THE EUROPEAN HEALTH REPORT *2002*

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WORLD HEALTH ORGANIZATION
EUROPE

The World Health Organization was established in 1948 as a specialized agency of the United Nations serving as the directing and coordinating authority for international health matters and public health. One of WHO's constitutional functions is to provide objective and reliable information and advice in the field of human health, a responsibility that it fulfils in part through its publications programmes. Through its publications, the Organization seeks to support national health strategies and address the most pressing public health concerns.

The WHO Regional Office for Europe is one of six regional offices throughout the world, each with its own programme geared to the particular health problems of the countries it serves. The European Region embraces some 870 million people living in an area stretching from Greenland in the north and the Mediterranean in the south to the Pacific shores of the Russian Federation. The European programme of WHO therefore concentrates both on the problems associated with industrial and post-industrial society and on those faced by the emerging democracies of central and eastern Europe and the former USSR.

To ensure the widest possible availability of authoritative information and guidance on health matters, WHO secures broad international distribution of its publications and encourages their translation and adaptation. By helping to promote and protect health and prevent and control disease, WHO's books contribute to achieving the Organization's principal objective – the attainment by all people of the highest possible level of health.

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WHO Regional Office for Europe
Copenhagen

WHO Regional Publications,
European Series, No. 97

ISBN 92 890 1365 6
ISSN 0378-2255

WHO Library Cataloguing in Publication Data

The European health report 2002

(WHO regional publications. European series ; No. 97)

1.Health status indicators 2.Evaluation studies 3.Socioeconomic factors
4.Life style 5.Environmental health 6.Delivery of health care 7.Health policy
8.Health care reform 9.Europe I.Series

ISBN 92 890 1365 6 (NLM Classification : WA 900)
ISSN 0378-2255

PRINTED IN DENMARK

Contents

Acknowledgements

This report was largely written, coordinated and edited by Anatoliy Nosikov and Jean-Paul Jardel, and directed by Anca Dumitrescu, Roberto Bertollini and Nata Menabde. The main contributors (listed below in alphabetical order) were, except where otherwise indicated, staff of the WHO Regional Office for Europe at the time that the report was prepared. Additional help and comments on various drafts were received from staff of Evidence and Information for Policy at WHO headquarters in Geneva.

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Foreword

"Matching services to new needs" encapsulates the WHO Regional Office for Europe's new strategy for work with countries. The Regional Office seeks continuously to improve the relevance and quality of its services to the Member States and their populations. The purpose is to support them in developing and sustaining their health policies, health systems and public health programmes. I firmly believe that one of the most important services that this Office can offer is to provide high-quality, up-to-date information and analysis that is relevant to policy-making.

Governments and policy-makers are increasingly aware that access to knowledge enables better policy-making practice. The policy-makers of the various Member States are also more and more aware that they face common challenges and can learn useful lessons from across national boundaries that shed light on their own specific national situation. The challenge for the Regional Office is to build on the existing data and experience, to facilitate the sharing of this experience and, ultimately, to make those data and indicators practically comparable across the countries.

The European health report responds to the statutory requirement to provide the Member States with essential public health information. It provides a broad but concise picture of the health status and health determinants in the Region, and identifies areas for public health action for the Member States and the European public health community. The report focuses on concrete evidence useful for decision-makers in public health. Its role is to summarize and feed back to Member States the information created, deposited and "accredited" during the Regional Office's work with Member States on key topics and issues in public health in Europe, in the context of the values and principles of WHO as "one Organization".

The measure of success of this publication will be its appreciation and use by Member States in their endeavour to improve their own health policies and systems.

Marc Danzon

WHO Regional Director for Europe

Introduction

Where does the WHO European Region stand on the way to health for all? This report is an attempt to review and assess the situation in Europe and progress towards the Organization's goal of building healthy populations and combating ill health by:

- reducing excess mortality, morbidity and disability, especially in poor and marginalized populations;
- promoting healthy lifestyles and reducing risks to human health that arise from environmental, economic, social and behavioural causes;
- developing health systems that equitably improve health outcomes, respond to people's legitimate demands and are financially fair; and
- framing an enabling policy and creating an institutional environment for the health sector, and promoting an effective health dimension to social, economic, environmental and development policy.

To that effect the report provides in its first section, a comparative assessment of the health situation and trends in terms of life expectancy, healthy life expectancy and the burden of ill health, and reviews the distribution of health in and between population groups. The second section reviews the evolution of the major determinants of health, stressing the importance of socioeconomic factors. The third section is devoted to health care systems, the performance of which is essential to the achievement of the objectives of public health improvement, equity of access and solidarity in financing. Focusing on an analysis of the key functions of health systems, this section uncovers opportunities and trends in health system reform and policy implementation.

In its attempt to summarize and compare the most important trends in health status, health determinants and risk factors, and the performance of health care systems among the countries in the Region, the report seeks to build on the new WHO framework for measuring and reporting on the health of populations and the health systems performance assessment (HSPA), as developed for the *World health report 2000*. Use is made of available quantitative and qualitative information from various sources – with their limitations in terms of accuracy, completeness and comparability – including estimates of healthy life expectancy

and burden of diseases used in *The world health report 2000*, data reported by Member States, publications of international organizations, scientific publications, and information collected by WHO technical programmes. Pending further study of this issue, countries are grouped on the basis of their geographical location or by using the traditional (but less and less relevant) distinction between such entities as the European Union (EU), the countries of central and eastern Europe (CCEE) and the newly independent states of the former USSR (NIS)[1] (Fig. 1).

Although overall levels of health in the European Region are among the highest in the world, the report points to major inequalities between and within countries. Most striking is the widening gap in life expectancy and healthy life expectancy between western and eastern European countries, with a particularly marked decline in the NIS due largely to premature mortality among adult males.

Important inequalities in health status result from the dramatic increase in the incidence of communicable diseases such as HIV/AIDS and tuberculosis in eastern European countries, largely related to the deterioration in the socioeconomic situation, and the persistence of malaria in some areas in the south-eastern part of

Fig. 1. Member States of the WHO European Region included in the subregional averages: EU (yellow), CCEE (red) and NIS (light blue)

1 The NIS are defined here as the 15 countries that became independent after the dissolution of the USSR, including the three Baltic countries (Estonia, Latvia and Lithuania). The CCEE comprise 12 countries of the formerly centrally planned economies of central and eastern Europe that were not part of the USSR. Wherever the grouping western Europe is used, it includes the 15 members of the EU and the developed market economies outside the EU.

the Region. Nevertheless, cardiovascular diseases, cancer, diabetes mellitus and other noncommunicable diseases account for most of the burden of ill health and the east-west gap in life expectancy in Europe. Most of these diseases are associated with common risk factors related to lifestyles and the socioeconomic environment. As shown by the results achieved in some western European countries, great improvements are possible in the prevention of these diseases and in reducing premature mortality. Particular efforts are also needed in reducing the increasing burden of mental disorders, as well as the incidence and consequences of injuries, particularly in childhood.

Analysis of the distribution of health among specific population groups again reveals that, despite a general improvement on average, major inequalities persist with respect to infant and child mortality, risky behaviour in adolescents, the health of women in general and the specific risks linked to reproduction, middle-aged men (for whom there are major inequalities within countries and large east–west differences) and opportunities for healthy ageing.

The report underlines the relation between socioeconomic factors and health. Poverty, in particular, is recognized as the most important single determinant of ill health while, as stressed by the Commission on Macroeconomics and Health, investment in health must be considered as a concrete input into economic development and poverty reduction. The report reviews evidence on health determinants related to lifestyles, stressing the benefits of a healthy diet and physical exercise and the worrying trends in unhealthy behaviour such as tobacco, alcohol and drug use, particularly in younger age groups. It summarizes the situation and trends concerning exposure to the most important environmental health hazards, for the prevention of which intersectoral efforts and international cooperation are required in the context of sustainable development.

Health systems and services are undergoing major transformations in the European Region. First, countries are striving to better balance sustainability and solidarity in financing. Most western European countries maintain relatively high levels of solidarity. While the CCEE and NIS are also committed to solidarity in finance, problems with the economic sustainability of new insurance mechanisms lead in many cases to considerable reductions in the accessibility and affordability of health services. Second, there is an increasing trend towards strategic purchasing as

a way of allocating resources to providers to maximize health gain, including separating provider and purchaser functions, moving from passive reimbursement to proactive purchasing, and selecting providers according to their cost–effectiveness. Contracting mechanisms and performance-based payment become central to effective purchasing. Third, countries are adopting more aggressively updated or new strategies to improve efficiency in health service delivery. Fourth, effective stewardship is proving central to the success of health system reform. The government mostly plays this role, involving health policy leadership, appropriate regulation and effective intelligence, but stewardship may also involve other bodies such as professional organizations.

It is hoped that the findings in this report, despite its recognized limitations, will help Member States assess their progress towards health for all and further develop their own capacities in the field of health and health-related information, as a tool for improving health policy formulation and programme management.

PART ONE

The health situation in the European Region

The overall situation

Life expectancy and mortality

Healthy life expectancy

The burden of ill health

Distribution of health in populations

The overall situation

The European Region of WHO includes some of the richest countries in the world, while others are extremely poor. Worse, a larger number of countries now belong to the less "well-to-do" than ten years ago. In 2000 (or latest available year), gross domestic product (GDP) per head ranged from US $255 to over US $42 000. The CCEE and NIS have seen the greatest deterioration in the past decade. Income poverty has spread from affecting only a small proportion of the population (3.3% in 1987–1988) to about a half in some countries. In those countries for which data are available (Annex 2, Table 1), 168 million people now live below the poverty line of US $4 per day – an average of about 46% of the population (Fig. 2). Even in most of the richest countries, the distribution of wealth is far from equitable and pockets of poverty still exist. In western Europe, about 37 million people or some 10% of the total population live under the income poverty line of less than 50% of the median income. In general, large and increasing numbers of people in European societies today are at risk of experiencing poverty at some point in their lives.

According to the *Human development report 2001*, income inequality within countries in western Europe, as measured by the Gini index,[2] varies from low levels in Austria and Denmark (23–25) to relatively high levels in Portugal and the United Kingdom (35–36) (Annex 2, Table 1 and Fig. 3). In the 1990s, income

Fig. 2. Population below income poverty line (percentage of the population with an income of less than US $4 per day)

2 For a definition see Annex 2.

inequality increased in most western European countries for which such data are available. The CCEE and NIS were much closer in terms of income inequality before the transition to market economies. Changes in the transition period were reportedly modest in the CCEE but very significant in the NIS, and most dramatic in the Russian Federation.

Overall, there has been a mixed economic picture in Europe, but the 1990s were extremely difficult for many people. For most western European countries, these years were marked by a long economic downturn, particularly in the first half of the decade. Unemployment rates rose from around 8% in 1990 to nearly 12% in 1994, falling around 10% in 1999 . This was equivalent to 16 million unemployed people in the western part of the Region. Of particular concern was the increasing number of long-term unemployed. In the CCEE and NIS, the first half of the 1990s saw five successive years of falling economic activity. The aggregate decline in output since 1989 was over 30% by the end of 1992, and possibly around 40% by 1993. Since then, some of these countries have shown a return to positive GDP growth rates. Nevertheless, the aggregate decline since 1990 has been compensated for by only few, and several NIS are still at significantly lower levels than in 1990. Unemployment increased drastically, from nearly nonexistent to above 14% and 10% in the CCEE and NIS, respectively. Real GDP increased somewhat in most CCEE but decreased significantly in the NIS, considering the relatively low starting point in 1990.

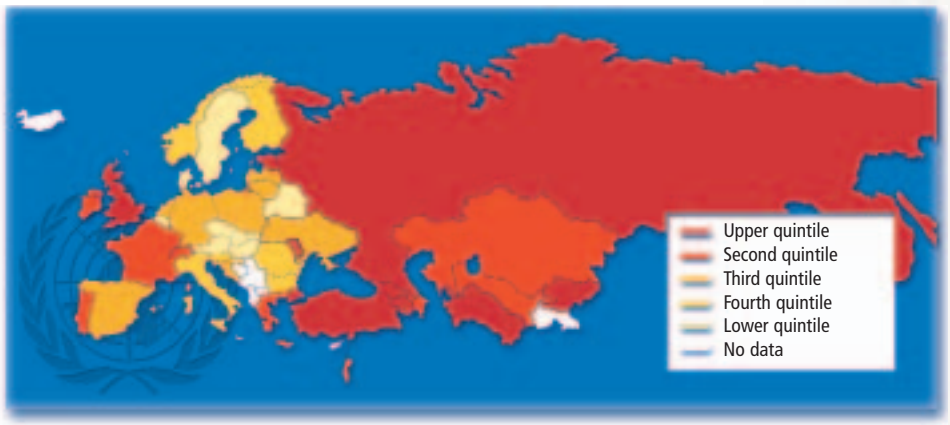


Fig. 3. Income inequality (Gini index)

In addition, major disasters and emergencies (natural, man-made or complex) have often required rapid and large-scale international assistance to the affected countries. During the 1990s in particular, the Region experienced a number of serious emergencies, involving armed conflict, in several Member States. The violent disintegration of the former Yugoslavia was the most egregious example – the war there was reported to have been responsible for the death of over 200 000 people between 1992 and 1996, with hundreds of thousands wounded, and close to 4 million displaced from their homes. The resulting migration – both cross-border and internal – raised major health concerns.

It is thus not surprising that the 1990s have seen a dramatically increased gap in health status between countries in the European Region. This gap is reflected in the wide range of variations in health indicators. While western European countries and the CCEE overall improved in terms of life expectancy, most of the NIS deteriorated. The picture of health inequalities changed in the Region as a whole. Using such indicators as real GDP, life expectancy and infant mortality, the distribution of Member States shows that the previously closely clustered CCEE and NIS have become more heterogeneous. Some of the CCEE have joined the relatively compact western European cluster of countries or come closer to it, while several of the NIS have been left considerably behind.

In this report, an attempt has been made to reach the best possible assessment of health status in Europe. To that effect, use is made of estimates of life expectancy, healthy life expectancy and disability-adjusted life-years for the year 2000

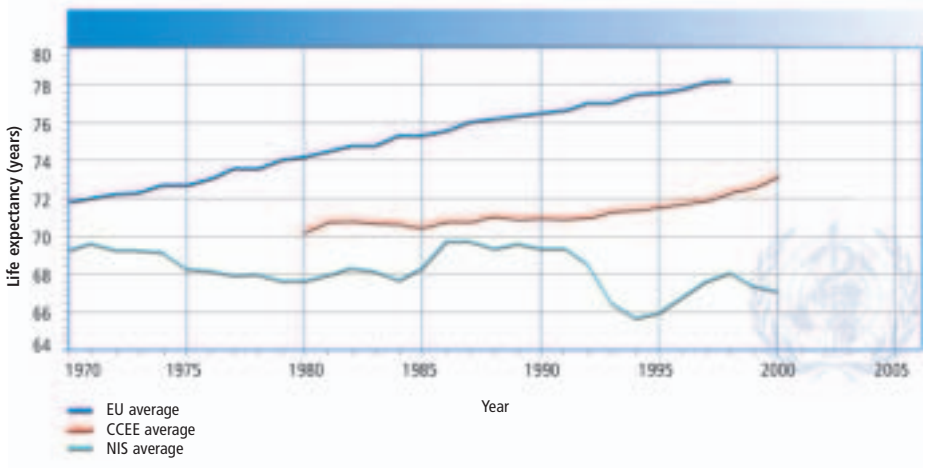


Fig. 4. Life expectancy at birth, 1970–2000

published in the *The world health report 2001*, as well as mortality and morbidity data reported by Member States and recorded in the database of the WHO Regional Office for Europe, together with data from other sources as appropriate.

Life expectancy and mortality

The last decades of the 20th century were marked by an increasing east–west gradient in mortality and an increasing gap in life expectancy between people living in the eastern and western parts of the European Region (Fig. 4). All western European countries have enjoyed a continuous increase in life expectancy. In the EU countries, the average gain between 1970 and 1998 was 6.4 years at birth, 4.9 years at age 15 and 3.4 years at age 65. Although life expectancy at birth in 1970 was on average similar in the eastern part of the Region, a gap has opened up between the CCEE and the EU countries amounting to 5.5 years in 1990 and 5.9 years in 1998. The gap between the EU countries and the NIS is even wider (7.2 and 10.2 years, respectively) (Fig. 5). The NIS experienced large fluctuations in life expectancy, and in particular a marked decline between 1986 and 1994. The latest figures again reveal a deterioration, after some improvement in the second half of the 1990s. The trends are similar for men and women, with the traditional male disadvantage. Nevertheless, the female–male difference in life expectancy is much greater in the NIS (11.1 years on average) and in the CCEE (about 7.6 years) than in the EU (about 6.3 years). According to the most recent reports, 27 countries in the Region have already reached a life expectancy at birth of more than 75 years, while 11 countries remain below 70 years.

Fig. 5. Life expectancy at birth

For some countries in the Balkan, Caucasus and central Asian regions, the life expectancy figures used are likely to be overestimates. They were calculated on the basis of mortality and population data reported by Member States to WHO, but the mortality statistics of these countries suffer from underreporting. The magnitude of this underreporting can be gauged by comparing these figures with estimates of life expectancy made using the WHO model life tables system, which can produce life expectancy estimates when statistics are incomplete (see Annex 2, Table 2).

Data available at the subnational level suggest that differences within countries are larger in the eastern part of the Region. For instance, the difference between the highest and lowest figures for life expectancy among counties in Sweden is about 2 years, whereas among *oblasts* in the Russian Federation it is as much as 15 years.

Analysis of mortality patterns in Europe by age, sex and cause of death shows that the largest east–west differences are in the middle-aged population (Fig. 6), particularly in mortality from cardiovascular diseases and external causes of death (accidents, homicide and suicide) among males. With age, the relative difference in mortality between the eastern and western parts of the Region gradually diminishes. Mortality in the age group of 15–64 years contributes 8.0 years (61%) of the 13.25 years east–west difference in male life expectancy.

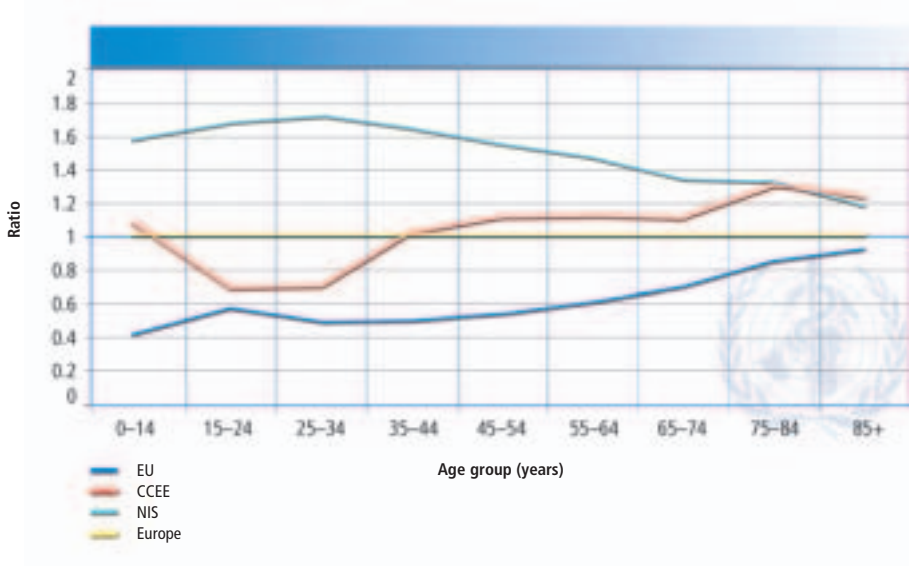


Fig. 6. Ratio of age-specific mortality rates to the respective European average in the EU, CCEE and NIS

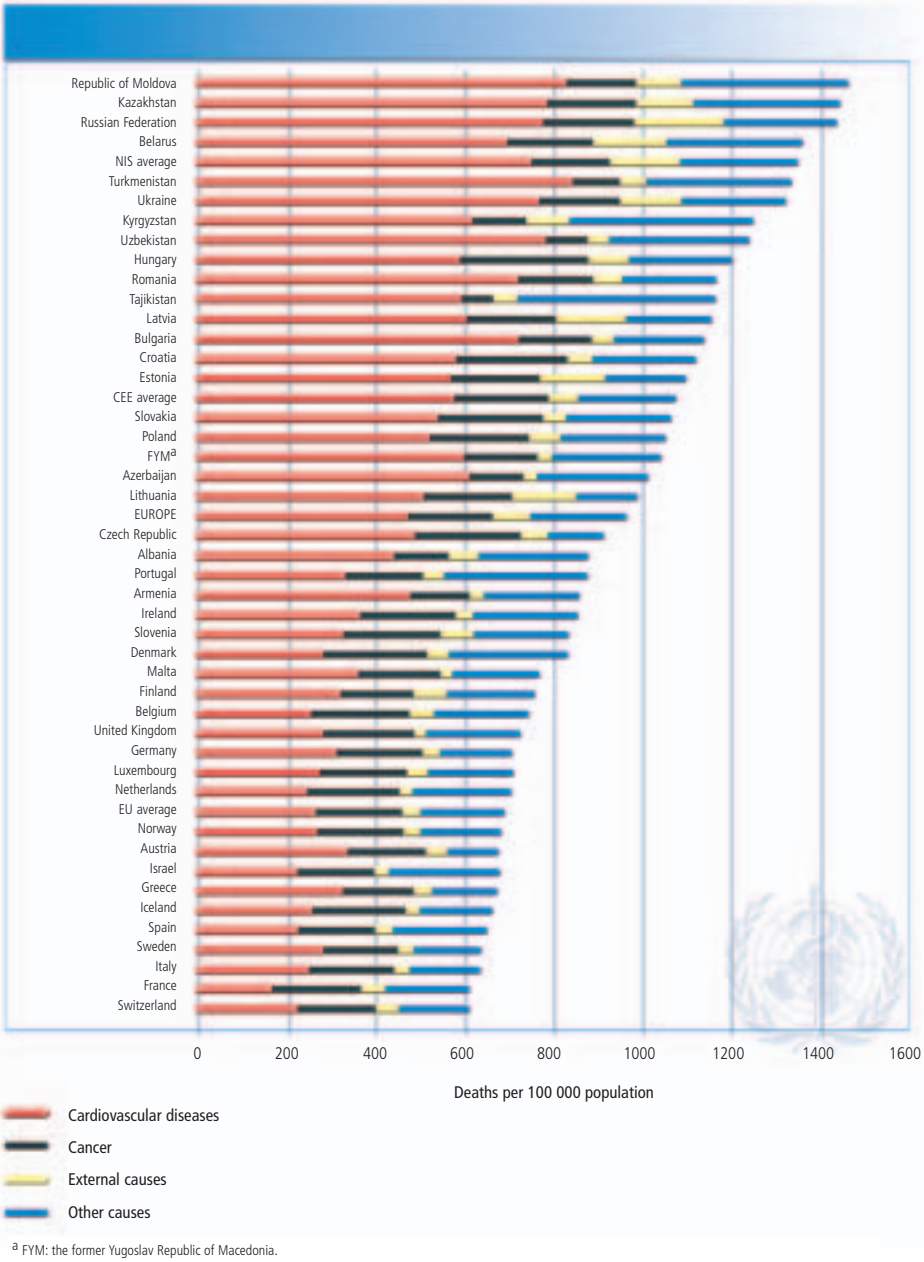
Dramatic changes in mortality in the Russian Federation and in other countries in the European part of the former USSR have attracted the attention of many researchers and politicians. There is practically no precedent for changes of this magnitude in peacetime, and they coincided with the profound socioeconomic changes in these countries. In-depth mortality studies demonstrated that the pattern of alcohol consumption in these countries played a significant role. Analysis of changes in mortality by cause and age during the decline in life expectancy up to 1994, and the subsequent improvement in 1995–1997, has shown that these changes were mainly due to changes in external causes of death and a sudden occurrence of cardiovascular diseases among middle-aged adults.[3] In some CCEE life expectancy also changed considerably in the 1990s; it is difficult to identify a common pattern, but in general the trend is towards increasing life expectancy in most of these countries.

Mortality from the leading causes of death shows a similarly wide range among European countries, as for life expectancy and total mortality (Fig. 7). On average, cardiovascular diseases are responsible for about half of the total mortality. However, the ratios of cardiovascular to total mortality rates standardized for age, vary from about 35% in the western part of the Region to about 60% in some eastern European countries. Cancer is responsible for close to 20% of the overall mortality in Europe, ranging from about 30% in some western countries to about 10% in the eastern part of the Region. Accidents and other external causes of injury and poisoning contribute about 9% to overall mortality (about 6% and 12% on average in the western and eastern parts of the Region, respectively). External causes of death play a particularly important role in younger age groups. For those under 65 years of age, external causes are responsible for about 20% of overall mortality, compared to 31% and 23%, respectively, for cardiovascular diseases and cancer.

Mortality indicators for cardiovascular diseases and cancer reflect aspects of health status that are influenced more by determinants such as lifestyles and the socioeconomic situation rather than the performance of health care services. In contrast, the so-called "avoidable mortality" indicators are better suited to estimating the performance of these services. These are the causes of death that, to

3 SHKOLNIKOV, V. ET AL. Changes in life expectancy in Russia in the mid-1990s. *Lancet*, **357**: 917–921 (2001).

a large extent, could be prevented by timely and effective interventions, although the occurrence of some such conditions, for example diabetes and tuberculosis, is associated with the major determinants of health, especially poverty. Trends, and the distribution of these indicators among European countries in general, follow the same east–west pattern. Mortality from appendicitis and cervical cancer is on average about 2–3 times higher in the central and eastern parts of the Region than in the western countries (Fig. 8).



[a] FYM: the former Yugoslav Republic of Macedonia.

Fig. 7. Mortality from leading causes of death in the WHO European Region, latest available data

Healthy life expectancy

WHO has used healthy life expectancy (HALE)[4] as a summary measure of level of health that captures the full health experience of the population and not just mortality. HALE was used to assess, in the health system performance analysis published in *The world health report 2000*, the goal of improving average levels of population health. While there have been several similar composite measures of health in the past, the universal use of HALE – calculated centrally by means of standard methodology using internally consistent estimates of levels of health – is a major advance. HALE is designed to be sensitive to changes over time or differences between countries in the overall health situation. Nevertheless, HALE based on self-reported health status information may not always be comparable across countries, owing to differences in survey instruments and methods, differences in expectations and norms for health, and cultural differences in reporting health. Internationally comparable measurements of self-reported health-related indicators in population surveys may be difficult, even when reliability and validity have already reached acceptable levels vis-à-vis each specific population. For example, the meaning that different populations attach to response categories (such as "mild", "moderate" or "severe") in self-reported questions can vary.

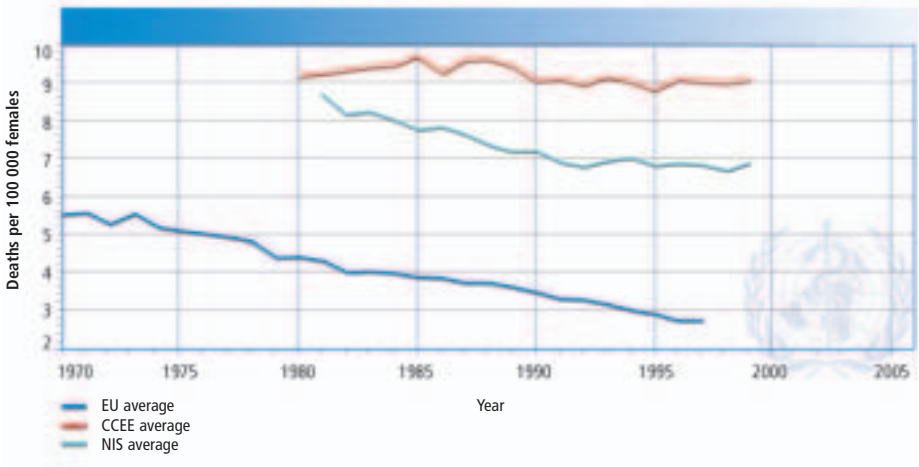


Fig. 8. Mortality from cancer of the cervix, 1970–1999

4 HALE (previously DALE – disability-adjusted life expectancy) adds life expectancy (a composite measure of mortality, i.e. fatal outcome) to estimates of non-fatal outcomes, with adjustment for severity of the latter. It is most easily understood as the lifespan in full health, i.e. without disability. (See also Annex 1 and Annex 2, Table2.)

To improve the methodological and empirical basis for measuring population health, WHO has initiated a data collection strategy with Member States. This employs a standardized instrument, together with new statistical methods for adjusting self-reported health measures according to comparable scales. HALE estimates for 2000 for all countries are based on a mix of survey data for some countries (with its own uncertainty due to sampling and systematic biases) and analyses of disability prevalence in the Global Burden of Disease project,[5] which draws on a wide range of epidemiological and demographic data of varying degrees of uncertainty. The new methods used in the WHO Multi-country Household Survey Study[6] increase the comparability of self-reported data across countries and represent a major step forward in the use of self-reported data on health. Building on this experience, WHO is developing improved health status measurement techniques for a world health survey to be carried out in 2002.

Worldwide, HALE at birth in 2000 ranged from 39 years for African males and females to almost 66 years for females in the countries of western Europe. Regional HALE at age 60 in 2000 ranged from 8.3 years in Africa to around 16 years for females in Europe, North America and the WHO Western Pacific Region. In the WHO European Region (Fig. 9), HALE at birth in 2000 for males and females combined is 62.9 years, 9.0 years lower than total life expectancy at birth. HALE

Fig. 9. Health-adjusted life expectancy (HALE)

5 MURRAY, C.J.L. & LOPEZ, A.D., ED. *The global burden of disease: a comprehensive assessment of mortality and disability, injuries, and risk factors in 1990 and projected to 2020.* Boston, MA, Harvard School of Public Health, 1996.

6 ÜSTÜN, T.B. ET AL. *WHO Multi-country Survey Study on Health and Responsiveness 2000–2001.* Geneva, World Health Organization, 2001 (GPE Discussion Paper 37).

at birth for females is 5.9 years greater than that for males; in comparison, total life expectancy at birth is almost 8.2 years higher for females than for males. HALE at birth ranges from 50.3 years for Russian men to 72.2 years for women in the low-mortality countries of western Europe.

Most industrialized western European countries, with a HALE at birth of around 70 years (68 years for males and 72 years for females), are part of a group of countries led by Japan, where women had an estimated average HALE in 2000 of 76.3 years at birth. There is, however, a considerable range of uncertainty in the ranking of countries, with typical 95% uncertainty ranges of around 3 years for developed countries.

In the Russian Federation, HALE is 60.6 for females, 5 years below the European average, but just 50.3 years for males, 9.6 years below the European average. This is one of the widest gender gaps in the world and reflects the sharp increase in adult male mortality in the early 1990s. From 1987 to 1994, the risk of premature death increased by 70% for Russian males. Between 1994 and 1998, male life expectancy improved, but has declined significantly again in the last three years. Similar rates exist for other countries of the former USSR.

While a lower life expectancy is generally associated with a lower HALE, there are large variations in HALE for any given level of life expectancy. For example, for countries with a life expectancy of 70 years, HALE varies from 57 to 61.5 years, a non-trivial variation. If male and female HALE are considered separately, the range of variation increases to 57–65 years for a total life expectancy of 70 years. These differences partially reflect variations in the impact of health promotion and prevention policies, as well as the levels of performance of the health systems in general.

The burden of ill health

Overall levels of health in the European Region are among the highest in the world. In 2000, an estimated 153.1 million DALYs (disability-adjusted life-years)[7] were lost due to deaths or new cases of disease or injury occurring in that year. This represents about 10.4% of the global total (1472 million DALYs), substantially less than the Region's share of the world's population (14.4%). Nevertheless, very substantial differences exist within the Region in the magnitude of disease burden.

For the Region as a whole, ischaemic heart disease was the leading cause of disease burden in 2000 (premature death plus non-fatal outcomes resulting from new cases of the disease), accounting for 15.5 million DALYs or 10.1% of the overall burden of disease and injury. The proportions were similar for both males (11.0%) and females (9.0%). The second leading cause (both sexes combined) was cerebrovascular diseases (10.4 million or 6.8% of regional DALYs), substantially higher in females (8.3%) than in males (5.6%). The top ten causes of disease burden for both sexes combined are shown in Table 1. In addition to major vascular diseases disorders due to alcohol use and depression, while not leading causes of death, are the third and fourth causes of DALYs lost for men, respectively, followed by suicide and road traffic accidents, lung cancer and chronic lung diseases. Other conditions accounting for more than 2% of DALYs among men include lower respiratory infections, poisonings, hearing loss, cirrhosis of the liver, and Alzheimer disease and other dementias. Among women, depression is the second cause and Alzheimer disease the fourth. Other causes accounting for more than 2% of DALYs among women include osteoarthritis, breast cancer, hearing loss, lower respiratory infections and diabetes mellitus.

Although the composition of leading causes of disease burden is similar across the various subregions of Europe, the size of the effect varies. In men, for example, ischaemic heart disease caused 13% of DALYs lost in eastern Europe in 2000, compared with 9.1% in western and northern Europe. Road traffic accidents

[7] The DALY expresses years of life lost to premature death and years lived with a disability of specified severity and duration. One DALY is thus one lost year of healthy life. Using DALYs as a measure of disease burden allows major causes of disability such as mental health conditions, hearing loss and osteoarthritis to be recognized as major causes of disease burden, despite the fact that mortality from these conditions is generally low.

involving men in 2000 caused more DALYs lost in eastern Europe (1.3 million) than in western and northern Europe (1.08 million), despite the fact that the male population was only about half as large. Finally, in some countries in the European Region, conditions such as lower respiratory infections, perinatal conditions and diarrhoeal diseases are still among the top ten causes of disease burden, suggesting that greater efforts to reduce communicable diseases in these countries remains a public health priority.

