Health Outcomes in OECD Countries: A Framework of Health Indicators for Outcome-Oriented Policymaking

Melissa Jee,

Zeynep Or

OECD

Organisation de Coopération et de Développement Economiques   **OLIS : 21-Jan-1999**
Organisation for Economic Co-operation and Development   **Dist. : 27-Jan-1999**

_____
English text only

DIRECTORATE FOR EDUCATION, EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS
EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS COMMITTEE

LABOUR MARKET AND SOCIAL POLICY - OCCASIONAL PAPERS N°36

HEALTH OUTCOMES IN OECD COUNTRIES: A FRAMEWORK OF HEALTH INDICATORS FOR OUTCOME-ORIENTED POLICYMAKING

Melissa Jee and Zeynep Or

73724

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

**DIRECTORATE FOR EDUCATION,
EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**

OCCASIONAL PAPERS

This series is designed to make available to a wider readership selected labour market and social policy studies prepared for use within the OECD. Authorship is usually collective, but principal writers are named. The papers are generally available only in their original language -- English or French -- with a summary in the other.

Comment on the series is welcome, and should be sent to the Directorate for Education, Employment, Labour and Social Affairs, 2, rue André-Pascal, 75775 PARIS CEDEX 16, France. Additional, limited copies are available on request.

The opinions expressed and arguments employed here are the responsibility
of the author(s) and do not necessarily reflect those of the OECD

こ

ACKNOWLEDGEMENTS

SUMMARY

OECD health-care systems confront the dual challenge of containing costs and maximising the health of their populations. The effectiveness of health-care provision in fostering longer and healthier lives is therefore of fundamental importance. In order to respond to these challenges, policy makers are demanding more and better information on health outcomes.

Therefore, this paper presents a summary of the current state-of-the-art in health outcome indicators for monitoring population health status and for evaluating the performance and effectiveness of various health policies and medical-care interventions. The paper begins by developing a framework for classifying the range of indicators that have been put forward to measure health outcomes. It then illustrates the potential value of different indicators for policy making within this framework and describes some recent trends in health status in OECD countries.

RESUME

Les systèmes de santé des pays de l'OCDE sont confrontés à un double défi, à savoir maîtriser les coûts et améliorer l'état de santé de la population. La question de l'efficacité des dépenses de santé et des interventions médicales destinées à permettre aux gens de vivre plus longtemps et en meilleure santé est donc fondamentale. Afin de répondre à ce double défi, les responsables politiques souhaitent disposer davantage d'informations pertinentes sur l'état de santé de la population.

Dans cette optique, le présent rapport fait le point des indicateurs de santé auxquels on se réfère à la fois pour suivre l'évolution de l'état de santé de la population et pour évaluer la performance et l'efficacité des diverses politiques de santé et des interventions médicales. Cette étude commence par l'élaboration d'un cadre afin de distinguer les principaux indicateurs de l'état de santé qui ont été proposés. Le rapport montre également dans ce cadre, l'intérêt potentiel de différents indicateurs pour la formulation de politiques de santé, et décrit les tendances récentes de l'état de santé dans les pays de l'OCDE.

TABLE OF CONTENTS

INTRODUCTION

1.   OECD health-care systems face the twin challenges of containing costs and maximising the health of their populations. The effectiveness of health-care spending and related policies in fostering longer and healthier lives in the population is therefore a fundamental issue. In order to respond to these challenges, policy makers are demanding more and better information on health outcomes of the population. To consider these issues, national experts on health statistics attended a meeting in December 1997 to discuss future work on health outcome indicators. This paper has been built on the conclusions reached at that meeting.

2.   Relevant and comparable information on health outcomes would serve two primary purposes:

- first, to monitor current trends and forecast future needs in population health, both within and across Member countries; and,

- second, to measure and evaluate the performance and effectiveness of various health policies and medical-care interventions.

3.   With such information on outcomes available, policy makers would be able to take a more evidence-based approach in identifying priorities and allocating resources among competing and emerging health needs, programmes, regions, and social groups.

4.   The objectives of this paper are threefold:

- to summarise the current state-of-the-art in health outcome measurement being used both for monitoring population health status and for measuring and evaluating the performance and effectiveness of health policies and medical-care interventions;

- to contribute to the future development of a common set of international health indicators for outcome-oriented policy making;

- to illustrate the potential value of different health outcome indicators in policy making, while also taking the opportunity to describe some current trends in health status in OECD countries based on available indicators.

5.   Health outcomes has become a widely-used term in health care policy over the past ten years; however, the meaning behind the term differs greatly depending on the user and the context. A traditional definition of health outcomes is a "change in a patient's current and future health status that can be attributed to antecedent health care" (Donabedian, 1980).

6.   However, a broader definition of health outcomes is adapted in the framework of health indicators for outcome-oriented policy making (Table 1.a) where health outcomes since they are needed are seen as more than a research tool. Given that the primary objective of health policy is to improve the health status in a population, health status indicators are included under the umbrella of health outcomes

to describe the level of health and the variations across countries and over time. While it is widely understood today that health status of a population depends on a number of factors beyond the medical-care system such as social and economic environment, it is extremely difficult to identify the direct contribution of medical-care system to changes in health status. To address this issue, the proposed framework also comprises indicators which reflect more closely the performance and quality of health-care system in maintaining or improving health outcomes.

Health outcomes for monitoring population health status

7.   Health outcome indicators can be used for monitoring population health status. In this context, they reflect the contribution of a wide range of factors -- including social, environmental, and lifestyle factors -- going far beyond the medical-care system. Traditionally, these indicators have been based solely on mortality data such as life expectancy, standardised mortality rates, infant mortality, and potential years of life lost. These mortality indicators have provided useful information for describing the mortality patterns of the population.   However, it is clear, that even among OECD countries, continued improvement of ascertainment and classification of specific causes of death is needed for accurate estimates of mortality.

8.   As life expectancy continues to increase and chronic diseases are on the rise, policy makers in OECD countries also need more information on the non-fatal consequences of diseases for health and quality of life. Increased emphasis has been placed on health goals, such as preventing disability, improving physical and mental functioning, and reducing the pain and distress caused by disease. In turn, these emerging concerns have created a demand for better data on the nature, causes, and distribution of diseases in the population and their impact on the well-being and quality of life. Here, a priority from OECD's perspective should be to encourage the development of relevant and comparable morbidity statistics by collaborating with existing international projects.

9.   Self-reported data on general morbidity is being collected increasingly by national health surveys to measure the changes in health status among individuals and populations; examples of such data include perceived health status, disability, physical and mental functioning, and multi-dimensional concepts of health. However, there is a significant lack of international consensus on the concepts of health and morbidity to measure, as well as the methodology and administration of these surveys, making international comparisons next to impossible.

10.   In particular, measured prevalence of disability is currently not comparable across countries due to differences in definitions, measurement techniques, and administration. To improve comparability of self-reported disability, it would be desirable to develop an activities of daily living (ADL)-based instrument with a common set of items and severity categories. Also, such an instrument should be designed to be more sensitive to changes in disability for the general population and not just the older populations.

11.   As OECD countries proceed to implement multi-dimensional health status instruments (e.g. SF-36, Health Utility Index and EuroQol) in their national health surveys, more comparative analyses of the results of the application of these different instruments to the same population, as well as across different populations and over time, are needed. This would help to clarify the merits and disadvantages of each measure in satisfying decisionmaking and monitoring needs.

12.   Reliable and consistent information on disease incidence and prevalence statistics are also essential for identifying the causes of morbidity in the population. Surprisingly, there are few comparable data on the national level in OECD countries to identify which diseases are imposing the heaviest burden on society. Development of disease-specific data are needed to measure the changes in health status and emerging health needs in the OECD populations.

13.   Recently, there has been growing interest in developing composite measures of health which integrate both mortality and morbidity in a single index, not only to better describe the level of population health status, but also to use in effectiveness analysis. The best-known composite health measures are Health Expectancies (HE), Health-adjusted Life Expectancy (HALE) and Disability-adjusted Life Years (DALYs).

14.   At this moment, the most feasible of these composite health measures is the health expectancy measure and some illustrative calculations of this measure are presented in this report. But international comparisons of health expectancy measures are still limited, primarily due to the lack of standardisation of the basic data on disability. Much work needs to be conducted with the measurement of disability data across OECD, so countries will be better able to monitor and compare population health trends in terms of the number of years spent in good health and free of disability.

15.   As for other well-known composite measures, the information bases used to calculate HALEs and DALYs are lacking in availability and comparability. In addition, for both measures, there is not yet sufficient consensus on the most appropriate method for the weighting system needed to derive a composite index.

16.   The national experts in health statistics agreed to encourage experimentation across OECD countries with these measures. However, they also advised that higher priority should be placed on first building the basic information base of mortality and morbidity data.

Health outcomes for measuring performance of the medical-care system

17.   Rapid increases in health expenditures have prompted concerns about the effectiveness of health-care spending, policies, programmes, and medical-care interventions in terms of population health gain. Comparisons of health outcomes flowing from different interventions and programmes on a national and international level could furnish important information to policy makers about how health-care resources should be allocated.

18.   In effectiveness analysis, health outcomes have traditionally been measured by years of life gained, mortality, and survival. However, medical interventions often also may relieve pain and improve functioning. Parallel to the trend in monitoring population health status, there is a demand for integrating information on morbidity in effectiveness analysis.

19.   The composite measures of health --in particular, the health-adjusted life expectancy (HALE) -- have also been used in micro-level effectiveness analysis. The development of these indicators on population level could make it possible to encompass the diverse effects of a single intervention and to compare interventions with quite different outcomes, thus expanding significantly the applicability and usefulness of these analyses (Gold, 1996). Nevertheless, there is still a lack of consensus concerning the measurement and the construction of these indices of how best to represent the values society places on different health states, interventions, and situations.

20.   At the same time, it is extremely difficult to assess the role of medical care in determining health outcomes since there are many other factors outside the medical-care system having significant impact on health status. Without conducting multi-variable modelling or randomised controlled trials, it is difficult to establish clear and robust links between health status and a specific medical-care intervention.

21.   Given the problems of establishing robust links between health outcomes and health care, some parallel work has been undertaken to develop a group of indicators where the links between medical-care interventions and health are better established. The national experts agreed that these measures would prove valuable for monitoring what is being achieved in the medical-care system and health-care policies across OECD. Examples of commonly-used performance indicators are listed below:

- rates of avoidable mortality and morbidity, where there is clear evidence that timely and appropriate medical interventions would either prevent the condition or treat the disease at an early stage.

- rates of effective health-care interventions which have been proven to have an undisputed and important role in health gain, such as immunisation or breast cancer screening. In these cases, measurement of process --intervention or uptake rates -- could be used as a proxy for outcomes.

- survival rates at a given point in time after an intervention or treatment.

- rates of adverse health events which can only be a result of health-care interventions, such as hospital-acquired infections or complications in routine surgery.

- rates of satisfaction with health-care systems.

22.   To proceed with the development of these indicators, national experts agreed upon a set of four criteria to use in the selection of a core set of performance indicators:

1. Indicators would reflect health problems that are a major concern in most Member countries;

2. There would be a clear understanding of the relationship between medical care intervention and health status;

3. Indicators would clearly relate to areas involving substantial resources or burden of disease;

4. Indicators should be sensitive to quality of care differences.

23.   Applying these criteria, the OECD countries could move toward a core set of performance indicators for the areas representing the most burden in terms of costs and disease, disability or quality of life. After a critical review of the status of knowledge and experience in the OECD countries, a family of performance indicators related to selected conditions, for example, cancer, cardiovascular disease, and respiratory diseases -- the three top diseases causing high premature mortality-- could be collected and monitored consistently across countries with the support of a network of experts in interested countries.

Conclusions

24.   Development of comparable indicators of health outcomes on the international level is in its infancy. However, there is broad agreement across OECD countries on the necessity for a key set of relevant and coherent international health outcome indicators to assess and compare country performances and establish sustainable targets for health policy. Many countries have already begun developing a range of health outcome measures and indicators. It would be unfortunate if each country develops their own indicators and were unable to make international comparisons due to the lack of standardisation. The OECD could play a useful role in stimulating the development of a basic information base of mortality and morbidity data to develop indicators to monitor health status and to better identify the effectiveness of health policies and programmes.

25.   While a universal composite health measure is an attractive goal for many, an indicator which can address all types of health problems for any population group is not feasible. The national experts agreed that an integrated set of international health indicators should be developed to move toward outcome-oriented policy making, as presented in Table 1a. Each type --generic and disease specific mortality and morbidity measures, composite health measures, and subjective and objective measures -- serves its own purpose and together, they provide a more comprehensive picture of health status in the population than relying on one summary measure.

26.   Having reviewed OECD Secretariat's reports on health outcomes[1] in December 1997, the national experts in health statistics agreed that:

- Development of a set of international health outcome indicators is needed to monitor how well countries are progressing in population health status and how effective health systems are in addressing the health needs of their populations.

- In order to construct relevant and internationally comparable indicators of health, development of a common and standardised information base of mortality and morbidity data is essential as outlined in Table 1b.[2] Improvement of this core information is the first step to move towards more outcome-oriented policy making.

- More specifically, assuring the comparability of health data across OECD area would require:

  - Standardising the concepts and definitions of health and disability to measure comprehensively the general population in national health surveys.

  - Conducting national health surveys that are broadly similar in design (wording of questions and response categories) and administration.

---

[1]   OECD, Current Work in the Development of a Composite Health Measure, Working Party on Social Party, Ad Hoc Meeting of Experts in Health Statistics, DEELSA/ELSA/HP(97)1; OECD, Member Countries' Experience: Results of the Second Questionnaire on Health Outcomes, Working Party on Social Policy, Ad Hoc Meeting of Experts in Health Statistics, DEELSA/ELSA/HP(97)2.

[2]   Please note Table 1.b has recently been developed and has not been reviewed by the national experts in health statistics in the December 1997 meeting.

- Continuing analyses of the feasibility, practicality, and reliability of the multi-dimensional health status instruments on the population level to identify the relative merits and disadvantages of each instrument.

- There is also a need to collect information on the quality of medical care and the impact of care on health of individuals and population. Based on a set of common criteria, OECD countries could move toward identification of a core set of relevant performance indicators for areas representing the most burden in terms of cost, disease and disability.

What is the role of OECD in this process?

27.   To achieve the recommendations outlined above and subject to sufficient resources being made available to undertake the work, the OECD Secretariat could engage in the following tasks:

- Create an international network with the goal of identifying a common set of health outcome indicators to assist in monitoring trends in population health status and in evaluating the performance of medical-care system.

- Contribute to the standardisation of concepts and definitions of a basic information base, in particular morbidity data.

- Contribute to the standardisation of concepts and definitions of a core set of performance indicators.

- Encourage application of these standards in national data collections.

- Encourage analytical work based on the common set of international health outcome indicators, in particular for understanding the determinants of health status, measuring effectiveness, allocating resources, and identifying health priorities.

- Collaborate with the parallel international processes being undertaken by WHO and Eurostat.

Table 1a. Health indicators for outcome-oriented policy making

Health status indicators	
Mortality	- Life Expectancy - Infant Mortality - Standardised Causes of Mortality Rates - Premature Mortality: Potential Years of Life Lost (PYLL)
Morbidity & Quality-of-life • **General Morbidity**	- Perceived health status - Measures of impairment, disability, and handicap - Multi-dimensional health status measures (*e.g.* SF-36, EuroQol, and Health Utility Index)
• **Disease-Specific Morbidity**	Prevalence and incidence of diseases
Composite Health Measures (mortality + morbidity)	- Health expectancies (*e.g.* Disability-free life expectancy (DFLE) and Health-adjusted life expectancy (HALE)) - Disability-adjusted Life Years (DALYs)
Indicators of performance of the medical-care system	
Quality of medical care	- Rates of avoidable mortality and morbidity - Survival rates - Rates of effective health-care interventions which play important role in health gain - Rates of adverse events following treatment - Rates of satisfaction with health-care system

Table 1b. A framework for data development of selected health indicators

Selected Health Indicator	Data Requirement	Main Data Sources	Areas to Improve
Life Expectancy	• No. of deaths by age • Population counts	Death registries	---
Potential Years of Life Lost (PYLL)	No. of deaths by age and by causes	Death registries	Ascertainment and classification of the causes of death needs to be improved.
Perceived Health Status	Self report on one's health	Survey	Survey question needs to be standardised.
Prevalence of Impairment, Disability, or Handicap	Self report on one's Impairment, Disability, or Handicap	Survey	• Definition of disability and handicap needs to be clarified; • Objective scales need to be developed for measurement; • Survey questions need to be standardised.
Disease Prevalence	No. of existing cases of specific diseases	• Hospital and other medical records; • Survey; • Estimates based on incidence.	Methods used in data gathering need to be standardised.
Disease Incidence	No. of new cases of specific diseases	Hospital, other medical and administrative records	Methods used in data gathering need to be standardised.
Health Expectancies	• No. of deaths by age • Population counts • Prevalence of disease, disability, handicap, perceived health or multi-dimensional health status.	• Death registries • Survey	• Definition of disability, handicap, etc. need to be clarified. • Methods and questions used in data gathering need to be standardised.
Disability-adjusted life expectancy	• No. of deaths by age and cause • Incidence and duration of specific diseases • Severity weights	• Death registries • Hospital and other medical records • Survey of preferences of health states using person tradeoff method	• Ascertainment and classification of causes of death needs to be improved. • Methods used to gather incidence data needs to improved. Weights and discount rates used in calculation need approval.

MORTALITY INDICATORS

28.   Currently, most indicators of health outcomes at the national level are based on mortality data which are relatively precise and readily available. Most of these indicators are presented in the *OECD Health Data* such as life expectancy, standardised mortality rates, infant mortality, perinatal mortality, and potential years of life lost.

29.   Life expectancy, which represents the average length of life for a fictive generation, is one of the oldest and most widely available measures of health status. There has been a substantial increase in the average life expectancy in all OECD countries since the beginning of the century (Table 1). From 1900 until today, life expectancy at birth has increased from an average of about 47 years for males and 50 for females to more than 73 and 80 years, respectively. Since the beginning of the century, OECD countries have witnessed a decline in infectious and parasitic causes of death, due primarily to medical advancements and availability of effective medical care as well as increased standards of living. By the 1950s, it was evident that industrialised countries were undergoing an "epidemiological transition" in which infectious diseases became less of a problem, and chronic diseases emerged as the most prevalent causes of death (OECD, 1987). In the past 30 years, more than 80 per cent of all deaths have been attributed to chronic illness and some researchers have argued that individuals live now their full biological lives and there is little left to do to extend these biologically defined limits on life (Vallin 1981, Fournier 1994).

30.   The most recent trends reveal, however, no sign of an upper limit in the growth of life expectancy in OECD countries. Both for males and females, life expectancy at birth has been increasing at a steady rate over the past 20 years. Between 1960 and 1970, the average life expectancy of males declined in many countries such as Australia, Denmark, the Czech Republic and the Netherlands, while for females, there was a slowdown in the progression of life expectancy. Although there has been no clear explanation to this phenomenon, there is some evidence that lifestyle factors such as high incidence of cigarette smoking and introduction of new technologies such as "faster" cars without enough security measures might have been the predominant causes of the mortality increase for this period.

31.   There are significant differences between countries as to the departing level and total progress achieved during the past century. For example, the average increase in life expectancy in the United States, which passed from 70 years (67 for men and 73 for women) in 1960 to 76 in 1996 (73 for men and 79 for women) corresponds only to the half of the progress made in Japan where it passed from 67.5 years (65 for men and 70 for women) to 80.5 years (77 for men, 84 for women). While there has been a significant convergence over time, important differences in life expectancy remain across OECD countries.

Table 1. **Life expectancy at birth, 1900-1996**

(Years)

	Females							*Males*					
	1900	**1960**	**1970**	**1980**	**1990**	**1996**		**1900**	**1960**	**1970**	**1980**	**1990**	**1996**
Australia	58.8	73.9	74.2	78.1	80.1	81.1		55.2	67.9	67.4	71.0	73.9	75.2
Austria	41.1	71.9	73.4	76.1	78.9	80.2		39.1	65.4	66.5	69.0	72.3	73.9
Belgium	48.8	73.5	74.2	76.8	79.1	81.0		45.4	67.7	67.8	70.0	72.4	74.3
Canada	..	74.3	76.4	79.1	80.4	81.5		..	68.4	69.3	71.9	73.8	75.4
Czech Republic	41.7	73.4	73.0	73.9	76.0	77.2		38.9	67.6	66.1	66.8	67.5	70.5
Denmark	56.2	74.1	75.9	77.6	77.7	78.0		52.9	72.3	70.7	71.4	72.0	72.8
Finland	48.1	71.6	74.2	77.6	78.9	80.5		45.3	64.9	65.9	69.2	70.9	73.0
France	48.7	73.6	75.9	78.4	80.9	82.0		45.3	67.0	68.4	70.2	72.7	74.1
Germany	48.3	72.7	73.6	76.6	79.0	79.9		44.8	67.0	67.2	69.9	72.7	73.6
Greece	..	70.7	73.6	76.6	79.4	80.4		..	67.5	70.1	72.2	74.6	75.1
Hungary	37.9	70.1	72.1	72.7	73.7	74.7		37.1	65.9	66.3	65.5	65.1	66.6
Iceland	53.1	75.0	76.9	79.7	80.3	80.6		48.3	70.7	71	73.7	75.7	76.2
Ireland	49.6	71.8	73.2	75.0	77.5	78.5		49.3	68.5	68.5	69.5	72.0	73.2
Italy	44.8	72.3	74.9	77.4	80.0	81.3		44.2	67.2	69.0	70.6	73.5	74.9
Japan	44.8	70.2	74.7	78.8	81.9	83.6		44	65.3	69.3	73.4	75.9	77.0
Korea	..	57.8	66.7	69.1	75.4	77.4		..	53.0	59.8	62.7	67.4	69.5
Luxembourg	..	71.9	73.9	75.1	78.5	80.0		..	66.1	67.0	68.0	72.3	73.0
Mexico	..	59.1	62.5	69.5	74.0	76.5		..	58.6	58.2	62.3	67.7	70.1
Netherlands	53.4	75.5	76.6	79.2	80.1	80.4		51	71.6	70.9	72.4	73.8	74.7
New Zealand	60.6	73.9	74.6	76.3	78.3	79.8		58.1	68.7	68.3	70.0	72.4	74.3
Norway	57.7	75.8	77.3	79.2	79.8	81.1		54.8	71.3	71.0	72.3	73.4	75.4
Poland	..	70.6	73.3	74.4	75.5	76.8		..	64.9	66.6	66.0	66.5	67.8
Portugal	..	67.2	71.0	75.8	77.9	78.5		..	61.7	65.3	67.7	70.9	71.2
Spain	35.7	72.2	75.1	78.6	80.5	81.6		33.9	67.4	69.6	72.5	73.4	74.4
Sweden	57	74.9	77.1	78.8	80.4	81.5		54.5	71.2	72.2	72.8	74.8	76.5
Switzerland	52.2	74.1	76.2	78.8	80.9	81.9		49.3	68.7	70.3	72.3	74.0	75.7
Turkey	..	49.7	57.2	64.8	68.4	70.5		..	46.5	54.2	59.1	64.1	65.9
United Kingdom	52.4	74.2	75.2	75.9	78.6	79.3		48.5	68.3	68.6	70.2	72.9	74.4
United States	50.7	73.1	74.7	77.4	78.8	79.4		47.9	66.6	67.1	70.0	71.8	72.7
OECD*	49.6	71.8	73.9	76.5	78.7	79.8		47.0	66.8	67.8	69.8	72.0	73.4

* Unweighted averages, excludes Turkey.

