishment of consortia of institutions or the development of thematic networks and/or observatories.



Especially in the area of health information and related action, the need is strongly felt for the coordination of expert networks and of MS focal points for health information. This will be the only way to improve and expand the necessary comparable data sets, to allow MS to benchmark their health policies in the future and to facilitate the exchange of best practices.

Most health information systems in the MS lack information on outcome measurements and on cost data. Recent developments concerning the growth of patient information systems, including health cards as a way of dealing with patient mobility and ensuring greater continuity of care should continue to receive the Commission's support.

With the facilitation of the EU Health monitoring programme (HMP), some important changes are taking place concerning the development of an EU-wide health information system. These fall under three headings: indicators, data exchange systems and health monitoring.

### *Indicators*

Increasingly, public health information is collected, exchanged and put into data base systems and public health reports. This happens regionally, nationally and through international organisations and activities.

Most databases and reports in public health include a comprehensive field including the areas of **health status, determinants of health, prevention and healthcare activities**. An improved dissemination of public health information between countries and other parties in the field (WHO, OECD, the Commission's Eurostat and HMP) needs to be supported. This could be partially achieved by seeking an agreement on a taxonomy for the main groups of issues, at the same time covering the main fields of data and indicators. This would establish a common ground for a hierarchy/taxonomy of public health indicators, to be used by international organisations active in this field. Such an agreement could act as one incentive for further improvements in the collection of data and defining indicators that are comparable between countries and regions.

### *Data exchange electronic system*

Under the umbrella of the HMP, a health information and exchange system between MS is being built. It is designed as a relational database for intranet/Internet application, basically containing raw aggregated data. The system will provide a limited number of pre-calculated indicators, but other calculations or analyses of the same data will be possible. Data will be fed into the system (largely) by the MS.

### *Disease surveillance*

Disease surveillance is one of the priorities of the public health programme of the EU. Many networks have been developed for this purpose, mostly for surveillance of infectious diseases. These networks would benefit from a more systematic overall coordination. An EU 'network of networks' could achieve this.

### *Health impact assessment (HIA)*

Although policies in other sectors can have a considerable influence on health and the production or prevention of illness, disability or death, this has so far only been considered to a limited degree, mainly within the framework of environmental and social impact assessments. Recent attempts to take a more integrated approach to health and development put HIA high on the agenda of some MS (at national, regional and local levels). A similarly increased interest is reflected in research circles. An

important step forward was taken by the EU through Article 152 of the Amsterdam Treaty which states that **'A high level of human health protection shall be ensured in the definition and implementation of all Community policies and activities'**, and the Council Resolution of June 1999 calling for the establishment of procedures to monitor the impact of Union policies and activities on public health and healthcare. A recent experience involved an assessment of the health impact of the common agricultural policy.

### **Public health framework**

Most of the priorities identified here are already addressed in the new public health framework programme of the EU. What is lacking in the current framework is an explicit acknowledgement of the tools available for the Commission and an explanation on how these may be used to further the programme.

### **POLICY INTERVENTIONS**

A number of policy areas can be identified as needing special attention. First, reduce inequalities in socio-economic determinants (such education and income). Second, minimise the negative effects of ill health on socio-economic status (e.g. prevent the chronically ill from dropping in income). Third, reduce exposure to specific risk factors (such as smoking, drugs, alcohol or occupational exposures to health risks). Fourth, increase the supply of healthcare to the specific social groups identified in Chapters 1 and 2 as needing extra attention. Fifth, the impact, direct or indirect, of other EU policies on health justifies regular health impact assessments of these EU policies. Sixth, formalise targets and systematise and formalise recommendations on best practices regarding the issues identified in the different chapters of this report. Seventh, this emphasis on best practices should pay an increasing attention to services concerned with the reduction of suffering. Eighth, strengthen even further the information and knowledge management investments so far carried out by the Commission and the MS. These could be the basis of a flexible policy framework for the EU.

### **WHAT GAINS: IMPROVING HEALTH STATUS AND NARROWING THE HEALTH GAP**

Well thought out policies, supported by adequate strategies and tools, will have an impact resulting in further improvements of the health status of the MS. As the countries with the worst health status catch up to those with the best health status, health inequities amongst MS will narrow, hopefully also reflecting a narrowing of the differences in socio-economic and other determinants of health status.