Cause	DALYs (thousands)	Percentage
Cardiovascular diseases	33 381	21.8
Neuropsychiatric disorders	31 080	20.3
Injuries	22 707	14.8
Malignant neoplasms	17 642	11.5
Digestive diseases	7 087	4.6
Infectious and parasitic diseases	6 823	4.4
Respiratory diseases	6 416	4.2
Musculoskeletal diseases	5 304	3.5
Sensory organ disorders	4 150	2.7
Respiratory infections	3 891	2.5
All other causes	14 631	9.5
Total DALYs	153 111	100.0

Source: The world health report 2001. Mental health: new understanding, new hope. Geneva, World Health Organization, 2001.

Table 1. The top 10 causes of burden of disease in the WHO European Region in DALYs, estimates for 2000

Communicable diseases

In the European Region, roughly two distinct epidemiological patterns of communicable disease can be observed. Over the last few decades, the western European countries have shown a steady decline in or stabilization of morbidity and mortality from communicable diseases. Countries in the eastern part of the Region sometimes experienced dramatic increases in the incidence of communicable diseases in the 1990s, although some progress has been made in the last four years. A further distinction can be made between many CCEE and the NIS: the former show moderate incidence compared to the high and increasing morbidity and mortality rates of selected communicable diseases in the NIS. These different patterns of communicable disease burden are associated with socioeconomic factors, public health spending and public health infrastructure.

Tularaemia outbreak in Kosovo

A large outbreak of tularaemia occurred in Kosovo in the early post-war period in 1999–2000. By mid-1999, more then 10 years of political crisis and warfare had resulted in mass displacements of people, breakdowns in sanitation and hygiene and disrupted socioeconomic and environmental conditions.

When people returned home they found that their houses had been destroyed or damaged, food storage areas had been left unprotected, wells had been damaged and contaminated, crops had been left unharvested and many fields were uncultivated. This, combined with the impoverished circumstances of the people, led to an epizootic of rodent tularaemia and its spread to the resettled rural populations.

Epidemiological and environmental investigations were conducted to identify the sources of infection, modes of transmission and household risk factors. Case and control status was verified by laboratory testing. A total of 327 serologically confirmed cases of tularaemia pharyngitis and cervical lymphadenitis were identified in 21 of 29 municipalities. A matched analysis of 46 case households and 76 control households suggested that infection was transmitted through contaminated food or water and that the source of infection was rodents, which were abundant when people returned to their dwellings.

This outbreak illustrates the risks posed by a widely circulating natural disease when it comes in contact with people living under conditions of substandard housing, hygiene, food preparation and sanitation, such as are found following war or natural disaster or when household income is compromised.

Source: REINTJES, R. ET AL. Tularemia outbreak investigation in Kosovo: case control and environmental studies. *Emerging infectious diseases*, **8**: 69–73 (2002).

The relation between poverty on the one hand and hygiene, nutrition, immunological status and disease susceptibility on the other is well documented. Poverty leads to ill health through increased environmental risk, malnutrition and food insecurity, and limited access to knowledge, information and health care. Poverty, whether defined by income, living conditions or education, is the single largest determinant of ill health due to communicable diseases. Living in poverty is associated with higher rates of infectious diseases, notably tuberculosis and HIV infection. Even where effective vaccines and drugs are available, pockets of low coverage and underutilization of health services continue to exist. A related issue is resistance to antimicrobial drugs, which is increasingly becoming a serious problem in malaria and tuberculosis control and in the control of bacterial infections in general. The emergence and spread of antimicrobial drug resistance increasingly threatens the successful prevention and treatment of infectious diseases. To respond to this threat, WHO aims to persuade governments to take urgent action and then to guide this action with expert technical and practical advice.

Increased trade and population movement have facilitated the spread of infectious diseases inside and beyond national borders. This trend is a growing concern for policy-makers, as it can negatively influence national capacities to deal with such threats. It is thus necessary to develop and maintain the ability to observe, in a systematic, timely and efficient manner, the occurrence of infectious diseases. National surveillance systems should be able to collect, analyse and disseminate relevant and timely data on the distribution of and trends in communicable diseases, so that adequate control measures can be implemented. The early warning systems of national surveillance networks are crucial in avoiding unnecessary interventions and restrictions on travel and trade.

Priorities in the area of communicable diseases in the European Region remain unchanged. They include the prevention and control of HIV and sexually transmitted infections, campaigns to control tuberculosis and malaria, poliomyelitis eradication, measles elimination, and further improvement in the surveillance and control of other communicable diseases. Enhanced national surveillance networks and laboratory capacities are crucial for supporting related programmes, including the strengthening of early warning systems for bacterial meningitis, foodborne and waterborne diseases, hepatitis C, cholera, influenza and newly emerging epidemic diseases.

Recent events have made it clear that the international community must address the possible intentional release of biological agents as a public health priority. WHO has agreed on critical areas for developing activities such as the strengthening of surveillance systems and early warning of health effects due to the natural or deliberate use of biological agents. The World Health Assembly, in resolution WHA54.14, was fully aware that the strengthening of epidemiological and laboratory surveillance and of disease control activities at national level was the main defence against the international spread of communicable diseases.

Sexually transmitted infections (STI), including HIV/AIDS

An estimated 1.56 million people are now living with HIV/AIDS in the WHO European Region. There are approximately one million in the CCEE and the central Asian republics alone (compared to 420 000 just two years ago). Thus this region has currently the steepest increase in HIV infection rates in the world

(Fig. 10). For example, the cumulative number of people living with HIV/AIDS in the Russian Federation has doubled every year since 1995. Despite this explosive spread, the epidemic is still at an early stage: 75% of new cases of HIV are in injecting drug users, 77% are in men, and 84% are in people under the age of 30 years. This pattern of HIV transmission and the STI epidemics occurring at the same time (Fig. 11) creates the potential for massive outbreaks of sexually transmitted HIV infections. It could lead in a few years to a large-scale and generalized HIV/AIDS epidemic. There is thus an urgent need to dramatically scale up current responses at national and international levels.

The policy response of the Member States has partly been inadequate. HIV/AIDS is still often perceived as a medical problem and, therefore, not sufficiently considered as a candidate for appropriate multisectoral attention and action. Collaboration between medical services is often sporadic. Cross-departmental coordination and collaboration are lacking in many governments. Many interventions are therefore being implemented in isolation and lack coverage, and the information on lessons learned is not widely shared. Including budgets for antiretroviral therapy in health and social services programmes represents a particular challenge.

The currently deployed STI/HIV/AIDS prevention and care strategy of the Regional Office takes into account the situation assessment outlined above. As a co-sponsor of the Joint United Nations Programme on HIV/AIDS (UNAIDS) in the Region, and at country level through the United Nations theme groups on HIV/AIDS, the STI/HIV/AIDS programme focuses on the following policies:

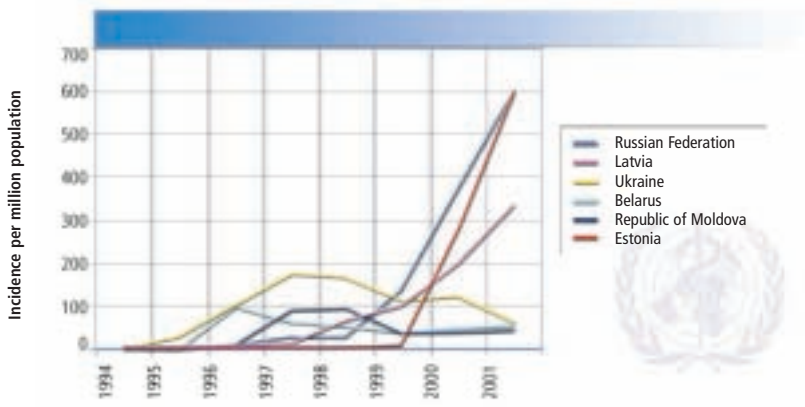


Fig. 10. Incidence of HIV infection, 1994–2001, most affected countries

(*a*) strengthening of health systems through the development of appropriate policies, strategies and plans for the provision of preventive and clinical services; (*b*) improving the evidence base of preventive and curative interventions; (*c*) improving the monitoring and evaluation of country responses to current epidemics; and (*d*) coordinating the international response and the mobilization of resources for the control of the STI epidemics through the regional STI task force.

WHO recommends that Member States pay special attention to the following directions, which make use of our comparative advantage vis-à-vis other United Nations agencies: (*a*) ensuring that STI prevention and care is integrated, through the health reform processes, with reproductive health, primary health care, HIV/AIDS, prison health and other services; (*b*) improving epidemiological surveillance of STI/HIV/AIDS and behavioural surveillance of risk factors facilitating HIV transmission; (*c*) improving the care of STI/HIV patients, including voluntary counselling and testing and prevention of mother-to-child transmission; (*d*) focusing information, education and care on vulnerable groups, such as young people, sex workers, male homosexuals, prisoners and injecting drug users; and (*e*) preventing HIV transmission in health care settings.

Tuberculosis

In 1993, WHO took the unprecedented step of declaring tuberculosis a global emergency. Unfortunately, the disease is currently out of control in many parts of the world, with some one third of the world's population infected. Every year there are about 8 million new cases and 2 million deaths from tuberculosis, despite the fact that the disease is curable.

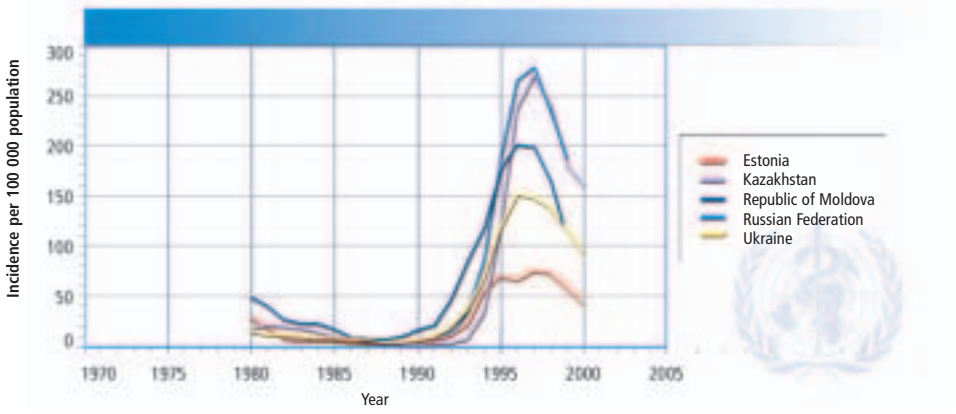


Fig. 11. Syphilis incidence, 1980–2000

Tuberculosis is also a serious problem in the WHO European Region: in 2000 there were about 370 000 newly detected cases compared with 231 600 in 1991. Most of these cases occurred in the CCEE and NIS, where tuberculosis is increasing dramatically (Fig. 12). In addition, multidrug-resistant tuberculosis, which is more difficult and almost 100 times more expensive to treat, is spreading in the Region, the highest levels in the world being found in Estonia, Latvia and the Russian Federation, where respectively 14%, 9% and 6–9% of multidrug-resistant tuberculosis were detected among new cases between 1996 and 1999. Tuberculosis is out of control in prisons in many of the NIS; one Siberian prison reports a prevalence of 7% of inmates. Multidrug resistance is widespread in prisons. The co-epidemic of tuberculosis and HIV is still not widespread in the Region, but HIV infection is spreading rapidly in the NIS and could fuel the co-epidemic. Cases of co-morbidity increased in the last few years, from a few dozen to 2106 in Ukraine, and in 2000 there were 1658 new cases in the Russian Federation.

In 1995, in collaboration with international partners, WHO initiated DOTS[8] pilot projects in the European Region. The DOTS strategy capitalizes on a proven effective combination of (*a*) government commitment, including funding, for comprehensive and sustained control activities and (*b*) highly cost-effective methods of case detection and standardized and supervised chemotherapy, the results of which must be regularly verified and reported. According to World Bank

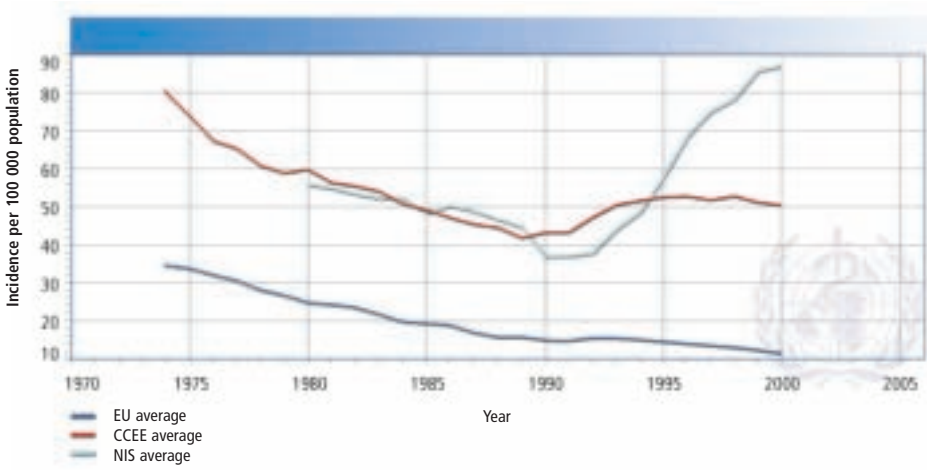


Fig. 12. Tuberculosis incidence, 1974–2000

8 DOTS: directly observed treatment, short-course.

studies, the DOTS strategy is among the most cost-effective of all health care interventions available in low- and middle-income countries. In 1997, an economic evaluation in Armenia confirmed that the DOTS strategy was more cost-effective than the tuberculosis control strategy used before. A similar evaluation conducted in the Ivanovo *oblast* in the Russian Federation concluded that the cost per cured case of tuberculosis using the DOTS strategy was US $1626, compared to US $6293 under the previous strategy.

An increasing number of countries in the Region are adopting the DOTS strategy. At present, of the 27 CCEE and NIS only 2 do not use the strategy, 3 are in the preparatory phase, 5 are piloting it, 6 cover between 10% and 90% of the population with respective strategy outlets, and 11 use the DOTS strategy countrywide (Fig. 13). DOTS-plus pilot projects for the management of multidrug-resistant tuberculosis have been implemented in Estonia, Latvia and the Russian Federation. Nevertheless, on average, only 17% of the population of the European Region is provided with services that employ the DOTS strategy. Although population coverage is still low in the CCEE and NIS, most countries have started to implement the strategy, whereas in the majority of western European countries it has still not been adopted. The sound implementation of the DOTS strategy remains a top priority, as the only feasible and responsible policy for responding to the threat of tuberculosis in the current social and economic situation.

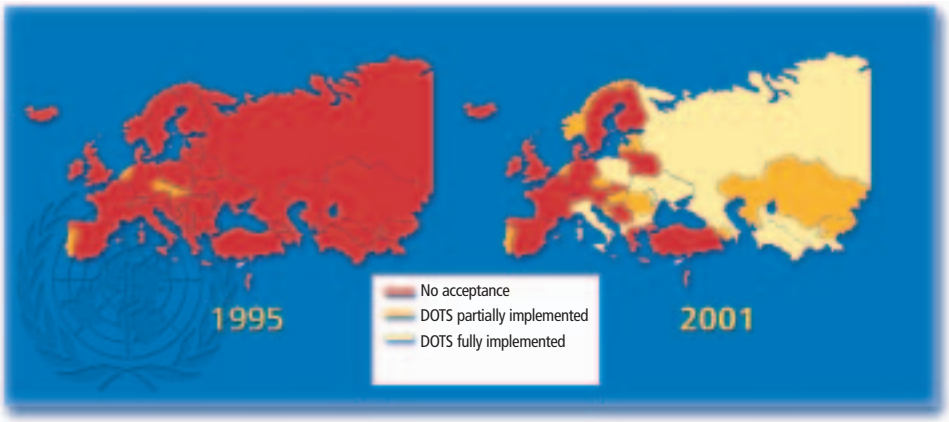


Fig. 13. The state of implementation of the WHO tuberculosis control strategy in the European Region, 1995 and 2001

Expanding the coverage of the DOTS strategy to other countries and areas in the Region is vital. The multidrug-resistant tuberculosis crisis in "hot spots" must be addressed as an international emergency. The main challenges for effective control remain health sector reform, disease prevention and control in prisons, and the protection of health personnel. However, most governments in the CCEE and NIS are financially unable to implement the DOTS strategy without external aid. The assistance of the international community and donors is thus crucial for controlling the tuberculosis epidemic.

Malaria

The malaria situation began to deteriorate considerably in the WHO European Region at the beginning of the 1990s, owing to political and economic instability, massive population movements and large-scale development projects (Fig. 14). In 1990, a total of 8884 cases of autochthonous (locally transmitted) malaria were reported. The maximum was reached in 1995, with 90 712 cases reported; by 2000 this had declined to 31 923 cases. Azerbaijan, Tajikistan and Turkey have suffered extensive epidemics, while Armenia and Turkmenistan have faced small-scale outbreaks. Malaria is at present assuming larger dimensions in Georgia and Uzbekistan. Sporadic cases of autochthonous malaria were also reported from Belarus, Bulgaria, Greece, Italy, Kazakhstan, Kyrgyzstan and the Republic of Moldova.

Despite the recent significant reduction in the reported incidence of malaria in the Region, the situation is currently complicated by the reappearance and spread of *Plasmodium falciparum* in Tajikistan, where 813 cases were reported in 2000. The incidence of malaria remains high in Turkey, the disease being endemic in areas with a population of over 15 million.

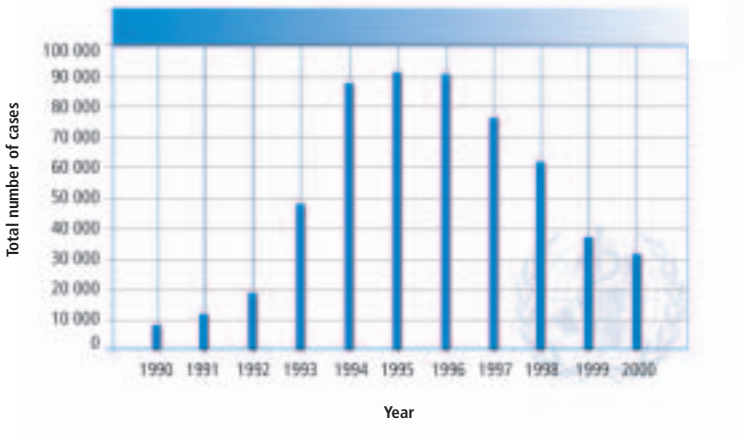


Fig. 14. Malaria incidence (registered locally transmitted cases) in the European Region, 1990–2000

In response to this situation, a regional strategy to roll back malaria (RBM) was developed and applied in 1999. The goal is to interrupt transmission, and particularly that of falciparum malaria, by 2010. The regional RBM programme addresses malaria-related issues through advocacy at regional and country levels, encouraging institutional development, promoting RBM resource mobilization, improving capacities for disease management, building capacities for timely response to emergency situations, strengthening surveillance mechanisms and local operational research, ensuring community mobilization and enhancing intersectoral collaboration.

Vaccine-preventable diseases

The diphtheria epidemic involving several countries in the early 1990s was brought under control as a result of the vigorous action taken in 1994–1998 by affected Member States in collaboration with international partners (Fig. 15). The number of cases reported in 1999 was 1603 as a result of a progressive reduction from the peak of over 50 000 cases in 1995.

The lower cost of hepatitis B vaccine has made universal infant immunization feasible in the Region and has led to the elimination of carriers of the disease. The prevalence of hepatitis B surface antigen is low in most of western and northern Europe (<1%), intermediate (1–5%) to high (>5%) in most areas of the CCEE and NIS, but high in some central Asian and the Caucasus republics. In 2000, 28 countries carried out routine hepatitis B immunization; regional coverage

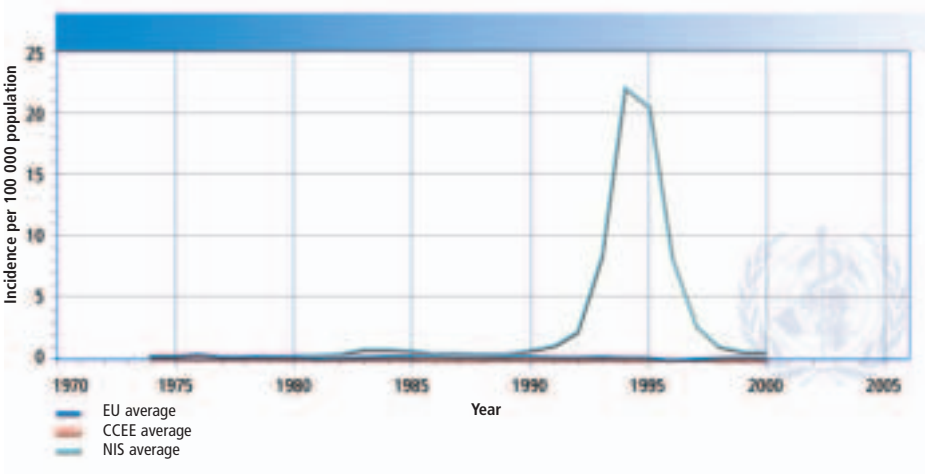


Fig. 15. Diphtheria incidence, 1974–2000

in 1999 was 24% (26 countries reporting), up from 4% in 1990 (4 countries reporting).

Coordinated interregional mass vaccination campaigns under "Operation MECACAR" has resulted in no cases of poliomyelitis due to indigenous strains of wild poliovirus being reported since November 1998. Three cases in Bulgaria in March–May 2001 occurred in a high-risk minority subpopulation and were caused by a wild poliovirus strain originating from northern India; rapid detection permitted prompt control through immunization campaigns.

In 1999, despite declining incidence, reported cases of measles exceeded 17 900 (Fig. 16). In many countries, however, measles surveillance is limited and few countries include routine laboratory confirmation. This complicates the problem of assessing the current burden of the disease in the Region while preparing Member States for measles elimination. Improving immunization services and offering new vaccine antigens are among WHO's goals in Europe. Therefore, the Global Alliance for Vaccines and Immunization,[9] a broad partnership supporting immunization systems, provides a great opportunity for making better use of vaccines and strengthening national immunization programmes in the 11 eligible countries of the Region. Further emphasis will be placed on the expanded utilization of under-used vaccines, the enhancement of cold chain and logistics systems and the promotion of safe immunization practices.

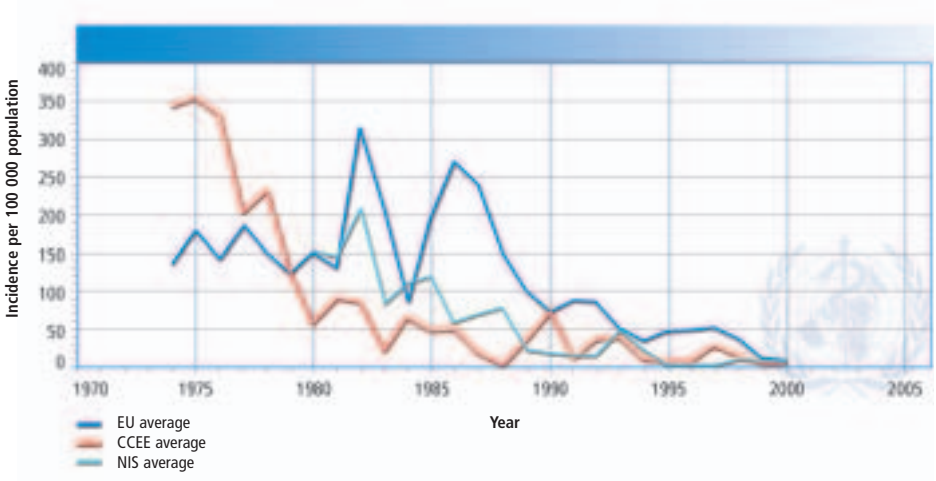


Fig. 16. Measles incidence, 1974–2000

9 http://www.vaccinealliance.org, accessed 21 May 2002.

The poliomyelitis outbreak in Bulgaria emphasizes the need for high-quality surveillance and maintenance of high immunization levels throughout every subpopulation of all Member States until global eradication is complete and certified. Many countries' authorities are now eager to move to strengthening measles surveillance and are targeting measles elimination. Measles elimination in the Region requires the achievement and maintenance of very high routine immunization coverage with a first dose of measles vaccine, ensuring that there is the opportunity for a second dose and strengthening surveillance and laboratory confirmation. Accelerated control of rubella and congenital rubella will be included in the activities planned for measles elimination.

The main challenge in terms of vaccine-preventable diseases is the mobilization of resources to implement the strategies in the Member States in economic transition, and ensuring the political will for implementation in some western European countries. Member States have made substantial progress towards self-sufficient, sustainable national immunization services, widely accepted as highly cost-effective programmes. Reported regional immunization coverage in 1999 was 94% for DTP3 and 90% for measles vaccine.

Noncommunicable diseases

Noncommunicable diseases (NCDs) are a set of chronic diseases of major public health importance that represent the bulk of morbidity, disability and premature death in the WHO European Region. These diseases accounted for about 75% of the burden of disease expressed in DALYs in 2000. Cardiovascular diseases were responsible for about 21.8%, malignant neoplasms for 11.5%, asthma and chronic obstructive pulmonary diseases for 4.2%, rheumatoid arthritis and osteoarthritis for 3.5%, and diabetes mellitus for 1.6%. NCDs are expected to account for an even greater share of the disease burden, estimated at over 80%, by 2020. The growing epidemic of NCDs is also responsible for most of the widening gap in life expectancy, mortality and quality of life among and within countries in the European Region, and in the world.

However, information on the existing and growing burden of NCDs is still mainly based on mortality data, which cannot adequately reflect their outcome in terms of the burden of ill health and disability on individuals, health systems and societies at large. There are few comparable data from population surveys. The source of

information is therefore limited to studies in selected subnational sites, such as the WHO MONICA (MONItoring CArdiovascular diseases) Project, that monitor the occurrence of events that reflect these diseases. Major efforts are undertaken to strengthen capacities for data collection and improve the evidence base for health policies in Member States. WHO will support these efforts, in particular as part of the world health survey in 2002.

The most prominent NCDs, such as cardiovascular diseases, cancer, chronic obstructive pulmonary disease and diabetes, are linked by common preventable risk factors related to lifestyle, such as tobacco use, unhealthy diet, obesity and physical inactivity. Psychosocial stress has also been identified as important in the development of chronic disease, especially cardiovascular diseases.[10] In addition, there is clear evidence that the development of NCDs is influenced by socioeconomic circumstances.[11] This is shown by the occurrence of diseases in different social groups not only within countries but also between countries.[12] The increase in the incidence of NCDs is seen disproportionately in poor and disadvantaged populations.

Data related to risk factors are collected in several countries, but there is a need to improve intercountry comparability. Internationally, there are also examples of data collection on risk factors. Through the CINDI programme[13] some countries have collaborated to develop standardized approaches to data collection and risk factor surveys. Initiatives such as the CINDI Health Monitor survey[14] based on the FINBALT survey methodology, or the joint WHO/EU EUROHIS project on common methods and instruments for health interview surveys, have also set standards and protocols for the collection of data on risk factors and health behaviour. Comparable data on levels of physiological risk factors, such as high blood pressure and high serum cholesterol levels, are not systematically collected in all countries of the WHO European Region. There have been proposals for data

10 HEMINGWAY, H. & MARMOT, M. Evidence-based cardiology: psychosocial factors in the aetiology and prognosis of coronary heart disease. Systematic review of prospective cohort studies. *British medical journal*, **318**: 1460–1467 (1999).

11 MARMOT, M. & BOBAK, M. International comparators and poverty and health in Europe. *British medical journal*, **321**: 1124–1128 (2000).

12 WORLD BANK. *World development report 1993*. New York, Oxford University Press, 1993.

13 CINDI is a collaborative international effort to provide participating countries with a framework or approach for activities aimed at preventing or controlling risk factors common to NCDs. Experience gained in several national demonstration projects, such as the North Karelia Project in Finland, shows that such work can provide a powerful tool for the development of national policy.

14 http://www.euro.who.int/Document/Chr/Cinheamonquest.pdf, accessed 29 May 2002.

harmonization through an international risk factor surveillance programme (the EURALIM project[15]).

There now exists a body of knowledge and experience on opportunities for action to control NCDs. They are to a great extent preventable through interventions against the major common risk factors and their socioeconomic determinants in the population. Several studies show that changes in risk factors explain changes in mortality, as was the case with mortality from ischaemic heart disease in Finland.[16] Action to prevent these diseases should therefore focus on controlling the risk factors in an integrated manner. The state of development and accessibility of the health care system will also have an impact on the outcome of noncommunicable diseases. Nevertheless, it needs to be made clear that risk factors and the quality and accessibility of health care are distributed by socioeconomic factors in the population.

WHO recognizes NCD prevention and control as a major health issue that needs to be comprehensively addressed in the 21st century. HEALTH21[17] has provided a framework for diminishing the burden of NCDs by focusing on the need to tackle the determinants of these diseases and to influence risk factors and health behaviour. WHO, in World Health Assembly resolution WHA51.18, has committed itself to the development of an umbrella strategy to address the burden of NCD and to the provision of leadership in its implementation. Many countries of the Region are developing or have developed policies to work towards the objectives of the WHO global strategy: to map emerging epidemics, to reduce exposure to common risk factors, and to strengthen health care through surveillance, health promotion, disease prevention and effective interventions.

A survey was carried out by WHO in 2001[18] to provide an assessment of the national capacity for NCD prevention and control with respect to health policy, programmes and infrastructures in all six regions of WHO. The following are the key findings for the European Region.

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15 http://www.epidemiology.ch/euralim, accessed 21 May 2002.

16 VARTIAINEN, A. ET AL. *British medical journal*, **309**: 23–27 (1994).

17 *HEALTH21: the health for all policy framework for the WHO European Region.* Copenhagen, WHO Regional Office for Europe, 1999 (European Health for All Series, No. 6).

18 *Assessment of national capacity for noncommunicable disease prevention and control. The report of a global survey.* Geneva, World Health Organization, 2001 (document WHO/MNC/01.2).

- NCD policies exist in 59% of countries, and specific cardiovascular, diabetes and cancer plans exist in 50%, 54% and 62% of the Member States, respectively.
- Some 63% of countries report having a dedicated unit for NCD prevention, but less than 46% report having a budget line specifically allocated to NCDs.
- National reference centres for diabetes and cancer are reported for 66% and 71% of countries, respectively.
- Strengthening of concrete action on NCDs would require that countries place a higher priority on NCDs and improve their capacity for policy development.
- Effective surveillance systems and reliable data on the major risk factors are key prerequisites for NCD programme planning, priority-setting and evaluation. The prevalence of smoking and of diabetes are the most frequently reported NCD indicators in 88% and 80% of countries, respectively. Data on diet, hypertension, anthropometric measurements and physical activity were collected in about 70% of countries. Only 44% of countries in the Region include risk factor data in their annual health reporting system.
- Adequate training of health professionals in the prevention and management of NCDs remains an important challenge in many countries.
- Integrated efforts for the prevention and control of NCDs are critical to the success of many NCD initiatives. A partnership approach is crucial in dealing with the broad range of NCD risk factors. The survey suggests that nongovernmental organizations (NGOs) appear to be involved in NCD prevention and control activities in many countries of the Region. The main activities reported are: education (94%), prevention (98%), public awareness (89%) and patient management (86%). Fewer NGOs (62%) are involved with NCD policy development.

Cardiovascular diseases

Cardiovascular diseases (CVD) include hypertension, coronary heart disease (CHD), cerebrovascular disease (stroke), peripheral vascular disease, heart failure, rheumatic heart disease, congenital heart disease and cardiomyopathies. According to the *World health report* estimates for 2000, these represent the first cause of disease burden expressed in DALYs in the WHO European Region as a whole. They rank second to neuropsychiatric disorders only in countries that have

achieved very low child and very low adult mortality, i.e. the developed market economies of western Europe and some EU accession countries.

Mortality from CVD (all ages) has declined steadily in the EU countries and is now around half the 1970 level at 240–260 per 100 000 population (Fig. 17). The average figure in the NIS is now almost three times this level at over 750 per 100 000 population. In younger age groups, CVD mortality accounts for more than half of the east–west gap in life expectancy. Average CVD mortality rates per 100 000 population under the age of 65 years were similar (around 100) in western and eastern Europe in 1970, but are currently around 50 in western Europe, 120 in the CCEE and 230 in the NIS. Premature mortality from the two main causes of death in this group of diseases follow the same trend. In the age group 25–64, mortality due to ischaemic heart disease and cerebrovascular disease show a regular decline in the EU countries, relative stability with a tendency to decline since the early 1990s in the CCEE, and a general increase with a maximum around 1994 and recurrent recent increase in the NIS. Death rates are about three times higher in males than in females for ischaemic heart disease, and less than two times higher for cerebrovascular disease. However, the validity of these figures for comparing countries or groups of countries is affected by differences in the way causes of death are certified. For instance, as discussed in the previous report on health in Europe,[19] part of the excess CVD mortality among men in some eastern European countries might in fact be attributed to alcohol intoxication.

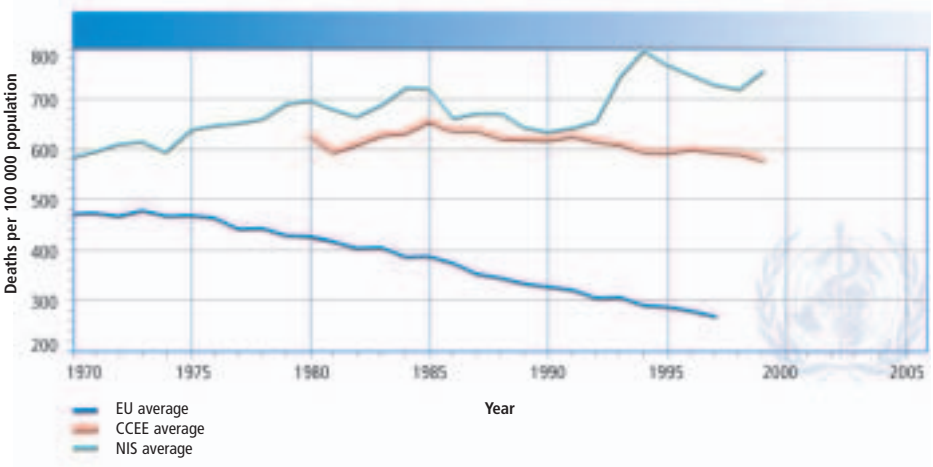

Fig. 17. Mortality from cardiovascular diseases, 1970–1999

19 *Health in Europe 1997. Report on the third evaluation of progress towards health for all in the European Region of WHO (1996–1997).* Copenhagen, WHO Regional Office for Europe, 1998 (WHO Regional Publications, European Series, No. 83).