Sources: United Nations, OECD Health Data 1998.

Table 2. Infant mortality, 1900-1996
(Deaths per 1000 live births)

	1900	1960	1970	1980	1990	1996
Australia	95	20.2	17.9	10.7	8.2	5.8
Austria	231	37.5	25.9	14.3	7.8	5.1
Belgium	172	31.2	21.1	12.1	8.0	6.0
Canada	..	27.3	18.8	10.4	6.8	6.0
Czech Republic	..	20.0	20.2	16.9	10.8	6.0
Denmark	128	21.5	14.2	8.4	7.5	5.2
Finland	153	21.0	13.2	7.6	5.6	4.0
France	160	27.4	18.2	10.0	7.3	4.9
Germany	229	33.8	23.6	12.6	7.0	5.0
Greece	..	40.1	29.6	17.9	9.7	7.3
Hungary	223	48.0	36.0	23.0	15.0	10.6
Iceland	121	13.0	13.2	7.7	5.9	3.7
Ireland	109	29.3	19.5	11.1	8.2	5.5
Italy	174	43.9	29.6	14.6	8.2	5.8
Japan	155	30.7	13.1	7.5	4.6	3.8
Korea	..	..	45.0	17.0	13.0	9.0
Luxembourg	..	31.5	24.9	11.5	7.4	4.9
Mexico	287	74.0	68.0	40.0	24.0	17.0
Netherlands	155	17.9	12.7	8.6	7.1	5.2
New Zealand	83.1	22.6	16.8	12.9	8.4	7.4
Norway	91	18.9	12.7	8.1	7.0	4.0
Poland	..	57.0	34.0	25.5	19.3	12.3
Portugal	134	77.5	55.1	24.3	11.0	6.9
Spain	204	43.7	26.3	12.3	7.6	5.0
Sweden	99	16.6	11.0	6.9	6.0	4.0
Switzerland	150	21.1	15.1	9.1	6.8	4.7
Turkey	..	197.4	151	95.3	59.3	42.2
United Kingdom	154	22.5	18.5	12.1	7.9	6.1
United States	136	26.0	20.0	12.6	9.2	7.8
OECD*	156.5	32.4	24.1	13.8	9.1	6.4

* Unweighted averages, excludes Turkey.
Source: United Nations, OECD Health Data 1998.

32.   In general, the dramatic reduction in infant mortality has been a determinant factor in the overall improvement of life expectancy in all countries (Table 2). At the beginning of this century, one infant in every 5 died in its first year in Austria, Germany and Spain, one in six in France and the United Kingdom, one in ten in Sweden and Australia. Today, in almost all OECD countries, the infant death rates are less than 10 per 1000 live births. Although the role of declining infant mortality in the progress of life expectancy is undeniable, it is not the only explanation for the longer life expectancies in industrialised countries.

33.   Especially in the last 30 years, the increase in life expectancy is attributed more to the mortality reductions in the higher age groups with significant changes in morbidity patterns. Changing lifestyles, improved working conditions and socio-economic environment, as well as extended public health

measures and therapeutic technologies are among the factors accounting for the evolution of life expectancy. During the second half of this century, there has been a substantial change in the major causes of death in the OECD area. Although overall trends and causes of mortality are similar across OECD countries, the timing of these declines and the current causes of death might differ significantly.

34.   While measures of life expectancy are useful aggregate indicators of health status, they do not provide information on the specific causes of death for a given period. The measure of Potential Years of Life Lost (PYLL) provides an indicator of "premature mortality" according to cause of death. Technically, in the calculation of premature mortality, a minimum limit to life is chosen arbitrarily and PYLL are calculated by adding the differences between the potential limit and actual age at death for all deaths. The PYLL calculated for *OECD Health Data* uses 70 years as the minimum limit to life. Consideration of premature mortality, instead of standardised death rates, distinguishes deaths which could be "potentially avoided" and might give some new insights for developing priorities for preventive programs and assessing effectiveness across different health care systems, especially in the OECD area where death rates are already low.

35.   In most OECD countries, four major causes of death account for around 70 per cent of premature mortality (Table 3). In 1994, malignant neoplasms and external causes (including car accidents) accounted for almost half of all premature deaths, followed by circulatory and respiratory diseases. However, there are significant differences as to the relative importance of these causes for males and females. For females, neoplasms are the most significant cause of premature death -- 32 per cent of the total PYLL for the OECD average -- while for males, it is external factors such as, car accidents and violence that represent the most important burden -- 27 per cent of the OECD average. For males, the proportion of premature mortality due to cancer is almost equal to that of circulatory diseases (21 and 19 per cent). Cerebrovascular diseases are the fourth major cause of premature death both for males and females -- 3 and 4 per cent of the total, respectively.

36.   There are some notable disparities between countries in terms of different causes of premature mortality. For example, cancer mortality for females appears to be the most important cause of premature mortality in Hungary, Denmark and New Zealand -- 1746, 1633 and 1556 years lost per 100 000 population, respectively -- while in Japan and Korea, premature mortality by cancer is half the rate observed in those countries -- 865 and 817 years per 100 000 population. For males, the highest rates of premature cancer mortality appear in Eastern European countries: Hungary, the Czech Republic and Poland followed by Mediterranean countries such as France, Italy, and Spain. In 1994, malignant neoplasms gave rise to more than 3 000 years lost per 100 000 population in Hungary, which is four times the rate in Mexico, and three times the rates in Sweden and Norway. The disparities between countries are equally visible for the external causes. For males, the PYLL for external causes ranges from 938 years per 100 000 population in the Netherlands to more than 3200 in Mexico, with the OECD average being around 2000 years.

37.   The indicators based on mortality data are a reliable and extensive source of information for describing health status of populations, although continued improvement of the ascertainment and classification of specific causes of death is needed, even among OECD countries. Nevertheless, mortality data provides no information on the non-fatal consequences of disease incidence or quality of life of the populations who now live longer. Chronic conditions such as hypertension, asthma, diabetes, mental illness and other conditions of the musculoskeletal system are growing more prevalent in OECD countries and tend to have a major impact on the quality of life. In order to better describe health status and identify priority areas for actions in OECD countries, it is important to complement mortality data with information on non-fatal conditions and their effects on quality of life.

Table 3. Major causes of premature mortality in OECD countries, 1994
(levels in years and percentage contribution to total PYLL)

	Cancer		Circulatory Dis.		Cerebrovascular Dis.		External	
Women								
	PYLL	%	PYLL	%	PYLL	%	PYLL	%
Australia	1136	34.2	412	12.4	99	3.0	527	15.9
Austria	1175	31.8	567	15.3	150	4.0	656	17.8
Belgium	1233	31.8	432	11.1	124	3.2	715	18.4
Canada	1224	34.8	440	12.5	103	2.9	565	16.1
Czech Republic	1457	32.2	908	20.1	241	5.3	660	14.6
Denmark	1556	35.8	555	12.8	175	4.0	678	15.6
Finland	900	27.9	503	15.6	175	5.4	755	23.4
France	1008	29.7	303	8.9	98	2.9	691	20.4
Germany	1264	35.5	605	17.0	152	4.3	479	13.5
Greece	921	28.2	486	14.9	172	5.2	488	14.9
Hungary	1746	25.6	1442	21.1	428	6.3	820	12.0
Iceland	1436	48.5	331	11.2	85	2.9	360	12.2
Ireland	1372	37.2	598	16.2	152	4.1	404	10.9
Italy	1126	33.7	438	13.1	149	4.5	366	11.0
Japan	866	32.6	415	15.7	177	6.7	471	17.7
Korea	817	23.9	545	15.9	295	8.6	908	26.5
Luxembourg	1115	31.3	456	12.8	191	5.4	824	23.1
Mexico	1031	16.4	411	6.5	234	3.7	692	11.0
Netherlands	1282	37.1	482	13.9	129	3.7	377	10.9
New Zealand	1633	31.6	815	15.8	207	4.0	824	16.0
Norway	1225	37.4	429	13.1	128	3.9	440	13.4
Poland	1418	24.8	1089	19.0	265	4.6	649	11.4
Portugal	1134	25.9	565	12.9	255	5.8	645	14.7
Spain	1008	31.4	395	12.3	120	3.7	414	12.9
Sweden	1048	35.5	380	12.9	103	3.5	584	19.8
Switzerland	1023	31.6	332	10.3	75	2.3	678	21.0
United Kingdom	1331	36.1	620	16.8	167	4.5	362	9.8
United States	1239	25.9	796	16.6	150	3.1	817	17.1
OECD*	1204	31.7	563	14.2	172	4.4	602	15.8
Men								
	PYLL	%	PYLL	%	PYLL	%	PYLL	%
Australia	1355	22.6	1074	17.9	144	2.4	1673	27.9
Austria	1426	19.5	1498	20.5	226	3.1	2232	30.5
Belgium	1683	23.8	1005	14.2	178	2.5	2012	28.5
Canada	1287	20.7	1123	18.1	125	2.0	1706	27.4
Czech Republic	2332	24.4	2415	25.2	470	4.9	2427	25.4
Denmark	1480	21.6	1195	17.4	198	2.9	1645	24.0
Finland	1088	14.6	1758	23.6	303	4.1	2878	38.7
France	1897	24.7	891	11.6	175	2.3	2089	27.2
Germany	1612	22.3	1563	21.7	230	3.2	1625	22.5
Greece	1384	21.9	1402	22.2	280	4.4	1675	26.5
Hungary	3133	19.4	3996	24.7	911	5.6	3176	19.6
Iceland	999	21.6	1103	23.8	103	2.2	1483	32.0
Ireland	1457	22.5	1789	27.6	206	3.2	1512	23.4
Italy	1625	25.7	1100	17.4	220	3.5	1369	21.6
Japan	1267	25.2	927	18.5	328	6.5	1338	26.6
Korea	1407	18.1	993	12.8	458	5.9	2834	36.4
Luxembourg	1363	19.2	1324	18.7	255	3.6	2561	36.1
Mexico	762	7.2	552	5.2	108	1.0	3202	30.1
Netherlands	1396	25.4	1200	21.8	171	3.1	938	17.1
New Zealand	1668	19.5	1885	22.1	253	3.0	2480	29.0
Norway	1197	21.3	1222	21.7	160	2.8	1325	23.6
Poland	2232	17.3	3184	24.7	482	3.7	3196	24.8
Portugal	1558	17.2	1292	14.2	474	5.2	2279	25.1
Spain	1713	23.6	1149	15.8	221	3.0	1623	22.3
Sweden	1018	20.4	1131	22.7	171	3.4	1302	26.2
Switzerland	1315	20.8	955	15.1	96	1.5	2008	31.7
United Kingdom	1359	22.6	1537	25.6	207	3.4	1157	19.3
United States	1427	15.7	1762	19.4	189	2.1	2582	28.5
OECD*	1516	20.7	1465	19.4	262	3.4	2012	26.9

*Unweighted averages. The Belgian figures refer to 1992.
Source: Calculated by World Health Organisation for OECD Health Data.

18

MORBIDITY AND QUALITY-OF-LIFE INDICATORS

38.   As people live longer, the challenges facing health policy change. In recent years, the focus of health policy goals has shifted to include preventing disability, improving physical and mental functioning, and reducing the pain and distress caused by disease. Increasingly, health policy makers require reliable data on the nature, causes, and distribution of diseases in the population as well as on factors impacting quality of life. Therefore, inclusion of morbidity and quality-of-life data in routine data collection is essential to assess the burden created by different diseases and identify interventions that will not only extend life, but also reduce the burden of disability before death.

39.   Reliable national data on morbidity are still scarce across the OECD area. Current sources of morbidity data include the data collected via administrative and medical records, disease-specific registers and health interview surveys. Unfortunately, there are significant differences across OECD countries as to the availability and quality of these sources. This section examines currently available indicators of morbidity in order to assess their potential use as indicators of population health status across OECD.

General morbidity measures

40.   In order to develop more information about the status of general morbidity, many countries have focused in recent years on using and enhancing their national health interview surveys. Data on self-reported health status and disability are a primary source of information describing general morbidity in the population. Most OECD countries currently have a question in their national health surveys on perceived health status as well as prevalence of disability.

Perceived health status

41.   A measure of perceived health status represents the general public's subjective impression about their state of health. A single question asking "How do you consider your health status in general or how is your state of health?" is routinely included in most national health surveys. Despite its subjective nature, this measure appears to be a useful indicator of health status. It has been found to be associated with a number of other measures of health status and the use of health services, and to be an independent predictor of future health problems as well as mortality in the population. (Van Sonsbeek, 1991; Statistics Netherlands, 1992). It has also been used to calculate health expectancies, which are classified under the term, 'healthy life expectancy.' 'Healthy life expectancy' is technically defined as the average expectation of life in good, very good, or excellent health based on a perceived health measure. (Robine, 1994).

42.   The primary source of information on perceived health status is the countries' national health surveys. However, international comparisons are difficult due to the different methods and instruments used -- such as the questions and response categories-- across OECD countries. The measures of perceived health status in selected OECD countries in the 1994-1996 period presented below are from two sources: national health interview survey estimates as adjusted by the WHO European Region Health Interview Survey Project (EUROHIS), and Eurostat's European Community Household Panel survey.

43.   The WHO EUROHIS project has recommended a common instrument to measure perceived health status.[3] Awaiting dissemination and adoption of the recommendations across European region, the project also is collaborating with each country in the European region to standardise existing results of the national health surveys (WHO, 1996). The first results presented below are the national estimates adjusted by the WHO EUROHIS project. The second source is Eurostat and its European Community Household Panel (ECHP) survey which has a common question on perceived health status. The ECHP survey has been conducted since 1994 and there are plans to administer it every year until 1999. In 1994, the first ECHP surveyed 126,000 persons across the European region.
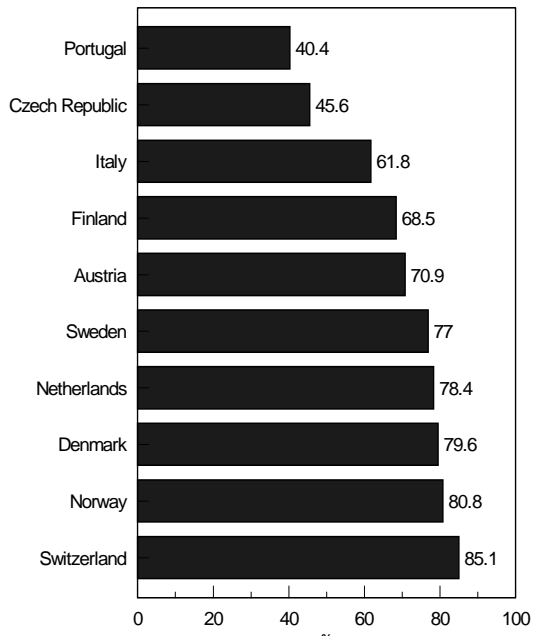
44.   Based on the adjusted estimates from ten European countries in the EUROHIS harmonised dataset (Chart 1), the proportion of total population aged 15 and over with "good" to "very good" health state ranged from a low of 40 per cent in Portugal to a high of 85 in Switzerland. According to the Eurostat data, in the twelve EU countries shown in Chart 1b, the proportion of the total population aged 15 and over who reported that their health state is "good" and "very good" ranged from a low of 53 per cent in Portugal to a high of almost 80 per cent in Denmark and Ireland. For the four countries, having results from both sources, the results are fairly similar in Denmark, Italy, and Netherlands; while Portugal had a ten-percentage point difference for both males and females reporting "good and very good" health between the two sources. Cultural factors and perceptions of what good health means across countries as well as variations in wording of the questionnaires and response categories might be the possible reasons, other than variations in health status, for the differences in results between countries and sources.

45.   It is suggested that perceived health question discriminates well within culturally homogenous populations and therefore, it is useful in identifying differentials in health status according to education level, family income, and other measures of socio-economic disadvantage (Mathers, 1994). However, it may not highlight substantial health differences between populations which do not share common standards and perceptions of good health. For instance, Mathers (1996) has found that Australian indigenous people report better health than other Australians, although their average life expectancy is around 20 years lower. This same phenomenon is reflected when comparing genders.
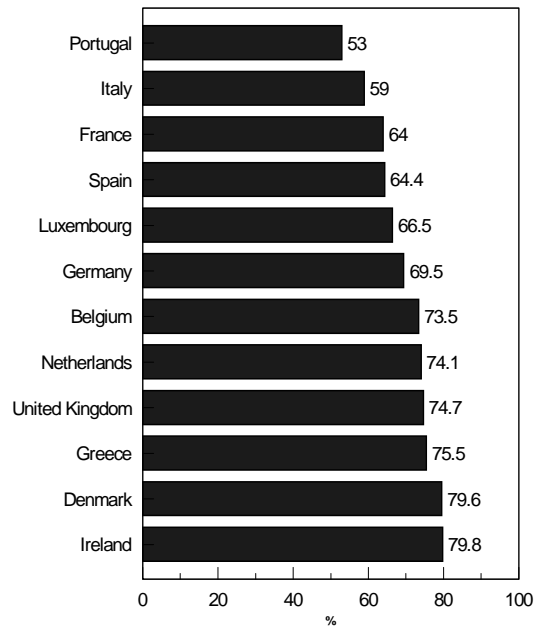
46.   In most countries, independent from the data source, males tend to report "very good to good" health status more often than females, despite the fact that females live longer (Chart 2). The morbidity gap between sexes has been noted in the past. There have been some studies concluding that higher morbidity among females was due primarily to their social roles and related stress (Verbugge, 1989). Interestingly, after controlling for lifestyle factors, the gap between sexes narrowed considerably. Differences in morbidity may also be due to differences in the concept of "good" health between males and females. For these reasons, some researchers have argued that the measure of perceived health status should not be used in construction of 'healthy life expectancy", particularly in routine reporting and monitoring (see for e.g. Mathers, 1997a).

---

[3]   The recommended instrument by WHO for perceived health status is as follows: "How is your health in general?" and response categories are : "very good, good, fair, bad, and very bad." (WHO, 1996).

Chart 1. Proportion of total population reporting "good" and "very good" health status in selected countries, 1991-1996
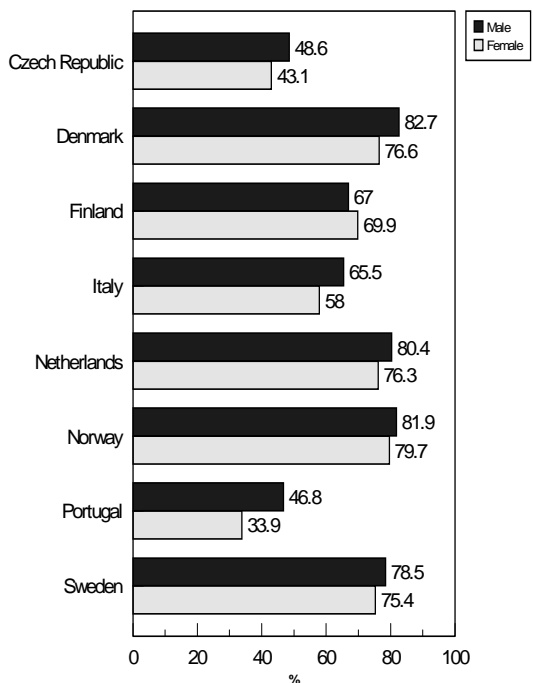
Country	%
Portugal	40.4
Czech Republic	45.6
Italy	61.8
Finland	68.5
Austria	70.9
Sweden	77
Netherlands	78.4
Denmark	79.6
Norway	80.8
Switzerland	85.1

Source: WHO EUROHIS dataset, 1993/94 and 1996/97

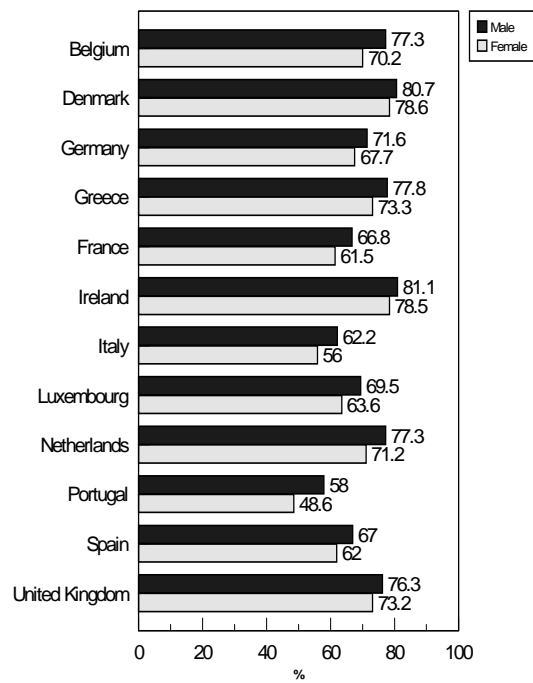| Country	%
Portugal	53
Italy	59
France	64
Spain	64.4
Luxembourg	66.5
Germany	69.5
Belgium	73.5
Netherlands	74.1
United Kingdom	74.7
Greece	75.5
Denmark	79.6
Ireland	79.8

Source: EUROSTAT, European Community Household Panel Survey, Wave 1994.
France: perceived health=satisfaction with health

Chart 2. Proportion of male and female population reporting "good" and "very good" health status in selected countries, 1991-1996

Country	Male	Female
Czech Republic	48.6	43.1
Denmark	82.7	76.6
Finland	67	69.9
Italy	65.5	58
Netherlands	80.4	76.3
Norway	81.9	79.7
Portugal	46.8	33.9
Sweden	78.5	75.4

Source: WHO EUROHIS dataset, 1993/94 and 1996/97

Country	Male	Female
Belgium	77.3	70.2
Denmark	80.7	78.6
Germany	71.6	67.7
Greece	77.8	73.3
France	66.8	61.5
Ireland	81.1	78.5
Italy	62.2	56
Luxembourg	69.5	63.6
Netherlands	77.3	71.2
Portugal	58	48.6
Spain	67	62
United Kingdom	76.3	73.2

Source: EUROSTAT, European Community Household Panel Survey, Wave 1994
France: perceived health status = satisfaction with health

47.   It is not clear whether self-perceived health status has been improving or not over the years, from available data.   For example, data from WHO EUROHIS project demonstrate no significant improvement or decline in perceived health status over time. Among those countries with two years of data in the harmonised data set, there was a slight increase for total population's perceived health status in Czech Republic (1993 to 1996), Finland (1987 to 1995), and Norway (1993 to 1995); while the Netherlands remained stable at 78.4 per cent from 1992 to 1995, and Denmark declined slightly from 80.8 per cent in 1991 to 79.6 per cent in 1994. But these slight differences between years might be due to the differences in the surveys in terms of sample size, response rates, and wording.