# *Abbreviations*

|      |   |
|------|---|
| AIDS | acquired immunodeficiency syndrome                    |
| EHEC | entero-haemorrhagic Escherichia coli                  |
| EU   | European Union  |
| GDP  | gross domestic product                                |
| GP   | general practitioner                                  |
| HIA  | health impact assessment                              |
| HIV  | human immunodeficiency virus                          |
| HMP  | health monitoring programme                           |
| IMR  | infant mortality rate                                 |
| MRI  | magnetic resonance imaging                            |
| MMR  | maternal mortality rate                               |
| MS   | Member States   |
| OECD | Organisation for Economic Cooperation and Development |
| PHC  | primary healthcare                                    |
| SIDS | sudden infant death syndrome                          |
| WHO  | World Health Organisation                             |

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# Glossary

**Average pure alcohol sold per capita in a country** — it is defined as the total amount of pure ethanol in spirits, wine and beer sold/consumed in the country during the calendar year or calculated from official statistics on local production, import and export, taking into account stocks and home production, whenever available. This amount is divided by the average-year population. Data published in *World Drink Trends* by *Produktschap voor Gedistilleerde Dranken* (Schiedam, NL) are used by the WHO as a source.

**Clusters of countries** — cluster analysis is a procedure for detecting relatively homogeneous groups of cases in the data. Hierarchical cluster analysis was performed, using a squared Euclidean distance and the between groups linkage method to determine which cases or clusters were combined at each step. In the hierarchical method, clustering begins by finding the closest pair of cases according to a distance and combines them to form a cluster. The algorithm continues one step at a time, joining pairs of cases, pairs of clusters or a case with a cluster. This is adequate for small samples and allows us to classify countries into 3 groups according to their performances. Statistical Package for the Social Sciences SPSS V10 was used.

**Diet** — the northern diet is mostly dominated by saturated fats from dairy products. A Mediterranean diet is mostly characterised by: high monounsaturated/saturated fat ratio; moderate ethanol consumption; high consumption of legumes; high consumption of grains and cereals, including bread; high consumption of fruits; high consumption of vegetables; low consumption of meat and meat products and moderate consumption of milk and dairy products. Olive oil occupies a central position in this diet. Other essential components of the Mediterranean diet are consumption of large quantities of vegetables in the form of salads and equally large quantities of legumes in the form of cooked foods. The ratio of monounsaturated to saturated fats is much higher than in other regions of the world, specifically northern Europe. The high intakes of calcium, magnesium and potassium that are associated with the Mediterranean diet are thought of as having desirable consequences on a wide range of physiologic processes.

**Disablement** — it is a generic term covering impairment, disability and handicap.

**Early neonatal mortality rate** — it is defined as the number of deaths in infants under 1 week of age in a year, per 1 000 live births in that year (ICD-10).

**Elderly index** — the elderly Index is obtained by dividing the population aged 65 years and more by the population 0–14 and multiplying by 100.

**Infant mortality rate** — the infant mortality rate per 1 000 live births is a measure of the yearly rate of deaths in children less than one year old. The denominator is the number of live births in the same year. Infant mortality rate = ((Number of deaths in a year of children less than 1 year of age) / (Number of live births in the same year)) \*1000. (ICD-10).

**Perinatal mortality rate** — the perinatal mortality rate per 1 000 births is the weight specific (1 000 g +) foetal deaths per 1 000 births (live births plus stillbirths). If weight specific data are not available, any available data provided according to national criteria are used as a proxy.

**Positive health expectancy** — it is the average number of years an individual is expected to live free of negative health status such as impairment, disability, handicap or others, if current patterns of mortality and morbidity continue to apply.

**Post-neonatal mortality rate** — the post-neonatal mortality rate per 1 000 live births is the number of deaths in infants between 4 weeks and 1 year of age in a year, per 1 000 live births in that year.

**Premature mortality** — premature mortality is the mortality before the age of 65 years.

**Standardised death rates (SDR)** — SDR (age standardised death rates) are calculated by using the direct method and the European standard population.

## **Unemployment**

**Harmonised unemployment** — for a comparable measure of unemployment in the EU, Eurostat applies the recommendations of the International Labour Office, according to which the unemployed comprise persons aged 15 and over who are without work and are currently available for work, i.e. can start a job within two weeks and have been actively seeking work during the past four weeks.

**Unemployment rate** — it is the percentage of the active population who is unemployed. The statistics used in the MS showing persons registered with job centres are not suitable for inter-country comparisons, since they are influenced by the provisions of the national labour market administrations.

**Under-25 unemployment rate** — it is the number of unemployed aged 15–24 as a percentage of the corresponding labour force.

**Long-term unemployment rate** — it is the number of unemployed for over one year as a percentage of the labour force.

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