The WHO MONICA Project[20] tracked CHD rates, risk factors and coronary care in predefined populations in 37 countries from the mid-1980s to the mid-1990s, to get an accurate picture of CVD levels and trends. Trends in CHD rates were similar to those in the routine mortality statistics, even though the latter tended to underestimate death rates from CHD in many countries. The Project thus validates the use of routine death data for monitoring long-term trends in death from CHD. The greatest fall in CHD rates in men occurred in three north European populations: North Karelia and Kuopio in Finland, and Northern Sweden. With the exception of Catalonia (Spain), male populations experiencing a notable increase in rates were predominantly from central and eastern Europe. In women, the populations experiencing significant increases again tended to be from central and eastern Europe, but the general pattern of increases and decreases appeared to be less consistent. Where mortality rates were falling, prolonged survival contributed one third and a decrease in CHD rates two thirds, on average, of the total change in these rates, indicating the importance of both the prevention of heart disease and improved care of acute events.

The results show that CHD rates are declining in most MONICA centres, and there is no reason why these improvements cannot be continued and extended to other countries. More generally, evidence of a positive change has been documented in several western European countries. This is at least partially due to improved primary and secondary prevention as well as improved non-invasive and surgical treatment of patients. WHO has given priority to the prevention and control of CVD as an indication of its policy to accelerate these favourable trends.

Cancer

According to data officially reported to the Regional Office, cancer is responsible for close to one fifth of all deaths, ranging from about 30% in some western European countries to about 10% in some countries in the east of the Region (Fig. 18). It is also responsible for a large proportion of years of life lost and years lived with disability. The average cancer mortality rate in people aged 0–64 years is 79 per 100 000 population in the EU, 104 in the CCEE and 99 in the NIS. In people aged 65 and over, the rates are respectively 1065, 1024 and 785, that is the CCEE and particularly the NIS show lower rates than the EU,

20 http://www.who.int/inf-pr-1999/en/pr99-27.html, accessed 7 May 2002.

contrary to the situation in younger age groups. Cancer death rates are falling in the European Region as a whole. In the western part of the Region, the rate is now about 14% lower than that in 1980. Most of the CCEE experienced an increase until 1990, followed by a levelling off and even a tendency to decrease since 1995. In the NIS the decrease is clearer, and shows the same pattern as in the EU.

Among cancers, the most significant cause of disease burden is lung cancer. In males, lung cancer rates in the EU countries rose steadily until the mid-1980s and then declined after 1985. After 1985, mortality continued to rise in the CCEE among males over 65 but reverted in younger age groups. In the NIS, the rates declined in all age groups. However, there is a west–east time lag of some 5–15 years (depending on the country and the birth cohort) before positive changes begin reflecting changes in prevalence and past exposure to tobacco smoking.

In general, the epidemic of mortality in men appears to have peaked and changed into regression. For women, the patterns are different and the outlook is rather alarming. In the EU and the CCEE the trends are still rising in all age groups, so that the mortality epidemic can be expected to accelerate. In the NIS registered mortality trends are tending to decline, but the interpretation is more difficult. The fall in mortality from cancer in the NIS can be explained by a combination of changes in data collection, competing mortality from other causes of death, cohort effects and effects of improvements in health care. In particular, there is evidence of

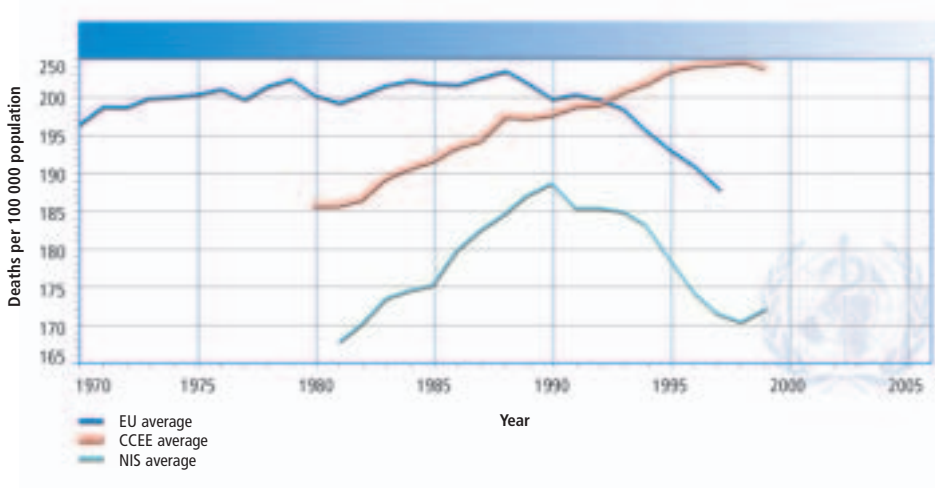

Fig. 18. Mortality from cancer, 1970–1999

a significant under-recording of cancer deaths among the older people, especially in rural areas, and of significant changes in coding practices in the early 1990s.[21]

The described general patterns in cancer incidence (Fig. 19) and mortality can be usefully complemented by high-quality cross-sectional incidence and mortality data available from the increasing number of population-based cancer registries in Europe.[22] The European Network of Cancer Registries has 166 member registries in 40 European countries. In 1995 it produced national estimates of cancer incidence and mortality in 38 countries for which the United Nations supplies population estimates and projections. Reported national incidence and mortality data are supplemented with regional data, using a method that incorporates the well validated incidence and mortality data from cancer registries, thus permitting estimates of cancer incidence and mortality to be provided for all countries according to a consistent methodology.

In these 38 countries in 1995, five cancers – lung, colon and rectum, breast, stomach, and prostate – accounted for more cases and deaths than all other cancers combined (Table 2). Depending on sex, just four cancers caused more than half of the disease burden. The four most common primary sites in males were the lung, colon and rectum, stomach, and prostate. The bladder ranked fifth (7% of cases). In females the main cancer sites were the breast, colon and rectum, stomach, and

Fig. 19. Incidence of cancer per 100 000 population

21 SHKOLNIKOV, V.M. ET AL. Cancer mortality in Russia and Ukraine: validity, competing risks and cohort effects. *International journal of epidemiology*, **28**: 19–29 (1999).

22 BRAY, F. ET AL. Estimates of cancer incidence and mortality in Europe in 1995. *European journal of cancer*, **38**: 99–166 (2002).

lung. Cancer of the cervix and uterus shared fifth place (6% each). Overall incidence[23] in males were highest in western Europe followed by the CCEE, with extremely high rates in the Czech Republic and Hungary. In women, the highest rates were observed in northern Europe, particularly in Denmark but also in Iceland.

The number of deaths reflects both incidence and rate of survival. By far the biggest killer was lung cancer. Owing to the poor prognosis, the absolute number of deaths almost matched the absolute incidence. Deaths from cancers of the colon and rectum ranked second, followed by stomach cancer, which, owing to its poorer rate of survival, ranked higher than breast cancer. The most common cause of death from cancer in males was lung cancer, while in females it was breast cancer.

The general patterns that emerge, despite some remaining reservations due to data quality and availability in some parts of the Region, are consistent with information on past exposures and interventions. This overall impression, however, should not hide the diversity in trends and levels of occurrence by cancer type, age and sex, and geography. These complex developments only reconfirm the need for cancer control measures that are well focused on the specific situation of the target population group, on the basis of sufficient epidemiological evidence and regular surveillance.

Globally, it is estimated that simply applying existing knowledge could prevent a quarter of all cancers. A third are curable using today's technology, and this can be confidently predicted to rise to one half over the next 25 years. But the appropriate expertise has to be widely accessible. For those who cannot be cured, effective palliation of symptoms, especially pain, should be a basic human right. Effective strategies, political will, skilled persuasion and good media relations, as well as international, professional and industrial collaboration, will be vital to achieve this target.

The WHO strategy is to improve cancer control through the development of national cancer programmes, which take into account the epidemiology of cancer, educational standards, existing resources and the economic status of the health care system in each country. Central to this initiative is the so-called "cancer priority

[23] Non-melanoma skin cancers are not included in the estimates of all cancers.

ladder", which provides internationally accepted priorities for developing effective national cancer control programmes.[24]

Obesity

Obesity is an avoidable chronic disease and a risk factor for other diseases. The major consequences for health associated with obesity include hypertension, diabetes, cardiovascular disease, gall bladder disease, psychosocial problems and certain types of cancer.[25] The risks increase progressively with body mass index (BMI),[26] with amplified relative risks in younger age groups and clear evidence of substantial reversibility on weight loss. Obesity and overweight constitute a pan-European epidemic that presents a challenge to the prevention of chronic NCDs.

In many countries more than half the adult population is above the overweight threshold, with 20–30% of adults categorized as clinically obese. The available data show a wide variation in the degree of obesity in Europe. In Finland, Germany and the United Kingdom one in five adults is obese, while in the CCEE and NIS even higher levels are prevalent. The available evidence mainly points to rising trends, although the rate of increase varies (Table 3).

The problem of childhood obesity has increased rapidly, with one in five children being affected in many countries. In the past decade, overweight and obesity rose

Table 2. The five top cancers in Europe as percentages of all cancers, 1995

Cancer site	Both sexes combined		Males		Females	
	New cases	Deaths	New cases	Deaths	New cases	Deaths
Lung	14	20	22	29	6	9
Colon and rectum	13	12	12	10	14	14
Breast	12	8	–	–	26	17
Stomach	8	9	9	10	7	9
Prostate	6	5	11	8	–	–
All sites	53	54	54	57	53	49

24 http://www.who.int/inf-pr-1998/en/pr98-72.html, accessed 8 May 2002.

25 Cancers associated with obesity include those of the small intestine, gall bladder, larynx, renal parenchyma, bladder, cervix, endometrium, ovary, brain and connective tissue. The association of obesity with risk of cancer of the breast, prostate and pancreas may be modified by age. Obese men are more likely than non-obese men to die from cancer of the colon, rectum and prostate. Obese women are more likely than non-obese women to die from cancer of the gall bladder, breast, uterus, cervix and ovary.

26 Body weight in kilograms divided by the square of the height in metres.

dramatically among boys and girls in England and Scotland, with rates almost doubling in the 10 years up to 1994. The Netherlands charted significant increases from 1980 onwards, while studies in France, Germany, Poland and Yugoslavia currently report around one in five children overweight or obese.

Obesity may cost some countries up to 7% of their total health care budget. In England, direct costs have been estimated at £500 million, with indirect costs of £2 billion.[27]

MONICA reporting areas	1980s		1990s	
	Males	Females	Males	Females
Belgium (Charleroi)	19.6	25.7	18.9	23.9
Belgium (Ghent)	11.3	15.5	13.2	15.9
Czech Republic	21.8	32.5	23.4	30.2
Denmark (Glostrup)	11.1	10.4	13.2	12.1
Finland (Kuopio Province)	17.8	19.2	23.7	25.9
Finland (North Karelia)	17.3	23.7	22.7	23.5
Finland (Turku/Loimaa)	18.7	16.6	22.4	19.2
France (Lille)	14.0	17.7	17.2	21.8
France (Strasbourg)	22.0	22.9	21.6	18.6
France (Toulouse)	9.2	10.5	12.6	10.1
Germany (Augsburg, rural)	19.9	22.2	23.5	23.0
Germany (Augsburg, urban)	17.6	15.5	17.3	20.8
Germany (Bremen)	13.9	18.0	15.6	18.7
Germany (eastern Germany)	14.5	18.6	16.1	20.4
Iceland	11.6	13.7	17.0	18.4
Italy (Brianza)	10.9	15.2	13.5	17.8
Italy (Friuli)	15.6	18.7	17.1	18.8
Lithuania (Kaunas)	22.0	44.9	19.8	32.0
Poland (Tarnobrzeg *Voivodship*)	12.8	31.9	14.9	36.3
Poland (Warsaw)	17.5	25.6	22.2	28.5
Russian Federation (Moscow)	13.6	32.1	8.3	22.2
Russian Federation (Novosibirsk)	13.6	45.5	16.7	34.8
Sweden (Gothenburg)	7.8	9.0	13.0	10.4
Sweden (northern Sweden)	11.4	14.2	14.3	13.8
Switzerland (Ticino)	19.7	15.0	13.3	16.3
Switzerland (Vaud/Fribourg)	13.4	13.2	16.1	10.1
United Kingdom (Belfast)	11.2	14.2	13.6	16.2
United Kingdom (Glasgow)	10.9	15.5	12.7	22.8
Yugoslavia (Novi Sad)	17.5	29.4	20.3	31.8

Table 3. Percentages of obese people age 35–64 years in MONICA areas in Europe for which both early to mid-1980s and early to mid-1990s survey data are available

27 In this publication, 1 billion = 1000 million.

In Germany, recent estimates have suggested even higher costs of DM20 billion, at 1995 values. In France, with a lower level of obesity, direct costs are in the range of 4.2–8.7 billion francs at 1992 values – up to 1.5% of total health costs.

Comprehensive strategies have yet to be developed that address the problem of overweight and obesity among adults and children at population level. Governments must develop stronger approaches to nutrition and physical activity that require coordinated intersectoral commitment at all levels. Too often, policy-makers assume that the only way to help is through personalized health education; this is manifestly failing, as shown by the huge interest in slimming and in slimming foods and other aids to weight reduction, together with escalating rates of overweight and obesity. Europe needs to develop broader, more coherent policies to counteract the pressures conducive to obesity that now affect huge populations.

Diabetes mellitus

The number of people living with diabetes mellitus is rapidly increasing in most countries. In the European Region, about 22.5 million adults are affected. Some 5–15% of all people with diabetes have type 1 diabetes, which strikes mainly children and adolescents, requiring them to inject insulin several times a day for the rest of their lives. The rest of those afflicted have type 2 diabetes, which appears typically in middle age. However, there is no doubt that diabetes, especially type 2, is being diagnosed more frequently and earlier in life. It has changed from an "old people's disease" to a disease afflicting people in the first half of their life. The ensuing high level of blood sugar is usually accompanied by high blood pressure and disturbances of blood cholesterol levels.

Diabetes is still an important cause of excess perinatal mortality in many countries, still the commonest cause of blindness in people of working age, one of the most common causes of kidney failure, and the commonest cause of leg amputation. Generally, those who suffer from diabetes have a 3–4 times higher risk of dying prematurely from cardiovascular disease than the rest of the population. The cost to the health system is enormous: a recent Swedish study estimated the cost of diabetes at some 8% of the total health budget, the highest proportion being related to treating complications. Overall mortality from diabetes is shown in Fig. 20.

Studies have shown that the development of type 2 diabetes can be prevented or delayed if people at risk modify their eating and exercising habits. For established type 2 diabetes, a large study[28] has shown that treatment of diabetes and its accompanying symptoms can be successful, and that the development of costly complications can be halted or delayed. A number of other studies have demonstrated that targeted programmes may have an important positive impact on diabetes and its complications, and that preventive efforts are cost-effective.

These developments pose a challenge to the health systems of the Member States to create programmes for increasing awareness of the problem among the population, politicians and health professionals. Programmes focusing on healthy lifestyles should be strengthened, and diabetes programmes revised, to respond to the growing trend towards overeating and insufficient physical exercise. One of the best known programmes is the St Vincent Declaration Action Programme, a joint activity of the WHO Regional Office for Europe, the European Region of the International Diabetes Federation and the European Association for the Study of Diabetes.[29]

Fig. 20. Deaths from diabetes per 100 000 population

28 *UK Prospective Diabetes Study* (http://www.dtu.ox.ac.uk/index.html?maindoc=/ukpds, accessed 29 May 2002).

29 http://qct.who.dk/diabetes/dm.htm, accessed 8 May 2002.

Mental health

Mental health problems are increasing significantly. According to the Global Burden of Disease estimates,[30,31] mental and neurological disorders figure among the leading causes of disease and disability. Neuropsychiatric disorders represent 11.5% of the global burden of disease. Of the 10 leading causes of disability, 5 are mental disorders: unipolar major depression, alcohol dependence, bipolar depression, schizophrenia and obsessive–compulsive disorder. Depression alone accounts for 4.1% of the total, ranking fourth among the leading causes of disease burden. By 2020 it is expected to be the second leading cause of DALYs lost, second only to ischaemic heart disease. Worldwide, mental ill health is responsible for a greater burden of disease than cancer, and in some European countries the mortality from suicide now exceeds that from road traffic accidents. The burden is even greater when taking into account the association with other conditions, such as depression and cardiovascular diseases.

The magnitude of the burden of mental distress and disorders, ranging from stress through depression and neurosis to major psychosis, is generally underestimated. In the European Region, the proportion of the population with serious mental disorders, as registered and reported by countries, varies from under 1% to 6%, with most countries in the range of 1–3%. The prevalence of some conditions such as anxiety varies from country to country, perhaps because of cultural differences, while the rates for other conditions such as schizophrenia are similar between countries, at around 1–2%. But less serious disorders, frequently unregistered, are much more prevalent. The vast majority of minor mental disorders are dealt with in the community itself or at primary care level, only a small proportion being treated through the specialized mental health services. Studies show that mental health problems account for up to 30% of consultations with general practitioners in Europe.

Depression has considerable disabling effects and also leads to increased mortality. The mortality rates due to suicide and self-inflicted injuries range from 11 to 36 per 100 000 population in European countries. While there is a slow decline on

30 MURRAY, C.J.L. & LOPEZ, A.D., ED. *The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020.* Boston, MA, Harvard School of Public Health, 1996.

31 Mental disorders may be defined as a set of symptoms or behaviour reflecting a cerebral dysfunction, associated in most cases with distress and interference with personal functions.

average in the EU countries and the CCEE, the trend in the NIS, after a sharp decrease in 1984–1986, showed an increase in the 1990s. Up to 60% of people with depression can recover with a proper combination of antidepressant drugs and psychotherapy. Cognitive psychotherapy seems to be particularly effective. Nordic studies showed a 20–30% decrease in suicide rates after general practitioners were trained to recognize and treat depression.

The causes and impact of mental health disorders vary with different social and economic factors. In eastern Europe, mental health problems have been associated with the decrease in life expectancy over the past decade, related to economic and social changes over the same period. In particular, there is some evidence for a relationship between socioeconomic disadvantage and the prevalence of depression.

In the European Region, mental health is characterized by three main factors. First, the levels of the economic, psychosocial and environmental determinants of health have a major impact on people's wellbeing and the provision of mental health services. Second, the persisting stigmatization of mental disorders leaves many patients to the custodial services, with consequences for the timeliness of intervention, the humanization of services and the reintegration of the mentally ill into society. Third, conditions related to stress and helplessness, such as depression, suicide, alcoholism, and violent and risk-taking behaviour, still have a major impact on morbidity and premature mortality, especially in the eastern part of the Region. Gender issues are also important here, reflected in the decreasing life expectancy for men while women seem to be better able to cope with stress and social change. In other countries, gender-specific patterns can be found in high-risk populations, such as adolescents, single people and women under social pressure.

Standards of mental health care differ greatly across Europe. Many European countries spend less than 3% of their health budgets on mental health care, although the consequences of mental ill health can amount to one third to one half of health care costs. Very large hospitals still exist in eastern European countries, treating up to 50% of all patients, while countries in the west of the Region tend to prefer treatment in the community. This latter model also encounters problems, however, such as a lack of accessibility to health professionals and the reluctance of communities to accept people with mental disorders.

The importance attached by WHO to mental health was reflected in several events in 2001. The theme chosen for the World Health Day was "Stop exclusion – dare to care". The World Health Assembly discussed all aspects of mental health. *The world health report 2001* provided a comprehensive review of mental health problems and their contributing factors, and outlined policies for their prevention and for the treatment and care of mentally ill patients as well as the promotion and protection of mental health. In particular, the stigma associated with mental health is one of the main obstacles to early prevention and treatment, as well as to reintegrating mentally vulnerable people into society.

Accidents and injuries

Intentional and unintentional injuries are a large problem, relatively neglected in many countries. Violence and self-inflicted injuries represent a major public health concern because of their increasing significance within the global burden of diseases.

Accidents, other causes of injuries and poisoning are responsible for about one tenth of overall mortality (around 6% and 12% on average, respectively, in the western and eastern parts of the European Region). External causes are the leading causes of mortality in younger age groups, and they therefore account for a large proportion of premature deaths. On average, the standardized death rate due to external causes in 1999 was below 40 per 100 000 population in the EU (a reduction of more than 30% compared to 1980). From 1980 to 1992, the CCEE had an average mortality rate of around 80 per 100 000, though it then declined steadily to 65 per 100 000 in 1999. In the NIS there was, on average, a considerable decline from 140 to 92 per 100 000 between 1980 and 1987, followed by a sharp increase to 188 in 1994 (Fig. 21). Since then the situation has improved, but the average figure is still above the 1980 level.

Some 30–40% of deaths in children aged 1–14 are caused by injuries due to traffic accidents, to other external causes such as poisoning, drowning, fires and falls, and to violence. The rates vary among countries, with averages of 33% in the EU countries, 40% in the CCEE and 33% in the NIS. Injuries not only cause deaths but also an important burden of disability and suffering among children.

Several countries in western Europe have succeeded in reducing mortality from injuries in children aged 0–14. A good example from the United Kingdom[32] stresses the importance of such measures as area-wide urban safety programmes, traffic-calming measures, the use of car restraints for young children, improved design of home appliances, and community-based interventions targeted at local patterns of injuries and their causes.

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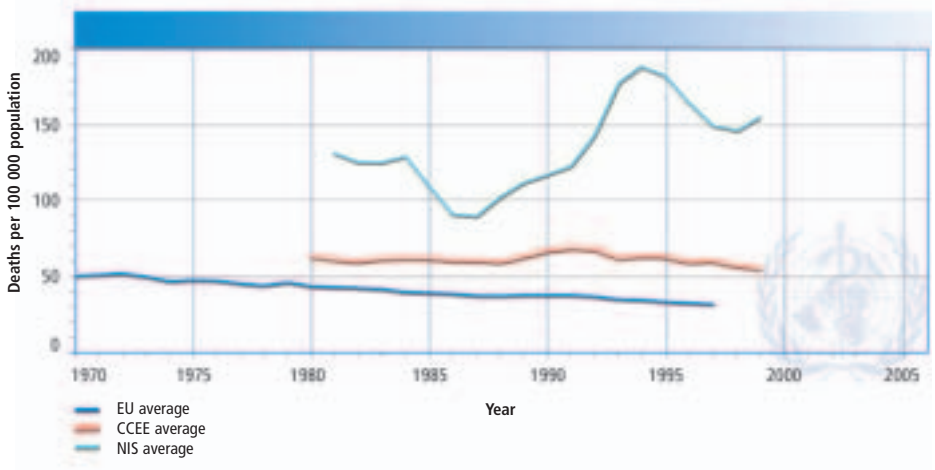

Fig. 21. Mortality from external causes, 1970–1999

32 CENTRE FOR REVIEWS AND DISSEMINATION, UNITED KINGDOM. Unintentional injuries in young people. *Effective health care bulletin*, **2**: 1–16 (1996).

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Distribution of health in populations

Child health

The chances of a child being born healthy and surviving the first year of his or her life vary throughout the Region. In general, western European countries have achieved remarkably low levels of infant mortality, although there are still significant inequalities between social groups within countries. In the eastern part of the Region, infant mortality rates decreased steadily in the past two decades but are still high compared to those in western European countries. According to the latest reported official data, 6 countries in the Region still have infant mortality rates above 20 per 1000 live births (though other sources report higher levels and in more countries), while 30 countries record rates below 10 per 1000. Perinatal conditions are the major causes of infant mortality and, among those, unwanted pregnancies and pregnancies in teenagers are some of the most important risk factors in both eastern and western Europe.

There are also major inequalities with regard to the probability of dying before five years of age (Fig. 22). The figures range from less than 5 to more than 50 deaths per 1000 live births, with averages of 6 per 1000 in the EU, 15 per 1000 in the CCEE, and 26 per 1000 in the NIS. Children are still dying from diseases that are preventable or curable. In many countries, diarrhoeal diseases and acute respiratory infections are responsible for a large proportion of morbidity and mortality among children under five years of age. Under-five mortality due to accidents and other

Fig. 22. Probability of dying before 5 years of age

external causes is decreasing in most countries, but some of the NIS still experience levels several times higher than the European average.

A healthy start in life is essential. Many aspects of child health are determined by maternal health, prenatal and perinatal development, and the quality of the social and physical environments in the early years of life. In particular, poverty and uncertainty can start a chain of social events that damage health over the entire life course. Most significant in this respect are the social unrest and armed conflicts that have affected several countries in the Region. Another major factor is the considerable inequity in the quality and provision of perinatal and postnatal services between and within countries (Fig. 23).

WHO's global Making Pregnancy Safer Initiative[33] is among the recommended strategic approaches that can contribute to healthy birth and help mothers and infants cope through adequate prenatal and perinatal services. The European initiative in particular promotes breastfeeding, neonatal care and the use of appropriate technology for birth, through a holistic approach and cost-effective interventions. It focuses on the fact that pregnancy and delivery are natural physiological processes and should be regarded as such by health professionals and communities. In addition, the Baby-Friendly Hospital Initiative promotes early and continuous contact between mothers and infants after birth to ensure quality of care and optimal nutritional support.

Fig. 23. Perinatal mortality per 1000 live births

33 http://www.who.int/reproductive-health/mps/index.html, accessed 8 May 2002.

The WHO/UNICEF strategy on Integrated Management of Childhood Illness aims at reducing mortality and morbidity through the provision of basic care for the most common childhood illnesses, as well as preventive measures (such as immunization and better infant and child nutrition, including breastfeeding) and improved family and community practices. It is addressed at countries in the Region experiencing high levels of infant and child mortality due in large part to communicable diseases. In addition, the strategy promotes the continued healthy development of children.

Mother-to-child transmission is the overwhelming cause of HIV infection in young children. The number of children born to HIV-infected mothers in eastern Europe has increased with the increasing rates of HIV infection among young women. For example, up to the end of 1999 some 1300 infants had been born to HIV-infected mothers in Ukraine. Effective and affordable means exist for preventing HIV transmission from mother to child, but they are not yet available in all countries of the Region. Mother-to-child transmission should be addressed as part of a wider response to HIV/AIDS, which includes expanding access to care and support for HIV-infected mothers and their families. In response to these needs, a regional interagency task force on mother-to-child transmission has been created.

Within the framework of the First Action Plan for Food and Nutrition Policy for the WHO European Region, special attention is being paid to the promotion of healthy nutrition of infants and young children, including the promotion of exclusive breastfeeding for the first six month of life. Feeding guidelines for infants and young children have been developed for the countries in the Region, emphasizing the scientific rationale for the development of national nutrition and feeding recommendations. By promoting these guidelines, health systems can help to ensure healthy nutrition for young children.

Child abuse and neglect are major issues of human rights and public health. World Health Assembly resolution WHA50.19 calls on Member States to make an effort to eliminate violence against women and children, including child trafficking and sexual abuse. Abuse and neglect have an impact not only on the physical and psychological wellbeing of children but also on their development, leaving such children socially excluded and less equipped to deal with life. These issues were discussed in depth at the First Meeting on Strategies for Child

Protection,[34] convened by the Regional Office in 1998 to examine the implications of child abuse and the needs for protection from the viewpoint of the health sector. The conclusions and recommendations of the Meeting constitute guidelines for intervention in this area for policy-makers and health providers in the Region.

Children are more susceptible than adults to the effects of environmental health threats and therefore require special protection. The Third Ministerial Conference on Environment and Health, held in London in 1999, proposed specific action to address the public health problems of injuries, environmental tobacco smoke, asthma and emerging threats. Member States should take action in partnership with international organizations, NGOs and other relevant parties. Furthermore, an international mechanism has been proposed to develop public health policies in areas of emerging concern, to coordinate and promote action, to facilitate the exchange of information between Member States and to provide a forum for the advocacy of children's rights.

Adolescent health

The leading cause of mortality among adolescents is accidents. Rates of mortality due to external causes in the age group 5–19 years have decreased in most European countries, but seem to be levelling off at around 28–29 per 100 000 population in the NIS. Teenage pregnancy rates in most countries of western Europe are between 13 and 25 per 1000 girls aged 15–19 years, with extreme highs of around 50 in the United Kingdom. Some CCEE, for example Croatia and Slovenia, also fall in this range, but the other CCEE and the NIS have experienced 2–4 times higher rates, reaching over 100 in Ukraine (Fig. 24). In certain countries, increases in pregnancies have been observed in girls as young as 12 and 13 years. Unwanted and unplanned pregnancies can lead to dangerous abortions, with serious health consequences for adolescent girls. WHO is committed to the implementation of the Programme of Action of the United Nations International Conference on Population and Development (ICPD) in 1994[35] and the recommendations of ICPD + 5 in 1999.[36]

34 *First Meeting on Strategies for Child Protection: report on a WHO meeting.* Copenhagen, WHO Regional Office for Europe, 1999 (document EUR/ICP/FMLY 01 03 01).

35 *Programme of Action of the International Conference on Population and Development.* New York, United Nations, 1995.

36 http://www.un.org/popin/icpd5.htm#ICPD+5%20Information, accessed 29 May 2002.

The Consultation called on governments to invest in child and adolescent health and to reach more effectively the poor children and adolescents who need assistance, and allow young people to be agents of change. The world leaders agreed that it was important that the messages from the Stockholm Consultation be taken to other international forums, such as the United Nations Special Session on Children in New York in May 2002. Investing in child and adolescent health was a means of reducing poverty and of addressing other conditions that threaten economic development and peace.

For a variety of reasons, young people are at increased risk of contracting sexually transmitted infections (STI). Existing medical and social facilities should be developed to provide young people with counselling, information and practical help in reproductive health, STI care, HIV/AIDS prevention and contraception. WHO, in cooperation with other United Nations agencies such as UNAIDS, UNESCO, UNFPA and UNICEF, is helping countries to build appropriate service

Fig. 24. Numbers of live births and induced abortions per 1000 females aged 15–19 years, latest available data

structures for adolescents, provide affordable contraceptives, and develop school curricula and other information strategies on sexual and reproductive health. In view of the STI epidemic and the rise in HIV infection in the eastern parts of the Region, a WHO-coordinated interagency task force is promoting strategies for safe sexual behaviour, including the increased use of condoms.

Investing in child and adolescent health strengthens economic development

In a call for commitment to saving children's lives, WHO and the United Nations Children's Fund (UNICEF) convened a Global Consultation on Child and Adolescent Health and Development in Stockholm on 12–13 March 2002. Experts and political leaders discussed strategies to reach the poorest and the youngest.

- The Director-General of WHO said that US $66 billion annually until 2007 could save 8 million lives each year, most of them children's lives.
- The Executive Director of the United Nations Population Fund noted that, while adolescents need the support of adults as they make critical choices in their lives, and a safe environment with opportunities to develop into healthy, productive adults, "for many adolescents today, the notion of adolescence as a time of opportunity for self-development, under safe and healthy conditions, could not be further from their reach".
- The Executive Director of United Nations Children's Fund recognized the achievements in the past decade that had brought better health for children, saved millions of lives and prevented disability. These included oral rehydration therapy, childhood immunization, effective treatments against pneumonia, malaria and other deadly childhood diseases, iodized salt and vitamin A supplements, and progress in promoting breastfeeding and improved infant feeding practices.
- A representative of the World Bank highlighted inequities: "Poor children and adolescents, excluded from the prosperity and good health of better-off children, are disadvantaged from the start. Poverty and inadequate health systems compound their vulnerability to sickness and possible death, despite our collective knowledge of effective and affordable actions that can protect children from ill health, and restore health to sick children".

The increasing prevalence of depressive conditions in young people, especially in societies in transition, is an urgent problem. Existing successful programmes to combat mental illness should be disseminated, focusing on detection, intervention and monitoring of depressive conditions in childhood and adolescence.

There is evidence that adolescents are experimenting with alcohol at younger ages and are increasingly engaging in high-risk behaviour, such as binge drinking and

mixing alcohol with illicit drugs. One in four deaths among adolescents is due to alcohol, and in the Region as a whole some 55 000 adolescents die annually in connection with alcohol consumption. The alcohol industry is trying to infiltrate the adolescent market through advertising, by developing products targeted at adolescents and by sponsoring events particularly attractive to young people.

Over the last decade, smoking among adolescents in Europe has increased. Large multinational companies, with marketing strategies that often associate smoking with an affluent lifestyle, dominate the tobacco industry. The Framework Convention on Tobacco Control will be finalized by 2003, as a follow-up to the WHO European Ministerial Conference for a Tobacco-free Europe, in Warsaw in February 2002.

One of the most dramatic consequences of the increase in the use of illicit drugs is the rapid spread of HIV among adolescents. The steepest rise in HIV prevalence is in the NIS, and is due to the spread of the virus among injecting drug users. So-called harm reduction strategies have reduced the spread of HIV among drug users in western European countries.

Overweight and obesity in children and adolescents are increasing in the European Region. The major problems associated with child obesity are its persistence into adult life and its association with an increased risk of disease in later life. Another important consequence of obesity is poor self-esteem and body image. Prevention of overweight and obesity can best be achieved through reducing the intake of fat, alcohol and energy-dense foods and increasing physical activity.

Although in general good progress is being made towards Educational standards, there is a worrisome trend in the European Region for young people to “drop out” before completing their primary or basic education. There is growing evidence that leaving school early is associated with health risks such as early pregnancy, unhealthy behaviour and social exclusion. There is a need to focus on developing research into the problem and its causes, on innovative extramural education programmes, on outreach schemes, and on a mixture of educational methodologies such as peer education.