Measures of disability

48.   Policy makers have also realised the importance of monitoring disability in the face of ageing populations and the rise in chronic diseases. Levels of self-reported disability in the population provide some indication of needs for medical and welfare services and reflects the long-term and non-fatal consequences of disease and impairment. Measures of the prevalence of disability are being collected across the OECD area; however, comparable national data are still scarce.

49.   Lack of a universal concept and definition of disability is the principal obstacle to the development of comparable disability statistics. In general, disability is defined in terms of behavioural consequences of a health problem (McWhinnie, 1982). In an effort to provide a conceptual scheme to classify the consequences of diseases and disablement, the WHO introduced the International Classification of Impairments, Disabilities, and Handicaps (ICIDH) manual in 1980 (WHO, 1980). In the ICIDH classification system, three principal concepts are used to describe the consequences of disease at the level of its impact on the body and on the person as a social being:

- impairments which are losses or disturbances at the level of an organ;

- disability which are physical problems generating functional limitations such as, climbing stairs and more complex activity restrictions such as bathing and cooking;

- handicap are results from impairments or disability that limit the fulfilment of a role which is normal for that individual.

50.   Within this framework, disability can express the consequences of impairment in everyday life in terms of changes in overall activities without registering the value attached to the results of these changes, while handicap represents the more social consequences which can arise as a result of impairment and disability. There is much debate concerning the ICIDH model as well as the concepts used to explain and classify dimensions of ill-health and its consequences, and application of ICIDH concepts in national health surveys vary significantly. Recently, the ICIDH model was re-examined by a network of research across the world and WHO has proposed a new classification system, ICIDH-2. ICIDH-2 modifies the terminology by substituting the term "activity" for "disability" and the term "participation" for "handicap". At this time, WHO supports application of both versions; however, this might create confusion in an area where standardisation of concepts and creating a common terminology are crucial for any progress in data development.

51.   Development of the disability data will also be limited, without a common set of relevant instruments to accompany the conceptual scheme. Over the last two decades, several instruments focused on measuring disability and handicap have been proposed by specific researchers and international organisations, such as OECD and WHO. There are two major approaches to the measurement of

disability: 1) global questions that ask about activity limitations in general, and 2) instruments that ask about limitations in relation to specific activities of daily living (ADL), such as the OECD instrument proposed in 1976 (Mathers, 1997).

52.   The global disability measurement instruments aim to measure the magnitude of any illness, disability or infirmity in the population which cause trouble on people over a period of time. Generally, the respondent is asked whether he or she has any health problems, pain, illness, or disability that troubled him/her over a period of time and whether they have limited his/her normal or usual activities; however, application of this question has been highly variable across countries. These instruments are highly subject to changes in the perception of the individual.

53.   Table 4 presents, for example, percentage of the population with limiting longstanding illness (LLI) in England and Wales, by sex and by age from 1976 to 1994[4]. In 1994, one in every four people aged 45 to 64 years and about 50 per cent of the population aged over 75 reported a long-standing illness. Over the past 20 years, the percentage of LLI has been increasing in younger age groups, in particular among the 5 to 44 years old, while the percentage is declining among the older population. The difference between men and women is also notable; for all age groups, except 5 to 14 years old, the percentage of women reporting LLI is higher and this sex differential is even more significant for those 75 years and older. As mentioned above, LLI type of measures are subjective and answers can be culturally conditioned by expectations about health or by sex -- for example, women have more tendency to report their illness.

Table 4. Percentage of population with limiting longstanding illness in England and Wales, 1976-1994

Age		Women			
		1976	1981	1988	1994
5-14		4.7	6	7	7.2
15-44		9	11.2	12.1	12.6
45-64		23.2	26.2	26.2	26.5
65-74		40.6	41.6	40.6	39.9
75+		56.6	59.3	59.9	54.1
		Men			
5-14		6	8	9	9.5
15-44		9.3	10.3	11.2	12.9
45-64		25.1	26.2	27.3	26.8
65-74		38.5	35.5	41.9	39.1
75+		50.8	46.3	48.4	48

Source: Bebbington and Darton (1996).

---

[4]   People with LLI are those who answer 'yes' to both of the following questions: 1. Do you have any longstanding illness, disability or infirmity? By longstanding I mean anything that has troubled you over a period of time or that is likely to affect you over a period of time. 2. Does this illness or disability limit your activities in any way?

54.   On the other hand, the instruments that measure functional limitations based on an individual's abilities to perform detailed activities of daily living (ADL) might provide, many argue, a more objective way of assessing disability. Most ADLs have identified a set of functioning areas such as bathing, dressing, toileting, transfer, continence, and feeding which are used to assess the ability to perform these activities independently or with assistance.

55.   Application of the specific-ADL instruments have also been variable across the national surveys in terms of concept, wording, and administration. There are more than 50 types of ADL scales used today with different sets of activities covered in the instruments (McDowell, 1996). In 1976, the OECD developed a standardised instrument to measure disability in relation to specific functions or activities of daily living (ADL) for the general population to be comparable over time and across countries. Participating countries in this effort included Canada, Finland, France, West Germany, the Netherlands, Switzerland, the United Kingdom, and the United States. In the OECD questionnaire, disability is measured based on ten questions related to the activities essential to daily living with six optional questions, defined as: self-care (dressing, bathing, eating), mobility (indoor and outdoor) and communication (hearing, vision, speaking).

56.   In the late 1980s, the WHO and the Netherlands Central Bureau of Statistics (CBS) developed a common instrument for health interview surveys based on the OECD questionnaire. They have created a new scale of performance by selecting items from OECD questionnaire, and including a handicap item (confinement to bed, chair with help to get up/walk, and confined to house, flat, and garden). These instruments are presented in detail in Addendum 1.

57.   The advantage of the ADL-type, function-based measures which relates an individual's abilities to expected standards is that they reflect those aspects of health that can be compared more objectively among individuals. Initial use of these instruments were more oriented to the elderly and the institutionalised population by distinguishing severe levels of disability. Today there is a general demand to use these ADL-based instruments to assess disability in general population. However, the ADL scales in use, including OECD and WHO-CBS questionnaires, are not really sensitive to variations in the functioning of the younger populations. To ensure efficiency and comparability of these instruments in disability measurement, it is important to adopt a common set of ADLs which can describe the functional capacity of not only the elderly, but the entire population.

58.   Table 5 compares the prevalence of disability in three OECD countries: the United States, France and Canada, by age group and sex. As mentioned above, the concepts are not the same across these countries. In the United States, disability data are based on the concepts of limitations in performing socially defined roles and usual activities due to a health condition with a global disability measurement instrument[5], while Canada follows more closely the ADL approach where specific questions are asked on whether or not people were limited in certain activities, such as walking, reading, cutting food, on a long

---

[5]   Two questions addressing limitation of activity because of health status elicits information on whether respondents are unable to perform a major activity; are limited in the amount or kind of major activity but still able to perform it to some extent ; or are limited only in secondary or nonmajor activities. Disability must have lasted three months or be due to a set of specified chronic conditions. Crimmins *et al*. (1997).

**Table 5. Trends in disability by sex and age in the United States, France, and Canada
(percentage of the population of that sex and age group)**

		United States[a]						
		Females				Males		
Age group		1970	1980	1990		1970	1980	1990
0-4		1.4	2.0	1.9		1.8	2.2	2.7
10-14		2.7	3.9	3.6		3.7	5.5	7.3
25-29		6.1	6.5	7.2		7.8	8.5	7.3
40-44		11.0	13.7	13.8		10.9	12.5	13.1
55-59		21.3	24.6	23.8		23.4	28.1	25.8
70-74		36.6	39.5	38.3		44.9	49.1	47.1
80-84		52.9	52.1	54.2		61.4	58.2	58.5
85+		68.2	64.8	64.4		65.0	65.3	62.8
		France[b]						
		Females				Males		
Age group		1970	1981-82	1991-92		1970	1981-82	1991-92
0-4		n.a.	0.5	1.0		n.a.	1.0	1.3
10-14		n.a.	1.5	2.5		n.a.	2.6	3.1
25-29		n.a.	2.8	6.3		n.a.	4.1	4.6
40-44		n.a.	5.7	6.3		n.a.	6.8	6.0
55-59		n.a.	14.5	12.2		n.a.	15.9	12.3
70-74		n.a.	33.8	27.4		n.a.	30.8	25.2
80-84		n.a.	63.9	46.8		n.a.	44.9	45.8
85+		n.a.	63.4	63.2		n.a.	62.8	62.5
		Canada[c]						
		Females				Males		
Age group		1970	1986	1991		1970	1986	1991
0-14		n.a.	1.2	0.6		n.a.	1.6	0.9
15-24		n.a.	1.7	1.9		n.a.	1.5	1.8
25-34		n.a.	2.8	3.4		n.a.	2.6	3.0
35-54		n.a.	6.0	7.1		n.a.	5.4	5.7
55-64		n.a.	15.4	15.5		n.a.	15.2	14.9
65-74		n.a.	22.2	20.6		n.a.	20.8	19.0
75-84		n.a.	44.2	43.4		n.a.	32.6	34.7
85+		n.a.	76.7	77.3		n.a.	62.2	68.6

a) Corresponds to both major and secondary activity limitation. Major activities include able to go to work, go to school, keep house. Secondary activities are activities such as going to church and recreational activities. Data does not include institutionalised population. Crimmins *et al.* (1997).
b) Defined as severe incapacity and other incapacity. Institutionalised population is not included. INSEE, 1980/81 and 1991/92.
c) Using a general scale of Activities of Daily Living, severe (score >11) and moderate (score (5-10) disability, where no disability score null. Institutionalised population is included. Wilkins *et al.* (1994).

Source: Crimmins *et al.* (1997) based on NHIS 1969-1971 and 1979-1980; INSEE, Enquête sur la Santé et les Soins Médicaux, 1980/81 and 1991/92; Wilkins *et al.* (1994) based on Health and Activity Limitation Survey (HALS), 1986 and 1991.

term basis.[6] In France, on the other hand, disability questions are more oriented to measure severe and permanent disability and to the elderly. In the French questionnaire, a very limited ADL scale is integrated using confinement to home as a major criteria[7].

59.   Bearing in mind these differences, it is interesting to see that the prevalence of disability -- including all levels of severity -- has been increasing, over the twenty-year period, in all three countries for the younger age groups, in particular those under 40 years old, while it appears to have declined for the population over 70 years old. Both in the United States and in France, population over 55 years experienced a decrease in the level of disability, but the decline is more visible in France. In Canada, on the other hand, there is an increase in the reported rate of disability, between 1986 and 1991, for men over 75 years old. Canadian women, aged 65 and over, experience the same downward trends as in other countries, while only males in their 60s experienced declines in disability. It should be noted that improvement in survey methodologies and increased awareness of disability in society in recent years might be important factors for explaining these trends over time.[8] For example, it appears that most of the variation in self-reported disability associated with changing perceptions and standards occurs at the mild end of the spectrum, while prevalence of severe disability is much more stable. (Mathers, 1991, Robine *et al*. 1996).

60.   Measured prevalence of disability is currently not comparable across countries due to differences in definitions, measurement techniques, and administration. In terms of administration of the surveys, it is preferable to distinguish the disability in the institutionalised population from the rest of the population. The ADL-type scale can establish more specific and objective criteria to define a range of severity levels for disability which are less likely to be impacted by changes in perceptions as compared to the global measures of perceived health status and disability. At the moment, as discussed above, the ADL scales and severity levels applied across countries vary significantly. To improve comparability of self-reported disability, it would be desirable to develop an ADL-based instrument with a common set of items and severity categories. Also, such an instrument should be designed to be more sensitive to changes in disability for the general population, and not just the elderly.

Multi-dimensional health status measures

61.   In an effort to collect information on the general health and well-being of the population, and not only on disability and deaths, there has been a movement over the past twenty-five years to emphasise a more multi-dimensional perspective to the concept of health. Several survey instruments have been developed which capture a multi-dimensional health status profile within a broader perspective on well-being. Much of this work has been influenced by the WHO's definition of health as: "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1958). SF-36 Health Survey (SF-36), EuroQol (EQ-5D), Health Utilities Index (HUI3) are the most well-known examples of such multi-dimensional health status instruments being used at the population level.

---

[6]   Measure long-term disability lasting at least six months. Based 13 questionnaire focusing on impact of disease and injury on daily living and social activities, Chen *et al*. (1993).

[7]   A general question is asked if there is anybody handicapped, or having simply some discomfort or difficulties in daily life. If the answer is yes to this question, a set of question is asked to find the type, cause and severity of this handicap, trouble, etc. Confinement is used to determine the severity of disability.

[8]   For further discussion on disability, also refer to section on health expectancies.

62.   To move beyond a concept of health defined by mere absence of diseases or infirmity, these multi-dimensional health status instruments measure a concept of health based on a range of different dimensions of health (Table 6). No two measures reveal identical dimensions in their definition of health; but some broad similarities exist. For instance, measures of pain and mental and physical function are common to all three of the instruments presented in Table 6. HUI3 focuses more on the impairments as defined by ICIDH (e.g. vision, hearing) than the other two instruments. The SF-36 and EuroQol are comprised of a social function dimension by measuring role limitations or usual activities; however HUI3 does not. In order to describe their health states, respondents of these instruments are asked to identify their level of health for each dimension.

Table 6. Dimensions of health in multi-dimensional health status instruments

SF-36 Health Survey (SF-36)	Health Utility Index (HUI3)	EuroQol (EQ-5D)
Physical Functioning	*Vision*	*Mobility*
Role Limitations (Physical)	*Hearing*	*Self-Care*
Bodily Pain	*Speech*	*Usual activities*
General Health	*Mobility*	*Pain/Discomfort*
Energy and Vitality	*Dexterity*	*Anxiety/Depression*
Social Functioning	*Emotion*	
Role Limitations (Emotional)	*Cognition*	
Mental Health	*Pain*	

Source: Adapted from Gold (1996) and Patrick and Erickson (1996).

63.   Multi-dimensional health status instruments can provide two approaches to the measurement of health status:

- first, a profile of scores for each dimension of health (*e.g.* physical, mental, social functions) and;

- second, they can create a composite health status measure, as discussed later.

64.   Profiles of health status --such as SF-36-- are useful in describing different aspects of health of populations and identifying areas which are negatively impacted by disease and ill health. However, a composite health measure is attractive to policy makers, since it provides a single index that can be used as a general indicator of health status as well as in cost-effectiveness and benefit analyses to rank treatments and to determine which provide the best value for money (Wolfson, 1997). However, these

indices are based on a crucial component: the measurement of the preferences of health states.[9] Basically, respondents are asked to value a set of health states using different elicitation techniques; however, debate persists as to which elicitation methods are the best to derive these values, taking into consideration methodological, ethical, and political challenges (Nord, 1997).

65.   These multi-dimensional health status instruments have been widely used in clinical studies and cost-effectiveness analyses in order to assess the relative impact of an intervention or treatment on the different dimensions of health. More recently, these instruments are being applied for monitoring population health status at the national level. Countries have begun to integrate the different multi-dimensional health status instruments in their national health surveys in order to better assess the health status of their populations, in particular New Zealand (SF-36), Australia (SF-36), England (EuroQol and SF-36), Germany (EuroQol), Spain (EuroQol), the United States' Health of Senior Survey (SF-36), and Canada (Health Utility Index and EuroQol) where they have used the Health Utility Index to calculate a health-adjusted life expectancy to monitor health status of its population.
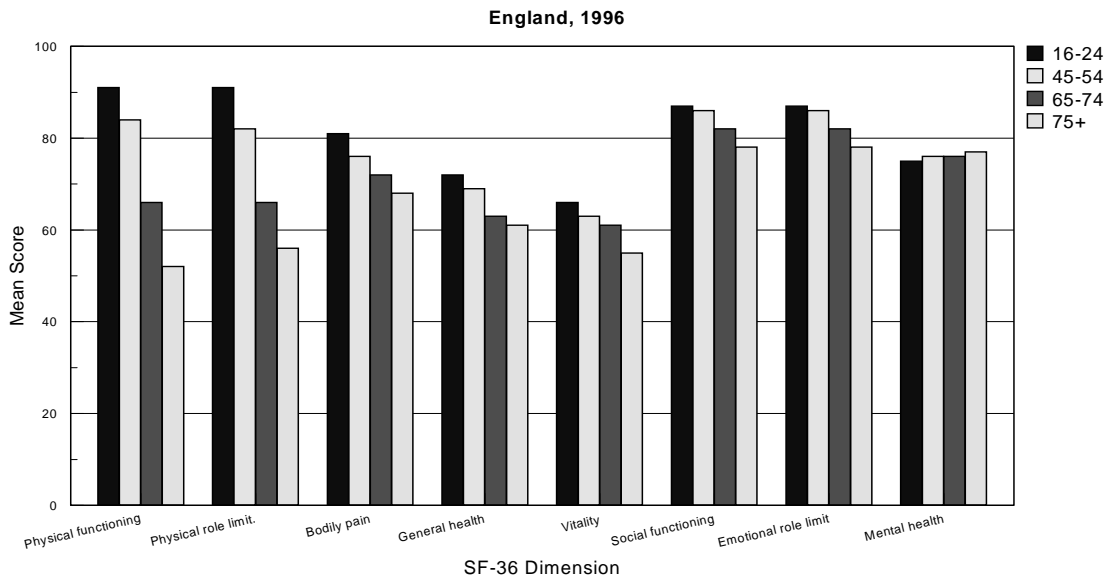
SF-36 Health Survey

66.   SF-36 Health Survey provides a profile of scores across eight dimensions of health and well-being: physical functioning, role limitations due to physical problems, social functioning, bodily pain, general mental health, role limitations due to emotional problems, vitality, and general health perceptions. For each dimension, item scores are coded, summed and transformed onto a scale from 0 (worst health) to 100 (best health). A set of mean scores on the eight dimensions provides a "health profile" for the total sample or a sub-group of the sample. Additionally, normative data have been collected to assist in the interpretation of health status scores conducted in smaller subgroups and individual settings. The International Quality of Life Assessment (IQOLA) Project has been collecting such data on SF-36 in representative general population samples in Denmark, France, Germany, Italy, Japan, the Netherlands, Norway, Sweden, the United Kingdom, and the United States using a common protocol since 1990 (Gandek, 1998).

67.   In Chart 3, a series of SF-36 profiles are presented for England, Australia, Italy, and Sweden by selected age groups between 1990 to 1996. In general, findings from SF-36 questionnaire, consistent with other indicators of health status, show that younger people experience better health and health-related well-being than those in older age groups. SF-36 mean scores decline for older age groups, particularly in the scales relating to physical health. Nevertheless, disparities between age groups are more narrow in terms of general health, vitality and social functioning, while they completely disappear for the mental health dimension. SF-36 mean scores and patterns are quite similar across countries.

---

[9]   The construction of SF-36 currently does not contain health valuation. However, research is being conducted to develop these components for the SF-36 (Brazier, 1996).
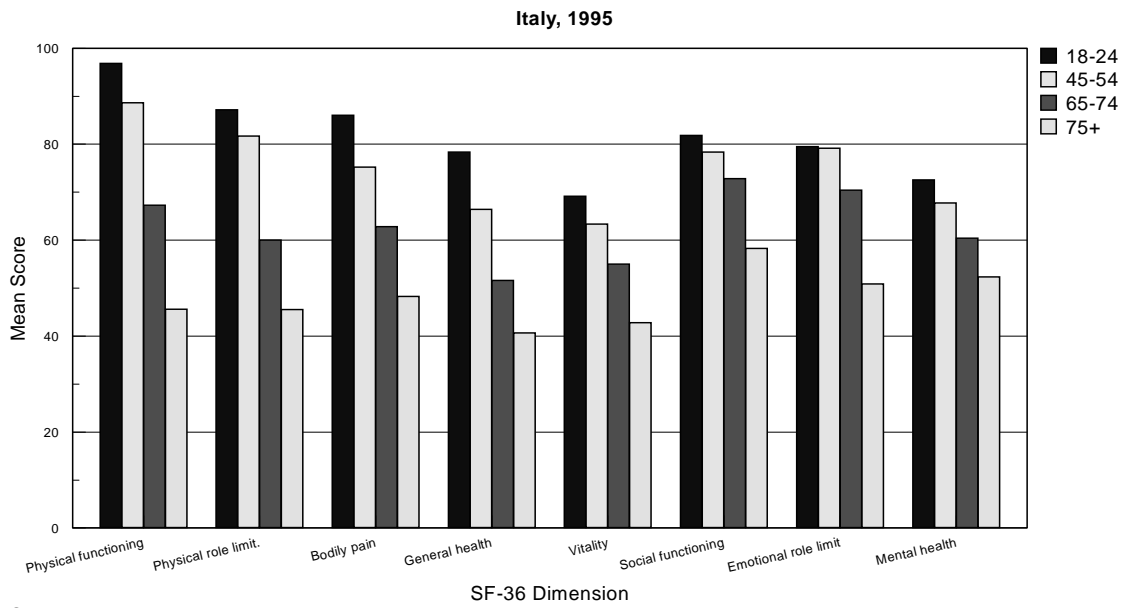
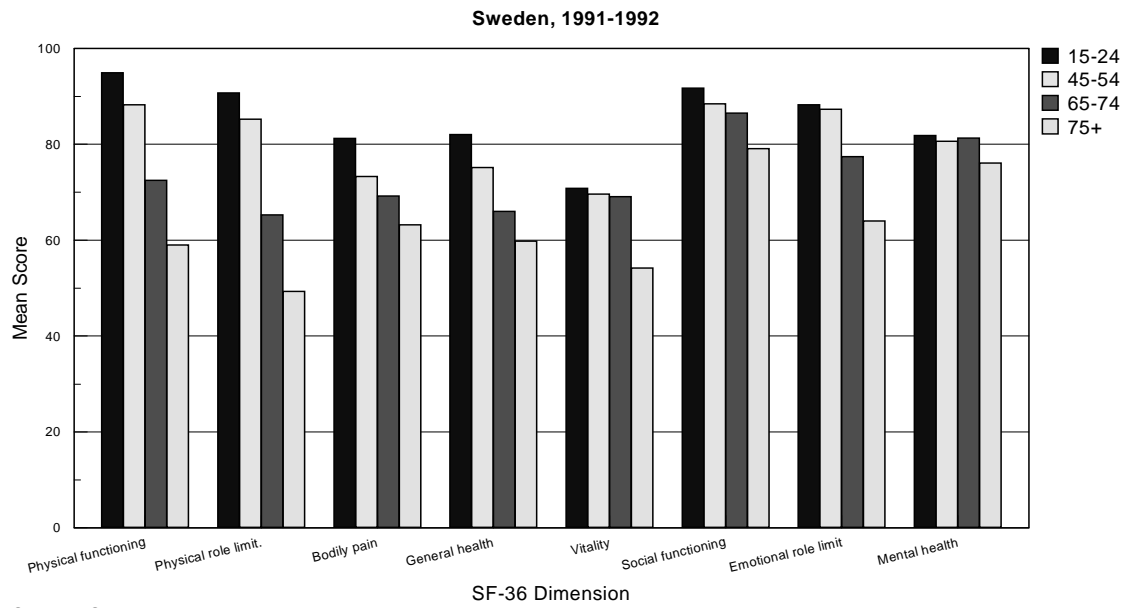**Chart 3. SF-36 Profiles by age groups in selected countries from 1990-1996**

England, 1996

Source: Health Survey of England, 1996
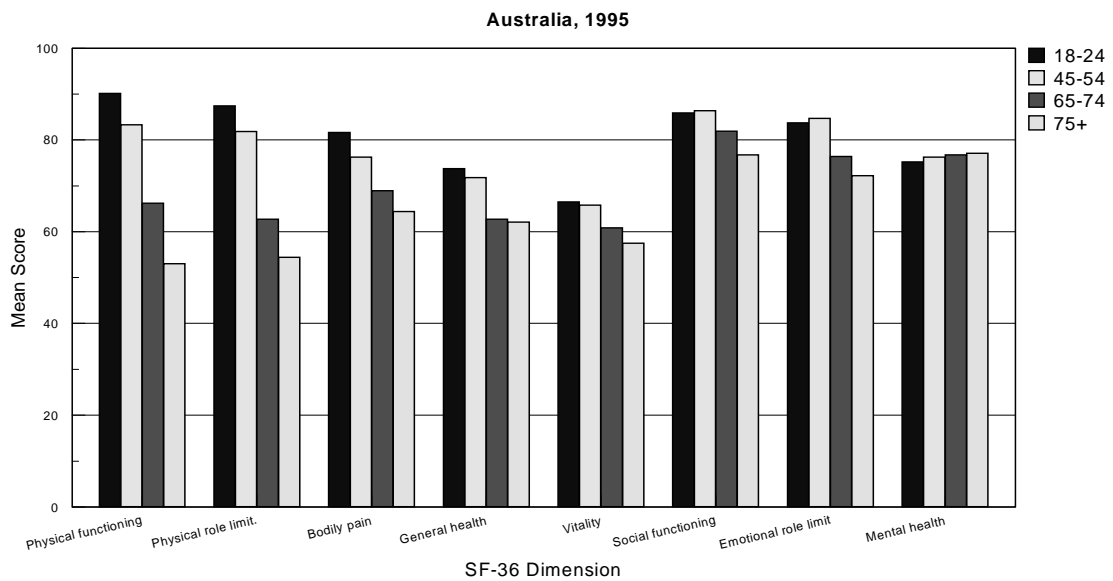
Australia, 1995

Source: Australian Bureau of Statistics, National Health Survey, 1995.

Italy, 1995


Source: Apolone, 1997.

Sweden, 1991-1992

Source: Sullivan, 1994.

Health Utility Index

68.   In a similar way, the Health Utility Index (HUI3) can provide detailed profiles of the health status of a population. The HUI's concept of health is defined by eight dimensions of health with a variety of levels for each dimension from full function to severely impaired function. All of the dimensions can be considered as impairments according to the ICIDH classification system. The HUI3 has been included in four population health surveys in Canada: 1990 Ontario (Canada) Health Survey; 1991 Canadian General Social Survey; and ongoing Canadian National Population Health Surveys (1994/5 and 1996/7).

69.   Chart 4 presents the percentage of the population reporting full functioning health for each dimension in the 1996/7 Canadian National Population Health Survey. The "vision" dimension has the greatest number of people with some disability, with the younger population aged 16 to 24 years reported full functioning at 72.8 per cent, compared to a low of 17.1 per cent among the population ages 75 and older. In general, findings for HUI3 are consistent with other indicators of health status, and shows that younger people report better health and health-related well-being than those in older age groups. HUI3 percentages for full functional health decline for older age groups, particularly for the dimensions of mobility and hearing for the 75 years and older group and pain and discomfort for those 65 years and older. However, it should be noted that full functional health for "dexterity" and "speech" are consistently high across age groups.

Chart 4. Percentage of Canadian population reporting full functional health by dimension of the Health Utility Index, 1996.
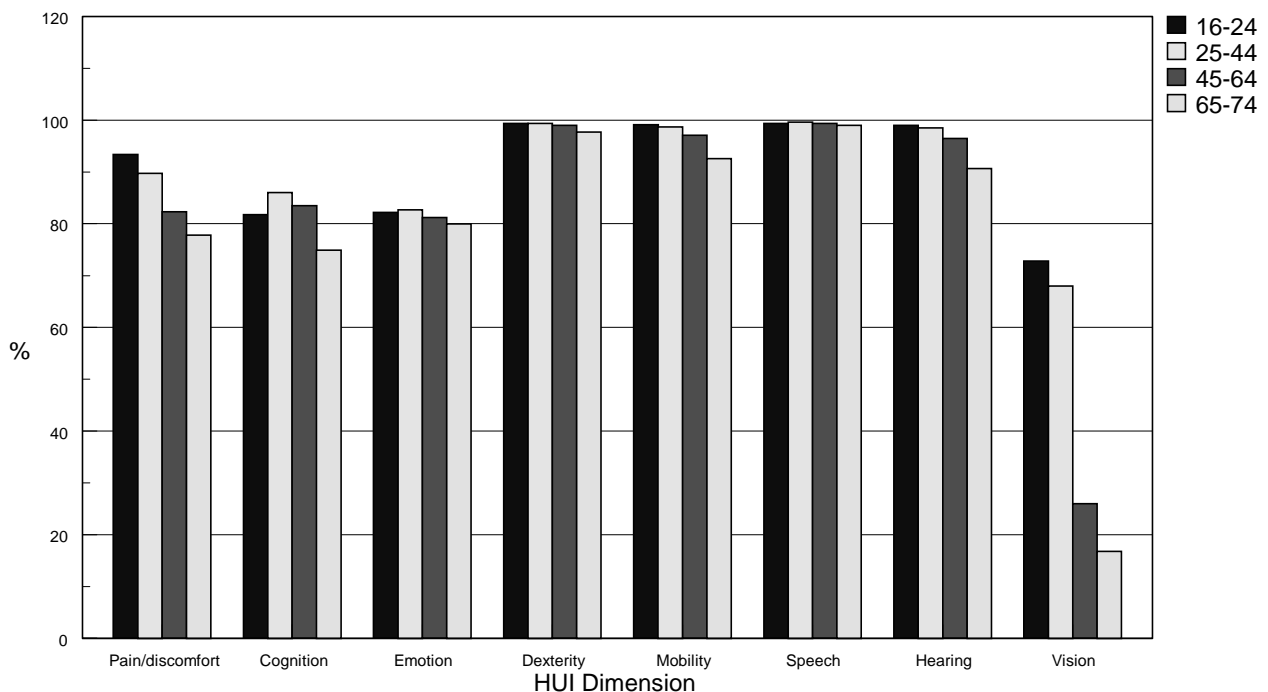
EuroQol

70.   The EuroQol can also be presented as a profile describing the health status of the population according to its five dimensions and three levels (no problem, a moderate problem, and a severe problem). The percentage of the population reporting "no problems" for each dimension of health is presented in Chart 5, based on the results of the 1996 Health Survey of England. The dimension which had the highest proportion of population reporting "no problem" was self-care across all age groups. About 90 per cent of the younger age groups reported "no problem" with the dimensions of mobility and restrictions on usual activities, while, around 50 per cent of the older age groups reported "no problem" for these same dimensions. Interestingly, differences across age groups are lowest for the mental health dimension, "anxiety and depression," range only from 81 per cent for the 16 to 24 age group to 74 per cent for the 75 and older group. Fewer of the population across all age groups reported "no problem" in the dimension of pain and discomfort. About 20 per cent of the younger age groups and 50 per cent in the older age groups reported "some problems" and "moderate pain and discomfort."

Chart 5. Percentage of English population reporting "no problems" by dimension of the EuroQol questionnaire, 1996.
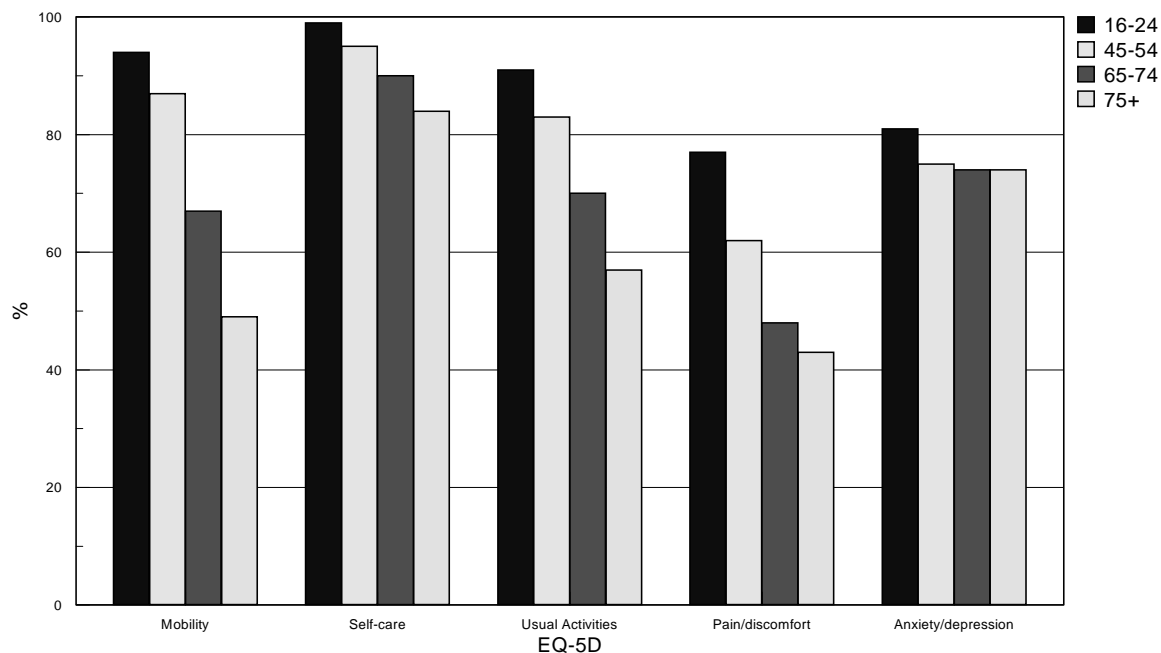
71.   The HUI3 and EuroQol instruments can also be used to calculate a composite health measure using a component to value and weigh the different health states. Table 7 shows the distribution of respondents by sex and age group according to the weighted mean scores. As expected, the mean scores for each instrument tend to decline as age increases. For the HUI3, the weighted mean score tends to be the same for males and females, while EuroQol weighted mean score tends to be lower among women, than men, particularly at the older age groups. These index scores have been useful in identifying important differentials in health status across various population subgroups according to region, income, and education.

Table 7. Weighted mean scores for HUI3 in Canada (1996) and EuroQol in England (1996) for sex and age groups

	16-24	25-44	45-64	65-74	75+
Health Utility Index					
Men	.96	.94	.91	.87	.80
Women	.94	.94	.89	.87	.80
	16-24	25-34	45-64	65-74	75+
EuroQol					
Men	.91	.92	.85	.80	.76
Women	.90	.90	.84	.76	.71

72.   There is a lack of consensus about how to conceptualise of health and valuation of health states in these existing multi-dimensional health status instruments. Each instrument captures slightly different concepts of health with various combinations of the dimensions of health and well-being. Much debate occurs among researchers as to whether some of these definitions including aspects of "quality of life" which are too broad and impractical for operationalisation and on whether these measures rely too heavily on subjective value judgements. At present, applying these composite measures for cross-national evaluations of levels of health status would be difficult, mainly due to their subjective valuations of health and the preferences of health states. However, examination of the health profiles by dimension may be meaningful to describe the different aspects of health of a population and to better identify areas which are negatively impacted by disease and ill health.

Disease-specific morbidity measures

73.   While assessing rates of disability in the general population is important, reliable disease-specific data is necessary to better understand the factors behind disability and poor health. Disease-specific morbidity measures would assist policy makers and health managers to identify and monitor the major health problems contributing to disability and for planning health care services. In terms of health policy development, it is important to understand what are the key diseases imposing the heaviest burden on society, not only in terms of mortality, but now in terms of disability and quality of life.

Prevalence and incidence of diseases

74.   In general, there are two basic types of disease statistics: incidence and prevalence measures often based on either registers, surveys, or general practitioner records (Mason, 1997). Incidence is the number of new cases arising for a given disease in a specified period and population, while prevalence indicates the total number of existing cases in a given population at a specified point in time. Prevalence depends on the incidence and on the duration of the disease. For some diseases, either prevalence or incidence statistics might be the most useful. For instance, prevalence statistics may be more meaningful for diseases or disorders which are neither curable nor likely to be fatal such as diabetes, mental health, respiratory or musculoskeletal problems; while incidence statistics may be the priority for diseases with high fatality rates such as cancer and AIDS. However, both measures might be needed to understand in depth the evolution and trend of a disease.

75.   With data on incidence and prevalence for various diseases, policy makers can better understand the distribution of new cases and the burden of disease among different population groups. Several countries are using these measures to monitor progress toward identified targets, to evaluate programmes, such as preventive screening, and to estimate the need for and use of health and social services. For example, in the United States where cardiovascular disease mortality has been falling by 3 per cent annually for the past 25 years, severe cardiovascular incidence has fallen by only 1 per cent annually (Cutler, 1997). Thus, the prevalence of cardiovascular diseases is increasing, highlighting a larger number of survivors who will likely increase demand on health care services. Incidence data on specific diseases are also a key component for developing estimates of disability in the calculation of the disability-adjusted life years (DALYs).

76.   Surprisingly, there are few comparable data on the incidence and prevalence of different diseases across OECD countries. Differences in the way each country gathers morbidity information is a major cause of the variation in data, making international comparisons very difficult. The most common sources of disease-specific morbidity data are health interview surveys, administrative and medical records, and disease-specific registers such as those for cancer and congenital anomalies. Several countries are collecting prevalence data on chronic conditions such as cardiovascular disorders, diabetes, asthma, and hypertension through their national health surveys. Other countries calculate prevalence estimates based on general practitioner records (see for e.g. Mason, 1997). However, as with other items in the national health surveys, these survey questions on the prevalence of specific diseases are highly variable across OECD countries.

77.   Most countries rely on the administrative data from hospitals or other administrative sources such as hospital admissions or discharge records to estimate disease-specific morbidity. This type of data have the advantage of being relatively objective, since they are based on medical diagnosis, and coherent over time. However, indicators based on administrative data are subject to some assumptions concerning the available health care processes across countries. For example, discharge rates capture only hospitalised cases which might cause some under-estimation for those diseases where hospitalisation is likely not to occur. Also, differences in the organisation of medical systems and cultural factors might lead to variations in hospitalisation rates among countries who have similar disease patterns. Therefore, although beneficial, this type of registered data need to be considered along with other sources of morbidity data in order to provide a more reliable picture of health status.

78.   Disease-specific registers have been developed in OECD countries, for a limited number of diseases associated with high rates of premature mortality, such as cancer (Mason, 1997). Currently, because of the creation of national registries and international programmes, the best internationally available disease-specific morbidity data is on cancer. The International Agency for Research on Cancer (IARC), established in 1965 by the World Health Organisation, co-ordinates work among various national data registries and conducts research on the size, nature, and causes of human cancer. These cancer registries are an important resource for assessing the burden of specific cancer problems in populations, and are used to examine the effects of changes in exposure to possible carcinogens, as well as the effects of screening and treatment programs.

79.   Charts 6a and 6b present the numbers of new cancer cases in 1990 by leading cancer sites for males and females, respectively. Care should be taken in the interpretation of these tables, since data include estimated numbers for certain countries.[10] In general, cancer occurs more commonly in males than females. The OECD average age-standardised incidence rate in 1990 for all cancers (excluding skin

---

[10]   See sources & methods in OECD Health Data and the IARC website for more information on this data.

cancer) was 267 new cases per 100,000 for males and 208 per 100,000 females, resulting in a ratio of 1.3 males cases for every female cancer case.
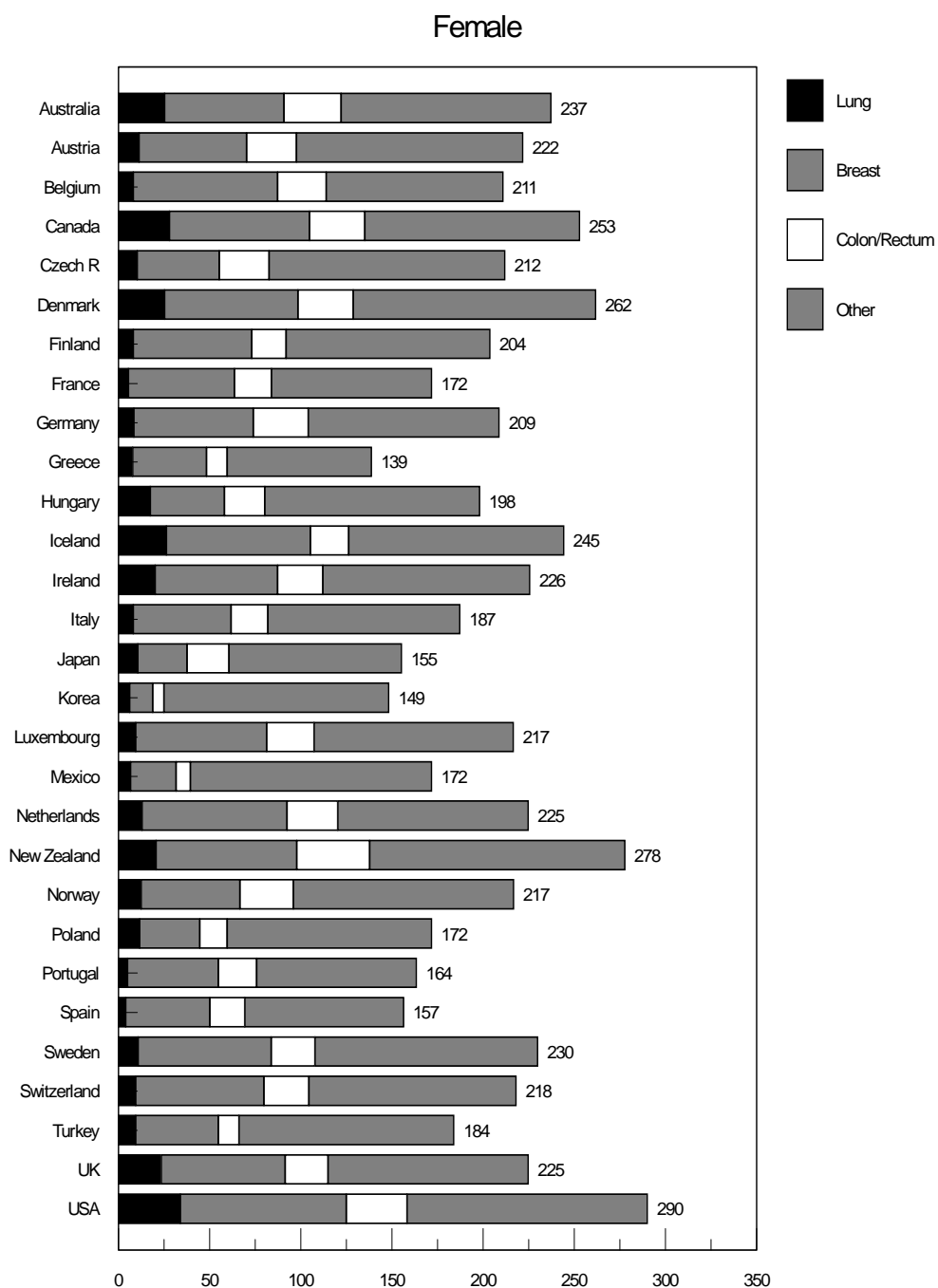
80.   Cancer incidence varies widely between OECD countries. The United States reports the highest incidence rates for all cancers among males (407 per 100,000) and females (290 per 100,000). The lowest levels of cancer incidence are reported in countries like Greece, Mexico, Portugal and Turkey. This variation might be explained by a number of factors, such as differences in lifestyles and other environmental factors, differences in the diagnostic techniques as well as the methodology used to collect cancer data via the registries rather than actual variations in cancer risk.