In the mean time, emphasis has been placed on the school as a social setting within which health can be developed and sustained through the "health-promoting school". Schools provide an educational experience, not only through the curriculum in the classroom but also through the total environment created in the school, both physical and psychosocial. The evidence showing that there is a close correlation between good health and good education lies at the heart of the health-promoting school initiative. In health-promoting school programmes, all the components of school life are addressed in relation to their capacity to promote health. Successful health-promoting schools are able to influence the health attitudes, values and behaviour of children and adolescents. Health-promoting school programmes influence the way teachers teach in the classroom, the relationships schools develop with parents and the community, the social atmosphere in the school, student participation in decision-making, and the way schools are managed.

Schools that incorporate skills education and interactive methods to encourage learning are successful in creating a health-promoting educational environment. The processes of integrating skills, competencies, knowledge and understanding of health are not easy for schools to institute. The Regional Office is collaborating with the Council of Europe and the European Commission in the European Network of Health Promoting Schools. This is an intersectoral initiative for promoting the health of children and adolescents within schools, using internationally understood concepts and approaches and assisting Member States to build capacity, set standards, draw up guidelines and advocate for the development of health in schools.

Women's health

Women's health priorities differ across Europe, ranging from primary reproductive health concerns in the eastern part of the Region to cardiovascular diseases among women in the western European countries. There have been advances in research on reproductive health, perinatal health, and screening for breast and cervical cancer, but an in-depth analysis of gender in relation to the health sector has never been undertaken. Socioeconomic transition in the eastern part of the Region has resulted in previous improvements in the health of women being lost. War and conflict in many countries has further threatened the health of women (Fig. 25).

The more than four million women in eastern Europe belonging to migrant groups, refugees and ethnic minorities require specific attention.

Certain infectious diseases affect women disproportionately. Women may transmit infections such as hepatitis, HIV, rubella or toxoplasmosis to their unborn children. Childbirth itself is a time of risk of infection for both mother and child. Pregnancy can affect the immune system of women, making them more susceptible to other infectious diseases such as malaria. Recommendations regarding malaria prevention should be specific for pregnant women. Many countries arrange for the immunization of girls against rubella before they reach puberty. WHO and partner agencies are developing strategies to prevent mother-to-child transmission of HIV. While the exposure of women to STI is also determined by male sexual behaviour, and safe sex practices help to protect women and men alike, the means for women to protect themselves through barrier contraception are not readily available in most of the CCEE and NIS. Integrating related services into reproductive health care is an essential step in protecting women, men and children.

Cardiovascular diseases have become a major cause of premature mortality in women throughout the Region (Fig. 26). Some chronic diseases affect mainly women, for example rheumatoid arthritis and other auto-immune diseases. Greater female longevity requires strategies for both prolonging active life and providing long-term care for people with impaired functioning and chronic diseases, as relatively little has been done to introduce public health strategies for the

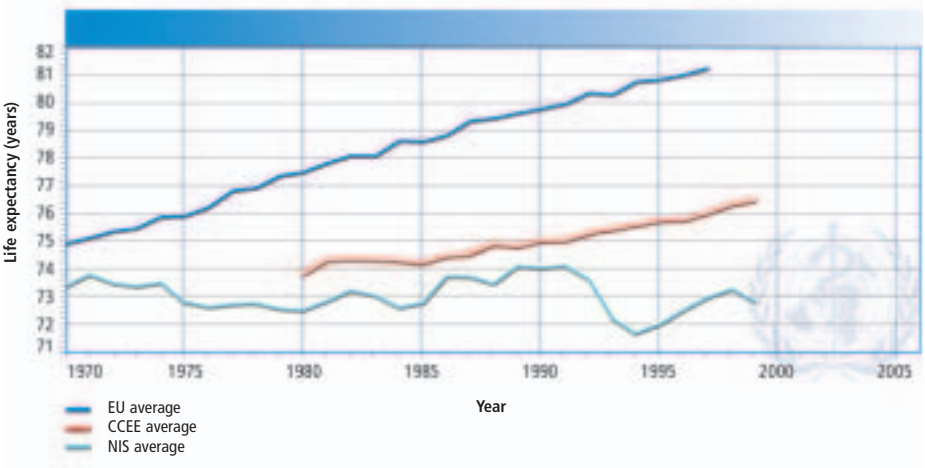

Fig. 25. Life expectancy at birth, females, 1970–1999

prevention of major disability. Cancers of the reproductive organs contribute considerably to female mortality, and the burden of disease overall. Systematic breast-cancer screening programmes can lead to early detection and treatment and thus reduce avoidable mortality (Fig. 27). In general, cervical cancer leads to higher mortality rates in the CCEE and NIS than in western Europe. Again, population-based screening programmes have reduced mortality from cervical cancer. In particular, the etiological link to the sexually transmitted human papilloma virus means that an increase in the incidence of cervical cancer should be expected in countries with epidemics of STI.

Gender-based violence constitutes a particular public health problem. In the Region as a whole, some 20–50% of women have been subjected to one or more forms of abuse. Women and children are most at risk from men known to them (husbands, fathers, partners, etc.) rather than from strangers. Much of this violence is underreported, yet its consequences for health and development are profound. Migrants and refugee women are particularly vulnerable. The problem of family violence is being increasingly addressed by new or revised legislation throughout Europe.

Women's health needs vary throughout life. A life-course approach should therefore be applied, as set out in various international recommendations. These recommendations have had considerable impact, and many European countries have developed national women's health profiles as well as regional or city profiles.

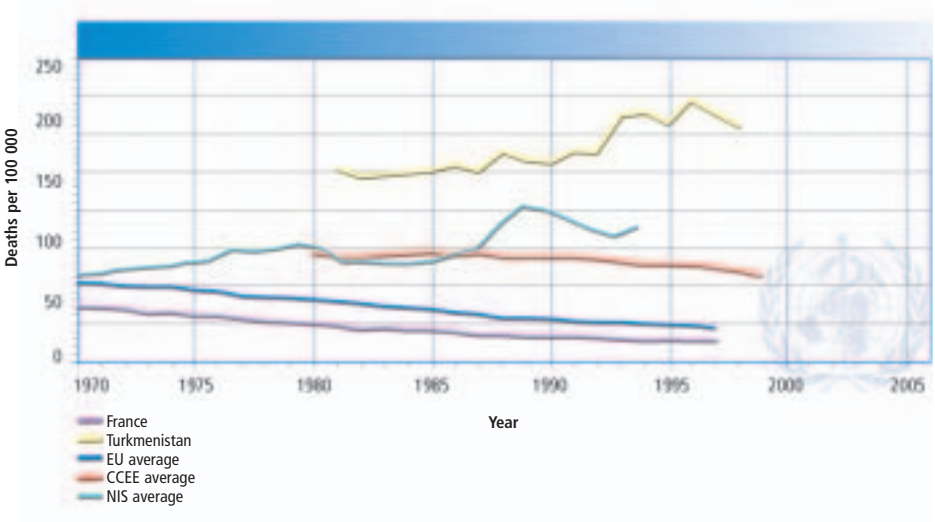

Fig. 26. Mortality from cardiovascular diseases, females 0–64 years, 1970–1999

WHO recommends (*a*) that the implementation of human rights legislation and instruments is ensured; (*b*) that equity in women's status across Europe and within the European countries is promoted; (*c*) that discrimination against women is addressed; (*d*) that poverty among women is tackled, ensuring that policies for economic regeneration do not undermine social and health services; and (*e*) that appropriate health care is provided, ensuring that unemployed women have proper access to services through existing health insurance schemes. The Regional Office has established a European Committee of Experts to monitor, follow up and provide guidance and leadership in the process, and will work with UNAIDS, UNFPA, UNHCR, UNICEF, ILO, the EU and the Council of Europe to achieve the targets set.

Reproductive health and sexual health

Reproductive ill health accounts for around 6% of the total disease burden in the CCEE and NIS. This does not include the proportion of the burden of disease explained by cancers, HIV infection and STI or the burden of disability explained by long-term complications of pregnancy and childbirth, or surgical interventions performed without access to the appropriate recommended technology and essential drugs. Including these, the burden of disease is closer to 8–10%.

Through a set of targeted interventions, based on the best available evidence and publicly funded, the countries of western Europe and some of the CCEE have made remarkable progress in reducing maternal mortality over the past 20 years,

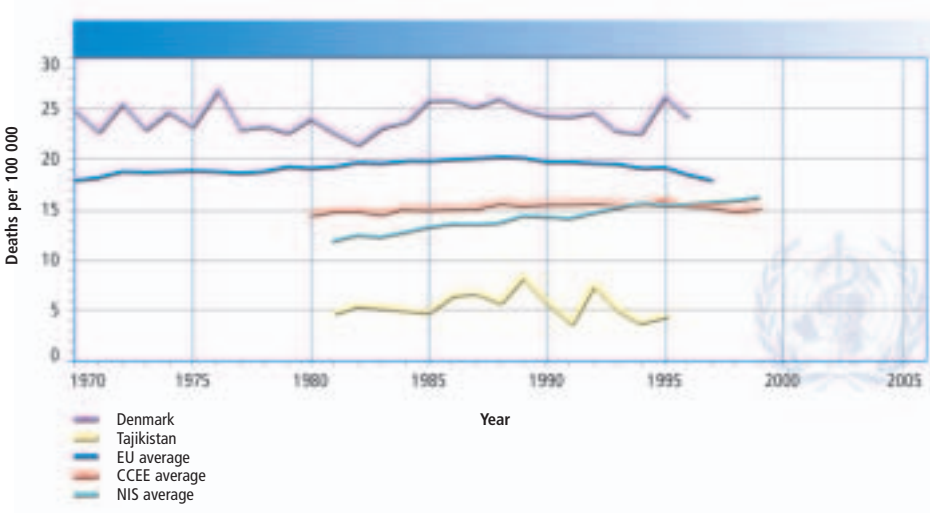

Fig. 27. Mortality from cancer of the breast, females 0–64 years, 1979–1999

bringing it down to between 5 and 10 deaths per 100 000 live births (Fig.28). Up to 1990, the CCEE and NIS had average maternal mortality rates of around 40–50 per 100 000. Since then, the figure in the CCEE has dropped to around 15 per 100 000; the decrease has been much slower in the NIS, where the current average is 35 per 100 000 live births. Some of the poorest countries of the Region still show national averages of over 40 maternal deaths per 100 000 live births. These averages are frequently explained by very high rates in certain areas where services are insufficient or inaccessible, such as remote rural or mountainous areas. In these regions haemorrhage following birth, infections and obstructed labour are still frequent causes of maternal mortality. Complications of abortion explain one quarter of maternal deaths in some countries, and are on average the single largest cause of maternal mortality in the CCEE and NIS overall.

The challenges ahead lie in identifying cost-effective interventions to reduce maternal morbidity and mortality and sexually transmitted infection, including HIV infection. These include appropriate antenatal care practices, which can easily be performed at the primary health care level by general practitioners and paramedical staff. In addition, access to essential reproductive health care should be guaranteed in health systems reform.

WHO action takes place within the framework of the global Making Pregnancy Safer Initiative, which includes the development of tools based on evidence from multicountry controlled trials. These will strengthen the knowledge base of the Regional Office to support countries in improving maternal health during the next biennium.

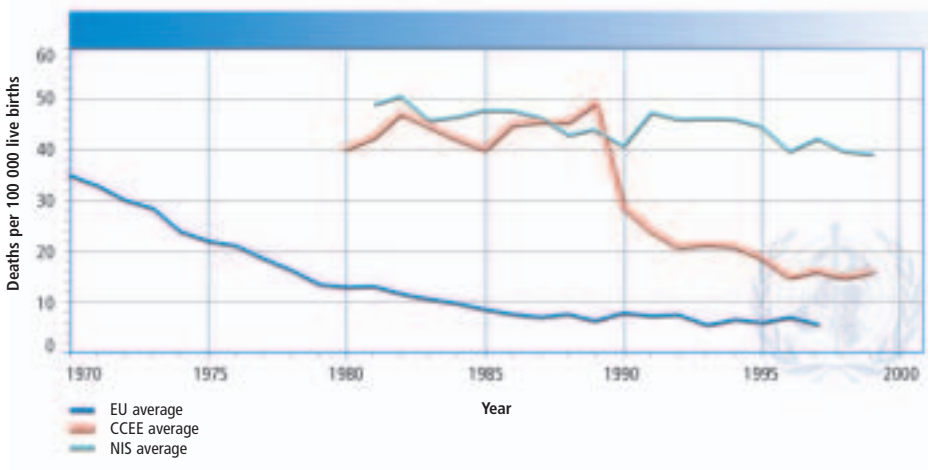

Fig. 28. Maternal mortality 1970–1999

Ageing and health

Populations in the WHO European Region are growing older. People are living longer and fewer babies are being born. Of the 20 countries in the world with the highest percentages of older people, 18 are in the European Region. In these countries, between 13% and 18% of the population are over 65 years old. Life expectancy at age 65 (Fig. 29) shows a steady increase in the EU countries, where it has reached an average of more than 18 years (a gain of about 2.5 years since 1980). The increase has been much slower in the CCEE, where the average was about 15 years in 1999 (a gain of less than one year since 1980). In the NIS, the situation has deteriorated since 1990, giving an average of 14 years in 1999 (a loss of half a year since 1980). The difference in the average life expectancy at age 65 between the EU and the NIS is still as high as 4 years (Fig. 30). Women's advantage in life expectancy at age 65 remains stable at around 4 years for the EU, 3.3 years for the CCEE and 3.6 years for the NIS. It is important to note that the available data in some countries of western Europe suggest that the gain in life expectancy at age 65 is not accompanied by an increase in the time lived with severe disability.

In nearly every European country, cancers and cardiovascular diseases together account for around three quarters of all deaths in people aged 65 and over. In the EU it is estimated that 64 000 deaths per year among older people are due to injuries, of which two thirds are due to falls. Elderly drivers have higher accident

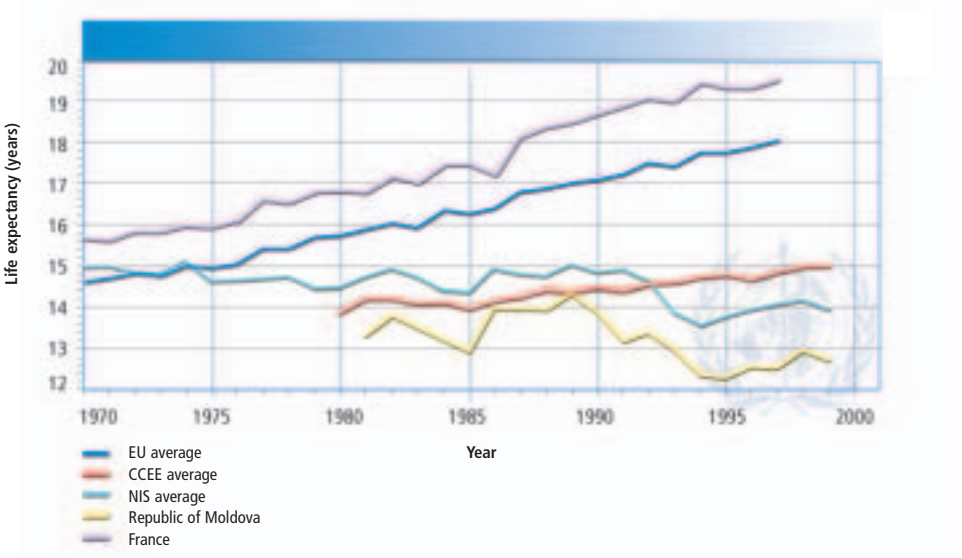

Fig. 29. Life expectancy at age 65, 1970–1999

rates per unit distance than middle-aged drivers, and are overrepresented in accidents with a fatal outcome. Physical violence to older people by carers, in the home or in institutions, has gained increasing recognition across Europe, along with sexual and psychological abuse and neglect. Research is currently at the stage of mapping the extent of the problem and identifying risk factors.

Physical activity is a strong predictor of successful ageing. Systematic reviews indicate that physical activity is potentia1ly effective in reducing the number of falls (even at very old age), improving strength, gait and balance, reducing blood pressure and promoting mental health.

Evidence of age-related rationing of health care interventions has been documented in some countries in the European Region. There may often be a common understanding among clinicians that certain treatments are not offered to people over a particular age. One can expect that the age-related rationing would become more prominent because of the pressures on the health systems created by the increasing proportion of older people.

Much of the economic contribution of the older population goes unrecognized. Older people make substantial contributions in unpaid work in such areas as agriculture, informal care giving and services. Many European economies depend on these activities, but include few of them in their assessment of gross national product, often leaving the contribution made by older citizens unnoticed and undervalued. At present, consumers aged 50 and over own an estimated 80% of the wealth in France, Germany, Italy and the United Kingdom, and the same is

Fig. 30. Life expectancy at age 65 (years)

true for many other countries of Europe. Nevertheless, large numbers of the elderly across Europe are poor.

A wide range of studies has shown the importance of social and economic factors as major determinants of public health. This is true for older people as much as for any other group. Public health interventions should thus focus on four key areas: (*a*) reducing the burden of access disabilities; (*b*) reducing the risk factors associated with the causes of major diseases in old age and promoting healthy lifestyles; (*c*) developing primary health care systems that emphasize health promotion, disease prevention and the provision of cost-effective, equitable and dignified long-term care; and (*d*) collaborating with other sectors to make positive changes in the determinants of healthy active ageing and the quality of life of older persons.

The Healthy Ageing Programme of the Regional Office works in six action areas: (*a*) taking account of the needs of Member States, through a committee of counterparts and experts; (*b*) selecting models of best practice and carrying out demonstration projects; (*c*) identifying appropriate low-technology instruments and promoting their use, funding and further development; (*d*) promoting the better use of the assets and resources of older people to lead healthy lives, using role models and other leading figures in European society; (*e*) adapting instruments to measure the quality of life; and (*f*) establishing task forces to address new challenges and ethical concerns in such fields as pharmacology, genetics and biotechnology as related to healthy ageing.

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PART TWO

The major determinants of health

Socioeconomic determinants

Lifestyles

Physical environment

It is now traditional to review a long list of determinants of health, such as genetic and individual factors, lifestyles, environment, and the availability and effectiveness of health services. The great differences in health status observed across countries and among groups within countries have highlighted the fact that all these determinants are linked to social and economic factors that are at the core of political and societal development.

Socioeconomic determinants

The great differences in health status among the countries of the European Region have thrown into sharp focus factors – beyond health services, genetics and individual lifestyles – that affect health at the population level. The evidence has become much clearer that such differences are substantially a manifestation of social, economic, environmental and institutional determinants. What is less clear is the precise quantitative individual roles of these various factors.

Universal access to effective health services of reasonable quality is an essential requirement in an advanced society. Nevertheless, while the failure of individually focused health services to achieve this goal will contribute to unnecessary suffering and morbidity, there is little evidence that such failures contribute substantially to the gross imbalances in public health seen across the European Region. Moreover, while genetic and lifestyle factors clearly affect an individual's susceptibility to disease, their role in the differences in health at population level is much less evident. Individual lifestyle and risk factors explain only a portion of variations in the occurrence of disease. Further, the causes of variations in disease among individuals may be different from the causes of variations among populations. A quantitative analysis of the burden of disease that can be attributed to different risk factors[37] shows that the largest single contributor worldwide is malnutrition, accounting for nearly 12% of deaths. Including all other traditional risk factors accounts for about 40% of the global burden of deaths. Thus about half the global burden of deaths remain unexplained by these known major risk factors (Fig. 31).

In addition to risk factors, it would be very useful to examine risk conditions that can be linked directly to social, economic and environmental determinants of

37 Murray, C.J.L. & Lopez, A.D., ed. *The global burden of disease. A comprehensive assessment of mortality and disability from diseases, injuries, and risk factors in 1990 and projected to 2020.* Boston, MA, Harvard School of Public Health, 1996.

health. A typical risk condition for population health in Europe is poverty. There is a developing knowledge base that relates disease patterns to the organization of society and the way it invests in its human development. Evidence from a number of sources now indicates that, in addition to raising economic wealth in aggregate, it is necessary to give attention to the relative distribution of wealth. Health is best served in more socially cohesive, egalitarian societies with a smaller burden of relative deprivation.[38] In developed societies at least, health is more related to relative rather than absolute income.[39,40]

Accordingly, health policies need to aim at reducing the overall burden of disadvantage. In attempting to reduce health inequalities and create better conditions for population health, health policy cannot be isolated from other development policies. Thus the link between health policy and other policy sectors such as employment, income maintenance and social welfare, housing and education is crucial in all European Member States. To reduce socioeconomic

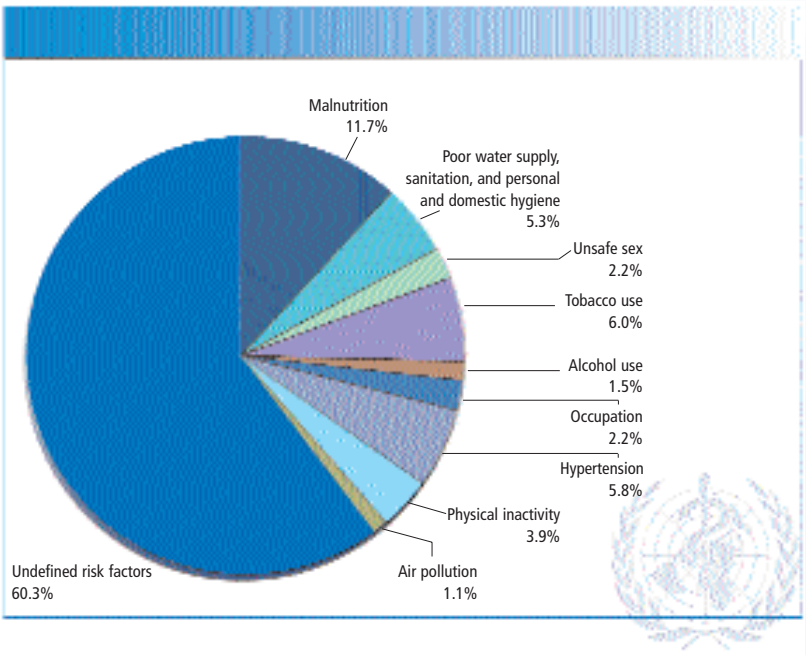

Fig. 31. Percentage of total deaths (globally) attributable to selected risk factors

38 WILKINSON, R.G. *Unhealthy societies: the afflictions of inequalities*. London, Routledge, 1996.

39 KAWACHI, I. ET AL., ED. *Income inequality and health. Vol. 1. The society and population health*. New York, New Press, 1999.

40 WILKINSON, R.G. Health inequalities: relative or absolute material standards? *British medical journal*, **314**: 591–595 (1997).

inequality, it is necessary to reduce both the proportion of the population that falls behind and the distance it falls behind. Evidence suggests that greater income equality, and the improved social environment that comes with it, act by enhancing the population's psychosocial welfare.[41,42] By improving social functioning, reduced income inequality increases the effectiveness of a wide range of public health and social policy initiatives. Without tackling social inequalities, progress is likely to be slower and the quality of life poorer.

Health and development

The relationship between health and development is fundamental, and the improvement of people's health must be a major objective of development. For poor countries there is a clear relation between GDP per head and life expectancy. At the lower end of the GDP range, the relationship is quite steep. In more developed societies, such as those within the European Region where the major causes of mortality and morbidity are noncommunicable diseases, there is now strong evidence that the burden of these diseases is also related to the social environment, and there is growing evidence of the complexity of this relationship.[43,44] While improved health, measured in terms of life expectancy, generally correlates with income per head of population, there are many exceptions to this. There are poor countries with relatively good health, and rich countries with relatively poor health. This complexity increases when income differentials within countries are added to the discussion, as there are poor groups within rich countries whose health is well below that of the populations of markedly poorer countries. In summary, higher income is a positive factor for health, but because of other operative factors there are many examples where richer people live shorter lives than poorer people. These operative factors have recently been clarified.[45] It appears that, while GDP per head does have a significantly positive correlation with life expectancy, this relationship works mainly through the impact of GDP on

41 Brunner, E. & Marmot, M. Social organisation, stress and health. *In*: Marmot, M. et al., ed. *The social determinants of health*. Oxford, Oxford University Press, 1999.

42 McEwen, B.S. Protective and damaging effects of stress mediators. *New England journal of medicine*, **338**: 171–179 (1998).

43 Cornia, G.A. & Paniccia, R. *The mortality crisis of transitional economies*. Oxford, Oxford University Press, 2000.

44 Lundberg, O. The impact of childhood living conditions on illness and mortality in adulthood. *Social science and medicine*, **36**: 1047–1052 (1993).

45 Wilkinson, R.G. *Unhealthy societies: the afflictions of inequalities*. London, Routledge, 1996.

(*a*) the incomes of the poor and (*b*) public expenditure, particularly in health care. Much therefore depends on how economic wealth is distributed and utilized.

This analysis has led to the definition of two types of processes in the reduction of mortality. "Growth-mediated" processes work through faster economic growth with a strong employment component, the enhanced economic prosperity being used to expand relevant social services such as education, social security and health care. "Support-mediated" processes work through social programmes of support for education, health care and other social arrangements. Resources are therefore needed to develop "resource-led", low-cost, labour-intensive activities such as education and health care. Giving priority to these resources is a key requirement for development.

The recently published report of the WHO Commission on Macroeconomics and Health[46] stresses the central role of investments in health as a concrete input into economic development and poverty reduction. The macroeconomic evidence suggests that countries with the weakest conditions of health and education find it much more difficult to achieve sustained growth than do those with better conditions of health and education. Health status seems to explain an important part of the difference in economic growth rates, even after controlling for standard macroeconomic variables. The Commission calls for a comprehensive global approach, with concrete goals and specific time frames. Increased health care coverage for the poor requires greater financial investments in specific health sector interventions, as well as a properly structured health care delivery system. The Commission's report suggests investing in interventions that are known to work, and whose results can be measured in terms of disease burden and health system performance. An Action Agenda for Investing in Health for Economic Development is proposed, asking low- and middle-income countries to plan for scaling up essential health interventions and increasing budgetary resources for health, and urging the international community to contribute to this effort in a coordinated way.

The Regional Office established a programme on investment for health in the mid-1990s. A series of meetings on this issue culminated in 2000 in a declaration of specific responsibilities for and action on health investment, aimed at rallying

46 Commission on Macroeconomics and Health. *Macroeconomics and health: investing in health for economic development.* Geneva, World Health Organization, 2001.

governments and NGOs, industry and commerce, civil society and the media to a plan of action. A WHO European Office for Investment for Health and Development has been established in Venice, with the purpose of collaborating with Member States in building their capacity to put the health investment process to work.

Poverty

Poverty and ill health form a vicious circle, poverty being both a major determinant of poor health and a potential consequence of it. Whether defined by income, socioeconomic status, living conditions or educational level, poverty is the single largest determinant of ill health. Living in poverty is associated with lower life expectancy, high infant mortality, poor reproductive health, a higher risk of contracting infectious diseases (notably tuberculosis and HIV infection), higher rates of tobacco, alcohol and drug use, a higher prevalence of noncommunicable diseases, depression, suicide, antisocial behaviour and violence, and increased exposure to environmental risks. A report submitted to the WHO Regional Committee for Europe in 2001[47] provides evidence for these associations.

All European societies are affected by poverty in some ways (see Annex 2, Table 1), either in absolute or in relative terms. Even in affluent societies, health inequalities increase with widening socioeconomic disparities, in a social gradient running across all socioeconomic groups, the whole society and throughout life. In 1998 some 2% of the population of the European Region (approximately 24 million people) were estimated to live in absolute poverty.[48] Relative poverty[49] is significant to different degrees in most European countries. It can affect up to 50% of the population in some countries in the eastern part of the Region, but even some western European countries report figures above 10%.

Unemployment as a cause of poverty and ill health is a major issue in all European countries. The problem reached an alarming level in the CCEE in the 1990s, and it remains significant in most western European countries. The impact of

47 *Poverty and health: evidence and action in WHO's European Region.* Copenhagen, WHO Regional Office for Europe, 2001 (document EUR/RC51/8).

48 According to the World Bank, "absolute poverty is poverty that does not allow people to afford a minimum consumption basket of US$2.15 per day".

49 According to the World Bank, "relative poverty exists where people's economic resources do not allow them a minimum acceptable way of life in the society in which they live, e.g. an income below 60% of the median".

unemployment and poverty on young people is of particular importance, in view of its association with health and social problems such as violence, suicide and substance use.

Urban poverty is a challenge all over Europe, where two thirds of the population live in cities. Not only is the number of urban poor increasing, but also the divisions among social groups within cities. The urban poor are more exposed to disease because of their housing conditions, lack of sanitation, poor diet and occupational hazards. They may lack access to, or not make appropriate use of, health services because they lack resources and knowledge and are often marginalized. Homelessness has become an important issue in many cities, with alarming consequences in terms of overall mortality, prevalence of chronic respiratory diseases, and alcohol and drug dependence.

Ethnic minorities, migrants and refugees are at particular risk of poor health. Their needs often receive far less attention, and they cannot always be reached through the usual health and welfare channels. This problem is increasing in many countries.

WHO's current corporate strategy states that one central task for the Organization as a whole is to contribute to reducing poverty by improving health, thus placing health in the context of human development. WHO is playing a leading role in the Massive Effort against Diseases of Poverty, with the aim of sustaining economic development by increasing the access of the world's poorest people to health goods and services.

Psychosocial factors

Psychosocial stress is increasingly recognized as a key factor in a number of conditions, including heart problems and hypertension, alcoholic psychosis, neurosis, homicide, suicide, accidents, ulcers and cirrhosis of the liver. These all tend to increase in importance in countries undergoing accelerated social and economic transitions that are not adequately supported by social policy. For example, according to one study,[50] the unprecedented mortality of the 1990s

50 ZIGLIO, E. ET AL., ED. *Investment for health. A discussion of the role of the economic and social determinants.* Copenhagen, WHO Regional Office for Europe (Studies on Social and Economic Determinants of Population Health, No. 1) (in press).

experienced by many countries in transition was the result of superimposing the burden of adjustment on a slow, long-term deterioration in the level of health. The latter was fuelled by a massive increase in psychosocial stress, mainly induced by unanticipated rises in unemployment, employment turnover and job insecurity, but also by the erosion of the family, mounting distress, migration and rising social stratification. In the countries experiencing a sharp rise in death rates, public policy did little to contain the health impact of growing social stress.

During the present decade it is clear that, within the European Region, social and economic determinants of health will continue to play a major role in health development. They will continue to have an effect on health-related trends, including the impact of the widening gap in income distribution in many countries on the likely increase of psychosocial stress in both western and eastern Europe. The positive and negative impacts of social and economic policies on social capital, social networks and social cohesion will also need to be closely monitored, as there is increasing evidence that such issues can have a protective or destructive effect on population health.

Employment

Among employed people, there is a clear association between the grade of employment on the one hand and mortality and morbidity (including rates of absence due to sickness) on the other. This relationship remains when adjustment is made for factors such as level of education and tenure of housing. It seems to be explained by the higher levels of control, challenge and support enjoyed in higher grades of work.

Both unemployment and work insecurity have detrimental effects on health, increasing the risk of psychological and physical disorders and suicide. In the younger age groups, work insecurity is associated with poor health, irrespective of any relationship between social class and unemployment. Both the steady, long-term rise in unemployment in most countries of western Europe and its sudden steep rise in the NIS are a cause of grave concern for equity in health.

The mechanisms through which these trends affect health and wellbeing are complex and difficult to disentangle. Nevertheless, there is little doubt that they

are related to various kinds of health risk and damage and a high incidence of psychosocial and mental health problems.

Education

Education is an important determinant of health. Educational levels produce a gradient in mortality and morbidity similar to that produced by income. In the Russian Federation, for instance, mortality differentials by level of education widened during the transition period. The gap in life expectancy between the best and least educated men and women aged 20–69 rose from 1.63 and 1.44 years in 1988–1989 to 1.89 and 1.75 years in 1993–1994, respectively.[51]

The material and cultural resources of a family have a major influence on a child's educational attainment. There is thus a strong social class gradient in educational qualifications and this, in turn, is a strong predictor of subsequent occupation and income. Children who attain higher levels of education or technical training have much better chances in health, as well as in occupation and income.

Gender

Gender has been recognized as a determinant of health, and gender inequities contribute to the risk of ill health. Major differences exist among European countries with regard to the place and roles of women in society. For instance, the proportion of women in government is about 50% in Sweden, reaches 40–45% in three countries and is below 20% in most other countries. Women are over-represented among the poor in Europe, and women's income is on average only 60–70% of men's.

Gender roles may determine varying patterns of disease in women and men, varying types of behaviour in seeking health care, and varying responses by service providers and researchers. There are clearly gender differences in health that almost certainly have a biological basis, and there are socioeconomic factors that affect the magnitude of these gender differences. Women live longer than men but their double burden of work at home and in the workplace takes a heavy toll in terms of morbidity, and they are more likely than men to suffer from depression and

51 SHKOLNIKOV, V.M. ET AL. Educational level and adult mortality in Russia: an analysis of routine data 1979 to 1994. *Social science and medicine*, 47: 357–369 (1998).

anxiety. On the other hand, men are more prone to accidents, for example, and it is the health of working-age men that has deteriorated most in the CCEE and NIS in recent years. The integration of gender considerations into research programmes and initiatives is one strategy towards more gender-specific and efficient interventions in health promotion and protection.

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Lifestyles

Nutrition

The burden of disease attributable to nutrition is greater than is often appreciated. Preliminary analysis from the Institute of Public Health in Sweden suggests that 4.5% of DALYs are lost in EU countries alone owing to poor nutrition, with an additional 3.7% and 1.4% lost owing to obesity and physical inactivity. The total percentage of DALYs related to poor nutrition and physical inactivity is therefore 9.7%, compared with 9% related to smoking. Cardiovascular diseases and cancer, together with diabetes, account for about 30% of the total DALYs lost every year in the WHO European Region. There is international consensus that saturated fatty acids help explain the rise in cholesterol levels among the population; this is fundamental to the epidemic of coronary heart disease, the leading cause of mortality in the WHO European Region.