Chart 6a. Numbers of new cancer cases in OECD countries, 1990
(Age-standardised rate per 100 000 population)

Male
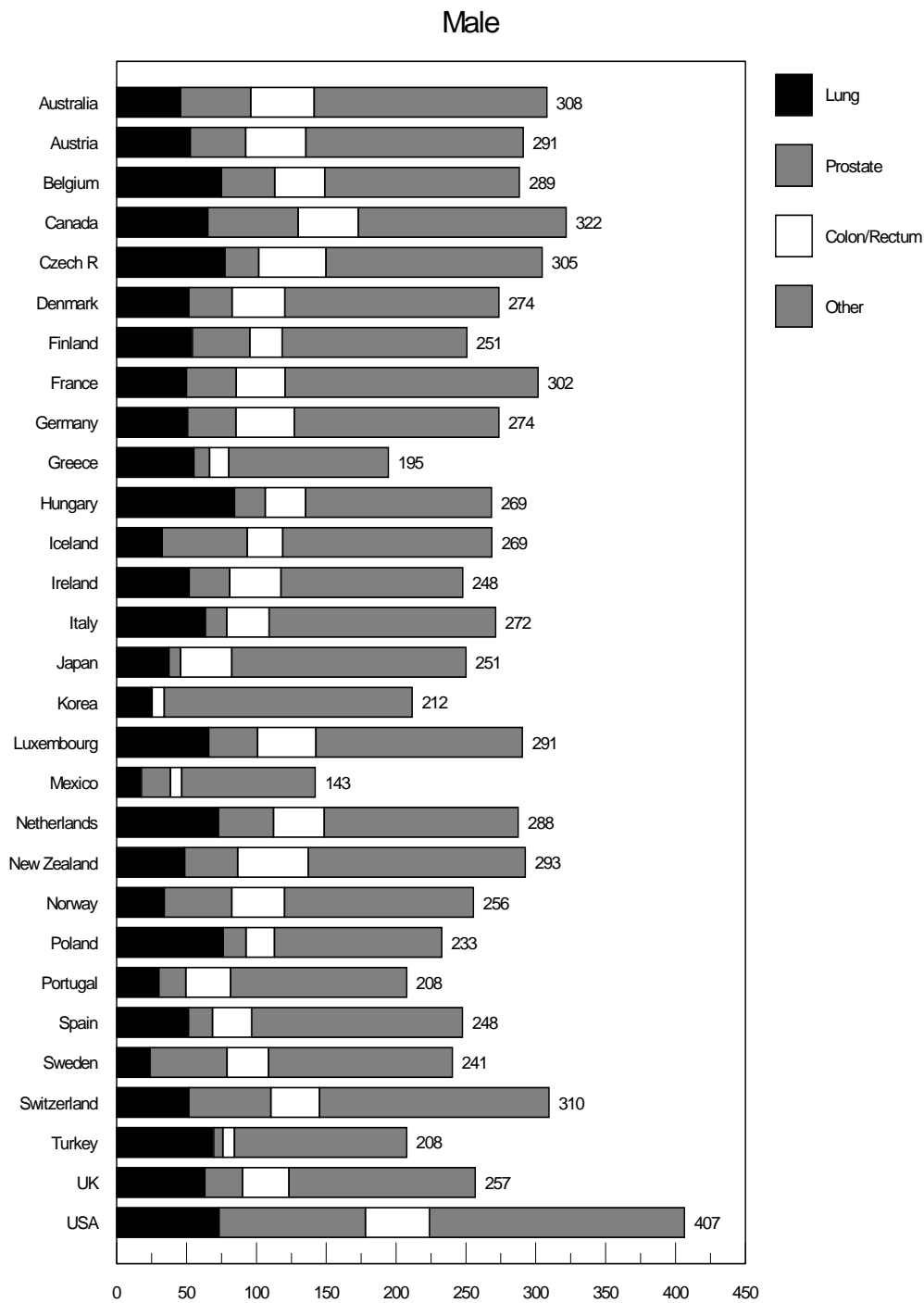
Notes: The standard world population is used for age-standardisation. Data refer to 1985 for Hungary, Korea, Poland and Turkey.
*Source*s: International Agency for Research on Cancer, Australian Institute of Health and Welfare.

Chart 6b. Numbers of new cancer cases in OECD countries, 1990
(Age-standardised rate per 100000 population)

Female

Country	Rate
Australia	237
Austria	222
Belgium	211
Canada	253
Czech R	212
Denmark	262
Finland	204
France	172
Germany	209
Greece	139
Hungary	198
Iceland	245
Ireland	226
Italy	187
Japan	155
Korea	149
Luxembourg	217
Mexico	172
Netherlands	225
New Zealand	278
Norway	217
Poland	172
Portugal	164
Spain	157
Sweden	230
Switzerland	218
Turkey	184
UK	225
USA	290

Legend: Lung, Breast, Colon/Rectum, Other

Notes: The standard world population is used for age-standardisation. Data refer to 1985 for Hungary, Korea, Poland and Turkey.
Sources: International Agency for Research on Cancer, Australian Institute of Health and Welfare.

81.   In females, breast cancer is the most commonly registered cancer in all countries, followed by colorectal and lung cancer. These three categories account, on average for almost 50 per cent of all new cancer cases in females in the OECD area. For males, on the other hand, lung cancer is the most commonly diagnosed cancer followed by prostate or colon, depending on the country. On average, lung cancer accounts for about 20 per cent of all cancers in males compared with only 6 per cent among females. This large difference is attributable to the higher rates of smoking among men in the past 30 years as compared with a more recent increase in smoking rates in women (IARC, 1993).

82.   Chart 7 presents the incidence rates for the most common cancer types in seven countries where data are available for the 1970-1995 period. The trends in incidence data vary significantly by cancer type and by country. When all cancer types are combined (excluding skin cancer), incidence for males increased by 15 per cent in Denmark and Sweden, about 30 per cent in Norway and Sweden and more than 35 per cent in Canada and the Czech Republic between 1970 and 1990. For females, a different picture emerges. In Canada, Norway, and Sweden, the annual increase in cancer incidence among females is almost the same as the rate observed for males. In the Czech Republic and New Zealand, the annual increase for females was even higher, with a total increase of 45 per cent.

83.   While in the past 10 years, lung cancer has shown decreasing incidence rates for males, there has been a net increase for females in all countries. On the other hand, for males, the increase in prostate cancer has been quite significant since 1985, and national projections in most countries indicate upward trends for the near future. Improvements in detection of this cancer and a greater life expectancy for men might lead to a large number of new cases being diagnosed which may not have been detected previously (Australian Institute of Health and Welfare, 1996). Similarly, for females, breast cancer has shown an increasing incidence rate through the 1980s, and in the few countries where data are available for the 1990s, the rates have not begun to stabilise. Increased diagnosis and therefore, increased numbers of new cases, are likely to occur with the growing awareness of preventive measures and broader use of mammography screening, particularly among females aged 50 to 69 years.

84.   Recently, there has been much activity in OECD countries to improve the disease-specific morbidity statistics. The World Health Organisation's Health for All project has identified targets on disease-specific morbidity, as well as other countries in their own programmes. There are also plans to develop specific morbidity indicators under the European Union's proposed Action programme on 'Health Monitoring in the Field of Public Health' (DG V and Eurostat, 1993; 1996). Methodological issues are currently being examined in the task force on 'health and health-related survey data' under the Working Group on Public Health Statistics. Based on preliminary research by the Eurostat Working Group on Public Health Statistics, there is a need to identify the key diseases and disorders to focus, the concepts to be measured, and then to develop standard definitions (Mason, 1997). It would be preferable for OECD to collaborate with these existing international projects to move towards more comparable morbidity statistics across OECD countries.

Chart 7. Trends in cancer incidence rates in selected OECD countries, 1970-1995
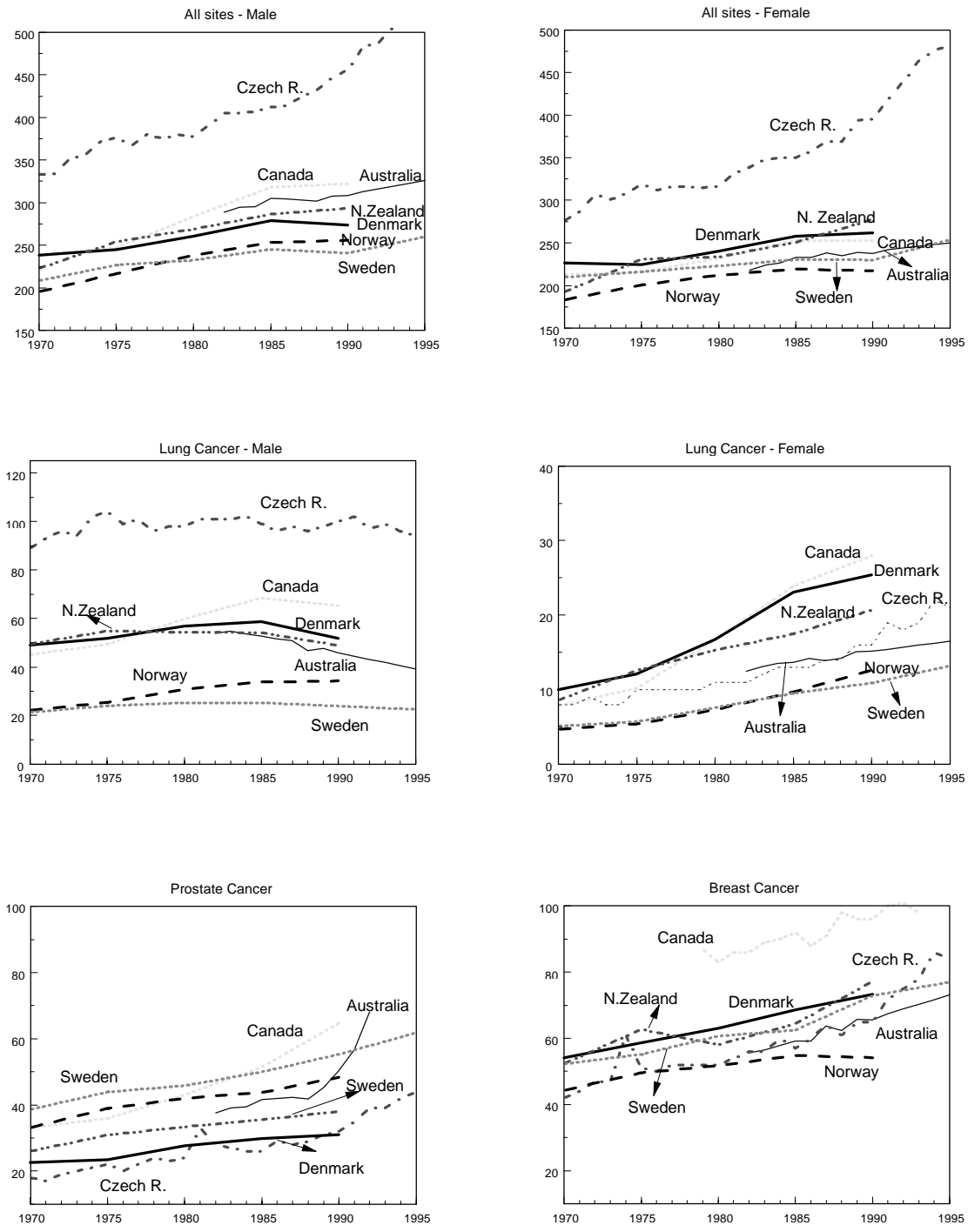
Sources: IARC, OECD Health Data 1998.

COMPOSITE HEALTH MEASURES

85.   There is an increasing interest in developing composite health measures, which integrate the basic information on mortality with information on morbidity or quality of life, to monitor population health status. A number of composite health measures, reflecting the average expectation of years of equivalent good health in a population, are currently being calculated in the OECD, such as health expectancies in various forms and the disability-adjusted life years (DALYs). Each are based on different morbidity data (Table 8).

Table 8. Examples of morbidity measures used in the calculation of composite health measures

Composite Health Measure	Morbidity Measure used in its calculation (combined with mortality)

Health expectancies
 	
   −   Healthy life expectancy (HLE)
 	
   −   Disability-free life expectancy (DFLE)
 	
   −   Health-adjusted life expectancy (HALE)
	
	Perceived health status
	
	Prevalence of disability
	
	Multi-dimensional health status measure (e.g. Health Utility Index, EuroQol) + weights reflecting preferences for different health states.

Disability-adjusted life years (DALYs)	Disease incidence and prevalence rates; Estimated duration, remission, and severity weights for each disease category

Health expectancies

86.   Health expectancy is the generic term referring to all indicators expressed in terms of the average time (in years) that a person could expect to live in a defined state of health (Mathers, 1996). Sullivan (1971) proposed a simple health indicator which combines mortality data, in the form of the life table, with the prevalence of disability. As interest emerges as to whether people are living not only longer, but also healthier lives, these types of calculations based on Sullivan's method have been repeated in many countries. Some countries have used disability data similar to those used by Sullivan, while others considered different concepts of health such as impairment, handicap, perceived health status, multi-dimensional concept of health, and specific diseases.

87.   In 1989, an informal international network on health expectancy, REVES (Réseau Espérance de Vie en Santé) was formed in order to promote harmonisation of disability data, concepts and calculation procedures across countries and over time. In order to encourage more standardisation and uniformity in the calculations of health expectancies, the REVES network has proposed a conceptual framework for measuring the impact and consequences of diseases on health using the International Classification of Diseases (ICD) and the International Classification of Impairment, Disability and Handicap (ICIDH).

88.   The definition system and terminology proposed by REVES is slowly being implemented; however, as discussed above, there are considerable variations in the disability concepts measured in each country. Addressing the issues related to the measurement of disability as outlined above is a fundamental requirement for establishing the reliability of health expectancies as composite measures of health status.

89.   The estimates of health expectancies presented in Tables 9 and 10 below are not exempt from the measurement problems. Therefore, more emphasis should be placed on changes over time for each country[11] than on comparisons of absolute levels across countries. In order to facilitate the interpretation of the results, most of the DFLE estimates comprise all levels of disability; while the HFLE estimates tend to comprise the more severe levels of disability.

90.   Tables 9 and 10 give an overview of disability and handicap-free life expectancies at birth and 65, presented similarly to the REVES classification. The differences in survey questions and measurement systems are mentioned in the country notes. Although total life expectancy is increasing significantly in all countries, disability-free life expectancy at birth slightly declines in Australia and Canada for both sexes and in Netherlands for females only. Other countries demonstrate increases in disability-free life expectancy at birth. In the United Kingdom and United States, the increase in disability-free years (in the past 10 years) is relatively small, while in France and Germany, the number of disability-free years is increasing faster than the growth in life expectancy.

91.   Possible reasons for variations in reported disability prevalence and difficulties in differentiating change over time in countries have been discussed by several authors (Mathers, 1996; Crimmins, 1989; Wilkins, 1994). Changing attitudes and community perception of disability and handicap may result in people being more aware of their need for assistance and more willing to report disabling conditions. They may also have an effect on how people interpret the 'need' and 'difficulty' concepts often used to determine presence and severity of disability and handicap. Growing availability and generosity of disability programs in some countries might also increase disability prevalence in the absence of any change in actual health. Another explanation for the increasing number of self-reported disability might be improving diagnostic techniques for a number of chronic conditions and expanding use of the medical care system.

92.   In terms of handicap-free life expectancy at birth, there are improvements in terms of healthy years gained which are quite parallel to the gains in life expectancy both for men and women. For the French, the increase in handicap-free life expectancy at birth has been much faster than the increase in life expectancy. Australia is the only country where handicap-free life expectancy shows a decline over the past 10 years, perhaps due to the wider definition used.[12]

---

[11]   Even within a country, there can be changes in definitions and methodology which make it difficult, if not impossible, to carry out meaningful comparisons over time.

[12]   However, there appears to be a net decline both in the prevalence of longstanding illness and handicap in Australia since the beginning of 1990s, see ABS, National Health Survey, 1995.

93.   Trends in health expectancies at age 65 are quite similar to that of health expectancies at birth (Table 10). Slight increases in disability-free life expectancy at this age are evident across most countries except Australia, Canada, and United Kingdom for men. Australia and Canada, once again, demonstrate declines and disability-free life expectancy for males in the United Kingdom is stagnating. Improvement in handicap-free life expectancy for elderly, on the other hand, appears to be as significant as the life-expectancy gains at 65 in most countries.

94.   The degree of disability is an important variable. Robine *et al*. (1991) concluded that disability-free life expectancy across countries had not increased relative to total life expectancy when the measure included moderate or light disability; however, when the measure only included severe disability (as defined by institutionalisation, confinement to house or bed, personal help or supervision required or impossibility to perform basic tasks in relation to self-care, mobility etc.), disability-free life expectancy increased along with, and relative to, total life expectancy. Robine *et al*. (1997) suggests that current estimates indicate at worst "a pandemic of light and moderate, but not of the severe handicaps or disabilities." Some researchers have extrapolated that it may appear that the most severe levels of disability are being contained; and if trends continue, the health systems will need to be prepared to address the emergence of more minor disabilities (Bebbington, 1997).

95.   Finally, another type of health expectancy mentioned in Table 8, is a "health-adjusted" life expectancy, which is a generic term for a weighted expectation of life summed over a complete set of health states. For such indicators, weights have to be derived for each health state. Canada has developed a health-adjusted life expectancy (HALE) using as its concept of health, the multi-dimensional health status instrument, the Health Utility Index. [13]

---

[13]   Wolfson, MC, Roberge, R, Berthelot, JM (1997) "Health-Adjusted Life Expectancy: A Comprehensive Indicator for Measuring Health Outcomes in National Population," Room document No. 5, OECD, December 1997

Table 9. Trends in health expectancy at birth

Country	Male			Female		
	Life expectancy at birth	Disability-free life expectancy at birth	Handicap-free life expectancy at birth	Life expectancy at birth	Disability-free life expectancy at birth	Handicap-free life expectancy at birth
Australia (2)						
1981	71.4	59.2	63.5	78.4	65.0	68.6
1993	75.0	58.4	62.4	80.9	64.2	66.9
Canada (3)						
1986	73.0	61.3	70.5	79.8	64.9	74.9
1991	74.3	60.7	71.5	80.7	63.8	75.8
France (4)						
1981	70.4	60.8	68.9	78.6	65.9	76.3
1991	72.9	63.8	71.7	81.1	68.5	78.8
Germany (5)						
1986	71.8	66.3	..	78.3	71.2	..
1992	73.2	68.4	..	79.6	73.6	..
Netherlands (8)						
1983	72.9	60.1		79.5	60.8	
1990	73.9	60.4		80.1	59.9	
Switzerland (9)						
1981	72.6	65.9	..	79.3	69.7	..
1989	74.0	67.1	..	80.9	72.9	..
United Kingdom (11)						
1981	71.1	58.7	..	77.1	61.0	..
1992	73.7	59.7	..	79.2	61.9	..
United States (12)						
1980	70.1	57.2	..	77.6	62.8	..
1990	71.8	58.8	..	78.8	63.9	..

See notes below Table 10 for sources and definitions of disability.

Table 10. Trends in health expectancy at 65

Country	*Male*			*Female*		
	Life expectancy at 65	Disability-free life expectancy at 65	Handicap-free life expectancy at 65	Life expectancy at 65	Disability-free life expectancy at 65	Handicap-free life expectancy at 65
Australia (2)						
1981	13.9	7.9	9.6	18.1	10.0	11.4
1993	15.7	6.5	8.4	19.5	9.1	10.3
Canada (3)						
1986	14.9	8.5	12.8	19.2	9.4	14.9
1991	15.6	8.3	13.3	19.7	9.2	15.4
France (4)						
1981	14.1	8.8	13.1	18.3	9.8	16.5
1991	15.7	10.1	14.8	20.1	12.1	18.1
Germany (5)						
1986	13.8	10.6	..	17.6	13.0	..
1992	14.9	12.0	..	18.7	14.7	..
Japan (6)						
1980	14.6	..	13.2	17.7	..	15.8
1990	16.2	..	14.9	20	..	17.3
Korea (7)						
1989	11.9	8.4	..	16.0	9.8	..
1996	13.2	11.1	..	16.9	13.0	..
Netherlands (8)						
1983	14	8.0	..	18.6	7.4	..
1990	14.4	9.0	..	19.0	8.0	..
Norway (9)						
1975	14.0	..	13.3	17.2	..	16.1
1985	14.3	..	13.3	18.2	..	16.9
Switzerland (10)						
1981	14.5	11.5	..	18.4	12.2	..
1989	15.4	12.2	..	19.6	14.9	..
United Kingdom (11)						
1981	13.1	7.9	..	17.1	8.6	..
1992	14.5	7.9	..	18.3	9.5	..
United States (12)						
1980	14.2	6.8	..	18.4	9.3	..
1990	15.1	7.4	..	18.9	9.8	..

Notes:

1. Disability and handicap concepts are only partly harmonised across countries. Therefore, when interpreting the table, attention should be paid to the country footnotes and REVES classification.

2. Disability defined as a person having one or more of following conditions lasting more than six months: impairments, functional limitations, and activity restrictions plus handicap prevalence data. Handicap refer to those disabled who identified limitations to some degree in ability to perform tasks in relation to one of the areas: self-care, mobility, schooling, employment etc. Classified as functional limitation-free life expectancy and other handicap-free life expectancy according to REVES. Mathers (1996).

3. Using a general scale of Activities of Daily Living, disability corresponds all kind of limitation in any daily function and/or activity. Handicap refers to severe disability (score >11) where no disability score null. Classified as activity-restriction free life expectancy and independent life expectancy, respectively, according to REVES. Wilkins*et al.* (1994).