Human milk is the best food for infants and provides all the nutrients, as well as immunological substances, needed for about the first six months of life, after which appropriate complementary foods should be introduced. Low rates of exclusive breastfeeding and poor weaning practices can lead to failure to grow normally. Exclusive breastfeeding helps reduce the risk of iron deficiency, which can lead to impaired concentration, work and cognitive performance, as well as behavioural abnormalities in infants. The practice of breastfeeding varies dramatically between European countries. In the United Kingdom, for instance, only some 25% of infants are breastfed at three months, compared with over 90% in Uzbekistan. The rate of exclusive breastfeeding also differs from country to country: in Sweden about 35% of babies are still exclusively breastfed at six months, compared with only 1% in Azerbaijan. In many European countries infants are fed various drinks and foods as early as the first few weeks. Poor feeding practices lead to increased prevalence of stunting[52] and wasting,[53] especially in certain CCEE and NIS.

52 Stunting is defined as a height for age that is less than two standard deviations below the reference (US National Center for Health Statistics) standard.

53 Wasting is defined as a weight for height that is less than two standard deviations below the reference (US National Center for Health Statistics) standard.

Overweight and obesity in both children and adults are increasing problems, and are due mainly to physical inactivity and excess energy intake. Obesity is accompanied by serious co-morbidities such as non-insulin dependent diabetes mellitus and cardiovascular diseases. The risk of diabetes is increased up to 100-fold by obesity, and 80% of the prevalence of diabetes can be attributed to obesity and overweight. Obesity has serious complications, is difficult and expensive to treat and reduces life expectancy by 8–10 years. Prevention of obesity is therefore the best strategy. Non-insulin dependent diabetes is the most important medical consequence of obesity and is therefore also becoming one of the major diseases in Europe, with approximately 4% of the population affected in most countries.

It is estimated that iodine deficiency disorders (IDD)[54] may affect approximately 130 million people in the European Region.[55] IDD refer to all of the ill-effects of iodine deficiency that can be prevented by ensuring that the population has an adequate intake of iodine. They include hypothyroidism, goitre and impaired mental function. Although IDD are considered unlikely in a number of European countries, recent surveys of the prevalence of goitre in Europe show that many people still suffer from moderate iodine deficiency. Iodine deficiency, the first cause of avoidable mental deficiency, can easily be eradicated through universal salt iodization. Iron deficiency is another important nutrient deficiency in the European Region. A high prevalence of iron deficiency anaemia among infants and children has been reported from the former Yugoslav republics, the central Asian republics and parts of western Europe.

The consumption of fruit and vegetables reduces the risk of chronic disease. Yet the majority of countries of the Region do not meet the current WHO recommendations of 400 g per person per day (Table 4). This is in part explained by the fact that many countries are in the midst of major socioeconomic and political reform. Many of the NIS and CCEE are not maximizing their industrial and agricultural potential, partly as a result of their severance from traditional trade and financial links with the former Soviet Union. These situations continue to have a detrimental effect on the food security and nutritional status of the affected populations. As mentioned above, the relationship between saturated fat and

54 *Assessment of iodine deficiency disorders and monitoring their elimination. A guide for programme managers*, 2nd ed. Geneva, World Health Organization, 2001 (document WHO/NHD/01.1).

55 WHO global database on IDD (1998 estimate using 1997 population data).

cholesterol level, and by extension increased risk of chronic disease, is well established. Fat intake is too high in the majority of European countries. WHO recommends a daily fat intake of less than 30% of total energy (Table 4).

In September 2000, the WHO Regional Committee for Europe endorsed the First Action Plan for Food and Nutrition Policy, 2000–2005. As part of its commitments, WHO has produced several comparative analyses of nutrition policies in the European Member States. The most recent was a situation analysis compiled from reports written by Member States for the first consultation on the Action Plan, held in Malta in November 1999. The data presented in Table 5 are drawn from this analysis and constitute the baseline against which countries will compare their progress at the ministerial conference on nutrition policy planned for 2005.

To promote and support the development and implementation of comprehensive food and nutrition policies, the Regional Office is committed to: (*a*) collating existing knowledge and scientific evidence to support food and nutrition policy development and implementation; (*b*) stimulating research in areas where the evidence relating nutrition to health is lacking; (*c*) developing innovative ways to communicate scientific knowledge and information on nutritional health; (*d*) collaborating with countries in translating knowledge into action, working with national counterparts and providing information, experience and expertise as required; (*e*) developing cost-effective indicators for surveillance and reporting on food and nutrition policy; (*f*) regularly producing an updated list of new information, documents and training materials on nutrition policy; and (*g*) facilitating surveillance and the sharing of information on nutrition, using modern communication tools, and maintaining a mechanism for rapid updating.

Table 4. Average consumption of vegetables, fruit and fat by subregional groups of countries, national data reported to WHO [56]

Group of countries	Vegetables (g/person per day)	Fruit (g/person per day)	Fat (percentage of daily intake)
Italy and Portugal	243	196	30
Czech Republic, Hungary and Slovakia	239	180	35
Croatia, Slovenia and the former Yugoslav Republic of Macedonia	241	155	37
Austria, Belgium and France	177	167	38
Baltic countries	198	176	41
Nordic countries	104	168	36
Azerbaijan, the Republic of Moldova and Ukraine	157	97	24
Kazakhstan, Kyrgyzstan and Uzbekistan	159	40	28

Table 5. Nutrition policy trends in European countries, 1994/1995 and 1998/1999, national data reported to WHO [57]

Indicators and criteria	No. of countries	
	1994/1995	1998/1999
Nutrition policy document adopted by a political body	24	28
Administrative structure responsible for implementation of nutrition policy	21	18
Nutrition council or other advisory body for providing scientific advice to policy-makers	25	27
Regular government-initiated intersectoral collaboration	25	26
Regular consultation between Ministry of Health and Ministry of Agriculture on nutrition-related matters	n/a	27
National recommended nutrient reference values (physiological norms)	29	36
Population-representative dietary assessment over the last 10 years	24	24
Dietary guidelines, with or without food selection guides	23	33

56 *Situation and comparative analysis of food and nutrition policies in WHO European Member States.* Copenhagen, WHO Regional Office for Europe, 2002 (document EUR/02/5035226).

57 *Situation and comparative analysis of food and nutrition policies in WHO European Member States.* Copenhagen, WHO Regional Office for Europe, 2002 (document EUR/02/5035226).

Physical activity

Physically inactive middle-aged and elderly people run a substantially higher risk of contracting several noncommunicable diseases compared to moderately and highly active people. It has been estimated that eliminating physical inactivity would result in 15–39% less coronary heart disease, 33% less stroke, 12% less hypertension, 12–35% less diabetes, 22–33% less colon cancer, 5–12% less breast cancer and 18% less osteoporotic fractures. A Finnish estimate of the impact of physical activity on the use of hospital services showed that most active men spent 36% and most active women 23% fewer days in hospital than the least active people.

Recent research evidence on the health benefits of physical activity has also provided new understanding of the dose–response characteristics of activity and health. While previous recommendations emphasized vigorous uninterrupted aerobic exercise, newer evidence indicates that health benefits are also accrued through intermittent daily activity of moderate intensity. This new concept of health-enhancing physical activity (HEPA) includes many physical activities of a lifestyle nature, not only during leisure time but also at work, in the home and during transport.

Several European countries assess population physical activity levels *ad hoc*, but only a few conduct regular monitoring. The National Public Health Institute of Finland has done this since 1978. The level of leisure-time physical activity (at least twice a week, 30 minutes each time with slight sweating) has increased steadily in 20 years, from about 40% to 60% among both men and women, with an apparent levelling off in the latter part of the 1990s. During the same period, however, walking and cycling to and from work decreased steadily, suggesting that people exercise more but are less physically active.

The Pan-EU Survey of Consumer Attitudes to Physical Activity, Body-weight and Health, carried out in 1999,[58] utilized standard methodology across 15 EU countries. While none of the outcome measures was designed specifically for HEPA assessment, the results provide comparable activity patterns across these countries. Using at least 3.5 hours per week leisure-time physical activity as the

58 http://www.iefs.org/pdf1.pdf, accessed 15 May 2002.

cut-off point, on average 41% of the populations were insufficiently active to benefit health, although the percentages varied widely from 14 (Finland) to 70 (Portugal) (Fig. 32). In the pooled European data, women were found to participate less and for shorter periods than men. The proportion of older people participating for more than 3.5 hours decreased with age, while people with higher levels of education were more active than those with lower levels.

The European Network for the Promotion of Health-Enhancing Physical Activity,[59] established in 1996, is one of the seven EU health promotion networks. Its main focus is to facilitate national HEPA policy and strategy development. In addition to the 15 EU member states, the Network covers Estonia, Iceland, Israel, Norway, Slovenia and Switzerland. The Network has published guidelines for HEPA promotion (1996), for the promotion of health-enhancing physical activity (2000) and for the promotion of walking and cycling as a means of transport (2000). Major national HEPA promotion initiatives, strategies or programmes have been developed and are being implemented in many European countries, including Belgium, Denmark, Finland, the Netherlands, Norway, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

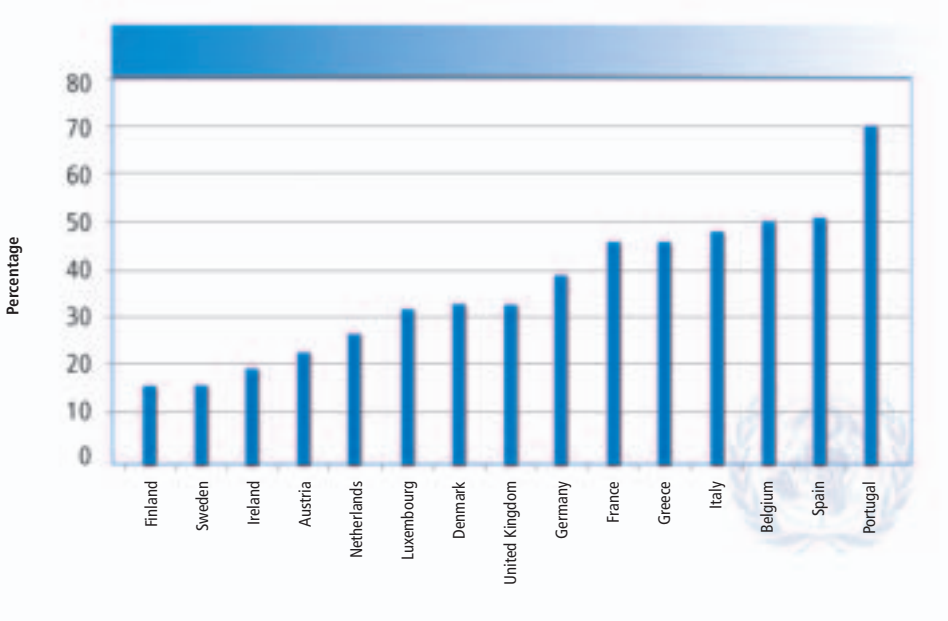


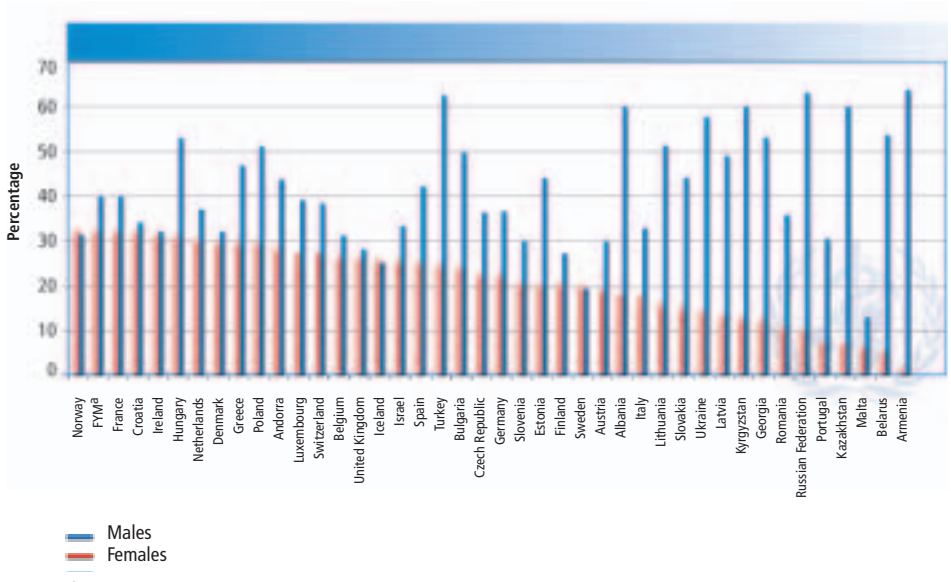
Fig. 32. Percentages of people in the EU countries who exercise insufficiently to benefit health (less than 3.5 hours per week), 1997

59 http://europa.eu.int/comm/health/ph/programmes/health/proj00_09_en.html, accessed 15 May 2002.

Tobacco

About 215 million Europeans smoke, of whom 130 million are male (Fig. 33). The annual number of deaths attributable to the consumption of tobacco products is estimated at 1.2 million (14% of all deaths). Of these, 700 000 occur in the CCEE and NIS. According to data from 25 countries, covering 60% of the population of the Region, average smoking prevalence in the male population is around 34% for western European countries and 47% for eastern European countries. In the female population the prevalence is some 25% for western European countries and 20% for eastern European countries. The smoking prevalence in males is above 50% in 11 countries and below 30% in 5 countries. For females, the prevalence is above 30% in 5 countries and below 10% in 3 countries.

Smoking is well established behaviour among young people, and the available data show almost no signs of a decrease. In Europe as a whole, smoking prevalence among people aged 15–18 years is estimated at around 30%, with a slight upward trend and no country showing a decrease in recent years. Gender differences between countries are particularly noticeable. In those over 15 years, boys report higher rates than girls in most of the countries in the eastern part of the Region, though the gap is constantly diminishing. In western Europe, the rates for girls are (with a few exceptions) higher than those for boys.



[a] FYM: the former Yugoslav Republic of Macedonia.

Fig. 33. Percentages of daily smokers aged 15 years and over, latest available data

When data are available, they show significant differences in the prevalence of smoking between different socioeconomic groups. In the United Kingdom, for instance, only 10% of women and 12% of men in the highest socioeconomic group are smokers, whereas in the lowest socioeconomic group the corresponding figures are more than three times as high. A strong inverse relationship is also found between the level of employment and smoking. In every country with available data, unemployed people are more likely to smoke than those who are employed. In France, smoking prevalence among unemployed males is 52%, compared with 38% for those who are employed.

Changes in mortality from cancer of the trachea, bronchus and lung (Fig. 34 and 35) may be used as a marker of past trends in smoking prevalence. Since 1985, the male death rate has been slightly decreasing in the western part of Europe and has stabilized since 1995 in the CCEE. These trends could support the view that the situation is being stabilized among the male population. Although lung cancer mortality is much lower in women than in men (for the Region as whole, the standardized death rate for females in 1998 was 13 per 100 000 and that for males 73 per 100 000), the trends in the EU and the CCEE are not favourable. The time lag between current smoking behaviour and manifestation of the disease points to the need for serious efforts to curb the smoking epidemic in women.[60]

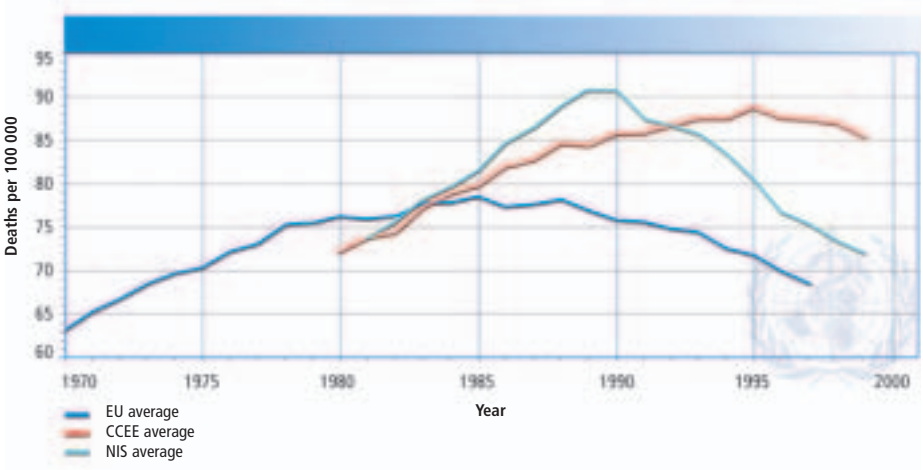


Fig. 34. Mortality from lung cancer, males, 1970–1999

60 The apparently falling SDR in the NIS can be a result of many factors, including changes in demography and data reporting mechanisms and conditions over the past decade.

Socioeconomic differences in mortality from lung cancer have been observed in all European countries for which data are available; smoking appears to be a major factor for the difference in risk of premature death between non-manual and manual workers.

Since the mid-1990s, approximately three quarters of European Member States have strengthened their policies on tobacco taxation; two thirds of countries have reinforced measures to combat smuggling; one third have introduced age restrictions on tobacco sales; and at least eight countries have introduced a complete ban or strict restrictions on direct advertising and have significantly improved regulations on smoking in public places.

At the end of 2001, approximately 80% of Member States had bans or restrictions on smoking in public places and workplaces (though with significant differences in the degree of implementation) and had made common nicotine replacement therapy products available without prescription in pharmacies (although the affordability is in general low). Three quarters of Member States have established intersectoral coordinating committees. Nevertheless, less than half the Member States have national action plans and partial restrictions or bans on both direct and indirect forms of advertising of tobacco products; only one third of countries have sustainable and gender-based public information campaigns; nearly one quarter

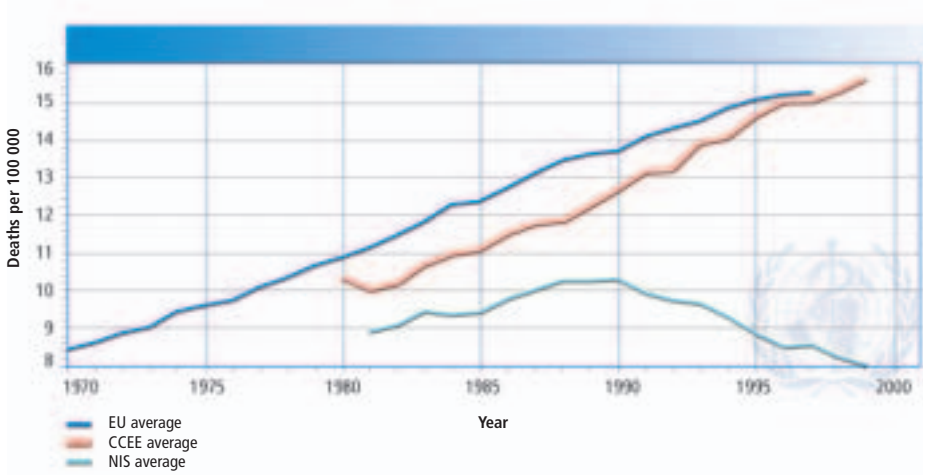


Fig. 35. Mortality from lung cancer, females, 1970–1999

have earmarked tobacco taxes and restricted access to tobacco products for people under 18 (also eliminating all major impersonal modes of sale); and almost no countries reimburse the cost of treatment of tobacco dependence, publish comprehensive national reports on tobacco control, or have introduced health warnings covering more than 20% of each external area of the tobacco package.

While most countries have a taxation policy for tobacco products, in general it does not explicitly refer to public health concerns, and therefore the increase in the real price of tobacco – where it exist – is not as consistent as it should be. Introducing new laws and regulations has not always brought tangible results and several countries, mainly in the eastern part of the Region, are still in the process of launching them. Furthermore, the lack of a strategy and comprehensive approach is still characteristic of national tobacco control policies and activities in at least one third of Member States. In other countries, insufficient coordination mechanisms, and inadequate funding and monitoring, reduce the effectiveness of national action. Finally, the lack of public support and public information is still an important constraint on the effectiveness of many national and local programmes.

The progress made in monitoring the tobacco-related situation is not adequate to many new challenges. With the development of smuggling, bootlegging and near-border purchases and the extension of new forms of tobacco consumption (hand-rolling, smokeless products, etc.) tobacco use is becoming increasingly underreported. Furthermore, the quality and methodology of many surveys are not reliable enough to understand and monitor the dynamics of tobacco use, in particular for assessing quitting trends and monitoring smoking patterns in subgroups such as the young and the socioeconomically disadvantaged.

At international level, the main challenges remain standardized surveillance, implementing measures to combat smuggling, regulating transboundary advertisement and coordinating action against the tobacco industry. Despite new bans and restrictions on advertising the industry has still been developing unscrupulous marketing, promoting “youth anti-smoking education programmes” and indirect forms of advertising targeted mainly at young people. It has been trying to influence national and EU policies, in some cases successfully, in order to delay, weaken or even annul legislation under development or already adopted.

The Framework Convention on Tobacco Control[61] is a milestone in an effective international response to many of these challenges. The vast majority of European Member States are involved in the negotiation process, and the recently adopted Warsaw Declaration for a Tobacco-free Europe[62] shows that the Region can indeed play a leading role in finalizing and adopting international legislation to fight the scourge of tobacco.

Alcohol

Each year over 55 000 young Europeans die from the effects of alcohol abuse: one in four deaths in European men aged 15–29 years is related to alcohol. In addition, between 40% and 60% of all deaths from injuries are attributable to alcohol. Alcohol consumption, and particularly acute alcohol intoxication, seems to explain a considerable portion of the differences in young adult mortality observed between the west and east of the Region and between males and females. The welfare, health service, insurance, enforcement and penal costs associated with drinking, and the costs resulting from loss of production, accrue to a total societal cost of 1–3% of GDP.

The consumption of alcoholic beverages is estimated to be responsible for about 9% of the total disease burden within the Region, increasing among others the risk of liver cirrhosis, raised blood pressure, heart disease, stroke, pancreatitis and cancers of the oropharynx, larynx, oesophagus, stomach, liver and rectum. Alcohol acutely impairs many aspects of psychomotor and cognitive function. Impairment of emotional control can result in violence towards oneself or others. Furthermore, alcohol consumption increases the risk of family, work and social problems such as failure in work performance, absenteeism, unemployment, accidents, debt and housing problems. The relationship between alcohol and crime is complex, but alcohol is directly or indirectly implicated in various types of assault, criminal behaviour, unintentional injury, violence, homicide and suicide.

Over 90% of the countries in the Region have an annual consumption per person exceeding two litres of absolute alcohol (the level suggested by the evidence as being associated with the lowest average death rate). The European Region has the

61 http://www5.who.int/tobacco/page.cfm?pid=40, accessed 15 May 2002.

62 http://www5.who.int/tobacco/page.cfm?tld=140, accessed 15 May 2002.

highest alcohol consumption in the world, but the average recorded consumption of 7.3 litres of pure alcohol per person in 1998 hides considerable differences between countries, from a low of 0.9 litres to a high of 13.3 litres per person. Adding unrecorded consumption changes the situation significantly for some countries, bringing a few of them up to about 20 litres per person.

The European School Survey Project on Alcohol and Other Drugs (ESPAD) shows that there are clear increases in the proportion of students who use alcohol in the central and eastern parts of Europe, especially in Lithuania, Poland, Slovakia and Slovenia. However, the use of alcohol among students is most common in the Czech Republic, Denmark, Ireland, Malta and the United Kingdom. Of the four top countries for intoxication rates in 1995, the rates in Denmark and Ireland increased even further while those in Finland and the United Kingdom remained largely unchanged.

Regionally, some trends emerge. The Nordic countries show stable levels of alcohol consumption, except Sweden, which is experiencing a decrease. Consumption is increasing in Latvia and Lithuania, while Estonia shows a slight decrease. Among the 15 EU countries, Ireland is the only country where consumption is increasing considerably, although it is increasing to a lesser extent in Greece, Luxembourg and Portugal. In the rest of the EU, consumption is decreasing in six countries and is stable in five. In the CCEE, consumption is increasing in the Czech Republic, Romania and the former Yugoslav Republic of Macedonia. Finally, in the NIS, consumption is increasing in Belarus and the Russian Federation.

The development of alcohol policies in the European Region continues to make progress, despite weaknesses in some areas. Many countries have now coordinated national alcohol action plans with targets and key activities. Policy changes over the past few years have shown convergence on some alcohol policy measures. Specific policy efforts to reduce drink-driving illustrate effective country-level policy measures, whereby many countries have lowered their on blood alcohol limits and increased enforcement. The regulatory provisions for alcohol-free environments have also been increased in many countries to ensure greater public safety and safer workplaces. Measures to regulate alcohol advertising have had mixed responses: some countries have introduced restrictions while many others have eased them. In general, western European countries have moved towards stricter alcohol control policies, have reduced per capita consumption levels and have lowered alcohol-

related harm to a greater degree than many of the countries in the central or eastern part of the Region.

Weaknesses in policy effectiveness still remain. The enforcement of codes, regulations or legislation is a critical factor in policy effectiveness. External pressures from the alcoholic beverage industry, commercial marketing and illegal trade militate against further progress. The lack of a collective willingness to recognize the seriousness of alcohol problems and the wide-ranging damage caused by alcohol in society is a further obstacle.

With a right mix of policy measures, it is possible to limit the extent of harm done by alcohol without resorting to abstinence-oriented policies. According to research evidence, a policy mix that makes use of taxation and control of physical access, supports drink-driving countermeasures and invests broadly in treatment, and particularly in primary care, is likely to succeed in reducing the level of problems. Educational strategies or restrictions on advertising can be added to the mix, as long as there is reasonable hope of long-term effectiveness. Comprehensive community action programmes may also have potential effect. The European Alcohol Action Plan, endorsed by the WHO Regional Committee for Europe on two occasions over the last ten years, plus the documentation produced by the Regional Office in support of two ministerial conferences on alcohol, provide a good basis for policy and programme development.

Illegal drugs

According to *The world health report 2001*, 0.4% of the total disease burden is attributable to illicit drugs (heroin and cocaine). Substance dependence is both a chronic medical illness and a social problem.[63,64] Dependence prevention should be seen within the context of the broader goal of preventing and reducing drug-related problems at the population level.[65] The goals of therapy are to reduce morbidity and mortality associated with the use of psychoactive substances. Drug dependence treatment is cost-effective in reducing drug use (40–60%), and the

63 LESHNER, A.I. Addiction is a brain disease, and it matters. *Science*, **278** (5335): 45–47 (1997).

64 MCLELLAN, A.T. ET AL. Drug dependence, a chronic medical illness: implications for treatment, insurance, and outcomes evaluation. *Journal of the American Medical Association*, **284**: 1689–1695 (2000).

65 http://www.who.int/whr/2001/main/en/chapter4/index.htm, accessed 15 May 2002.

associated health and social consequences, such as HIV infection and criminal activity.

Latest lifetime prevalence figures in the population aged 15–64 years in the EU and the CCEE are presented in Table 6. In the EU, illicit drug use is concentrated in young adults, mostly males in urban areas. Use in the last 12 months is 1–9% for cannabis, and rarely above 1% for other substances. Only four countries (Germany, Spain, Sweden and the United Kingdom) have carried out comparable national surveys; other countries have conducted several different surveys, which makes assessment of trends more difficult. In 1995–1999, lifetime prevalence of drug abuse increased in all EU countries except Ireland and the United Kingdom, including abuse of cannabis, amphetamines, LSD and other hallucinogens, and "base/crack" cocaine. The respective estimates in most of the CCEE increased almost three times. Population estimates of lifetime use of drugs in the NIS are not yet available, but all indications are that the use of cannabis and stimulants has increased significantly. The Russian Federation and Ukraine have reported a significant increase in the use of Ecstasy. For people under 18 years of age, cannabis continues to be the most widely used illegal substance. Lifetime experience of illicit drug use among schoolchildren roughly doubled in the ESPAD[66] countries, mostly reflecting cannabis use. A significant but smaller increase is found in the use of Ecstasy, amphetamines and LSD.

The prevalence of problem drug use[67] in the EU among people aged 15–64 ranges from 0.2% to 0.8%. In Finland and Sweden, amphetamine users comprise the

Table 6. Range of estimates of lifetime prevalence of use of illegal drugs in the EU and the CCEE, late 1990s

Substance	EU (country-level data)	CCEE (city-level data)
Cannabis	10–25%	10–30%
Amphetamines	1–4%	1–8%
Ecstasy	0.5–4%	1–5%
Cocaine	0.5–3%	1–4%
Heroin	<1%	

66 In 1999, the European School Survey Project on Alcohol and Other Drugs (ESPAD) was conducted in 30 countries.

67 Problem drug use is defined as injecting drug use, or long-duration or regular use of opiates (including prescribed opiates such as methadone), cocaine or amphetamines. This definition excludes Ecstasy and cannabis users and those who never or irregularly use opiates, cocaine or amphetamines.

majority of problem drug users (estimated at 70–80% in Finland in 1997). In other countries problem drug users are mostly primary opiate users, but often use several drugs. The use of cocaine in the CCEE is limited because of the high market prices. In the NIS, the widespread use of homemade ephedrine is a continual concern, and imported heroin has increasingly replaced locally produced opiates. Drug use has been spreading from major urban centres to all regions and among ethnic minorities and prison populations. Data on problem drug use in central Asia are limited, but there are clear indications of a serious increase. The most serious trend is the rapid increase of injecting drug use, which has contributed to the spread of HIV infection. About 70–75% of drug users in treatment in the CCEE use the intravenous route, ranging from 26% in Budapest to 96% in Gdansk. In the Russian Federation, the reported range is from 83% in Novosibirsk to 93% in St Petersburg.

In the EU, reported HIV infection rates in injecting drug users roughly range from 1% in the United Kingdom to 32% in Spain. The latest data suggest that the overall picture remains unchanged, but there are indications of recent increases in Austria, Finland, Ireland, Luxemburg, the Netherlands and Portugal, while there is a clearly declining trend in Spain. Hepatitis C infection rates in injecting drug users vary from 40% to 90%. Studies indicate that preventive measures can reduce transmission.[68] In the CCEE and NIS, very few reliable data are available on HIV and hepatitis B and C, but the prevalence of risky behaviour by intravenous drug users, such as needle sharing, suggest that the danger of epidemics is high.

Acute drug-related deaths ("overdoses") are an important but potentially misleading indicator of the drug situation. The current levels, especially among young people, are a major concern. In the EU, the number of cases reported up to 1999 stabilized at 7000–8000 per year, and actually decreased in some countries. There was, however, a substantial upward trend until recently in Greece, Ireland and Portugal, most likely reflecting the late expansion of heroin use in these countries. Opiates continue to be present in most cases of acute drug-related deaths, but the presence of other substances considered a risk factor for overdose, such as alcohol, benzodiazepines or cocaine, is common. Methadone has been identified in a number of drug-related deaths, pointing to the appearance of methadone on the illegal market and problems with the prescription services.

68 http://annualreport.emcdda.org, accessed 15 May 2002.

General mortality among drug users is also an important indicator, as opiate users can have overall mortality rates up to 20 times higher than those of the general population of the same age, due not only to drug overdoses but also to accidents, suicides, AIDS and other infectious diseases. A study at nine sites in the EU showed increasing trends until the mid 1990s, followed by a decrease. The number of drug-related deaths has increased in the CCEE and NIS, mainly owing to heroin overdose but also to the poor quality of street heroin and its combination with some extremely toxic substances such as strychnine.

Overall, drug abuse has become a lasting public health problem in Europe. Eastern Europe is catching up fast with the west, and most indications are that the overall situation in the Region as a whole is further deteriorating. Controlling the availability of illicit drugs has proven to be necessary but has produced mixed results. The availability of illicit drugs on the black market expanded in the 1990s, and prices of most illicit substances have decreased almost everywhere. A parallel market for pharmaceutical preparations, obtained through over-prescription, under-the-counter sales in pharmacies or diversions from legal channels, is reported to exist in some countries.

Information, education, treatment and rehabilitation are key pillars of national policies for reducing the demand for drugs in the Region. In addition, most countries aim to reduce the negative impact on public health of continued drug abuse, including the prescription of substitution drugs to drug-dependent people, the promotion of "safe" drug taking, and the establishment of drug injection rooms to decrease the risk of multiple use of contaminated injecting equipment. Comprehensive national drug policies aim at reducing the consequences of problem drug use such as HIV infection, hepatitis B and C and deaths from overdose. Taking into account the United Nations Declaration on the Guiding Principles of Drug Demand Reduction,[69] special attention must be paid to the wider implementation of community-based drug prevention programmes, the development of a public health drug-treatment model that would make services available to more people in need of treatment, and programmes for reducing harm, minimizing risk and rehabilitation.

69 http://www.un.org/ga/20special/demand.htm, accessed 15 May 2002.

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Physical environment

The effects on human health of environmental hazards have been of growing concern to the populations of Europe for the past 20 years. The mechanisms behind environmental effects on the health of populations are complex. Experience has shown that such effects can be ameliorated only within a context of sustainable development, by working together with the relevant authorities and stakeholders.

Air quality

Although data on exposure levels to inhalable airborne particles are still limited in Europe, it seems that in northern Europe, PM_{10}[70] levels are low, with winter averages even in urban areas not exceeding 20–30 µg/m³. In western Europe, levels seem to be higher at 40–50 µg/m³. Levels in some central and eastern European locations appear to be only a little higher than those measured in cities such as Amsterdam and Berlin. The concentration of many air pollutants has been significantly reduced in most of Europe. Recent studies suggest, however, that short-term variations in particulate matter are associated with adverse health effects even at low levels of exposure (below 100 µg/m³). The effects range from mild changes in respiratory function, through increased respiratory and cardiovascular morbidity, to increased mortality. According to some studies, long-term exposure to particulate matter is associated with a reduction in life expectancy in the order of 1–2 years. Recent studies have shown that the prevalence of symptoms of bronchitis in children, and of reduced lung function in children and adults, is associated with long-term exposure to particulate matter. The overall burden of ill health related to particulate matter (PM_{10}) may well exceed 100 000 years of life

70 Particulate matter in which 50% of particles have an aerodynamic diameter of less than 10 µm.

lost annually. High concentrations of ozone in the troposphere, typical for the summer months, lead to an increase in the frequency of respiratory symptoms: nearly 1000 emergency hospital admissions and more than 2000 premature deaths per year can be attributed to this pollution in the15 EU countries.