4. Disability includes those persons who are limited in their daily activities (working, schooling, etc.). Handicap refers to severe disability defined by "confinement to home". All persons living in institutions for health reasons are considered as "handicapped". Classified as general handicap-free and mobility handicap-free life expectancy according to REVES. Robine and Mormiche (1993).

5.   Disability based on reported days unable to fulfill their usual tasks or perform their usual activities due to ill-health or injury. Classified as occupational handicap-free life expectancy. Data refer to West Germany (Old Länder), Brückner G. (1997).

6.   Corresponds to bed free (including institution free) life expectancy. Classified as mobility handicap-free life expectancy according to REVES. Inoue, Shigematsu and Nanjo (1997).

7.   Disability is defined as the condition in which one is not able to perform usual activities which are divided in 1989 into "daily activity restriction", "bed-ridden condition", "unable to perform daily activities". In 1996 a more detailed ADL scale is used covering 9 dimensions using Barthel index. Classified as activity-restriction free life expectancy according to REVES. Lee (1997).

8.   Corresponds to long term disability calculated with respect to 10 items from OECD indicator and short term activities (inactivity due to illness). Classified as activity-restriction free life expectancy according to REVES. Perenboom *et al.* (1993).

9.   Corresponds to restrictions in ability to perform activities of daily living. Classified as activity-restriction free life expectancy according to REVES. TNO (1994).

10.   Based on questions asking ability to dress/undress etc. Considered severe handicapped. Classified as independent life expectancy according to REVES. Institutionalised population is not included. Grotvedt and Viksand (1994).

11.   Based on any long-standing illness, disability, or infirmity which limits activity in any way. Bebbington *et al.* (1996).

12.   Corresponds to both major and secondary activity limitation. Major activities include able to go to work, go to school, keep house. Secondary activities are activities such as going to church and recreational activities. Named disability-free life expectancy by Crimmins *et al.* (1997, 1989).

Disability-adjusted life years

96.   The other type of composite health measure is the Disability-Adjusted Life Years (DALYs) which combines premature mortality and disability in an aggregate index and provides a distribution of main causes of disability (World Bank, 1993; Murray and Lopez, 1996). The DALY measure was developed under the auspices of World Bank to assess the global burden of disease in the world by extending the concept of potential years of life lost due to premature death (PYLL) --discussed in section on mortality-- to include equivalent years of "healthy" life lost.

97.   Technically, DALYs are the combination of Years of Life Lost due to premature mortality (YLL) and Years of Life lived with Disability (YLD) adjusted for the severity of disability.

- *Years of life lost due to premature mortality* is calculated at each age with standard death statistics and an arbitrary age limit for life.

- *Years lived with disability* are the time lived in ill-health states. This is estimated from the incidence of a health condition in a specific time period ; for each new case, the number of years of healthy life lost is obtained by multiplying average duration of the condition by a severity weight that measures the loss of healthy life compared with total loss of life -- derived by person trade-off method.[14] (Mathers, 1997)

98.   In the Global Burden of Disease study, the incidence and duration of disability for each specific disease were estimated by a group of experts on the basis of some epidemiological data and routine health facilities information where no data were available. To calculate total DALYs for a population, YLL and YLD components are added, and then two sets of weights are applied: discounting and age weights.

99.   Several unresolved issues remain in terms of the DALY methodology and related data outlined in the Global Burden of Disease (GBD) Study. The main problem is the lack of availability and quality of epidemiological data to calculate DALYs. In order to measure YLD or the loss of healthy life, it is necessary to assess the incidence, duration and severity of different health conditions (disease or injury) by age group and sex. Because of the lack of data available, the GBD study had to rely on estimates made by experts and extrapolations made from the literature and routine health facilities information. But, to pursue further calculations of DALYs, the basic data on incidence of different health conditions need to be developed first.

100.   The second problem which exists is that explicit assumptions and value judgements have been incorporated into these calculations with the weighting techniques such as, the severity weights for health states, age weighting and discount rates. These explicit choices, advocates of DALYs argue, more strongly expose the implicit choices often made in prioritising health problems in policymaking. However, this approach is generating considerable debate among researchers and policy makers alike as to their theoretical and technical justification.

101.   Estimates for DALYs have been calculated for six demographic regions in the 1990 Global Burden of Disease study. The established market economies (EME) region mainly represents OECD

---

[14]   A type of elicitation method used to value health states. The person trade-off method allows comparisons of the numbers of people helped in different health states. For instance, how many persons in state B must be helped to provide a benefit equivalent to helping one person in state A. Many experts believe that this method elicits information useful in making a policy decision.

countries[15]. The burden of disease for the EME region is equally attributed between premature mortality (50.3 per cent) and disability (49.7 per cent) compared to the developing countries where up to 75 per cent of the total loss of health is due to mortality. This finding highlights the inadequacy of monitoring *only* mortality-based indicators and underscores the necessity of developing measures integrating both fatal and non-fatal consequences of disease and infirmity on health in the OECD area.

102.   The population aged 60 and over bears close to one-third of the total burden of disease for the EME region (33 per cent), while only 6 per cent of burden of disease in industrialised countries falls on children 0 to 4 years. In 1990, years of life lost with disability (YLD) rate is just about the same for men (50.7 per cent) and women (49.3 per cent); while in terms of years of life lost due to mortality, a much larger differential across sex emerges 40 per cent for females and 60 per cent for males.

103.   The significance of major disease categories for the EME region are ranked in Table 11 both in terms of years of life lost (YLL) and DALYs for 1990. These comparative rankings illustrate the different order of health priorities when the disability component is added. In particular, neuro-psychiatric conditions--including alcohol use, dementia, and suicide-- represent the most important category in terms of the burden of disease, comprising 25 per cent of DALYs. These conditions made a large contribution to years lived in disability (47 per cent), but a small one to years of life lost, (3 per cent) for the EME region. This was also the case with musculoskeletal diseases. Other major categories of burden of disease include cardiovascular disease, malignant neoplasms, and injury-related conditions. These conditions tended to rank high due to their large contribution in both premature mortality and disability.

---

[15]   The Czech Republic, Hungary, Korea, Mexico, Poland and Turkey are excluded from the established market economies region, while Andorra, Bermuda, Channel and Faeroe Islands, Gibraltar, Greenland, Holy See, Isle of Man and San Marino are included, along with the other 23 OECD countries.

Table 11. Years of life lost and disability-adjusted life years in established market economies in 1990

Disease/ Injury	Rank	Number of YLLs (000s)	Proportion of all YLLs (%)	Rank	Number of DALYs (000s)	Proportion of all DALYs (%)
Cardiovascular diseases	1	15,288	30.8	2	24,747	25.1
Malignant neoplasms	2	12,985	26.1	3	18,339	18.6
Unintentional injuries	3	5,134	10.3	4	14,843	15.0
Intentional injuries	4	2,769	5.6	8	8,608	8.7
Digestive diseases	5	2,292	4.6	6	4,773	4.8
Respiratory diseases	6	1,768	3.6	5	4,307	4.4
Neuro- psychiatric conditions	7	1,564	3.2	1	4,125	4.2
Perinatal conditions	8	1,533	3.1	11	3,150	3.2
Infectious and parasitic conditions	9	1,495	3.0	9	2,750	2.8
Musculo- skeletal diseases	<15	192	0.4	7	2,133	2.2
All Causes		**49,674**	100.0		**98,794**	100.0

Note: The Coale and Demeny model life table West with an expectation of life at birth for females of 82.5 years and males of 80 years has been chosen as the standard for calculating years of life lost (YLLs).
Source: Murray and Lopez, 1996.

104.   Despite the ongoing debate over the methodology, several countries have begun to calculate their own estimates of DALYs with the rankings of burden of disease by major causes. Mexico, one of the first countries to calculate national estimates of the DALYs, has closely followed the methodology of the Global Burden of Disease study (World Bank, 1993; Lozano, 1995; 1997). Based on the 1991 and 1994 calculations, the level of DALYs remains the same, with about 13 million DALYs lost in Mexico. The burden of disease was borne more by males than females regardless of age --7.7 million versus 5.4 million years in 1994. In 1991 and 1994, premature deaths accounted for about 58 per cent of the burden of disease, while disability contributed about 43 per cent.

Table 12. Ranking of health needs using three health status measures, Mexico 1994

Causes	Mortality	PYLL	DALYs
Ischaemic Heart Disease	1	9	6
Diabetes Mellitus	2	8	4
Acute respiratory infections	3	1	3
Cerebrovascular disease	4	11	11
Cirrhosis of the liver	5	4	8
Homicides and violence	6	2	1
Chronic obstructive pulmonary disease	7	17	19
Watery acute diarrhea	8	3	7
Malnutrition	9	6	9
Nephritis	10	12	14
Motor vehicle accidents with driver and passenger injuries	11	5	2
Hypertensive heart disease	12	27	21

Source: Lozano, R. The Burden of Disease in Mexico: Advances and Challenges, 1997. Age-adjusted mortality rates based on Mexican standard population.

105.   Table 12, taken from Lozano *et al*. (1995), presents in the first column the top twelve main causes of mortality in Mexico for 1994. Potential years of life lost are displayed in the second column and DALYs is in the third column. Comparisons of the DALYs with other traditional health status measures -- such as cause-specific age-standardised mortality rates and potential years of life lost -- make it clear that the order of health needs are prioritised quite differently depending on the indicator analysed. Diseases that rank high when comparing mortality rates (*e.g.* ischaemic heart disease and chronic obstructive pulmonary disease) rank lower when considering PYLLs and DALYs. Homicides and violence, along with traffic accidents, are major causes of premature mortality and burden of disease, while their contribution to mortality is much less important in Mexico. When adding disability to the assessment in DALYs, a different picture emerges with diseases such as, neuropsychiatric diseases and injury-related conditions, rising in importance. These findings are confirmed in initial estimates of DALYs in other countries.

106.   Following Mexico, Australia and the Netherlands have produced a first set of DALY estimates. Australia applied directly the estimates of years of life lived with disability derived for the EME region to their calculations using their own mortality data; while the Netherlands relied on various national sources for the disability data as best they could. Several other countries such as Japan, Korea, Spain, Sweden, New Zealand and the United States have also begun to derive their own YLD estimates and calculate DALYs on a national level.

107.   Indicative estimates of the burden of disease for Australia for 1996 are presented in Chart 8. These estimates were conducted to provide an illustration of how such estimates could be used in the approach to priority setting. Australian estimates are based on Australian mortality data for 1996, and estimates of DALYs due to non-fatal diseases are derived from the estimates for Established Market Economies calculated in the Global Burden of Disease study using the age-sex-disease specific rates of YLD/YLL. Where the ratio of YLD/YLL was greater than 10, age-sex-disease rates of YLD per 1000 in the EME were applied to the 1996 Australian population (Mathers, 1998). However, the age weights and discount rates were not applied. It should be noted that the relevance of estimates from Australia are limited since countries may prove to have very different YLD/YLL ratios for different diseases than what was estimated for the overall EME region.

Chart 8. Estimated DALYs for Australia with contribution of mortality and disability, 1996
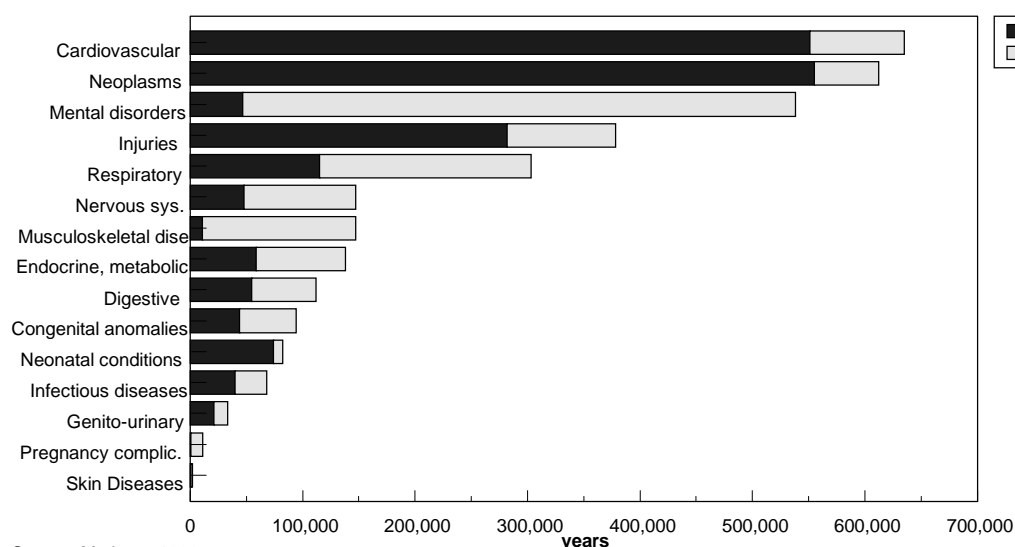
Source: Mathers, 1998.
Discount rates and age weights not applied.

108.   In Australia, cardiovascular diseases account for the largest proportion of burden of disease at 19.2 per cent, with neoplasms, mental disorders and injuries following behind as the next largest contributers to total burden of illness (18.6, 16.3 and 11 per cent respectively). As in the examples from Mexico and the EME region, conditions such as, mental disorders, respiratory diseases, and musculo-skeletal diseases emerge as major contributors to the disease burden when disability is considered.

109.   In 1997, the Netherlands made a first attempt to conduct a burden of disease calculation, close to the approach taken in the original GBD study. An important component of the Dutch study was the development of a comprehensive set of the severity weights for the major disease categories relevant to

the Dutch population. Using available national data on point prevalences and incidences for different conditions and the severity weighting factors which were developed specifically for their own population, the Dutch were able to calculate years lived with disability. Similar to the DALYs estimates for the EME region and Australia, the disease categories with a significant impact on health in the Dutch population, such as mental disorders, heart disease, and cancer are very similar to the EME region and Australia. The total of years lost due to disability was 1.5 times that of the total number of potential years of life lost for the Dutch population (Netherlands RIVM, 1997).

110.	A project has also been undertaken to examine more closely the disability weighting component of the DALYs. Seven countries are participating in the project: Netherlands, Sweden, France, Spain, Norway, United Kingdom, and Denmark. The aim of the project is threefold: first, to establish a comprehensive list of disability weights associated with the various diseases that constitute the major part of the burden of disease in Europe; second, to improve, refine and validate the methodology to estimate the disability weights; and third, to examine the cross-national stability of the disability weights. If successful this will enable more reliable estimates of the burden of disease to be calculated provided disease incidence and mortality data are available for these countries.

111.	At present, experimentation continues in several OECD countries and considerable uncertainties in the calculation of DALYs remain. Within the next five years, more national estimates are likely to be available for analyses. However, international collaboration will be essential if these estimates are to be comparable.

CONCLUSIONS: HEALTH OUTCOMES FOR MONITORING POPULATION HEALTH STATUS

112.   Traditionally, mortality indicators have provided useful information for describing the level of health status in the population. With the consistent gains in life expectancies and emergence of chronic conditions, it has become important to complement mortality data with information on non-fatal conditions and their effects on quality of life to describe a more comprehensive picture of health of the populations. But, at present, there is a significant lack of comparable morbidity and quality-of-life data available on a national level in OECD countries.

113.   Development of a basic information base of mortality and morbidity is the first step to move towards more outcome-oriented policy making, not only at international level, but also for national studies since they provide the fundamental data to calculate any of the presented health indicators (Table 1b). It is clear that even among OECD countries, continued improvement of ascertainment and classification of specific causes of death is needed for accurate estimates of mortality. Here, support for WHO's continued work on this topic is essential. But, the priority, from OECD's perspective, should be to encourage the development of relevant and comparable morbidity statistics by collaborating with existing international projects.

114.   The first step would be to standardise the morbidity-related items on the national health surveys across OECD countries. Each country's survey should include: a measure of perceived health status and measures of impairment, disability and handicap with common concepts, definitions, design, and administration. To improve comparability of self-reported disability, it would be desirable to develop an ADL-based instrument with a common set of items and severity categories. Also, such an instrument should be designed to be more sensitive to changes in disability for the general population, and not just the elderly.

115.   As OECD countries proceed to implement multi-dimensional health status instruments, more comparative analyses of the results of the application of these different instruments to the same population, as well as across different populations and over time, are needed. This would help to clarify the merits and disadvantages of each measure in satisfying decisionmaking and monitoring needs.

116.   While disability measurement will assist in monitoring the consequences associated with health conditions, prevalence and incidence of disease data is an important complement, providing a more comprehensive picture of the burden of disease in the population. However, comparable disease-specific morbidity data are scarce across OECD area, and it is clear that more work is needed to improve the quality and the comparability of this data by collaborating with existing international projects.

117.   Availability and quality of general morbidity data along with disease-specific data is primordial for the calculation of the composite indicators such as health expectancies and disability-adjusted life years (DALYs). At this moment, the most feasible of these composite measures is the health expectancy measure. Health expectancy indicators are potentially useful for measuring health gains within and in comparison between the populations, however at present, there are considerable variations in the

definition of "disability" and "handicap" across countries. Standardisation of concepts used, as well as data in the basic information base described above, is a fundamental requirement for ensuring reliability of health expectancies as a measure of health status.

118.   Regarding DALYs, the principal problem is the lack of availability and quality of epidemiological data. The basic data on the incidence, duration and severity of different diseases need to be developed first in order to produce burden of disease estimates across OECD area. At the same time, there are several methodological issues to be resolved. The value judgments which have been incorporated into calculations with weighting techniques need to be clarified. More objective and transparent weighting systems seem essential for the development of this instrument as a policy making tool. The national experts agreed to encourage the experimentation being undertaken in Member countries and continue to monitor and analyse the final results in the countries.

119.   While a universal composite health measure is an attractive goal for many, an indicator which can address all types of health problems for any population group is not feasible. Only an integrated set of international health indicators will serve to underpin outcome-oriented policy making, as presented in Table 1a. Each type -- generic and disease specific mortality and morbidity measures, composite health measures, and subjective and objective measures -- serves its own purpose. Together, they provide a more comprehensive picture of health status in the population than relying on one summary measure.

INDICATORS OF PERFORMANCE OF THE MEDICAL-CARE SYSTEM

120.   In recent years, several factors in the medical-care sector have created a demand for information on the effectiveness of medical care, such as extensive variations in health-care utilisation, increasing competition in health-care delivery, and rising medical-care costs. Unfortunately, measures of outcomes which are directly attributable to a service, programme, or intervention are difficult to obtain, since there are too many other factors affecting health beyond the medical-care system. Without conducting multi-variable modelling or randomised controlled trials to control for non-medical factors, it is difficult to establish a robust link between medical care and changes in health status. In order to respond to the demand of information on the contribution of medical care to the health status of the population, OECD countries have proceeded to develop 'proxy' indicators, primarily in the form of performance of the medical-care system and quality-of-care indicators, where health care has a predominant role, but not necessarily an exclusive role.

121.   Several countries such as Australia, United States, and the United Kingdom, as well as various international networks have already created sets of indicators to monitor the performance and quality of health interventions, services, and/or system.[16] For instance, under Australia's National Health Priority Areas, several proxy measures are being developed for routine reporting such as prevalence rates for diabetic complications (e.g., end-stage renal disease, eye complications, foot problems, and coronary heart disease) or proportion of patients who die, suffer myocardial infarction or undergo further revascularisation procedures within 12 months of angioplasty treatment for coronary heart disease. In the United Kingdom, sets of 50 population health outcome indicators have been developed based on the judgement that health care had a substantial role in change in health status such as a set of avoidable mortality indicators and other such as acceptance rate for renal replacement therapy and incidence of admissions and deaths from hip fractures. In the United States, the Health Plan Employer Data and Information Set (HEDIS) has been developed to monitor performance of health plans across similar indicators using administrative data and medical records. Currently, there are fourteen indicators in the United States focused solely on quality of care in HEDIS such as rates of various preventive screenings; number of low-birthweight infants; and childhood immunisation status.

122.   These measures are being used in many OECD countries to assess quality of care and performance at all levels of the medical-care system, from providers of care to the government for monitoring overall performance of the medical-care system. In large part, these programs share similar conceptual approach in that they attempt to draw a link more closely coupled to medical care. Most are based on evidence from the literature or general consensus in the medical field that a medical-care intervention play an important role in the improvement of the health state. However, operational definitions of the indicators vary according to each program.

---

[16]   For more information, see "Member Countries' Experiences: Results of the Second Questionnaire on Health Outcomes," Working Party on Social Policy, Ad Hoc Meeting of Experts in Health Statistics, DEELSA/ELSA/HP(97)2.

123.   Based on research from different countries, there are several commonly-used performance indicators, such as rates of avoidable mortality and rates of effective health-care interventions. These types of indicators are based on evidence of effectiveness of medical care in the scientific literature. Other examples of performance indicators widely used in OECD countries are survival rates, rates of adverse events which can only be a result of a medical-care intervention, and rates of satisfaction with the health care system.

124.   In the OECD area, there is an increasing demand to establish a common set of performance indicators to better understand the effectiveness of medical care services provided and to direct related policies in the Member countries. Based on examples of existing country efforts across OECD, some illustrations of selected performance indicators are presented below using data from *OECD Health Data* and other international sources. It is important to understand that the indicators presented are not a "recommended" indicator set, but illustrate a range of performance indicators currently being used in Member countries.

Rates of avoidable mortality and morbidity

125.   Existing mortality data can be used to evaluate the performance and quality of the medical care system. Rutstein *et al.*(1976) proposed the use of mortality rates for certain conditions and incidence of specific diseases as potential indicators of quality of care where there is clear evidence that timely and appropriate medical intervention would either prevent the condition or treat the disease at an early stage.

126.   Since then, work has been conducted in the European Community where three editions of the atlas of "avoidable deaths" have been published (Holland, 1997). One has also been published for Eastern Europe (Jozan, 1997). Similar work has also been conducted at the Manitoba Centre for Health Policy and Evaluation with the development of "the health care system sensitive indicators" using existing administrative data reflecting hospitalisations and mortality (Cohen, 1994). These inspect a selection of "unnecessary-untimely" deaths and assess geographical differences in mortality rates for selected diseases within and across countries. In the compilation of the atlas of "avoidable deaths" in the European Community, a number of conditions were agreed upon for which, given modern medical care, deaths ought not to occur -- such as tuberculosis, cervical cancer, asthma, appendicitis, and perinatal and maternal complications. To enhance the validity of mortality as an indicator of health outcomes, strict age limits were identified in the EC atlas for each condition

127.   The concept of avoidable mortality has also been extended to monitoring avoidable morbidity where effectiveness evidence demonstrates that the disease condition or hospitalisation could have been preventable if appropriate care was given. Many of these examples tend to be highly relevant to monitoring the adequacy of primary and preventive care in a medical-care system.