Among indoor air pollutants, environmental tobacco smoke affects health most. According to some estimates, it could cause each year close to 20 000 deaths from cardiovascular diseases and 1000 deaths from lung cancer in nonsmokers (mostly women) in the 15 EU countries alone. In children, some 500 000 episodes of lower respiratory infection per year could be attributed to exposure to tobacco smoke. WHO has proposed strategies to implement comprehensive policies on indoor air quality, but they still need to be considered by the Member States. Governments take various measures to reduce air pollution levels, or at least to prevent their increase, and many use the WHO Air Quality Guidelines as a basis for legally binding air quality standards. The UNECE Convention on Long-range Transboundary Air Pollution[71] and the relevant EC Directives are the main international legal documents limiting emission of pollutants and regulating air quality in much of the European Region of WHO. More work is needed to better assess the health burden of pollution and to develop effective actions for its reduction in the NIS.

Food safety

Foodborne diseases caused by microbiological hazards are a growing public health problem. The WHO Programme for Surveillance of Foodborne Diseases in Europe has been collecting official information from the Member States of the WHO European Region for the last 20 years. Most countries with systems for reporting foodborne diseases have documented significant increases during that period in the incidence of diseases caused by microorganisms in food, including *Salmonella* (Fig. 36) and *Campylobacter*. New hazards have emerged in the food chain, such as enterohaemorrhagic *Escherichia coli,* multidrug-resistant *Salmonella typhimurium* DT-104 and bovine spongiform encephalopathy (BSE). Variant Creutzfeldt-Jakob disease, with 105 deaths reported in Europe, is strongly linked to exposure to BSE, but the information currently available is insufficient to make any well founded prediction about the future incidence of the disease.

71 http://www.unece.org/env/lrtap, accessed 16 May 2002.

According to reports received by WHO, some 77% of outbreaks of foodborne disease in Europe are due to *Salmonella*, one third of these being caused by *S. enteritidis*. Other agents frequently identified in the investigated outbreaks included *Staphylococcus aureus*, *Trichinella, Shigella, Clostridium perfringens*, toxic mushrooms, *Campylobacter* and viruses. Almost 40% of the investigated outbreaks were related to the consumption of insufficiently cooked eggs, or of foods containing raw eggs such as mayonnaise, ice cream or cream-filled pastries. The private home is the single location where most outbreaks occur (more than 40%), though many outbreaks were connected with kitchens in restaurants, cafeterias and catering services (22%). These results suggest the need for a better implementation of the Hazard Analysis and Critical Control Point (HACCP) system in the restaurant/catering sector, and also for the development of programmes for consumer education on food safety matters.

Chemicals are a significant source of foodborne disease, although their effects are often difficult to link with a particular food. Chemical contaminants in food include natural toxicants such as mycotoxins and environmental contaminants such as dioxins, mercury, lead and radionuclides. The wide use of food additives, pesticides and veterinary drugs requires strong measures to ensure food safety. Information on chemical food contamination in Europe varies and is usually not recorded in monitoring programmes. In the CCEE, food contamination arises largely from industrial contamination of air, soil and water – whether from mining and smelting activities, the energy sector, the agricultural industry or dispersal of

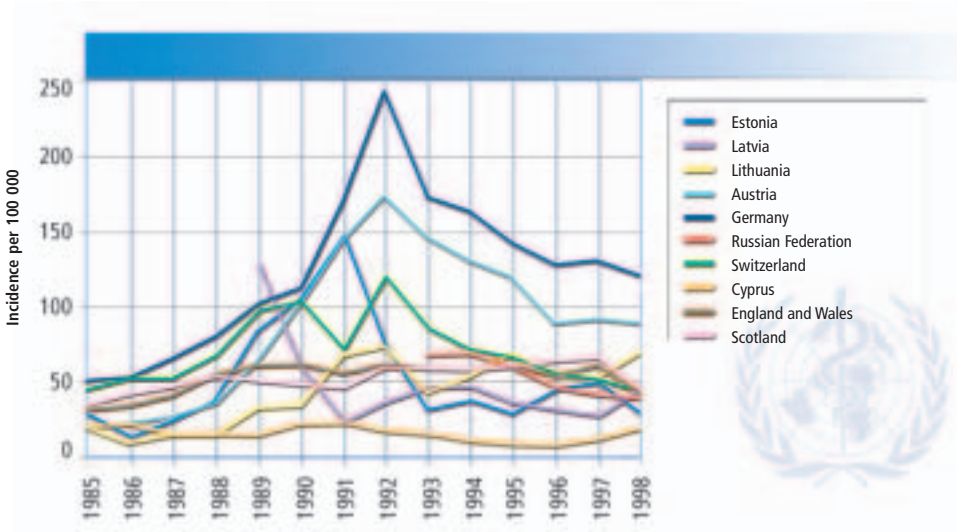

Fig. 36. Incidence of salmonellosis in selected European countries, 1985–1998

waste. Contamination of food items usually occurs in these "hot spots" rather than throughout the whole country. One example is the Aral Sea area, which has been seriously polluted after 30 years of using its water for irrigation together with heavy application of insecticides, pesticides, herbicides and defoliants.

Surveillance of foodborne diseases and monitoring of food contamination are essential tools for risk assessment. For this reason, WHO is directing its efforts towards developing adequate methods to provide the necessary data for quantitative microbiological and chemical risk assessment. WHO's new global initiative on food safety promotes the strengthening of systems based on laboratory and epidemiological findings and of their linkages to programmes for monitoring food contamination. Such assessments can serve as the basis for setting international standards and guidelines, and for national food regulations or other initiatives. The Global Environmental Monitoring System/Food Contamination Monitoring and Assessment (GEMS/Food) programme for the WHO European Region was established in 1991 to address the specific priorities and needs of the Region in the field of food contamination.

New technologies, such as genetic engineering, food irradiation and modified-atmosphere packaging, can improve food production and food safety. Nevertheless, the potential risks associated with their application should be objectively and rigorously assessed well before these technologies are widely introduced. WHO is promoting a holistic approach to the production and safe use of foods derived from new methods of production, including genetic engineering. A framework for evaluation, which addresses safety considerations, health benefits, environmental effects and socioeconomic consequences, supports this approach. The Joint FAO/WHO Codex Alimentarius Commission decided, in June 1999, to establish standards, guidelines or recommendations for foods derived from biotechnology.

The First Action Plan for Food and Nutrition Policy, 2000–2005 provides a framework for promoting public health through food. A comprehensive food and nutrition policy comprises three strategies: on nutrition, food safety and a sustainable food supply. The three strategies are interrelated, since the food supply influences both the safety and composition of food. Close collaboration between those responsible for nutrition, food safety and food security is required in order to develop comprehensive, intersectoral policies and concerted action.

Water

Pathogenic microorganisms remain the most important danger to drinking-water and recreational water in the Region, and gastrointestinal diseases are still an important cause of child morbidity and mortality in some countries. Viruses (rotavirus, calicivirus and hepatitis A virus) are responsible for 70–80% of infectious diarrhoea cases in the developed world. Various bacterial pathogens account for another 10–20% of cases, while parasitic organisms such as *Giardia* spp. cause less than 10% of cases. Challenges vary widely in the Region. In the western part, problems relate essentially to new and emergent diseases, such as legionellosis and the health impacts of cyanobacteria. In the southern part, water scarcity is a major concern, highlighting the need for integrated water resource management. In the eastern part, access to safe and sufficient water and sanitation, including distribution and economic management, continues to be a serious problem, together with water scarcity in some sub-regions.

Control of waterborne diseases throughout Europe remains an important issue. During 1986–1996, the most recent period for which systematically collected data are available, 710 outbreaks of waterborne disease were reported in 19 European countries. In addition, 8 countries considered chemical contamination of drinking-water to be a major problem.

To obtain a clearer picture of the disease burden related to water, more emphasis needs to be placed on data collection throughout the Region. At present, there is no systematic reporting of water-related diseases within the European Region, and available data collected at the national level may not be compatible. The development of a systematic, homogeneous surveillance mechanism is urgently needed, and work has begun under the leadership of the WHO collaborating centre for health-promoting water management and risk communication in Bonn, Germany.

In light of the above, WHO will continue its strong involvement in normative work such as: guidelines for evidence-based surveillance and early-warning systems for water-related diseases; guidelines for drinking-water and recreational water quality, especially with regard to new and emerging diseases; and re-use of water in water-scarce areas. Work will also address the health aspects of active resource

(groundwater) management. The Protocol on Water and Health[72] being implemented by Member States will contribute to reducing the burden of water-related diseases in Europe. Signed by 36 countries, the Protocol is expected to enter into force by the end of 2003 when at least 16 countries have ratified it.

Housing

The housing environment is one of the main settings that affect human health. The quality of housing plays a decisive role in the health status of the residents, directly or indirectly. In the CCEE and NIS, around 50–60% of the housing stock consists of panel block buildings constructed between the 1960s and the 1980s to supply housing in rapidly growing cities. It is estimated that up to 50% of the populations in these countries inhabit such prefabricated buildings, with around 60% of newly constructed buildings in large housing estates built according to a fixed construction pattern.

The poor living conditions in these buildings, caused by outdated construction methods and a lack of maintenance, pose major problems in many countries and also represent an unevaluated health risk. The need for modernization of the housing in these countries was identified long ago, but the privatization of the housing sector that accompanied transition only made matters worse. The combination of high private ownership rates, a lack of coordination and governance, and increasing poverty has turned out to be a major obstacle to basic maintenance. The CCEE and the Baltic countries have the highest rates of privatization in Europe (an average 70% compared with 61% in the EU), the highest increase in housing costs in relation to total household income, and a decrease in construction rates by 70% since 1990.

There are currently almost no policies by which housing investment is "indexed" to health gain. In addition, there are significant gaps in knowledge in the area of housing and health: (*a*) only few countries carry out regular studies or have a surveillance system; (*b*) research has not focused on integrated approaches that deal with housing and health in a holistic way; (*c*) the main problem with such research is the lack of acceptable approaches for risk assessment; and (*d*) in the field of

72 http://www.unece.org/env/water/text/wh_protocol/text12toc.htm, accessed 16 May 2002.

housing, the "economic" and "engineering" issues, rather than the health aspects, have prevailed in the decision-making process.

The Regional Office is working on a project on housing and health in prefabricated panel block buildings in the CCEE, to identify the main issues from the viewpoint of health and to recommend ways of integrating health aspects into plans for renovating these buildings.

Work

The impact of work on health is difficult to assess. Member States operate different occupational health systems and maintain different lists of occupational diseases. The reported incidence of occupational diseases varies considerably (for example, from 0.02 to 1.7 cases per 1000 employees per year in EU countries). These rates reflect more the legislative requirements and enforcement, and the efficiency of detection, registration and compensation systems, than the true incidence of occupational diseases. The severe under-registration of occupational diseases and accidents leads to underestimation of their real impact on health and socioeconomic development. In general, occupational accidents are notified much better than occupational diseases, and their rate is much higher (in EU countries from 13 to 73 cases per 1000 employees per year). Taking the WHO European Region workforce to be 400 million people, and the incidence of accidents at work and the related mortality to be the levels reported in EU countries, the total annual number of accidents at work in Europe would be in the range of 5.2–29.2 million per year, and they would cause the death of between 6400 and 55 600 people every year.

Large numbers of people perceive that work has a strong impact on their health and wellbeing. In a survey on working conditions in the EU in 2000, 60% of employed or self-employed people in representative samples considered that work negatively affected their health (compared to 57% in 1995). Most often, employees associated with work such symptoms as backache (33%), stress (28%), general fatigue (23%), muscular pains in the neck and shoulders (23%) or arms and legs (17%), and headache (13%). Around 9% of workers claimed to have been absent from work for work-related health reasons during the previous 12 months. Almost one in ten workers in the EU reported being subject to intimidation at work in 2000, with wide variations between countries. There is a great disparity between

countries (ranging from 1% to 5%) in the percentages of employees reporting physical violence at work.

The prevention of work-related ill health is not only a legal and moral obligation but also an important contributor to socioeconomic development. According to The European Agency for Safety and Health at Work, the costs of work-related illness range from 2.6% to 3.8% of GNP. Depending on the country, various elements of costs are taken into account: costs of sick leave and invalidity (€4.8 billion in the Netherlands in 1995), health care costs (€0.6 billion in the Netherlands in 1995), loss of production due to unfitness for work (€45 billion in Germany in 1995) and compensation for victims and their families (€6.3 billion in the United Kingdom). The total costs of accidents and occupational illnesses to the public purse in Italy in 1996 amounted to €28 billion. Owing to differences in calculation methods, comparisons between different countries are currently not possible.

Diseases related to work and the workplace that do not fall into the category of occupational diseases are increasingly recognized as major public health problems in many Member States. The work-related diseases also comprise all non-occupational diseases to whose etiology work contributes, such as musculoskeletal and mental disorders, cardiovascular and respiratory diseases and cancer. A significant proportion of cardiovascular diseases is related to working conditions. There has been a very strong trend since 1997 in Europe to expand the concept of occupational health from "prevention of occupational diseases and accidents" to "overall protection and promotion of health at work". Comprehensive workplace health impact assessment is expected to include the influence of occupational, environmental, lifestyle and social determinants of health. This broad approach to health protection and promotion at work, aimed at maintenance of health and working ability, is being implemented by a growing number of occupational health services, enterprises and municipalities, mostly in the EU and accession countries.

ILO Convention No. 161 and Framework Directive EEC/89/391 stimulated the development of occupational health services in Europe, but still half of EU workers do not have access to occupational health services, and access to such services in many countries in the Region is unknown. All countries have a need to educate and train competent professionals to ensure adequate provision of multidisciplinary

occupational health services. Evidence from 13 countries indicates that occupational health and safety services can effectively contribute to improving the employability of workers by supporting the redesign of workplaces, the maintenance of a healthy and safe work environment, training and education, the assessment of work demands and functional capacity, medical diagnosis, rehabilitation and health screening.

Transport

Transport policy has a significant impact on health and wellbeing, both positive and negative. Health gains can include increased opportunities for physical activity through safe walking and cycling, as well as greater access to jobs, education, health care and recreation, while health losses can include more sedentary lifestyles, higher accident rates, more air pollution and noise, and separation of communities. Vulnerable groups, such as the economically disadvantaged, the elderly and children, tend to be the most severely adversely affected.

There is a need to further develop and implement methodologies (such as health impact assessment and evaluation of external costs) and institutional mechanisms to tackle transport-related issues. An integrated, multisectoral approach involving all relevant authorities and stakeholders needs to be employed, and more attention needs to be paid to health considerations in decisions on transport and land use.

Positive and negative transport-related health effects

Brisk walking or cycling for 30 minutes on most days of the week can halve the risk of developing heart disease, diabetes and obesity, and reduce by one third the risk of developing hypertension.

A recent study estimated that some 21 000 deaths per year in Austria, France and Switzerland could be attributed to air pollution from traffic, i.e. more than twice the deaths from traffic accidents in those countries.

Around 65% (450 million) of the people in the European Region are exposed to noise levels leading to serious annoyance, interference with speech and disturbance of sleep. Noise can also interfere with mental activities requiring attention, memory and the ability to deal with complex analytical problems. Emerging evidence shows an association between high levels of noise and hypertension and ischaemic heart disease.

Traffic accidents still cause some 120 000 deaths and 2.5 million injuries a year in the European Region. A third of the reported deaths and serious injuries involve people under 25 years of age.

Towards this goal, the Charter on Transport, Environment and Health[73] adopted at the Third Ministerial Conference on Environment and Health in 1999 outlines a plan of action and health targets. In 2002, European Member States will decide whether to negotiate a regional framework convention on transport, environment and health as a means of addressing the identified gaps in policy.

Ionizing radiation

Exposure to natural radioactivity can be quite significant in terms of health burden in some populations. For example, radon in the domestic environment can give rise to annual doses that exceed the International Commission on Radiological Protection (ICRP) dose limit for occupational exposure. A small proportion of the population in countries such as Finland, Sweden and the United Kingdom receive considerably higher than average doses.

Few releases of ionizing radiation have been reported as a result of accidents at nuclear power plants or the testing and disposal of weapons. Increases in leukaemia have been attributed to the Kystym accident in the Russian Federation, and 1800 cases of thyroid cancer to the Chernobyl accident in 1986. Exposure to sources of ionizing radiation is often associated with a psychosocial effect. In addition to the induced thyroid cancer, the Chernobyl accident has had significant health consequences in terms of its psychosocial effects.

In general, Member States follow the recommendations of the ICRP and take measures to limit exposure to internationally agreed levels where these are available. At present , however, there are no agreed levels for some exposures. WHO's global strategy is to clarify the situation regarding protection of the public from radiation from these sources. While the prevention of accidents must be the primary objective for the future, preparedness for accidents is also of great importance.

Global environmental changes

Climate change is defined as a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer).[74] Most of Europe has experienced an increase in surface air

73 http://www.euro.who.int/eprise/main/who/progs/trt/MainActs/20020321_1, accessed 16 May 2002.

74 Intergovernmental Panel on Climate Change (http://www.ipcc.ch, accessed 29 May 2002).

temperatures of around 0.8 °C during the 20th century. In semi-arid Asia, temperature rises of about 1.3 °C since 1894 have been reported. The impact of climate change on human health might range from a reduced mortality from cardiovascular diseases in the winter to an increased risk of coastal and river flooding (the estimated population in Europe at risk of coastal flooding in 2020 is around 35 000). Further research is needed to assess the potential burden attributable to infectious diseases, drought, population displacement, increased pollution and effects on agriculture. In adopting the London Declaration[75] in June 1999, Member States committed themselves to take action towards alleviating human health effects due to climate change.

Emissions of carbon dioxide are paralleled by emission of other air pollutants, causing a broad range of health damage including asthma, respiratory infections, reduced lung function and premature death. The United Nations Framework Convention on Climate Change and the Kyoto Protocol are the legally binding instruments developed to reduce emissions from fossil fuel, with potential short-term benefits for human health. It is assumed that air pollution effects could be lowered by adopting measures to lower transport, energy, industrial and agricultural emissions, but there is still a need to develop integrated health impact assessment of such measures.

Stratospheric ozone protects the earth's surface from damaging ultraviolet radiation. Ozone is produced in the upper stratosphere by short-wave sunlight, which together with chemical reactions dissociates the ozone again to create a dynamic balance between production and loss. Emissions of inert compounds containing chlorine and bromine affect this balance. It is estimated that a 10% decrease in stratospheric ozone would cause 300 000 cases of non-melanoma skin cancer and 4500 cases of melanoma per year worldwide. Average annual changes in the incidence of non-melanoma skin cancer by type of tumour range from 1% to 6%. For squamous cell carcinoma and basal cell carcinoma there is an estimated increase of 2.0 ± 0.5% for each 1% decrease in stratospheric ozone. Over the last two decades, it has become clear that exposure to ultraviolet B radiation (UVB) can impair specific and non-specific immune responses. Several studies have shown that UVB-induced immunomodulation plays at least a partial role in

75 http://www.ifeh.org/london-declaration.html, accessed 16 May 2002.

photocarcinogenesis. The Montreal Protocol[76] and its amendment are targeting the phasing out of ozone depleting substances. Currently the interactions between climate change and the stratospheric chemical processes might delay ozone recovery by about 20 years. European Member States are engaged in advocating behavioural, institutional and policy responses.

Climate change and changes in land use play a significant role in central Asian republics that are subject to drought and desertification, affecting food production. Climate change may affect this through the balance of the (broadly negative) effects of changes in temperature and precipitation, and the (broadly positive) effects of higher carbon dioxide levels on yields of major food crops. The United Nations Convention to Combat Desertification[77] addresses policy measures to reduce desertification through the implementation of regional plans of action.

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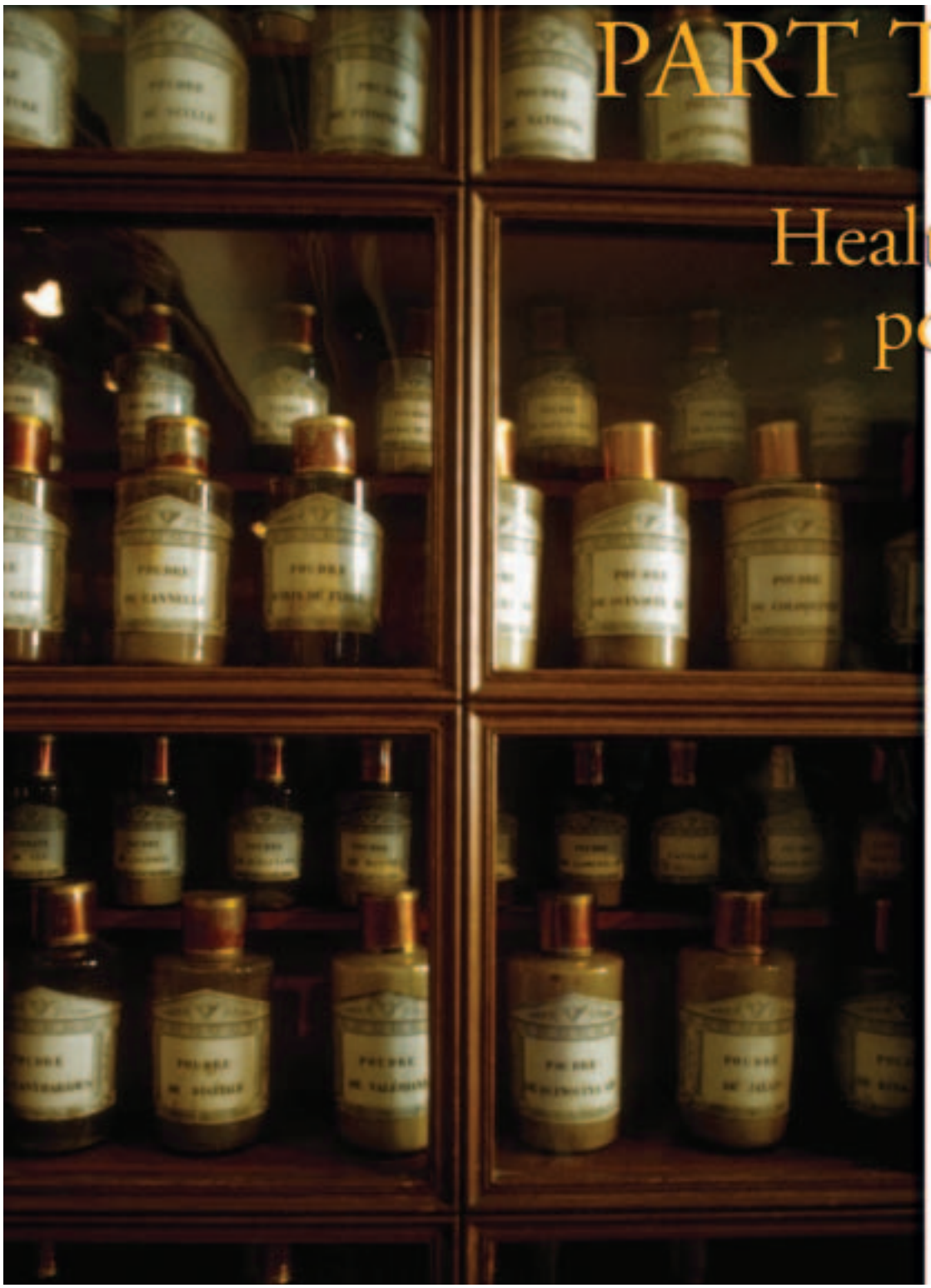

PART THREE

Health systems policies and reforms

Financing

Provision of services

Resource generation

Stewardship

Using the approach proposed in *The world health report 2000*, health systems are defined as "comprising all organizations, institutions and resources that are devoted to producing health actions. A health action is defined as any effort, whether in personal health care, public health services or through intersectoral initiatives, whose primary purpose is to improve health". European countries have been witnessing with dismay how, contrary to what was originally expected, cost increases in health care bear a rather complex relationship with both health gains, as measured by average life expectancy at birth, and citizens' satisfaction. In spite of the fact that countries take different approaches towards health system design and management, improving the performance of health systems is a high priority in all Member States of the European Region.

The framework for the health systems performance assessment (HSPA), recently developed by WHO in collaboration with Member States, was used in *The world health report 2000* to analyse and report on the performance of health systems in all WHO Member States. The methodology is presented briefly in Annex 1. The release of *The world health report 2000* sparked a vigorous debate. While the approach and the framework were widely acknowledged as a major and courageous step forward, the process of producing the report and the interpretation of its findings were not beyond doubt. Because of the importance of the topic and the interest of Member States, a consultative process to look at the methods and data sources was put in place. This included a series of regional consultations and scientific workshops on certain aspects of the methodology. This work was ongoing at the time of publication.

The HSPA framework identified three social goals to which the health system contributes, namely (*a*) to improve population health (level and distribution), (*b*) to improve responsiveness (level and distribution) to the legitimate expectations of the population, and (*c*) to ensure fairness in financial contributions to health. Indicators to measure the achievements of countries with respect to these goals were developed, as well as an overall indicator of efficiency to show how much was achieved compared to what could have been achieved given the inputs used, as follows.

- For the level of health attained in a particular population, the framework uses the summary indicator of healthy life expectancy (HALE). The distribution of

health is an assessment of the fairness of health outcomes within a given population.

- The level and distribution of responsiveness try to capture actual experiences of the people in their interaction with the health system to reflect respect for persons and client orientation, as measured through key informant surveys.

- The level of fairness in financial contributions is assessed using the total contributions to health of a household as a percentage of its total expenditure.

An index of overall goal attainment was calculated as a weighted sum of country scores on the five individual indicators. In addition, the health system's performance or efficiency in achieving this level of attainment was measured by relating the actual attainment to the likely possible attainment, given the resources used to achieve the current level of health.

Although the principles and practice of public health and individual clinical services are relatively similar in the countries of the WHO European Region, countries achieve quite different results in terms of health. One of the main reasons is that health care systems function differently. The analysis of health system functions is therefore crucial in understanding, beyond input parameters, differences in organizational features, availability of means, accessibility, incentives for professionals, service utilization, etc. Health systems mainly perform their functions in an integrated way, but recently emphasis has been placed on selected functions, as certain countries want to separate some functions from others. The HSPA identifies four major functions of a health system:

- funding has to be ensured (*financing*, including revenue collection, fund pooling and purchasing);
- services need to be produced (*provision* of personal and non-personal health services);
- inputs have to be "created" (*resource generation*, including human resources, facilities and others); and
- the health system needs to be governed (*stewardship* or oversight function).

The following sections analyse the main trends in the European Region, with reference to these four functions.

Financing

"Fair financing" of health systems incorporates the concept of equity in the distribution of the burden of funding across the population, and that the need to pay for health care should not impoverish families. In general, contributions to the funding of the health system should be made according to ability to pay, and contributions should be made long before use is made of the service. Additional objectives of health financing policy are to promote equity in access to care and efficiency in the use of sectoral resources.

Four broad categories of health funding are commonly defined: general tax revenues; compulsory contributions to social health insurance funds; voluntary contributions to (usually private) health insurance funds; and direct out-of-pocket payments by patients to providers. Studies of equity in the financing of health systems in western Europe have shown that, as the dominant sources of funding, general tax revenues or social health insurance produce a considerable degree of equity. The more clearly funds are redistributed from financially solvent to socially weak population groups, the more equity there is. Forms of insurance that are based on the principle of risk equivalence (where the size of the premium equates to the volume of benefits provided) or out-of-pocket payments (to avoid waiting lists or to pay for services that do not come within the usual range offered by health systems) tend to contribute to distributional inequities, since they impose a disproportionate burden on socially weak and financially less solvent groups. However, all health systems are funded from a mix of at least two of these, and the consequences for equity depend on the institutions governing the mix. All European countries are concerned with ensuring high levels of solidarity in financing health care, with universal access to health services regardless of ability to pay.

These findings derive from the equitable tax collection systems and the high levels of tax collection in western Europe, where most countries maintain relatively high levels of solidarity in the collection and pooling of financial resources. Switzerland (1996) and France (2000), for instance, have enacted legislation introducing universal insurance coverage, and this is virtually true also in most other western European countries. Funding comes from public or mandated private sources, with a large component of pre-payment and pooling of resources across income and risk

levels. The CCEE and NIS are also committed to solidarity in financing and universal access. In several of these countries, however, problems with financial sustainability caused by the economic recession during the 1990s, and limited technical capacity to collect resources and implement new insurance mechanisms, have led *de facto* to considerable reductions in the affordability and accessibility of health services. Events such as war and civil strive, such as in Yugoslavia and the Caucasus region, have also adversely affected the ability to generate revenue. As a result, in a number of countries access to health care services is possible only through out-of-pocket payment, either formal or informal. In some countries out-of-pocket payments have become the predominant means of financing, amounting to 50–80% of total health revenue. The minimum funding through prepaid sources and the high out-of-pocket payments explain the low scores in attaining fairness in financial contributions in these countries. In essence, health financing has become less equitable since the early 1990s in most of the countries in transition. It should be stressed, however, that countries in such a macroeconomic environment face much greater challenges in terms of the policy options available.

It is not easy to change the funding of health systems. Turkey, for example, recently designed an interesting "Personal Health Insurance Scheme" to extend coverage to those outside formal employment, with state subsidies linked to recipients' estimated income, but the plan had to be dropped because of the complex administrative requirements. Macroeconomic circumstances influence the ability of a country to mobilize resources for health care. Most countries in transition find it extremely difficult to raise tax revenues to meet health care expenditure needs. Informal payments are widespread, and the major challenge is how to (re)establish official payment mechanisms in this context. In some of the CCEE and NIS, the introduction of insurance suffers from limited technical capacities to collect and allocate resources. In some cases health insurance was introduced prematurely and faced financial difficulties linked to structural deficits of sickness funds, an increase in labour costs, and distortions in priority-setting. It had not been fully realized that health insurance schemes do not necessarily create new money for health care, and can introduce a set of complex dynamics that can adversely affect service delivery. In some cases the deficits of social insurance funds mean that, in practice, insurance funds have to maintain coverage of the most basic services and do not have any reserves for covering additional services as a means of increasing their insurance market share.

In general, for the poorest countries in the Region, important elements of financing policy include the need to (*a*) coordinate all sources of funding under a common policy framework; (*b*) reduce duplication in the pooling of funds and the responsibilities for service provision that result from the existence of vertically integrated health systems associated with each level of the government's administrative structure; and (*c*) address the issues of access to care and financial protection for the poor through explicit policies backed with clear financial incentives. In Kyrgyzstan, the Ministry of Health introduced a package of reforms in two regions in 2001. This includes the pooling of all budget funds at *oblast* level into an insurance fund, and the "purchase" of inpatient services according to the characteristics of each case. A fixed co-payment is charged for each case, with the level of the co-payment determined by the patient's insurance or exemption status. Persons in exempt categories face the lowest co-payment, and in turn the payment made by the insurance fund is greatest for them. A campaign was launched to inform the population of both their responsibilities (i.e. what they have to pay) and their rights (i.e. that they only have to make one payment and that informal charging will not be tolerated and should be reported to the insurance fund). The Ministry is currently developing a revised personnel compensation system to increase salaries, based in part on the revenues raised from the co-payments.

For the richer countries of western Europe, the need to reform is less urgent. Nevertheless, all countries are, to varying degrees, reforming their systems. Many of these reforms, particularly where systems are funded through compulsory contributions to social health insurance funds, seek to introduce aspects of competition into the funding process without doing harm to the equity levels that have been achieved. The mode of competition is consumer choice of insurance fund. Evidence from the countries that have implemented this (Germany, Israel and the Netherlands) suggests, however, that balancing equity and competition is not easy. Adjusting the amounts received by competing funds to match their revenues with the expected health care costs of those enrolled (risk adjustment) is technically demanding, and the existing formulae for doing so are imperfect. Competing insurers still have an incentive to select preferred risks, resulting in inequities across pools. While it is possible to compensate for these with other methods, the introduction of markets in health care financing is risky.

In a number of European countries there is a trend towards strategic purchasing as a way of allocating resources to providers to maximize health gain and health

system performance. In national health system countries such as in Italy and the United Kingdom, this involves separating the provider and purchaser functions. In some social health insurance countries in Europe, such as Germany and the Netherlands, insurers aim to move away from reimbursing services towards more proactive purchasing services and selecting providers according to cost–effectiveness criteria. Contracting mechanisms and performance-related payment systems have become a means for purchasers to influence provider behaviour. For instance, in some CCEE such as Bulgaria, Estonia and Hungary, the development of contracting is incorporated into national health policy documents as an instrument for achieving health policy objectives and thereby increasing health systems performance. With regard to paying providers, many countries are moving towards mixed payment systems, with prospective and retrospective components linked to performance.

Whichever reform strategy is chosen, it is essential that countries include explicit mechanisms to ensure access to needed care for the poor and protection for all against financial impoverishment. In addition, the socioeconomic differences in the health status of vulnerable groups should be taken into account. One way to account for this is to exempt persons in defined population groups (based on disease or socioeconomic characteristics) from cost-sharing obligations. Another way is to subsidize the participation of the non-working or self-employed population in social health insurance schemes. In Switzerland, the government subsidizes the participation of those with a low income in private health insurance. The ability to implement effectively such targeting measures depends on the administrative capacity of the government.

As most health systems are funded from a mix of sources, evaluating a system on this basis is difficult. Countries should explore the possibility of separating decisions on the allocation of funds from those on the source of funds. The source of funds need not determine the organizational structure of the sector, the mechanisms by which resources are allocated, or the precision with which entitlement to benefits is specified. These concepts are particularly important for the poorer countries in the Region, which must devise ways of coordinating multiple sources of funds in a situation where resources are constrained. When considering changes to their systems of health funding, policy-makers should consider the theoretical advantages of new approaches vis-à-vis the empirical evidence on the effects of different financing reforms.

Among the main products delivered by WHO are periodic reviews of current health financing policy issues, specifically through the work of the European Observatory on Health Care Systems. These reviews have been very useful to policy-makers throughout the Region, in particular the 1997 book *European health care reform: analysis of current strategies.*[78] WHO can support informed exchange of experiences between countries of the Region to keep countries focused on the goals of health policy rather than the means, and ensure that lessons from one country are not transferred inappropriately to another without due consideration of the context in which reforms are implemented. The main challenge is to help the countries in which public finance has collapsed to varying degrees. In countries without much prospect of renewed public funding in the near future, the challenge is to build "bottom-up" risk pooling through community-based prepayment schemes, with the view that these could eventually be amalgamated into an appropriate national scheme. In those CCEE and NIS where the decline in public funding has been severe but not as extreme, such as in the Caucasus, the need is to make various sources of public and private funding complementary. In particular, where countries have introduced social health insurance schemes, it is essential that these do not develop into separate, parallel health systems but are coordinated with those funded by the Ministry of Health.

Provision of services

European countries have adopted a series of strategies to increase cost–effectiveness in health service provision. These include establishing basic packages of care; decentralizing provider management; introducing market mechanisms; restructuring hospital services with an increased role for substitution between different levels of care; strengthening primary health care services; increasing patient choice and participation in health services; and improving outcomes through technology assessment and quality development initiatives. There are a number of institutional and functional changes aimed at increasing the quality and responsiveness of service provision, such as clinical guidelines and protocols, peer review systems, performance and quality indicators, and other information instruments. Specific examples include the introduction of performance indicators

78 SALTMAN, R.B. & FIGUERAS, J. *European health care reform: analysis of current strategies.* Copenhagen, WHO Regional Office for Europe, 1997 (WHO Regional Publications, European Series, No. 72).

in Italy and the United Kingdom; the promotion of quality circles in several European countries; the development and implementation of clinical guidelines in the United Kingdom; and the incorporation of health targets and quality indicators into contracts in several Spanish regions.

Whereas it does fulfil its promise to ensure better responsiveness, decentralization sometimes makes the redressing of geographical imbalances more complex and introduces obstacles to service integration across jurisdictions. In some cases, decentralization has proved difficult to balance with equity and efficiency. In Belarus, for instance, the impact of national policies was dramatically weakened by the devolution to district executive committees of the right to appoint and dismiss the top management of local providers. Worse, management skills are in limited supply and are often concentrated in the better-off regions.

Primary care

There is considerable agreement among national policy-makers across Europe that, in principle, primary care should be the lynchpin of a well designed and performance-focused health care system. A series of reform strategies are being put in place to increase the performance of primary care. A number of organizational reforms are giving primary care more power and control over other levels of care. These reforms typically involve giving primary care professionals (general practitioners and nurses) and/or institutions (such as health centres or primary care boards) new levers by which to steer patient treatment, either in hospital or in nursing-home or home-care settings, thereby leading to better integration of the different health service delivery sectors. During the 1990s, more active levers were introduced that gave primary care varying degrees of direct authority over not only the volume but also the cost and quality of hospital care, and also certain other primary health care services such as nursing-home and home care.

Among these innovations have been various types of purchasing and contracting as well as – in several Nordic counties – giving primary care districts authority over hospitals. A prominent example of these new levers was the introduction of general practitioner fund-holding schemes in the United Kingdom in 1991, which devolved certain purchasing powers to the primary care level. This scheme was superseded in 1999 by the introduction of primary care groups and primary care trusts, which took responsibility for purchasing. Other experiments, involving the

creation of independent purchasing agencies within which primary care professionals were given varying degrees of power, developed in the 1990s in Germany, Italy and Sweden. In Finland, municipally appointed primary care and social service boards have gained increasing control over hospital funds. There are also organizational reforms that expand the range of services and/or the functions of primary care. These reforms expand the duties of primary care professionals to include new or enhanced services, or services previously delivered by other levels of care.

Many reforms also focus on the interface between primary care, hospitals and other forms of care, both to ease access to the hospital and to divert people to more appropriate services. The rigid division between levels of health care and between health and social care is becoming blurred, calling for the sharing of a common goal and adapting service management. Best practice includes strategies for improving the coordination of care, shifting organizational and care boundaries, and bypassing or substituting for hospital or inpatient care. As the functions and services of hospitals change, successful policies often involve adopting a combination of these strategies.

Advances involving telecommunications and computer technologies in the provision of clinical services deserve special mention. Interventions and tools (electronic patient records, monitoring patients at home, laser and robotic surgery, etc.) unimaginable a generation ago are becoming routine and might well change the structure of health systems. Telematics is being used as a tool to improve accessibility, reduce cost and improve quality. Finland and Norway have adopted a national telemedicine policy, and are investing heavily in infrastructure and in training health care personnel. Other countries are introducing telemedicine on a smaller scale, as a tool for clinical consultation and training (for example, feasibility studies for implementing some sort of telemedicine have been carried out in Georgia and Kyrgyzstan).

Hospitals

Health system reforms are increasingly focusing on the role of hospitals, restructuring hospital services, and decentralizing hospital management while increasing integration within the health system and adopting strategies to improve performance. Trends in hospital capacity and utilization show marked changes

across Europe (Fig. 37 and 38). Fewer hospital beds are being used more intensively, with shorter average lengths of stay, reflecting changes in patterns of diseases and clinical management. Day-care interventions now account for 5–15% of total hospital activity and the trend is increasing. High technology and new pharmaceutical treatments now allow interventions without hospital admission, which may reduce the need for hospital beds but increase the overall expenditure. A number of frequently more expensive interventions can now be performed in a shorter period of time.

Although a reduction in bed numbers is a common policy goal in the Region, it has been easier to close beds rather than entire hospitals. Closure of beds alone, however, does not release significant savings, since a considerable proportion of hospital cost is associated with buildings, staff and other fixed costs. Hospital

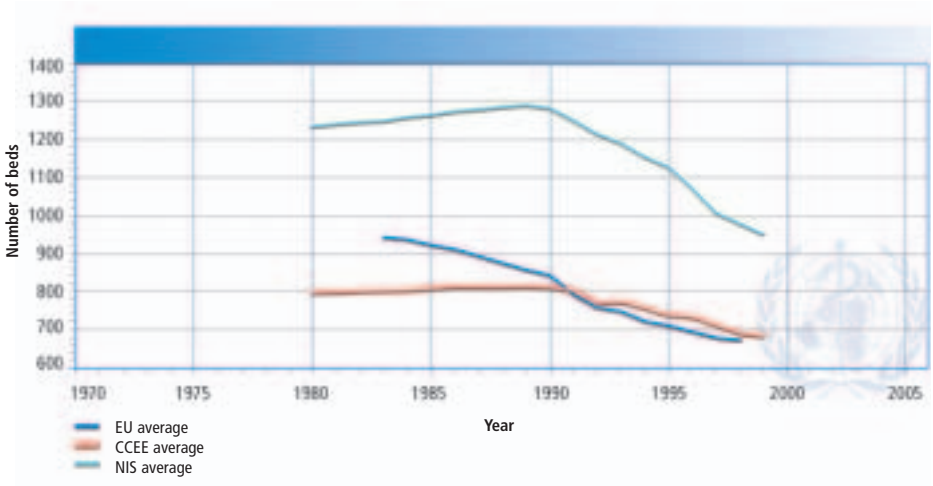

Fig. 37. Number of hospital beds per 100 000 population, 1980–1999

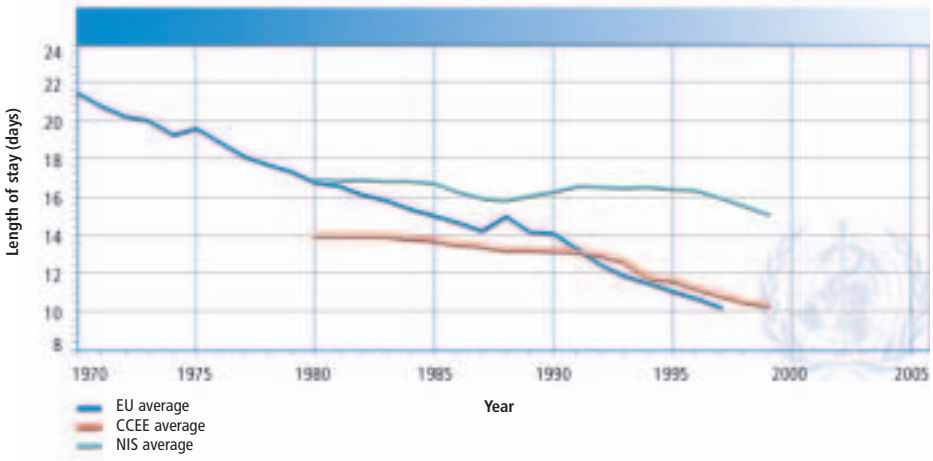

Fig. 38. Average length of stay, all hospitals, 1970–1999

closures and mergers have been more successful where several hospitals have been grouped under one management structure, as in Ireland and the United Kingdom. Changes in the structure of hospitals usually require the expansion of ambulatory care and the construction of new facilities, since hospital reform is often faced with many large but obsolete buildings. Countries that have overhauled their hospital systems, such as France, Norway, Spain and the United Kingdom, have done so partly by mobilizing investment.

In many countries the introduction of the purchaser–provider split has triggered reforms aimed at hospital decentralization. In national health service countries these have taken the form of self-governing hospitals or public trusts. Many such countries are engaged in a debate about the nature of these autonomous hospitals, including aspects such as legal status, decision rights, market exposure, ownership and accountability. There has also been an increase in private-sector provision, competing on an equal basis with public-sector hospitals. Hospital decentralization is also taking place in the CEE and NIS but less so in the social health insurance countries of western Europe, where traditionally there is a separation of functions with a large part of hospital services being provided by the private (mostly non-profit) sector.

A number of reform strategies are aimed at improving performance within the hospital structure. These include incentives for optimizing clinical performance, changes in payment mechanisms, and changes in the organizational environment. There is growing evidence that the performance of clinical practice in hospitals in many countries is sub-optimal. The strategies used to address this problem include clinical quality assurance and clinical audit, the assessment of services performance against a set of clinical indicators, and the new concept of clinical governance in which quality is a shared managerial and clinical responsibility. A second main approach to improving the quality of care is the use of financial incentives through new methods for paying hospitals; for instance, as noted above, some eastern European countries are moving away from input-based funding, such as line-item historical budgets, to more performance-oriented approaches. A combination of case-mix adjustment and global budgeting is now applied in many western European countries. A third main approach to improving the quality of care has emerged from research on the relationship between organizational culture and quality of care.

Quality

Quality development implies both a degree of excellence and a reduction in inequities in health improvement and the provision of health care. The scope of quality values has now broadened to include not only the achievement of best outcome but also equity, safety, effectiveness, efficiency, appropriateness, availability, access, acceptability and user choice. Countries should identify and select the appropriate mix of values to design quality programmes that correspond to their priorities and their social, economic and cultural environment. The most important approach is to apply evidence-based thinking at the level of everyday practice to all activities of the health system.

Developing quality in health systems is a step-by-step, long-term process requiring fundamental changes in the culture of quality and in the process of health system reform. The main challenge is to bring together, in a common strategy at national and local levels, the key stakeholders (health care providers, health authorities, users and payers) taking into account that each group has its own vision and expectations of quality. Other challenges are related to the difficulty in measuring objectively and monitoring quality, generating valid information, and making appropriate policy decisions, given the inadequate, incomplete or ambiguous evidence currently available.

Several Member States in the European Region have developed a policy and strategy for quality of health systems, and have established links with health technology assessment and evidence-based medicine. Among others, good examples of such policies and strategies can be found in France, Germany and the United Kingdom. One development in European countries in the last year was the application in health systems of the European Foundation of Quality Management (EFQM)[79] model and the International Organization for Standardization (ISO)[80] quality standards. The European Commission also supported the use of the EFQM model in its European quality policy. Other main events were related to the accreditation of health organizations. In addition to the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO)[81] model, developed in the

79 http://www.efqm.org/new_website, accessed 17 May 2002.

80 http://www.iso.ch/iso/en/ISOOnline.openerpage, accessed 17 May 2002.

81 http://www.jcaho.org, accessed 17 May 2002.

United States, some countries have created their own accreditation tools, as for instance the King's Fund model[82] in the United Kingdom. Recently, the ALPHA (Agenda for Leadership in Programs for Healthcare Accreditation) Group[83] within the International Society for Quality (ISQua) brought the different accreditation models together. Progress was made also in the CCEE, where several initiatives have been undertaken in the field of institutionalizing quality.

Health technology assessment (HTA), which (broadly defined) is the analysis of health technology for the purpose of assisting policy-making, began to spread in Europe in the early 1970s. By 1992, all countries in western Europe had national and in some cases regional public programmes in HTA, and some eastern European countries were beginning to become active in the field as well. These developments led to increasing international collaboration in Europe, so that in 1993 the International Network of Agencies for Health Technology Assessment (INAHTA) was formed, whose main purpose is fostering communicating and coordination between HTA agencies. In 2002, INAHTA had almost 40 members, mainly in Europe. The European Collaboration for Health Technology Assessment (ECHTA) developed from a need to coordinate activities in Europe, and by 2002 involved the national agencies of all EU member states as well as other countries in Europe, including Norway and Switzerland. These efforts have revealed the need to improve communication and information interchange/collaboration in different areas (methodology, training, research, coverage, evidence for decision-making, etc.). ECHTA is currently searching for funding to establish a permanent coordinating activity.

When it was established, the Regional Office programme for quality of care and health technology assessment focused on measuring and comparing clinical outcomes. The programme has now developed a broader scope that considers all components of health systems. This encompasses, in addition to care provision, other components such as service organizations, finance, technical performance, clinical practice, clinical training, patient satisfaction, safety and health protection, and information systems. The Regional Office is creating a framework for quality development policy based on best practice and "model cases" in countries, and collecting evidence for ongoing research into quality development. Links are

82 http://194.66.253.160/eKingsFund/html/health_advocacy_prog.html, accessed 17 May 2002.
83 http://www.isqua.org.au/isquaPages/Alpha/ALPHAProcess.pdf, accessed 17 May 2002.

strengthened with other quality initiatives in the Region, such as the European co-operation for Accreditation, the European Organization for Quality and the European Society for Quality in Healthcare, as well as with international organizations such as ISQua and the International Society of Technology Assessment in Health Care.

In relation to service provision in more general terms, the Regional Office seeks to identify the best practices and develop tools for evaluating the impact of management and organization on the health of the population and the cost of services. Facilitating information and developing tools and guidelines for evidence-based management are the key objectives of this programme area, because many of the strategies applied in the countries are based on beliefs more than on evidence. The Regional Office runs several projects focusing on the main challenges and problems, and an Internet-based database is being established for each of them.

Resource generation

Providing health services involves putting together a considerable number of resources, principally human resources, physical capital and consumables. Investment decisions and balancing the mix of these resources are critical to the performance of the health system. There are substantial differences in the levels of provision of resources between countries of the European Region, revealing the existing uncertainty as to what constitutes the more cost-effective mix of health system resources (which in turn is reflected in a high degree of variation in medical practice between and within countries). Private health expenditure as a percentage of GDP is shown in Fig. 39.

European Member States differ in the number and mix of beds, human resources and technology they use (Fig. 40). For instance, the number of doctors in western Europe ranges from 5.5 per 1000 population in Italy to 1.5 per 1000 in the United Kingdom, almost a four-fold difference. Similarly, the number of hospital beds varies from around 10 per 1000 population in France and Germany to 4 per 1000 in Portugal, Spain and the United Kingdom. These differences increase when we include eastern Europe. For instance, the average number of beds in the NIS is 14 per 1000 population. This higher number of beds, however, does not

necessarily reflect a larger hospital infrastructure, since in many cases the higher availability of beds is not accompanied by other facilities such as diagnostic equipment, drugs or even heating and food. This high level of provision is explained by a previously common practice in many CEE and NIS to allocate funds according to the number of beds and personnel. As explained above, however, many countries have reformed or are in the process of reforming their payment systems to address this perverse incentive.

Some countries, mainly in the CCEE and NIS, also face specific problems caused not only by an excessive number of hospital beds and personnel but also by inefficient infrastructures, old equipment and the impossibility of renewing (repairing or buying) material owing to a lack of investment policy. Most buildings and equipment have not been upgraded in the last 25 years. This, together with the very imbalanced mix of inputs and a lack of drugs and appliances, not only

Fig. 39. Private health expenditure as a percentage of GDP

Fig. 40. Physicians per 100 000 population

erodes quality of care but also contributes to low motivation and morale among health personnel.

Overall, there is a trend towards convergence in the level and composition of health system resources in the European Region. As noted above, there is a process of hospital restructuring aimed at closing beds and using the existing infrastructure more efficiently (in many countries hospital admissions have almost doubled while length of stay has halved) together with more day care. Other ways of improving the mix of health system inputs in many European countries are the widespread adoption of *numerus clausus* in medical schools and changes in the skill mix of human resources, with higher priority given to primary care, nursing and public health professionals.

The main challenge to the further improvement of health systems seems to be in implementing new ways of working more attuned with the coming "knowledge society". A new organizational culture is being formed, in less rigid labour environments, that values information and understands how it supports all parts of the organization in improving performance and quality. Flexibility and improved management of the human capital are key elements for more effective recruitment and retention strategies. Adapting the education of professionals to these new considerations is therefore essential for many countries. Reform of medical education is a top consideration within the EU countries, which are progressing towards a unified core curriculum in key aspects. Reform has already started in many of the CCEE, and has received renewed emphasis in Kyrgyzstan and Tajikistan. The Regional Office is piloting quality indicators in five medical schools in the Region.

Another way of balancing the mix of health resources is the establishment of national HTA agencies, in some instances with normative and regulatory power over the introduction of new technologies. Western Europe is witnessing a remarkable combination of country- and even region-specific HTA agencies.

Pharmaceuticals

Pharmaceutical policies in European countries aim at guaranteeing access to medicines of proven quality, safety and efficacy at a cost that society and the patient can afford, and to promote the rational use of drugs. Nevertheless, too

many patients in the European Region still do not benefit from existing pharmacotherapy. This may be because patients (or the health care system) cannot afford the drug, or a wrong or unnecessary drug is prescribed, or a treatment is proposed that is too expensive, thus affecting outcome and consuming resources that could have been used better.

Expenditure on medicines in the European Region differs widely, from less than US $10 per head of population in several of the NIS to more than US $350 in some of the western European countries (Table 7). In most of the NIS, and to a lesser extent the CCEE, drug expenditure is privately financed, while in the western European countries it is largely publicly financed. Payment for drugs in the poorer countries in Europe constitutes a major household expenditure. Drug costs are an enormous share of overall expenditure on health in the NIS and many of the CCEE (often more than 30% and for some countries as high as 50–60%, compared to 10–20% in the western European countries). Access to essential drugs is thus a severe public health problem, and especially hits the poor. Poor quality and counterfeit products, as well as inappropriate prescribing and use of medicines, add to the problem.

Globalization of the economy, international trade agreements and intellectual property issues (TRIPS)[84] have an impact on access to medicines in the CCEE and NIS, especially HIV/AIDS medication. The safeguards built into the TRIPS agreement (parallel trade, compulsory licensing), together with agreements with drug companies on reduced prices and differential pricing, will need to be used to ensure patients have access to drug treatment.

Western European countries – and also the EU accession countries – are experiencing a rapid growth in drug expenditure of between 5% and 20% a year, and patients do not always have immediate access to new drug treatment. Drug expenditure is rising faster than health care expenditure and the rate of inflation. Increases are caused by higher prices and higher consumption linked to the ageing of the population, the introduction of expensive new medicines, and the introduction of new drugs for conditions that could not previously be treated. However, it is often not clear if these new medicines result in better health outcomes and improved quality of life. Many European countries are adopting

[84] http://www.wto.org/english/tratop_e/trips_e/trips_e.htm, accessed 19 May 2002.

guidelines and procedures for evaluating the cost–effectiveness of medicines and their uses, in order to be able to make rational reimbursement decisions and ensure "value for money".

The EU accession process has important implications for pharmaceutical policies in the CCEE. Regulatory legislation and systems are already being harmonized, and intensive collaboration continues between the EU and the CCEE in this field.

Expenditure per person (US $)	Western Europe	CCEE	NIS	Population (millions)
> 300	Austria, Belgium, France, Germany, Iceland, Switzerland			164
200–300	Denmark, Finland, Italy, Luxembourg, Netherlands, Norway, Portugal, Sweden, United Kingdom			163
100–200	Greece, Ireland, Spain	Czech Republic, Hungary, Slovenia		76
20–100		Bulgaria, Croatia, Estonia, Latvia, Lithuania, The former Yugoslav Republic of Macedonia, Poland, Slovakia	Russian Federation	280
10–20		Romania	Armenia, Belarus, Georgia, Kazakhstan, Ukraine	109
< 10		Albania	Azerbaijan, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Uzbekistan	54

Sources: JACOBZONE, S. *Pharmaceutical policies in OECD countries: reconciling social and industrial goals*. Paris, Organisation for Economic Co-operation and Development, 2000; Health for all database, WHO Regional Office for Europe.

Table 7. Estimated medicine expenditure by sub-regional groups of countries, 2000 or latest available year

There is a growing concern about the provision and financing of pharmaceuticals, as well as the future of the drug industry in the CCEE. Many of the CCEE already spend more than 2% of their GDP on drugs. Prescribing habits have been changing, with a rapid move towards foreign drugs (at western European prices) without an increase in the drug budget. Policies on generic drugs need to be actively implemented to counter such trends, while ensuring access to proper drug treatment for patients in the CCEE.

Most countries in transition are preparing to upgrade the quality of domestically produced pharmaceuticals to meet international standards and thus ensure more acceptable levels of quality and safety. Nevertheless, a lack of or inappropriate regulatory guidance is sometimes detrimental to the smaller producers, while the larger companies focus on the more profitable products. This may reduce the availability of low-cost pharmaceuticals, as the alternative is often a more expensive imported drug. Adequate policy and guidance are required to ensure the successful transformation of local industries and to stimulate the production of a wide range of low-cost generic products.

Stewardship

The introduction of market incentives in different sub-sectors of the health system in European countries has been accompanied by an increase in the volume of regulation in terms both of new approaches to regulation and of the range of regulatory tools available. In European countries the need to strengthen the stewardship role of the state appeared with the introduction of new market mechanisms and the new balance between the state and market in health systems. Thus, policy-makers have sought to steer these market incentives to the achievement of social objectives. For instance, in the field of pharmaceuticals the increase in entrepreneurial activity has been accompanied by an increase in regulatory efforts aimed at cost-containment. In parts of the Region, however, regulatory activity has been clearly insufficient. In the Russian Federation and some CEE countries, for example, entrepreneurial activity was increased too rapidly and with inadequate regulation. This has created problems with efficiency and equity, and there are real concerns about unbridled entrepreneurial freedom. It should be pointed out, however, that this has been due more to a lack of institutional capacity than to the particular organizational characteristics of the health system.

Evidence shows that what is required is a different and, in many instances, a strengthened role of the state in its regulatory functions and health policy leadership. Although stewardship may also involve other agents such as professional organizations, the health ministry plays the central role in formulating and implementing health policy. Stewardship is also about health intelligence, coupled with policy vision and regulatory influence. The political and technical ability to manage change, to collect and use appropriate information, to regulate the private sector and to negotiate with the key actors has been crucial to the success or failure of many health sector reforms in the Region. A good intelligence system combines information with an understanding of the need to be selective in the information it generates for policy-makers and users of the health system.

In 1984, the Member States of the WHO European Region adopted the first common health for all policy for Europe (revised in 1991 and again in 1998). It was agreed that countries would develop, at national, regional and local levels, intersectoral policies for health based on the principles of equity in health and participation in decision-making. By 1990, half of the then Member States had developed policy documents, but in some instances they were rather vague and have never been translated into action; they often envisaged unrealistic targets and did not realistically consider budgetary constraints.

Experience in countries shows that public health policies have reached the political agenda in very different situations, at different times and in different political and economic climates. Member States show an increased attention to health determinants. Finland and the Netherlands have made serious attempts to develop outcome-oriented policies, and in the United Kingdom the tackling of health inequalities ranks high on the agenda. Many countries in the Region have now adopted genuine health policies laying down medium- and long-term objectives and priorities. In some cases, these policies have been ratified by parliament, thereby gaining greater legitimacy and continuity. Even countries at lower levels of economic development, such as Kyrgyzstan, have taken innovative approaches to integrating health and development, indicating that such an approach can be useful in different economic and social circumstances.

Owing to the increase in research related to the extent and causes of inequities in health, the deteriorating health status in the CCEE countries, and the recognition by organizations such as WHO, the EU and the World Bank of the effect of

poverty on health, the determinants of health (including health systems) have received greater attention since the mid-1990s. Poverty reduction strategies are central to the health programme in Georgia. In Lithuania, the strong involvement of the Parliamentary Health Committee and the National Board of Health in organizing annual national health policy conferences has greatly facilitated the process of participatory decision-making and has kept the need for evidence-based decision-making high on the agenda. Health impact assessment also offers a way of linking the health sector with other sectors, and countries such as the Netherlands and Sweden have already gained valuable experience. (In the United Kingdom, health impact assessment is considered more a consultation process than a tool for evidence-based decision-making.)

Strong pressures for decentralization and the appearance of new interests groups have improved the channels of participation in decision-making, including the use of such modern technologies as the Internet. This has led to improvements in the information and knowledge base for health policy development, particularly as related to inequities. There are good examples whereby public health reporting seems to be influencing the decision-making process. There is an increasing demand from citizens, and particularly patients, to be involved in decisions concerning their own health and public health issues – from health policy choices to the assessment of outcomes. Since 1993, no fewer than 14 European countries have introduced patients' charters or laws on patients' rights. The WHO European Declaration on the Promotion of Patients' Rights[85] was drawn up in 1994. The lack of knowledge among health professionals remains in some countries a significant obstacle to implementing legislation in this domain.

Strengthening health systems in Member States is an identified global priority for WHO in this biennium and the next, and is reflected in the Regional Office's new country strategy.[86] The Regional Office aims at helping Member States understand how they can measure their own performance, identify the factors that determine performance, and improve their system to better respond to the needs of their population. The work of the European Observatory on Health Care Systems is proof of the Office's effort to produce information and evidence on the links

85 *A Declaration on the Promotion of Patients' Right in Europe*. Copenhagen, WHO Regional Office for Europe, 1994 (document EUR/ICP/HLE 121).

86 *The WHO Regional Office for Europe's country strategy: "matching services to new needs"*. Copenhagen, WHO Regional Office for Europe, 2000 (document EUR/RC50/10).

The new Swedish public health policy

In 1997 a National Public Health Committee with a broad parliamentary base was formed. Its most important objective was to propose a national strategy and specific goals for public health that would guide government offices, regional and local public authorities and nongovernmental organizations.

At the end of 2000 a green paper was published with proposals for 18 national public health goals. The goals were formulated in terms of health determinants and fundamental infrastructures for preventive work. A government bill is to be presented to Parliament in 2002. The main decision of the Committee was to express the goals in terms of *determinants* of health.

The new policy will make an improved public health a central goal for the entire Swedish government policy. All public authorities at all levels of society will be guided by the goals, which cover a number of different areas – economic policy, social welfare, the labour market, agriculture, transport and the environment. The main purpose is to achieve a more equal level of public health with regard to social class and gender, by influencing all relevant areas of policy and action.

The policy has the following 10 major areas.

1. *Improving social security and combating poverty*, with the aim of increasing the social capital. It is considered vitally important to avoid large gaps in income.
2. *Political power, influence and participation*. Democratic rights must exist for all groups in society, including the socially vulnerable and immigrants. All citizens must be able to participate in the political decision-making process.
3. *Creating secure and good conditions for children and young people*. One way to achieve this is to improve the economic and social position of families with children. Special support must be given to single parents and socially vulnerable families.
4. *Healthy workplaces and an improved level of occupational health*. Health-related absence from work has increased enormously over the last five years.
5. *A healthy environment and the provision of safe products*. The indoor as well as the outdoor environment is important, together with clean air.
6. *A health-promoting health service*. Improved population health must be an explicit goal for the health services.
7. *Increasing physical activity*.
8. *Good eating habits and safe food*.
9. *Reducing tobacco smoking, harmful alcohol consumption and the adverse effects of gambling*. The struggle against narcotics should continue, with the aim of creating a drug-free society. The fight against doping in sport should be intensified.
10. *Reducing the spread of infectious disease and promoting safe sexual behaviour*. This area of public health work focuses on HIV/AIDS and other sexually transmitted infections.

between health policy and health care reforms, and on how health care reforms affect equity in health. A Health Systems Development Advisory Group and Expert Panel has been established to help countries develop or improve their health systems, using a well tested range of tools and methods.

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Conclusion

An east–west health divide has opened up within WHO's European Region, with a significantly worsening health situation in the east. In some CCEE and NIS, falling life expectancy and birth rates have contributed to negative population growth rates. Even within the most affluent countries, unacceptable inequalities in health status persist among different groups of society. Most of the accumulated evidence points to the essential role played by the main economic, social, environmental and institutional determinants of health in the generation and development of these gaps. What is less clear is the precise quantitative role and interactions between these various factors, and which links in the causal chain of events can be broken by public health interventions. In the context of the 1998 World Health Declaration,[87] and its commitment to the highest attainable level of health for all, it is difficult to see such economic and health differentials in anything other than human rights terms.

Genetic and other personal factors clearly affect individual susceptibility to disease. There is, however, little indication that these play a substantial role in the differences in health experience at population level. Individual lifestyle and risk factors explain only a proportion of the variations in the occurrence of disease. Rather ample evidence exists that the economic and social environments play a substantial role at population level. Research relating disease patterns to the organization of society has demonstrated that differences in health are substantially a manifestation of economic and social determinants. Evidence from a number of sources indicates that, in addition to aggregated economic wealth, it is necessary to pay attention to the relative distribution of wealth. Health is best served in more socially cohesive societies having a smaller burden of relative deprivation. At least among developed societies, health is related more to relative than to absolute income.

Psychosocial stress is increasingly recognized as a factor in a number of conditions, including hypertension, alcoholic psychosis, neurosis, homicide, suicide, accidental death, ulcers and cirrhosis of the liver. It is interesting to note that these conditions all tend to increase in importance in countries undergoing accelerated social and

87 http://www.who.int/archives/hfa/ear7.pdf, accessed 17 May 2002.

economic transitions that are not adequately supported by social policy measures. If appropriate action is not taken, the widening gap in income distribution in many countries is likely to increase psychosocial stress in both western and eastern Europe.

Universal access to effective individual health services is an essential requirement in advanced societies. Failure of individually focused health services to achieve this goal will contribute to unnecessary suffering. Although the exact relationships between health and health care continue to call for research, there is a potential for health gain in health system development that the European Region cannot afford to underestimate. As health systems in modern societies grow more diverse and pluralistic, the key challenge to Member States is to strengthen their capacity to effectively manage complexity, which includes the capacity to monitor relevant trends, identify options for change, assess the available evidence, set priorities, draw up action plans and ensure their implementation, measure outcomes and take corrective action when needed. There is also scope for the WHO Regional Office for Europe to provide continuing support to countries in health system development. This includes systematic reviews of national experiences and advising on possible processes for health policy formulation, implementation, monitoring and evaluation; the sharing of information, objectives and priorities; developing a democratic dialogue and integrated decision-making; setting standards; and supporting and enhancing the negotiation skills of specific groups.

Improving health requires consideration of the essential relationship and balance between health and political, social, economic and institutional circumstances, an integrated view of sustainable development and a holistic approach to public health policy. Just as health experience has multiple societal determinants, so public health policy must place responsibility and accountability for health improvement across all sectors and actors within society. A heightened level of commitment and more forceful action are needed to deal with the determinants of health. The policies that are most successful in improving public health are those that deal with economic growth, human development and health in an integrated way. Income differentials, health choices, environmental protection and the availability of education and employment are all variables that are amenable to public policy, and where changes can lead to improved health and wellbeing for the whole population. Fiscal and legal measures are powerful regulatory instruments for

tackling the underlying causes of ill health. If such regulations are to be implemented effectively, all the sectors and institutions concerned within society must uphold them, and they must, above all, enjoy public support and confidence. This can be achieved by mobilizing society at large and generating informed discussion through effective communication.

ANNEX 1

Health systems performance assessment methods

For the last few years WHO, in collaboration with its Member States, has developed a framework for health systems performance assessment (HSPA) with a view to enhancing the development of national health systems. *The world health report 2000* (WHR2000) provided details of the framework, described indicators that could be used to measure performance, and reported on an analysis of health system performance in Member States. The objective was to provide a basis for building a body of evidence on the relationship between the organization and outcomes of health systems, so as to provide governments with information for health policy development.

This annex describes the three components mentioned above and explains the main methodological issues relevant to them.

A. The HSPA framework

The framework includes the boundaries, goals, functions and performance of health systems.

(i) Boundaries

All resources, organizations and actors that undertake or support health actions are considered to be part of the health system. A health action is an action whose primary intent is to promote, protect or improve health.

(ii) Goals

Three intrinsic goals to which the health system contributes are (*a*) good health, (*b*) responsiveness of the health system to people's non-health expectations and (*c*) fairness in financial contributions to health. In WHR2000, measurements were made of the achievement of countries in respect of these goals.

(iii) Functions

The four main functions are (*a*) financing (including revenue collection, fund pooling and purchasing); (*b*) provision of personal and non-personal health services; (*c*) resource generation (including human resources, facilities, etc.) and (*d*) the stewardship or oversight function of the health system.