128.   The commonly-used examples of avoidable morbidity in OECD countries are:

- low birthweight infants under 2500 g, which provides oversight of the adequacy of maternity care and management of antenatal care on a population level;

- incidence of cervical cancer, which is largely preventable if consistent screening is provided;

- hospitalisations or emergency admissions for conditions such as diabetes, hip fractures, and asthma, which are potentially avoidable through appropriate early intervention before crisis occurs.

- incidence of amputations among diabetic patients. Here, there is evidence that specialised treatment for diabetic foot problems reduces significantly the need for major amputations.

Illustration of avoidable mortality indicator: maternal mortality

129.   Maternal mortality has long been accepted as an indicator of the quality of obstetric and infant care. The indicator measures the number of deaths among women during pregnancy and during or after childbirth. In most OECD countries, maternal mortality has declined significantly since the 1970s, from an average of 32 to 9 maternal deaths per 100,000 births -- a fourfold reduction in twenty-five years. In 1970, maternal mortality ranged from 8 deaths per 100 000 births in Denmark and Finland to 143 deaths per 100 000 births in Mexico. This wide variation has narrowed over the last twenty-five years, to 1 death per 100 000 births in Finland to 53 deaths per 100 000 births in Mexico, in 1995 (Table 13).

130.   The high rates of maternal mortality in the 1970s signalled possible shortcomings in the medical-care system -- in particular, a lack of quality and access in obstetrics care. It is clear that maternal mortality is often caused by substandard care leading to complications during delivery, abortions, Caesarean sections, complications with infections, and problems with anaesthesia. In the 1990s, despite the significant decline over the last 25 years, there are still a large number of maternal deaths occuring in most of the OECD countries where many believe are largely preventable.

Table 13. Maternal mortality, per 100 000 births, 1970-1995

	1970	1980	1990	1995
Australia	26	10	6	9
Austria	26	8	7	1
Belgium	20	6	3	..
Canada	..	28	10	17
Czech Republic			8	2
Denmark	8	2	2	10
Finland	8	1	4	1
France	28	13	10	12
Germany	52	21	7	5
Greece	28	18	1	2
Hungary	42	21	21	15
Ireland	31	7	4	..
Italy	54	13	9	4
Japan	52	21	9	7
Luxembourg	..	..	20	18
Mexico	143	95	54	53
Netherlands	13	9	8	7
New Zealand	..	..	5	4
Norway	11	12	3	3
Poland	29	12	13	10
Portugal	..	20	10	8
Spain	33	11	5	4
Sweden	10	8	3	4
Switzerland	25	5	6	9
United Kingdom	18	11	8	7
United States	22	9	8	7
OECD	32	16	9	9

a) Data refer to 1994 for France, Norway and Spain and to 1993 for Italy.
Source: OECD Health Data 1998

Illustration of avoidable morbidity indicator: birth defects
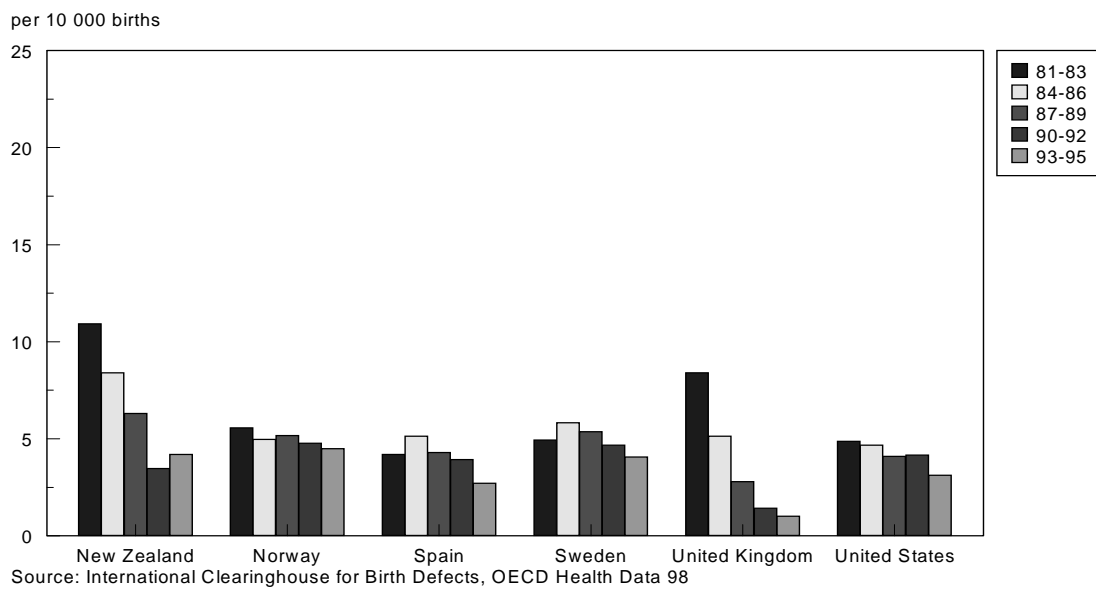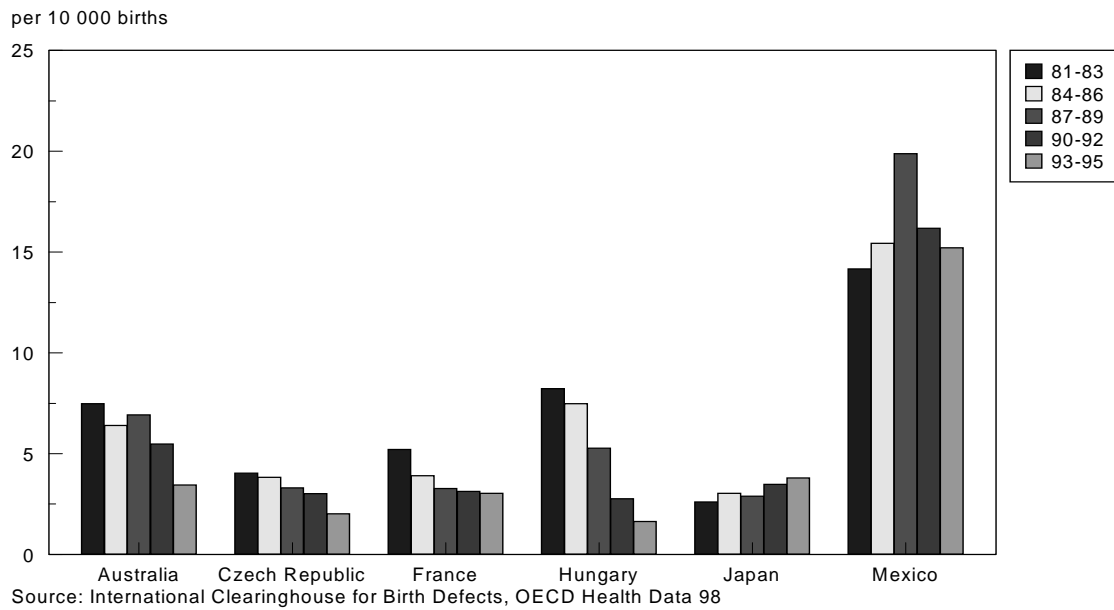
131.   Prevalence and incidence of selected conditions can be used as indicators of quality of care if there is enough evidence that the conditions could have been prevented or treated if specific action had been taken. Prevalence of birth defects is a good example since it provides insight into the level of prenatal care provided and the availability of preventive screening.

132.   Several countries have developed national registries to collect data on birth defects, and the International Clearing House for Birth Defects (ICBD) has played a role in coordinating data collections across several registries. Based on data available from ICBD, in 1993-1995, countries have reported a wide range of rates from 1.01 per 10 000 births in England and Wales to 4.50 per 10 000 births in Norway (Chart 9). A higher rate of spina bifida continues, however, in Mexico at 15.21 per 10 000 births in 1993-1995. In most of the countries presented, there have been downward trends in the prevalence of spina bifida between 1981 and 1995; while trends have been more variable in Mexico. Japan, on the other hand, reveals a slight upward trend in prevalence from 2.6 to 3.8 per 10 000 births for the same period.

133.   Reduction in prevalence of spina bifida and other congenital anomalies is partly attributable to the improved prenatal diagnosis and wider use of screening techniques over the years. These screening techniques have assisted in earlier diagnosis and as a result of the diagnosis, possible termination of pregnancy as a secondary preventive approach. Variation across countries in prevalence may represent the lack of consensus within and across countries over whether screening is effective in accurate diagnosis of spina bifida or other anomalies and whether it should be routinely conducted. Additionally, variation may be due to other factors, such as mothers' cultural values where some females may find it inappropriate to terminate their pregnancy.

134.   It will be important to continue to monitor the prevalence of spina bifida since in recent years, studies have indicated that folic acid deficiency in women may cause spina bifida and other neural tube defects. Several countries have encouraged the application of these recommendations as a preventative programme; therefore, it would be beneficial to continue collection of data on prevalence of congenital malformations so to adequately monitor the effectiveness of these recommendations.

Chart 9. Prevalence of spina bifida for selected OECD countries, three-year averages, 1981-1995

per 10 000 births

Source: International Clearinghouse for Birth Defects, OECD Health Data 98

per 10 000 births

Source: International Clearinghouse for Birth Defects, OECD Health Data 98

Survival rates

135.   Survival rates measure the proportion of all patients still alive at a given point in time after diagnosis or after an intervention/treatment. It is a common indicator used to determine the effectiveness of patient care. For instance, the survival time for a given cancer patient is defined as the "elapsed time between diagnosis and death." (Verdecchia, 1996) Since it is linked with the diagnosis, the indicator can, in principal, more directly reflect care treatment -- particularly if the survival rate is measured within a short time frame since the diagnosis or treatment (e.g. one-year, three-year, and five-year survival rate).

136.   Survival rates for cancer can be presented in two ways: observed rates and relative rates (Verdecchia, 1996). Observed rates are the proportion of all patients still alive at a given point in time after a certain diagnosis. Relative survival is the ratio of observed survival rate in the group of patients to the survival rate expected in a similar group from the general population. In the case of cancer, for example, relative survival rates may be more suitable since it accounts for the effect of non-cancer mortality.

137.   Chart 10 presents the relative survival rates for colon and breast cancer in selected countries for 1978-1985 period based on the first pan-European study on survival in cancer patients, called the EUROCARE study (Berrino, 1995). These results are based on 800,000 cancer patients diagnosed during the period 1978-1985 from 30 cancer registries in 11 European countries, by using common methodology and controlling for age, sex, and period-specific mortality. Results for 1985 to 1989 will be added at the end of 1998. United States and Japan data come from different sources: the National Cancer Institute's Surveillance, Epidemiology, and End Results program (SEER) and the Osaka Cancer registry, respectively; therefore, comparison of the United States and Japan data with the European countries should be conducted with caution.

138.   From 1978 and 1985, most countries showed improvement in their five-year relative survival rates for colon cancer with the exception of Denmark, Spain, and Switzerland. These increases are likely to be improvements in medical treatment and perhaps, better diagnostic and screening techniques since the late 1970s. Across the countries, there was not much of a difference between relative survival rates of men and women. However, there was significant variation in the level and trends of relative survival for both breast cancer and colon cancer for the total population across OECD countries. Relative survival rates for colon cancer ranged from a high of 57 in the United States and a low of 38 in United Kingdom and 23 in Poland in 1983-1985 period.

139.   Higher relative survival rates for breast cancer have been observed than for colon cancer across the European countries between 1978 and 1985. Again, significant variations in the level and trends of relative survival for breast cancer existed across countries. Several countries showed a steady upward trend in survival rates during this period such as England, France, Italy, Japan, and Poland. Others either maintained their level of five-year survival or did not show a clear increasing or decreasing trend. Relative survival rates ranged from 85 per cent in Switzerland to 57 per cent in Poland among women in 1983-1985.

140.   The higher survival rates for breast cancer in the mid 1980s might be due to the fact that diagnosis is often made quite early in the process due to mammography screening and other preventive techniques as well as through improvements in therapeutic procedures. For these reasons, survival rates, while vital, need to be analysed together with age-specific incidence data to assess trends adequately.

141.   The differences in survival across countries can provide a proxy measure of the quality of care for certain conditions and can highlight areas where better intervention after diagnosis is essential. Ideally, these survival rates should be standardised for the stage of cancer at diagnosis as well, among other factors described above. There are national cancer registries in Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, Hungary, Iceland, Ireland, Korea, Luxembourg, New Zealand, Sweden, United Kingdom, United States; while multiple local and regional registries are located in France, Germany, Greece, Italy, Japan, Netherlands, Portugal, Spain, and Switzerland. It is important to continue this work to determine whether survival rates for major diseases are in fact improving with time, and whether they differ significantly between countries.

Chart 10. Five-year relative survival rates for colon and breast cancer, 1978-1985
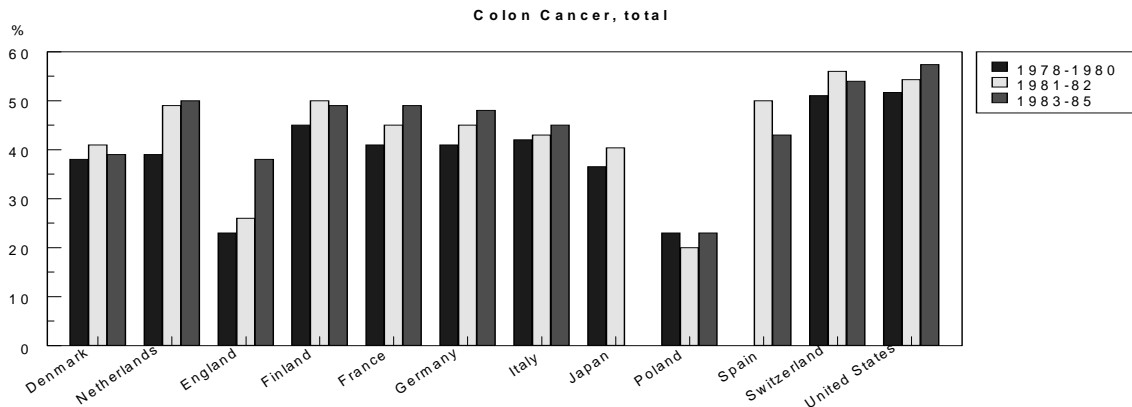
Colon Cancer, total

Source: IARC, EUROCARE study, U.S. National Cancer Institute's SEER program, an and Osaka cancer registry

Breast Cancer, female
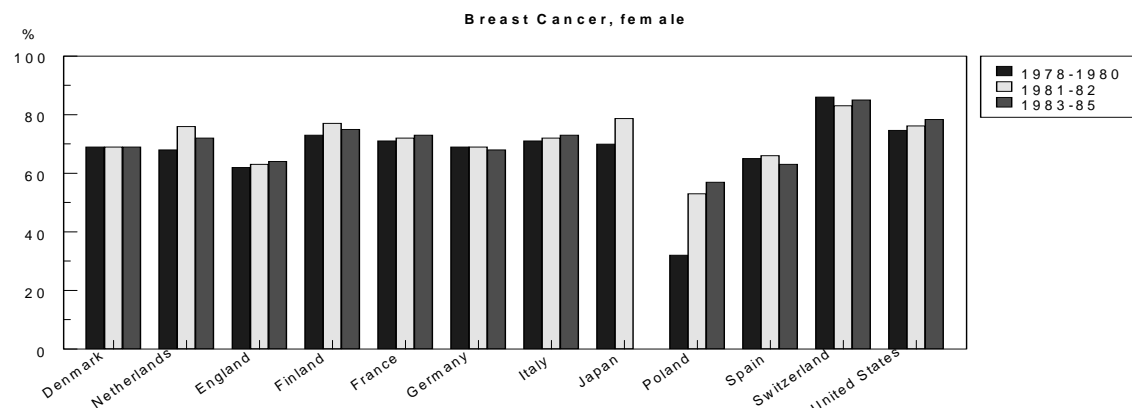
Source: IARC, EUROCARE study, U.S. National Cancer Institute's SEER program, an and Osaka cancer registry

Rates of effective health-care interventions

142.　　Rates of effective health-care interventions can also be used as an indicator of performance of the medical-care system where there is evidence in the research literature that the level of benefit improves as a result of the specific intervention. Examples of this indicator include rates of immunisation, rates of preventive screening for blood pressure, cholesterol and cancer; percentage of pregnant women receiving prenatal care in the first trimester; and beta blocker treatment after a heart attack. These process-based indicators analyse the medical practice variations and inferences can be made based on the variations regarding differences in health outcomes in the population.

Illustration: uptake rates of breast cancer screening

143.　　For example, with breast cancer, there is clear evidence in the medical literature that demonstrates significant benefits from mammography screening in women between ages of 50 and 69. Studies have shown that screening programmes, with participation rates around 70 per cent, for women 50-69 years of age, can reduce the risk of dying by one-third. (Nystrom, 1993). However, the evidence is less clear in terms of benefits and cost-effectiveness of mammography screening for women under age 50.

144.　　A meaningful performance indicator could be the participation or uptake rates of breast cancer screening and how well the targeted female group in the population is accessing the mammography screening. High and low values of this indicator will shed light on the accessibility of these services through the national programme and on any unforeseen barriers to services for the targeted group of women.

145.　　National breast cancer screening programmes have been organised in several OECD countries including: Australia, Netherlands, the United Kingdom, Finland, Luxembourg, and Sweden -- mainly in the late 1980s and early 1990s. Australia has collected information via its National Health Survey which indicated in 1988-1990 that only 22 per cent of women aged 40 to 64 had had a mammography screening in the previous three years, with the highest proportion (25 per cent) in the 45 to 49 year age group. (AIHW, 1992). In the United States, the percentage of women having a mammogram within the past two years over the age of 40 has climbed significantly from 28.7 per cent in 1987 to 60.9 per cent in 1994[17] (U.S. Dept. of HHS, 1994). In 1995, 62 per cent of those women over 40 years old in the Netherlands who have ever had a mammography had their latest screening in the last two years. (Statistics Netherlands, 1996). Also, in the United Kingdom, uptake rates for breast cancer screening have been incorporated as indicator used in their performance framework of their different regions. Poor awareness, lower education levels, income, and language barriers have been common reasons for the low proportion of uptakes among women.

146.　　The Eurobarometer survey has included a question in its 1995 survey to monitor mammography screening. Rates of participation as displayed in Chart 11 might highlight the differences between the national screening programs.

---

[17]　It should be noted that questions concerning use of mammography differed slightly on the National Health Interview Survey across the years for which data are shown for the United States.

147. It is clear that the rates of health care interventions, such as breast cancer screening, should be examined in the context of the levels of breast cancer in the population, using either incidence or mortality data as described above. With both types of performance data in hand, it would be possible to assess whether variation in practice has led to any significant health outcome differentials.

Chart 11. Percentage of women 50-69 years reporting a mammography in the past year for European Union in 1996
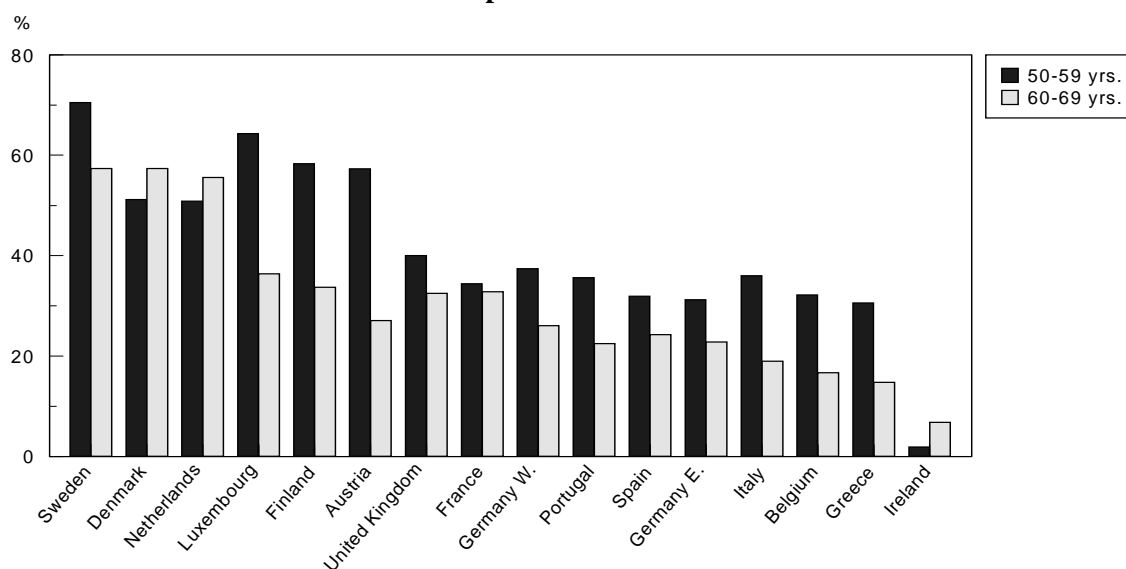
Source: Eurobarometer 44.3/1996

Illustration: rates of heart disease treatment

148. The example of monitoring cancer screening rates takes a preventive perspective. It would also be beneficial to extend this analysis to "effective" therapeutic interventions which reduce morbidity, improve survival, and increase quality of life among patients suffering from a certain condition.

149. Cardiovascular diseases tend to be one of the major causes of mortality and morbidity across OECD countries. It might be useful to analyse the level of the use of different treatments, proven effective, as a potential indicator of performance to determine whether the medical care system is adequately addressing the health needs of the populations.