(iv) Performance

An index of overall attainment of the goals was calculated as a weighted sum of country scores on the five individual indicators (see below). In addition, the efficiency of achieving this level of attainment was measured (called the performance index). This index measured actual attainment in relation to "potential" (best possible) attainment given the available health system and non-health system resources used to produce health.

B. Indicators

Five indicators were developed to measure the achievement of the health system goals.

(i) Level of health

Up to the end of the millennium, reporting on health status concentrated on morbidity and mortality statistics and on the incidence and prevalence of communicable diseases. With the epidemiological transition from communicable to noncommunicable diseases the measurement of the non-fatal consequences of diseases, particularly as related to chronic diseases and injuries, has become increasingly relevant to all Member States.

Based on more than 15 years of work, WHO introduced the concept of "healthy life expectancy" together with its indicator, disability-adjusted life expectancy (DALE), a measure of the level of health attained in a particular population. This has recently been renamed healthy life expectancy (HALE). It is based on life expectancy at birth but includes an adjustment for *time spent in poor health*. Life expectancy at birth is a summary mortality index. Age-specific mortality data can be obtained from registers of vital statistics, health surveys and sample registration systems.

The measurement of time spent in poor health depended on standardized results from cross-sectional surveys using the International Classification of Functioning, Disability and Health (ICF, previously known as ICIDH-2).

(ii) Distribution of health

To assess the fairness of the distribution of health outcomes in the population, WHO proposes that countries measure the distribution of healthy life expectancy within populations. Since such data are not yet widely available across population groups, however, data on child survival, which are available at the individual level for many countries, were used in WHR2000 to measure inequalities in child survival.

(iii) Level of responsiveness and (iv) distribution of responsiveness

Every health system should aim to respond well and fairly to the legitimate non-health needs of the population it serves. The indicator of health system responsiveness is designed to reflect respect for persons and client orientation. Respect for persons in WHR2000 comprised autonomy, dignity and confidentiality, while client orientation consisted of prompt attention, quality of basic amenities, access to social support networks during care, and choice of provider.

Responsiveness tries to capture the actual experiences of the people and their interaction with the health system, rather than what they expect from the system. For WHR2000, surveys of key informants were used to estimate both the level and distribution of responsiveness.

(v) Fairness in financial contributions

The fraction of disposable income that each household contributes to the health system indicates the extent to which resource generation reflects people's ability to pay. It was measured as the total contributions of a household to health (out-of-pocket expenses, taxes, social security payments, etc.) divided by total expenditure (as a proxy for income) minus subsistence expenditure (taken to be food expenditure in WHR2000).

Data were drawn from income and expenditure surveys, from tax, social security and health insurance schedules, and from national health accounts where available.

National health accounts also provide a systematic assessment of the resources put into the health system from the public and private sectors.

C. Measurement of health system performance

The performance or efficiency of a health system can be measured by examining the relationship between the outcomes and the resources used to produce them. The analysis needs to take into account health system inputs as well as non-health inputs to the production of health, such as educational attainment. The estimates made for WHR2000 were based on econometric techniques that have been used extensively in other sectors of the economy for many years.

Since the publication of WHR2000, a variety of additional data sources have become available and various methodological modifications have been suggested.

D. Methodological issues

Healthy life expectancy (HALE)

To estimate HALE, life expectancy at birth is calculated in the standard way. Estimates must then be made of the length of time a newborn child can expect to live in various states of health that are valued less highly than full health. Finally, a method of valuing this time compared to full health must be developed.

Methods of estimating periods of a lifetime that a person can expect to live in full health, and in states less than full health, are being continually developed. For example, household surveys can seek information on the prevalence of different health states by age and sex, and a WHO multi-country survey study[88] is under way to test possible instruments. People are asked to rate themselves within 6 core domains identified from an extensive review of the currently available health status measurement instruments. These 6 domains were chosen from an initial list of 20, and reflect those areas where there is most agreement about what should be included in a definition of health. Questions about all 20 domains are asked in face-to-face household surveys in 15 countries, and these include a novel feature – the use of performance tests to calibrate self-reported health on selected domains

88 ÜSTÜN, T.B. ET AL. *WHO Multi-country Survey Study on Health and Responsiveness 2000–2001*. Geneva, World Health Organization, 2001 (GPE Discussion Paper 37).

such as cognition, mobility and vision. For domains where performance tests are not feasible, vignettes are used for calibration.

WHR2000 used previously published estimates of "disability". During the last year, WHO has embarked on large-scale efforts to improve the methodological and empirical basis for evaluating health states. To address the methodological challenges WHO, in collaboration with Member States, has initiated a two-tiered data collection strategy consisting of large household surveys in representative samples of the general populations in several countries, combined with more detailed surveys at the same sites among respondents with high levels of educational attainment.

Cross-country comparability

A key methodological issue describing health states (and responsiveness) is how people reply to questions requiring categorical responses such as very poor, poor, satisfactory, good and very good. Different groups classify themselves in different ways in terms of the underlying variable being measured. In some surveys, for example, people who are more highly educated or who have a higher income report worse levels of health than those with relatively lower education or income, despite more objective measures of health status suggesting the opposite. In some countries, old people report their health to be as good as that of younger people, despite objective evidence to the contrary.

This problem can be viewed as a mapping from an underlying latent variable measuring the level of health to the observed categorical self-report responses, which can be different for different sociodemographic groups. WHO is developing several statistical methods for correcting non-random reporting differences in self-reported health across different population sub-groups. The first of these is based on the hierarchical ordered probit (HOPIT) model, which is being used in conjunction with tests and vignettes, as described above.

Examinations of representative sub-samples of the population can be used to assess and correct for the non-random reporting differences in self-reported health. Examples of such tests include the Snellen's eye chart test for vision and the posturo-locomotion-manual (PLM) test for mobility. A second corrective technique is based on the use of vignettes, and is especially useful where the

implementation of examinations (tests) is difficult, expensive or otherwise impractical.

Vignettes are hypothetical descriptions of individuals for different levels of a given health domain. Respondents are asked to classify the ability of hypothetical individuals to care for themselves according to the different possible categories. They are then asked to rate their own ability to care for themselves according to the same categories. Different groups of people are found to rate the hypothetical individual in the vignette differently – implicitly using different cut-off points for the categories. Their responses to the vignettes are then used to adjust their responses to questions about their own health using the HOPIT model. Predictions of corrected health status measurements using vignettes and self-reporting on the core domain question can be used in a second stage to correct bias in the self-reporting on the auxiliary questions using the compound HOPIT model.[89]

Inequalities in health

The goal is to estimate inequalities in healthy life expectancy (HALE). WHR2000 included estimates of inequality in child survival based on data from the demographic and health surveys in developing countries and vital registration data by small geographical area (district, municipality, etc.) in developed countries. For countries where data were not available, estimates were based on a regression model. So far, ten countries have agreed to provide information linking individual death records to census records or health surveys. In those countries it will be possible to estimate inequality in HALE using individual records, and then to compare this estimate with that obtained by using data from small geographical areas within a country. This comparison will enable the small-area estimates to be adjusted in countries where individual records are not available. On verification of the method, we hope to work with many more countries to obtain either linked data or small-area data; for the others it will be necessary to use a statistical model to estimate inequality in HALE.

89 Vignettes are also being used to control for cross-country differences in cut-off points in the responsiveness surveys described below.

Level and distribution of responsiveness

A criticism of the methods used in WHR2000 was that the estimates of responsiveness were based on the replies of a small number of people from a small number of countries. The multi-country survey study now under way is partly designed to explore ways of obtaining valid and reliable information on responsiveness. To date, representative household surveys using either face-to-face or postal interviews have been undertaken in 68 countries (in some, both methods have been used at the same time). In addition, surveys of key informants are being undertaken that will allow a rigorous test of the relationship between the responses in the different types of survey. Key informant surveys are more convenient, quicker and cheaper than representative household surveys, which represent the "gold standard". The current survey programme will show if the results from the key informant surveys are consistent with the gold standard approach, and whether this low-cost, more convenient option provides valid responses.

A major concern with survey instruments that enquire of people's experience with the health system is that people from different cultures or socioeconomic backgrounds may have different expectations. This is the question of cross-country comparability discussed earlier and would mean, for example, that differences in their answers might simply reflect differences in their expectations rather than variations in the responsiveness of the system. In response to this, a key component and innovation of the WHO surveys is the introduction of vignettes describing how a hypothetical person is treated with respect to the domains of responsiveness. For example, someone is described as attending a hospital with insufficient beds or being overheard in a personal conversation with the doctor. Respondents are asked to rate the experience of that hypothetical person in terms of how responsive the system is in that situation. This rating is then used to anchor the rating they give about their own personal experience, to adjust for differences in their expectations. The results from the surveys that have been conducted to date are currently being analysed to see to what extent the vignettes are capturing and adjusting for differences in expectations.

Fairness of financial contributions to health (FFC)

Debate about the FFC indicator has focused on three issues. First, some commentators have disputed whether people are indeed concerned with fairness of financial contributions to health. This will be explored in some of the qualitative

work currently under way. Second, in WHR2000 household expenditure data were available for only 23 Member States and projections had to be made for the other countries. Third, it was argued that the index did not fully capture people's concerns with progressivity in contributions.

Intensive efforts have been made to work with Member States to identify income and expenditure surveys that can be used to estimate the FFC. Recent surveys are now available from 70 countries, and for some there are surveys from a number of different years, providing a total of 96 data points. This search for data from additional countries is continuing.

The question of progressivity is being explored in two ways. In WHR2000, the household financial contribution (HFC) was estimated as total health expenditure divided by effective non-subsistence expenditure. Non-subsistence expenditure was total household expenditure minus food expenditure, considered to be the most important item of subsistence expenditure for poor households. This builds progressivity into the FFC index because richer households spend a lower proportion of their total expenditure on food than poorer households. However, this is subject to the criticism that a component of food expenditure is not really subsistence expenditure (this is particularly true for rich households, whose food spending includes many items not required for subsistence) so the HFC does not really capture non-subsistence expenditure in the denominator. Accordingly, the HFC as calculated for WHR2000 overestimated the percentages of non-subsistence income richer households contributed to health.

In response, other specifications of the denominator are being explored. They are all based on a definition of subsistence expenditure as the level required to allow the household to live above the poverty line ($1 per day in 1985 international dollars). This was adjusted to the year of the expenditure survey. Food purchasing power parities (PPPs) rather than the full PPP are used to convert the resulting estimate in international dollars into domestic currency units, to enable comparison with the data collected in the surveys. This denominator makes the HFC more progressive than in WHR2000. In addition, several different functional forms of the equation defining the index of fairness of financial contributions are being tried, although at present they are all highly correlated.

Overall attainment

For WHR2000, an index of overall attainment was obtained as a weighted sum of scores on the five individual indicators. Responses from over 1000 people, largely health professionals, to an Internet-based survey provided the basis for the following weights: health level 25%, health inequality 25%, responsiveness 12.5%, responsiveness inequality 12.5%, and fairness in financial contribution 25%.

The question of whether these weights vary across settings is being explored in numerous nationally representative surveys. Preliminary analyses suggest that there is some variation across countries in the weights assigned to the goals, but that the variations observed so far do not significantly affect the health system attainment in countries (Fig. 1).

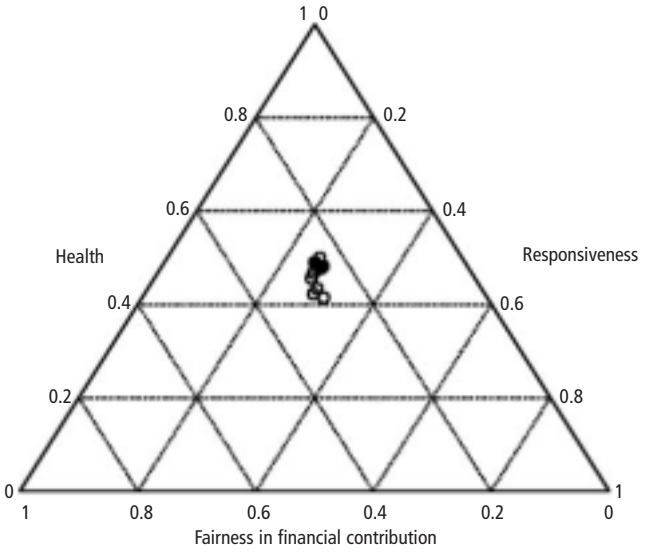

Fig. 1. Variations in goal weighting: preliminary results from 14 countries

Efficiency

A technical consultation was recently held on econometric methods to measure the efficiency of health systems. It supported the overall approach of using frontier production functions[90] to estimate efficiency, and strongly supported the need to separate the inputs to the production process from the determinants of the observed levels of efficiency. However, the experts had a number of novel suggestions about how the estimates of production, and the determinants of efficiency, could be incorporated into the same estimation process, using techniques still in the process of being developed.

90 Frontier production analysis estimates statistically the maximum possible output that is attainable for given inputs, based on analysis of the range of outputs observed for health systems with similar inputs. Once the maximum has been estimated, efficiency is defined in terms of distance from this maximum: the closer one is the more efficient the health system.

ANNEX 2

Statistical tables

Table 1. Basic socioeconomic and health indicators for all Member States in the WHO European Region, 2001 or latest available data

Member State	1. Mid-year estimated population	2. GDP per person (PPP$)	3. Income inequality (Gini index)	4. Unemployment rate (%)
Albania	3145000	3189		18.40
Andorra	64000			
Armenia	3788000	2215	44.4	11.70
Austria	8075000	26072	23.1	6.70
Azerbaijan	8097000	2850	36.0	1.30
Belarus	10148000	6876	21.7	2.10
Belgium	10263000	26250	25.0	11.60
Bosnia and Herzegovina	4067000			11.90
Bulgaria	7866000	5071	26.4	16.00
Croatia	4655000	7387	29.0	17.00
Czech Republic	10260000	14012	25.4	9.00
Denmark	5332000	28354	24.7	5.40
Estonia	1377000	8355	37.6	13.70
Finland	5178000	24841	25.6	9.80
France	59453000	23827	32.7	11.20
Georgia	5238000	2431	37.1	10.80
Germany	82008000	24951	30.0	9.70
Greece	10624000	16058	32.7	11.10
Hungary	9917000	12213	24.4	7.00
Iceland	281000	27658		2.30
Ireland	3841000	28276	35.9	4.30
Israel	6173000	18440	35.5	8.80
Italy	57503000	24540	27.3	10.60
Kazakhstan	16095000	4951	35.4	3.90
Krygyzstan	4986000	2573	40.5	3.00
Latvia	2406000	6264	32.4	7.80
Lithuania	3689000	6656	32.4	11.50
Luxembourg	443000	45406	26.9	2.60
Malta	392000	15189		5.00
Monaco	30000			2.50
Netherlands	15929000	27463	32.6	3.20
Norway	4488000	29508	25.8	3.40
Poland	38577000	9305	31.6	13.00
Portugal	10034000	17573	35.6	4.00
Republic of Moldova	4285000	2037	40.6	2.10
Romania	22388000	6041	28.2	10.50
Russian Federation	144664000	7473	48.7	13.40
San Marino	26000			4.10
Slovakia	5404000	10591	19.5	18.80
Slovenia	1986000	15977	28.4	7.60
Spain	39920000	19263	32.5	15.90
Sweden	8833000	24402	25.0	4.70
Switzerland	7170000	27407	33.1	2.70
Tajikistan	6135000	1031		2.70
The former Yugoslav Republic of Macedonia	2044000	4651		32.20
Turkey	67632000	6815	41.5	6.60
Turkmenistan	4835000	3347	40.8	
Ukraine	49111000	3458	29.0	11.90
United Kingdom	59541000	24135	36.1	6.00
Uzbekistan	25257000	2251	33.3	0.40
Yugoslavia	10538000			26.10

Sources of data. Columns 1–2, 4–5, 9: Health for all database, WHO Regional Office for Europe; columns 3, 6–7: UNDP *Human development report 2001*; column 8: UNESCO.

5. Total health expenditure (percentage of GDP)	6. Income poverty line (50% of median income) (1987–1997)	7. Income poverty line (percentage of population < US $4/day) (1993–1995)	8. School life expectancy (years)	9. Probability of dying before 5 years
2.84				20.77
4.20				19.22
8.20	10.6		14.5	5.73
0.90				24.41
4.40		22.0		14.71
8.80	5.2		16.8	7.40
3.50				16.08
4.73		15.0	12.2	15.94
9.04				8.40
7.30		0.8	12.8	5.19
8.20	7.2		14.8	5.73
6.10		37.0	12.6	12.32
6.80	5.2		16.0	4.52
9.40	8.0		15.5	5.53
5.10			11.0	13.77
10.50	7.5		15.8	5.54
8.70			13.7	7.85
6.80		4.0	12.9	10.78
8.70			15.2	4.59
6.10	11.1		13.9	7.00
8.30	13.5			7.93
7.90	14.2			6.10
1.90		65.0		25.15
2.10		88.0		33.29
4.80		22.0	12.1	12.37
6.20		30.0		11.25
6.10	3.9			3.83
8.81			13.4	8.03
8.10	8.1		15.9	6.35
9.30	6.9		15.6	5.30
6.20		20.0	13.0	9.35
7.70			14.5	7.29
3.00		66.0		22.43
2.60		59.0	11.6	22.20
2.90		50.0		19.16
6.50		0.7		10.12
7.70		0.7		5.63
7.00	10.1			5.95
7.90	6.6		15.2	4.29
10.40	9.3		14.1	6.04
1.20				23.08
4.50			11.4	13.65
4.76			9.5	
3.50		61.0		53.18
4.20		63.0		15.49
6.90	13.4		16.6	6.86
3.00		63.0		35.66
7.58				

Member State	Healthy life expectancy (years)		
	1. Total	2. Males	3. Females
Albania	59.4	56.5	62.3
Andorra	71.8	69.8	73.7
Armenia	59.0	56.9	61.1
Austria	70.3	68.1	72.5
Azerbaijan	55.4	53.3	57.5
Belarus	60.1	55.4	64.8
Belgium	69.4	67.7	71.0
Bosnia and Herzegovina	63.7	62.1	65.3
Bulgaria	63.4	61.0	65.8
Croatia	64.0	60.8	67.1
Czech Republic	65.6	62.9	68.3
Denmark	69.5	68.9	70.1
Estonia	60.8	56.2	65.4
Finland	68.8	66.1	71.5
France	70.7	68.5	72.9
Georgia	58.2	56.1	60.2
Germany	69.4	67.4	71.5
Greece	71.0	69.7	72.3
Hungary	59.9	55.3	64.5
Iceland	71.2	69.8	72.6
Ireland	69.3	67.8	70.9
Israel	69.9	69.3	70.6
Italy	71.2	69.5	72.8
Kazakhstan	54.3	50.5	58.1
Krygyzstan	52.6	49.6	55.6
Latvia	57.7	51.4	63.9
Lithuania	58.4	53.6	63.2
Luxembourg	69.8	67.6	72.0
Malta	70.4	68.7	72.1
Monaco	71.7	69.4	73.9
Netherlands	69.7	68.2	71.2
Norway	70.5	68.8	72.3
Poland	61.8	59.3	64.3
Portugal	66.3	63.9	68.6
Republic of Moldova	58.4	55.4	61.5
Romania	61.7	59.5	64.0
Russian Federation	55.5	50.3	60.6
San Marino	72.0	69.7	74.3
Slovakia	62.4	59.6	65.2
Slovenia	66.9	64.5	69.3
Spain	70.6	68.7	72.5
Sweden	71.4	70.1	72.7
Switzerland	72.1	70.4	73.7
Tajikistan	50.8	49.6	52.0
The former Yugoslav Republic of Macedonia	64.9	63.9	65.9
Turkey	58.7	56.8	60.5
Turkmenistan	52.1	51.2	53.0
Ukraine	56.8	52.3	61.3
United Kingdom	69.9	68.3	71.4
Uzbekistan	54.3	52.7	55.8
Yugoslavia	64.3	63.3	65.4

Table 2. Composite indicators of health attainment in all Member States in the WHO European Region, 2000 or latest available data

Sources of data. Columns 1–5: *The world health report 2001*; columns 6–8: Health for all database, WHO Regional Office for Europe.

Model life expectancy (years)[a]		Conventional life expectancy (years)[b]		
4. Males	5. Females	6. Total	7. Males	8. Females
64.3	72.9	74.8	72.0	78.0
77.2	83.8			
64.4	71.2	75.7	73.5	78.1
74.9	81.4	78.7	75.6	81.5
61.7	68.9	71.6	68.7	74.4
62.0	74.0	69.0	63.4	74.8
74.6	80.9	77.0	73.6	80.5
68.7	74.7	72.7	69.5	76.0
67.4	74.9	71.7	68.5	75.1
69.8	77.7	73.0	69.1	76.7
71.5	78.2	75.2	71.8	78.6
74.2	78.5	76.7	74.2	79.2
65.4	76.5	71.0	65.5	76.4
73.7	80.9	77.6	73.8	81.3
75.2	83.1	78.9	75.0	82.7
65.7	71.8	74.7	71.9	77.4
74.3	80.6	78.1	74.9	81.0
75.4	80.8	78.3	75.8	80.8
66.3	75.2	71.5	67.2	75.8
77.1	81.8	79.0	76.4	81.6
74.1	79.7	76.3	73.5	79.2
76.6	80.6	78.3	76.1	80.4
76.0	82.4	79.1	75.8	82.2
58.0	68.4	65.7	60.2	71.6
60.0	68.8	67.8	63.8	72.0
64.2	75.5	70.6	65.0	76.2
66.9	77.2	72.9	67.6	78.0
73.9	80.8	78.6	75.0	81.9
75.4	80.7	78.2	76.0	80.3
76.8	84.4			
75.4	81.0	78.1	75.4	80.6
75.7	81.4	78.50	75.6	81.5
69.2	77.7	74.0	69.8	78.1
71.7	79.3	75.5	71.9	79.1
63.1	70.5	67.8	64.0	71.4
66.2	73.5	71.2	67.8	74.8
59.4	72.0	65.4	59.2	72.4
76.1	83.8			
69.2	77.5	73.4	69.3	77.6
71.9	79.4	75.8	71.8	79.5
75.4	82.3	78.7	75.2	82.3
77.3	82.0	79.6	77.0	82.2
76.7	82.5	79.5	76.4	82.3
60.4	64.7	71.8	69.8	73.8
70.2	74.8	73.4	71.2	75.7
66.8	72.5	69.5	67.0	72.1
60.0	64.9	66.1	62.5	69.8
62.6	73.3	67.9	62.3	73.6
74.8	79.9	77.6	75.1	80.0
62.1	68.0	68.7	66.1	71.2
69.8	74.7			

[a] WHO best possible assessment of the life table of each country, using a specially developed model life table system.
[b] Calculated on the basis of officially reported population and mortality data (Wiesler's method).

Member State	Health personnel per 100 000 population		
	1. Physicians	2. Dentists	3. Pharmacists
Albania	133.22	8.69	2.70
Andorra	254.90	65.24	97.11
Armenia	298.66	26.22	3.37
Austria	308.27	47.77	55.88
Azerbaijan	360.72	27.76	29.50
Belarus	457.94	44.83	31.96
Belgium	413.70	68.27	144.78
Bosnia and Herzegovina	142.23	19.21	10.07
Bulgaria	336.91	82.96	12.48
Croatia	238.26	67.88	48.89
Czech Republic	336.86	64.81	49.25
Denmark	283.52	85.63	50.14
Estonia	322.36	74.13	59.37
Finland	307.28	92.62	147.99
France	328.37	68.62	102.18
Georgia	473.10	37.06	10.24
Germany	358.40	76.77	58.27
Greece	434.07	114.36	69.15
Hungary	361.42	57.83	48.93
Iceland	336.20	100.71	83.87
Ireland	249.25	53.16	77.07
Israel	376.65	113.78	62.23
Italy	567.20	57.36	104.88
Kazakhstan	329.23	26.59	18.70
Krygyzstan	282.33	26.82	2.80
Latvia	320.35	53.86	
Lithuania	379.75	66.19	59.40
Luxembourg	248.80	64.31	68.48
Malta	262.66	40.27	182.97
Monaco	664.29	121.43	217.86
Netherlands	322.18	47.60	18.75
Norway	469.61	114.94	33.39
Poland	226.43	34.30	52.33
Portugal	317.94	37.73	78.06
Republic of Moldova	317.98	37.35	67.50
Romania	188.87	22.21	7.08
Russian Federation	419.27	32.01	7.08
San Marino	251.70	36.36	52.10
Slovakia	323.16	47.81	41.57
Slovenia	215.25	60.42	34.96
Spain	328.80	40.98	78.73
Sweden	310.87	152.12	67.41
Switzerland	336.31	48.80	63.38
Tajikistan	209.62	17.03	10.99
The former Yugoslav Republic of Macedonia	219.85	55.72	15.35
Turkey	127.44	21.88	34.30
Turkmenistan	300.34	21.62	33.47
Ukraine	300.44	39.57	46.74
United Kingdom	163.93	39.83	58.21
Uzbekistan	297.72	20.73	2.73
Yugoslavia	213.17	38.46	18.71

Table 3. Health care system indicators in all Member States of the WHO European Region, 2000 or latest available data

Source of data. Health for all database, WHO Regional Office for Europe.

	Health expenditure		Avoidable mortality (deaths per 100 000 population)			
4. Nurses	5. Total per head of population	6. Public as a percentage of total	7. Tuberculosis	8. Diabetes	9. Appendicitis	10. Perinatal mortality per 1000 live births
367.64	79.18	100.00	1.10	4.76	0.02	11.50
314.08						1.32
420.71	85.68		4.71	39.85	0.24	16.33
583.12	2014.00	72.10	0.72	11.42	0.11	3.87
745.86	45.60		17.85	22.31	0.14	12.42
1225.80	295.67	94.10	8.77	7.05	0.19	6.14
1075.11	2181.00	71.30	0.86	11.22	0.12	6.96
448.93		100.00	8.72	22.70	0.45	
461.95	214.41	100.00	3.44	19.07	0.06	12.16
505.71	357.98	100.00	3.68	18.56	0.11	9.37
919.81	1022.88	91.40	1.06	11.20	0.19	4.01
937.37	2325.03	81.90	0.66	16.28	0.43	6.09
632.52	543.08	77.10	9.80	7.64	0.25	6.64
2178.73	1547.00	75.70	1.52	8.00	0.13	3.65
672.45	2125.00	78.10	1.42	10.12	0.16	6.99
470.68	104.53	8.20	6.44	16.20	0.07	24.03
930.43	2476.00	75.30	0.54	16.26	0.14	6.07
256.51	1397.05	52.50	0.57	4.45	0.03	8.77
286.20	830.48	73.50	3.42	18.06	0.26	10.04
869.18	2287.00	84.80	0.34	7.96	0.00	3.70
1701.63	1508.00	77.10	1.43	10.70	0.20	10.59
590.36	1530.52	71.00	1.53	44.57	0.12	8.35
296.15	1905.00	72.30	0.70	18.85	0.09	6.44
567.84	103.97	95.70	30.81	13.16	0.32	15.99
721.45	54.03	96.80	28.79	14.49	0.18	12.88
518.11	325.73	75.10	11.78	7.99	0.55	9.26
758.12	412.67	71.30	9.96	6.01	0.23	8.27
756.44	2543.00	92.90	0.68	9.01	0.23	6.78
1099.81	1262.21	53.50	1.04	23.05	0.59	4.60
1621.43						12.15
1320.98	2224.50	73.20	0.60	16.29	0.15	7.89
1996.19	2612.00	75.80	0.82	10.29	0.12	4.34
526.73	535.00	75.10	2.96	13.43	0.24	10.84
378.67	1203.00	66.90	3.17	25.51	0.16	5.46
768.81	59.07	11.30	18.01	11.69	0.23	15.23
401.94	146.85	100.00	9.56	7.47	0.19	12.10
794.60	209.24		20.06	7.37	0.42	11.97
507.70						0.00
747.68	709.60	90.30	1.03	13.96	0.25	6.57
693.12	1230.23	86.00	1.25	16.93	0.49	4.89
372.20	1194.00	76.40	1.13	15.97	0.12	5.57
831.10	1732.00	83.80	0.62	10.53	0.15	4.67
778.94	2794.00	73.40	0.43	15.29	0.13	6.23
460.80	12.49		13.22	15.82	0.28	21.27
515.36	260.46	93.90	4.98	30.15	0.15	15.82
240.26	316.00	71.93				
586.90	48.57		27.80	19.99	0.46	17.11
781.03	107.20	92.00	22.31	6.22	0.19	9.56
497.20	1569.00	83.30	0.62	7.77	0.18	8.23
1011.49	65.28		19.45	20.26	0.20	10.31
448.53						13.59

Definitions of the indicators included in the tables

Avoidable mortality (deaths per 100 000 population): tuberculosis, diabetes, appendicitis

The standardized death rate (SDR) for causes of death considered as "avoidable" (diseases for which medical knowledge is sufficiently advanced to prevent almost all deaths in more resilient age groups) that represents what the crude rate would have been if the population had the same age distribution as the standard European population.

Source: HOLLAND, W.W. *European Community atlas of "avoidable death",* 2nd ed. Oxford, Oxford University Press, 1991.

GDP per person (PPP$)

Gross domestic product per capita, expressed in purchasing power parity (PPP), adjusted to the relative domestic purchasing power of the national currency as compared to the US dollar, rather than using the official exchange rate. Multipliers (PPPs) are estimated periodically, using the cost of the standard basket of goods. Measures the total output of goods and services for final use occurring within the domestic territory of a given country, regardless of the allocation to domestic and foreign claims.

Source: Health for all database, WHO Regional Office for Europe.

Health expenditure: total per head of population

The sum of public and private expenditure (in PPP US$) divided by the population. Health expenditure includes the provision of health services (preventive and curative), family planning activities, nutrition activities and emergency aid designed for health, but does not include provision of water and sanitation.

Source: UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 2001.* Oxford, Oxford University Press, 2001, p. 253.

Health expenditure: public as a percentage of total

Recurrent and capital spending from government (central and local) budgets, external borrowings and grants (including donations from international agencies and nongovernmental organizations) and social (or compulsory) health insurance funds Together with private health expenditure, it makes up total health expenditure.

Source: UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 2001*. Oxford, Oxford University Press, 2001, pp. 252–253.

Health personnel per 100 000 population: physicians, dentists, pharmacists, nurses

Qualified and authorized personnel for the promotion of health, prevention of illness, care of the sick and rehabilitation.

Source: Health for all database, WHO Regional Office for Europe.

Healthy life expectancy (HALE)

See Annex 1.

Income inequality (Gini index)

Measures the extent to which the distribution of income (or consumption) among individuals or households within a country deviates from a perfectly equal distribution. A value of 0 represents perfect equality, a value of 100 perfect inequality.

Source: UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 2001*. Oxford, Oxford University Press, 2001, pp. 252–253.

Income poverty line (50% of median income)

The percentage of the population living below the specified poverty line: 50% of median income, 50% of the median disposable household income.

Source: UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 2001*. Oxford, Oxford University Press, 2001, p. 253.

Income poverty line (percentage of population < US $4/day)

The percentage of the population living below the specified poverty line: US $4 per day at 1990 international prices, adjusted for purchasing power parity.

Source: UNITED NATIONS DEVELOPMENT PROGRAMME. *Human development report 2001*. Oxford, Oxford University Press, 2001, p. 253.

Mid-year estimated population

Estimate of resident (*de jure*) population on 1 July of a given calendar year, calculated as an average of end-year estimates.
Source: Health for all database, WHO Regional Office for Europe.

Perinatal mortality per 1000 live births

Weight-specific (≥ 1000 g) fetal deaths and early neonatal deaths (under seven days) per 1000 births (live births + stillbirths).
Source: Health for all database, WHO Regional Office for Europe.

Probability of dying before 5 years

Number of deaths per 1000 live births until 5 year of age.
Source: Health for all database, WHO Regional Office for Europe.

School life expectancy (years)

The total numbers of years of schooling that a child of a certain age can expect to receive in the future, assuming that the probability of his or her being enrolled in school at any particular age is equal to the current enrolment ratio for that age.
Source: UNESCO Institute for Statistics (http://www.uis.unesco.org/en/stats/stats0.htm, accessed 29 May 2002).

Total health expenditure (percentage of GDP)

Includes: household health expenses; government supplied health services (prisons, schools, etc.); investment in clinics, laboratories, etc; administration costs; research and development; occupational medicine; outlays of voluntary and benevolent institutions.
Source: Health for all database, WHO Regional Office for Europe.

Unemployment rate (%)

The proportion of registered unemployed persons, out of the total labour force, on average per year. The "unemployed" comprise all persons above a specified age who, during the reference period, were "without work", "currently available for work" or "seeking work".
Source: Health for all database, WHO Regional Office for Europe.

Governments and policy-makers are increasingly aware that access to knowledge enables better policy-making practice. The policy-makers of the various Member States are also more and more aware that they face common challenges and can learn useful lessons from across national boundaries that shed light on their own specific national situation.
The challenge for the Regional Office is to build on the existing data and experience, to facilitate the sharing of this experience and, ultimately, to make those data and indicators practically comparable across the countries.

The European health report responds to the statutory requirement to provide the Member States with essential public health information. It provides a broad but concise picture of the health status and health determinants in the Region, and identifies areas for public health action for the Member States and the European public health community. The report focuses on concrete evidence useful for decision-makers in public health. Its role is to summarize and feed back to Member States the information created, deposited and "accredited" during the Regional Office's work with Member States on key topics and issues in public health in Europe, in the context of the values and principles of WHO as "one Organization".

The measure of success of this publication will be its appreciation and use by Member States in their endeavour to improve their own health policies and systems.

THE EUROPEAN HEALTH REPORT *2002*

ISBN 92 890 1365 6
Sw.fr. 42.–

WORLD HEALTH ORGANIZATION
EUROPE

WHO Regional Publications,
European Series, No. 97

EUROPE