150. In the medical literature over the years, two types of heart disease operations --coronary artery bypass grafting (CABG) and percutaneous transluminal coronary angioplasty (PTCA)-- have been identified as effective treatments in relieving pain, preventing heart attacks and prolonging life. Rates of PTCA (often referred to as "angioplasty") -- a therapy which inserts a balloon to widen a narrowed blood vessel -- have consistently increased over the period of 1985 to 1991 in several OECD countries. (Chart 12).[18] There is, however, considerable variation in terms of the number of PTCAs performed across these

---

[18] Ideally, in this analysis, CABG data would have provided a more comprehensive picture of overall heart disease curative treatment. However, availability of data was limited for the number of years and countries covered.

countries over this period and though the variation has narrowed over the six years, the ranking order of the countries remains almost the same over this time. It should be noted that when measuring levels of treatment within populations, the analysis should take into account several issues, these could include the appropriateness of the treatment, the impact of technological regulation and diffusion and the effect of its medical care insurance system on utilisation of the treatment.

151.   For example, comparing the age-standardised mortality rates for ischaemic heart disease with the rates of PTCA might assist in determining the extent to which health care resources are being used optimally or not. There has been a significant downward trend in the mortality rates due to ischaemic heart disease in the OECD area. In Chart 13, the mortality rates for ischaemic heart disease are compared to rates of PTCA in 1993 to illustrate solely potential analyses which could be done with this type of data.[19] There appears three groups of countries in the chart. The first group including, Hungary and Czech Republic, demonstrates high rates of heart disease mortality, but low rates of PTCA. The second group of countries (Luxembourg, Italy, Greece) have low death rates and low PTCA, while the third group have average mortality rates and medium to high rates of PTCA. The United States is an outlier in this chart, with mortality rates above the median, but the highest use of PTCA by far, with 1275 PTCAs per million population. (Van Brand, 1991)
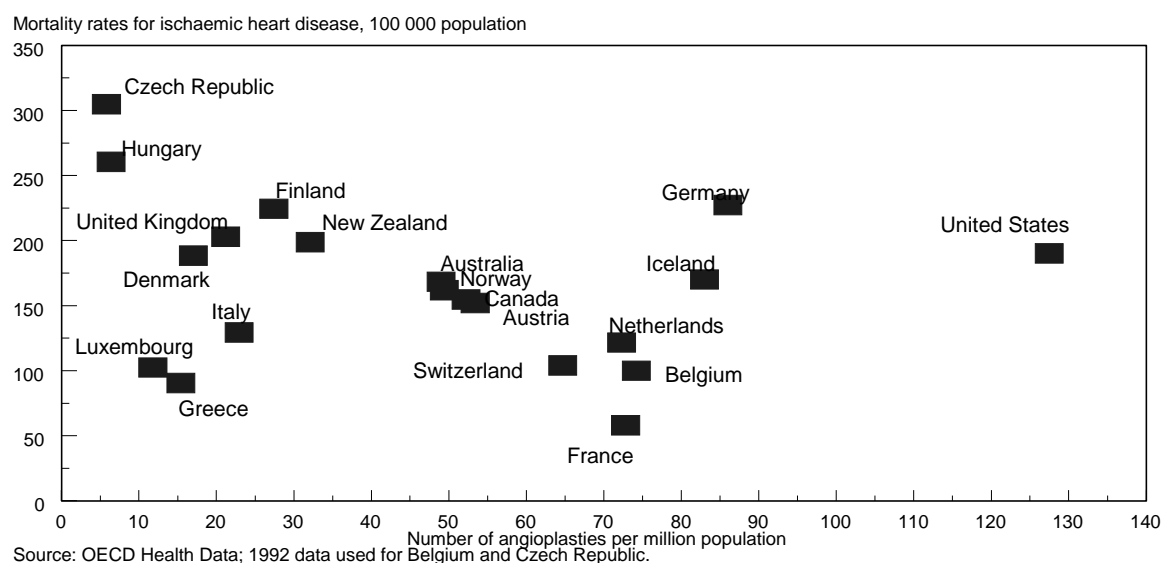
Chart 12. Rates of angioplasties in selected countries, 1985-1991.

Source: Van Brand, 1991

---
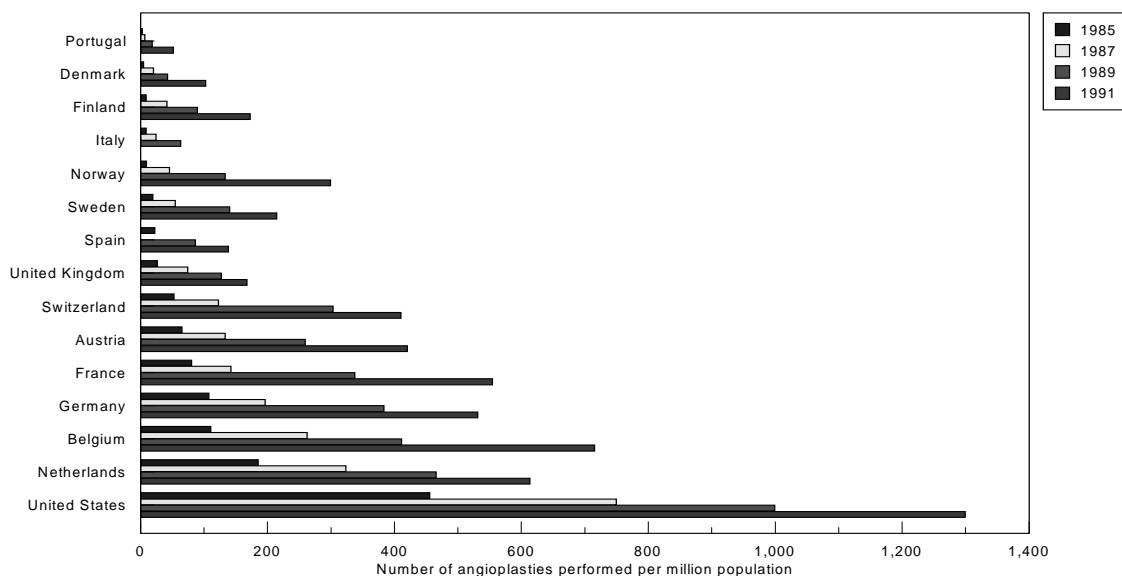
[19]   See footnote 16. Additionally, preventive measures should be included for a more comprehensive view of the medical-care inputs when comparing to mortality rates and it should be understood that relationship between mortality and PTCA is unlikely due to the lag in demonstrated benefits from the interventions. These charts were presented for illustrative purposes.

Chart 13. Mortality rates for ischaemic heart diesease as compared to rates of angioplasties, 1993.

152.

Mortality rates for ischaemic heart disease, 100 000 population

Source: OECD Health Data; 1992 data used for Belgium and Czech Republic.

Rates of adverse events

153.   Another type of commonly-used performance indicator measures adverse or sentinel events that bring about a decline in health status as a result of a medical-care intervention, such as hospital-acquired infections and complications in routine surgery. Several studies in the OECD area have shown that there are a significant number of adverse events that are preventable and are creating additional costs for the health care systems.

154.   For instance, rates of hospital-acquired infections have become a recognised indicator included in quality assurance programmes in hospitals. In responses to an OECD questionnaire on health outcome indicators, several countries--Australia, Belgium, Denmark, Finland, Hungary, Iceland, Italy, Spain, and the United Kingdom-- explicitly mentioned their work in gathering data on hospital-acquired infections (HAIs). In recent years, several types of national and regional networks have been set up for the surveillance of HAIs such as the United States' Centre for Disease Control's National Nosocomial Infection Surveillance Systems, the European Union-sponsored EURONIS project (Nosocomial Infections in Intensive Care Units in Europe), the National Nosocomial Infection Surveillance Program or the DANOP/WHOCARE initiative, co-ordinated by the WHO Regional Office for Europe and the Danish Statens Serumenistitut.

155.   Infections acquired during a hospital stay often prolong hospitalisation, increase morbidity and mortality among these patients, and add considerably to the costs of treatment. Approximately one-third of all HAIs are potentially preventable by means of stringent effective control programmes (Worning, 1994). It has been shown that the risk of HAIs can be reduced with the implementation of better surveillance, prevention and control programs (such as the appropriate use of antibiotics). (Haley, 1985)

156.   There are two ways to measure hospital-acquired infections: one is through prevalence surveys and other is through incidence surveys. Prevalence surveys measure the proportion of hospitalised patients who have an infection at one point in time and gives a snapshot of the situation at that specific

moment in time; while incidence surveys indicate the occurrence of new cases for a defined period of time either retrospectively or prospectively. Prevalence surveys tend to be easier to perform, less time consuming and less expensive, and provide a descriptive picture of the level of hospital-acquired infections in the population. However, prevalence studies have several limitations, in particular in their ability to establish cause and effect relationship and their bias to sample patients who stay in the hospital longer and therefore, are more ill. Though prevalence surveys lack the completeness of incidence surveys, these studies can still be a reliable and practical tool to assess the evolution of nosocomial infections and to evaluate the efficacy of preventive measures over time.

157.   Another limitation of this indicator, whether it is incidence-based or prevalence-based, is that the infection -- particularly surgical wound infection -- often is detected after patients' discharge from hospital, particularly with the growing trend to decrease length of stay and the rise of the use of ambulatory surgery. Byrne *et al*. (1994) found that with careful post-discharge surveillance of patients and better definition of infections, about 60 per cent more post-operative wound infections could be detected after discharge.

158.   Lack of uniformity and agreed upon standards in measuring hospital-acquired infections make it difficult to compare across centres and hospitals within a country as well as across countries. There are only a few countries where prevalence-based data is available on national basis (Table 14). However, the differences in methodology such as selecting samples (voluntary or random selection), types and size of hospitals, length of hospital stay, and timing of studies as well as the differences in medical practices, call for caution in analysis of these rates and comparisons across countries and even across years for the same country.

159.   Across the countries presented in Table 14, between 1978 and 1996, the prevalence of hospital-acquired infections varies from 6 to 12 per cent of all hospitalised patients. In Norway and Spain, there seems to be a significant decline in the prevalence rate of HAIs. In the United Kingdom on the other hand, the rate of infection remains at about the same level over a span of 15 years[20]. The prevalence surveys can also help to identify the problem areas in the hospital setting and could be an important tool for developing a prevention and control strategy.

---

[20]   It should be noted that the improvement in the survey methodology, particularly the sample size, might have a significant impact on the results.

Table 14. Prevalence of hospital-acquired infections in selected countries, 1978-1996

Country & reference	Year	Prevalence Rate (%)	# of hospitals studied	# of patients studied
Australia	1984	6.3	269	28,643
Belgium	1984	10.3	106	8,723
Czechoslovakia	1984	6.1%	23	12,260
Denmark	1978	10.4%	25	1363
	1979	12.1%	25	1557
France	1996	7.6%	830	236,334
Germany*	1994	3.5%	72	14,966
Italy	1983	6.8%	130	34,577
Norway	1979	9.0%	15	7,833
	1985	7.8%	n.a.	n.a.
	1991	6.3%	76	14,977
	1997	6.0%	n.a.	n.a.
Spain	1990	9.9 %	123	38,489
	1991	8.9%	136	42,185
	1992	8.5%	163	44,343
	1993	8.3%	171	46,983
	1994	8.3%	186	49,689
United Kingdom	1980	9.2%	43	18,186
	1993-1994	9.0 %	157	37,111

n.a. means not available

Sources: See Addendum 2 * Germany recorded only certain nosocomial infections rather than differentiating between certain, probable, and possible infections. So for instance, if British national prevalence studies only documented "certain"nosocomial infections, there prevalence rate would have been 4.2%. See Ruden, H, *et al*. in Addendum 2.

160. For instance, in the prevalence surveys conducted in the 1980s and 1990s, in most OECD countries, three major sites of infections have been identified: urinary tract, lower respiratory tract, and surgical wound accounting for about 30 %, 20 % and 20 % respectively of all HAIs. Much focus has been concentrated on the reduction of surgical wound infections since it is believed that they account for the most added bed days and cost of all HAIs. In addition, it seems that HAIs are greatly concentrated in intensive care units and larger hospitals, often with teaching facilities and in public hospitals -- perhaps due to the fact that more complex and aggressive therapies are given in these types of hospitals.

161. There have been efforts to standardise the monitoring of hospital-acquired infections from a longitudinal perspective. For example, research in this area was further developed in the Hospitals in Europe Link for Infection Control through Surveillance (HELICs) in 1994-1995, by creating an international partnership of national and regional networks to standardise methodology in order to compare outcomes of health care practices across Europe. This partnership was not intended to replace local and national initiatives. It has four main objectives: to standardise surveillance methods so to compare the outcomes of health care practices in Member states; to promote and assist the development of new networks; to improve the way results are used in feedback, prevention, and cost containment; and to promote the integration of surveillance of hospital-acquired infections with routine data collection. As a result, protocols for the surveillance of surgical-wound infections and infections in intensive-care units

were produced to provide a tool for gathering information on infection rates in the workplace as well as collecting rates observed in their countries.

162.   By the end of 1995, all infection-surveillance networks active in Europe were participating in HELICS (Austria, Belgium, Denmark, France, Germany, Great Britain, Greece, Hungary, Italy, The Netherlands, Portugal, Sweden, and Spain). During the second half of 1995, the Statens Seruminstitut in Copenhagen began to assemble an international pilot database on surgical wound infection. Five countries (Belgium, Denmark, Finland, Netherlands, and Sweden) contributed test data to this database. Initial analyses showed regional variations in health care processes and outcomes.

Rates of satisfaction with health care system

163.   With the shift towards more patient and consumer-centered care in the health sector, health policymakers increasingly have wanted to know what the public/patients think, and use this information to improve the quality of the health care system. There has been a movement to understand the public's satisfaction with the overall health care system which could be considered a type of indicator of performance. Collection of indicators of this type on a consistent basis would assist in evaluating changes over a period of time which may be associated with the introduction of specific measures or reforms.

164.   An example of this type of data is available from the Eurobarometer survey conducted in the 15 European Union Member states in 1996 (Mossialos, 1997). One question was asked: "In general, would you say you are very satisfied, fairly satisfied, neither satisfied nor dissatisfied, fairly dissatisfied or very dissatisfied with the way health care runs in (our country)?" Based on this survey, Greece, Italy, Spain, and Portugal demonstrate low levels of satisfaction (18, 16, 35, 19 per cent reporting either very satisfied or fairly satisfied), contrasting with Denmark and Finland's high level of satisfaction (90 % and 86 % respectively) (Table 15). Disparities in satisfaction levels between the Northern and Southern European countries are evident, with the United Kingdom and Ireland falling in the middle.

165.   Additionally, policy-makers would like to know if those countries with higher per capita health expenditure also have higher levels of public satisfaction with their health care system. Mossialos argues that the increase in satisfaction is linked with increasing per capita health care expenditure (Chart 14). Those with lower per capita health expenditure such as Greece, Spain, and Portugal also have greater dissatisfaction. But it should also be noted that there are some variations in levels of satisfaction exist for the same level of health expenditure in the countries presented. For instance, Finland and United Kingdom both have almost the same level of per capita health expenditures, 1380 and 1317 in US$ PPP, however, 86.4 per cent of the public were either very satisfied and fairly satisfied in Finland as compared to 48.1 per cent in the United Kingdom.

Table 15. Satisfaction with health care system in 1996.

Country	Very and fairly satisfied (%)	Neither satisfied nor dissatisfied (%)	Very and fairly dissatisfied (%)	Other (%)
Austria	63.3	27.6	4.7	4.5
Belgium	70.1	19.9	8.3	1.6
Denmark	90	3.8	5.7	0.5
Finland	86.4	7.0	6.0	0.6
France	65.1	18.7	14.6	1.6
Germany	66	21.4	10.9	1.7
Greece	18.4	27.0	53.9	0.6
Ireland	49.9	17.4	29.1	3.6
Italy	16.3	23.1	59.4	1.3
Luxembourg	71.1	16.1	8.9	3.9
Netherlands	72.8	8.8	17.4	1.0
Portugal	19.9	19.2	59.3	1.5
Spain	35.6	34.0	28.6	1.8
Sweden	67.3	16.7	14.2	1.9
United Kingdom	48.1	10.0	40.9	1.0

Source: Mossialos, 1997.

Chart 14. Per capita expenditure on health in US$PPP as compared to satisfaction with health system, 1996.

Source: Mossialos, 1997 and OECD Health Data 1998
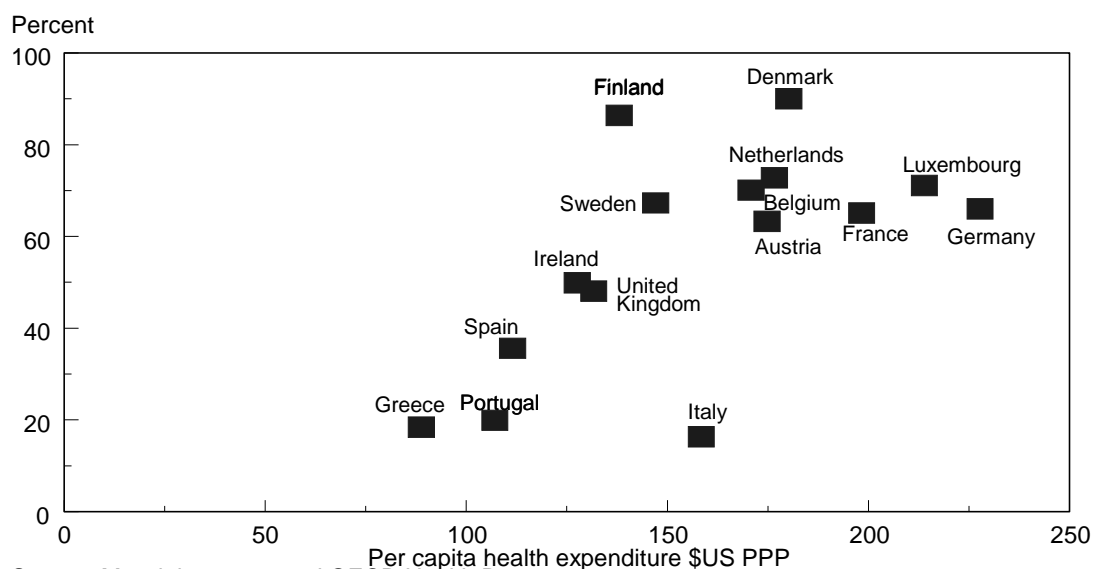
166.   In the late 1980s and 1990s, data from Blendon *et al*. (1990, 1991) presented information on public's view on the performance of their health care systems and the need for reform. In 1988 and 1990, public opinion surveys were conducted in eleven countries -- Australia, Canada, France, Germany (West), Japan, Italy, Netherlands, Sweden, Spain, United Kingdom, United States -- to learn of the public's satisfaction with the financing and organisation of their health care systems. It is interesting to note that many of the countries were in the midst of health care reform efforts at this time and it might be important to continue to assess in the future whether the needs of the citizens have been met.

167.   The results show that eight of the eleven countries surveyed have more than half of their populations wanting to "completely rebuild their system" or "fundamental changes needed" in the late 1980s (Table 16). The United States were substantially more dissatisfied with their mixed private and public health care system than the other countries (89%), followed by Italy (86%) and Spain (77%) where there are very different health systems, modeled after a NHS type system. Sixty-nine per cent of the population in United Kingdom--with the National Health Service--think their system needs to be changed. This is perhaps a result of the wide perception of financial problems in the NHS at that time. Countries which have the highest percentage of their population reporting that "only minor changes are needed" included Canada, Netherlands, West Germany and France (56, 47, 41, and 41 per cent). From these 1988 to 1990 results, this survey shows that "having a national program does not in itself guarantee high levels of satisfaction with a nation's health care system" since Australia, Sweden, Japan, United Kingdom, and Italy all have national health plans.

168.   However, public opinion seems to vary considerably over time. In 1994, there were significant declines in the number of Canadians in particular nearly 50 per cent, and Germans who reported their health care system as "working well"; while the Americans appeared a bit more satisfied. The dissatisfaction gap narrowed quite a bit between the United States and the other two countries since the late 1980s results.

Table 16. Synopsis of public's viewpoint of the need for reform in their health care system, 1988-1990

Country	Minor changes needed (%) 1988-90	1994	Fundamental changes needed (%) 1988-90	1994	Completely rebuild system (%) 1988-90	1994
Canada	56	29	38	59	5	12
Netherlands	47		46		5	
West Germany	41	30	35	55	13	11
France	41		42		10	
Australia	34		43		17	
Sweden	32		58		6	
Japan	29		47		6	
United Kingdom	27		52		17	
Spain	21		49		28	
Italy	12		46		40	
United States	10	18	60	53	29	28

Source: Blendon, 1990, 1991, 1995.

169.   Blendon states that this measure may reflect the level of availability of more sophisticated and advanced medical technologies, more or less physician choice, more or less waiting times for elective procedures, inadequate insurance protection, level of out-of-pocket spending etc. Many questions, however, emerge based on the findings of these kinds of satisfaction surveys. Findings could be misleading because often, surveys were conducted prior to cost containment efforts. Many criticise that that these findings are not replicable across multiple surveys and time periods. Researchers have surmised that favorable attitudes may reflect optimistic views toward economy, or regarding their national institutions in general than an "actual measure" of their universal health program. Also, similar to other subjective measures, such measure cannot easily be adjusted for cultural differences in expectations for medical care that exist among the countries. However, these measures are clearly an important tool for monitoring the change in public view as health care becomes more managed in the OECD area.

CONCLUSIONS: INDICATORS OF PERFORMANCE OF THE MEDICAL-CARE SYSTEM

170.   Several illustrations of performance indicators are provided above to demonstrate the potential value of this type of information. It is clear that an agreed-upon set of performance indicators would assist governments, funders, and health management in health care management and policy development. Based on this rationale, the national experts in December 1997 agreed that highest priority in collection and monitoring on an international level should be given to those indicators which are the most directly linked to health policies or interventions.

171.   To proceed with the development of these indicators, national experts agreed upon a set of four criteria to use in the selection of a core set of performance indicators:

1. Indicators would reflect health problems that are a major concern in most Member countries;

2. There would be a clear understanding of the relationship between medical care intervention and health status;

3. Indicators would clearly relate to areas involving substantial resources or burden of disease;

4. Indicators should be sensitive to quality of care differences.

172.   Applying these criteria, the OECD countries could move toward a core set of performance indicators for the areas representing the most burden in terms of costs and disease, disability or quality of life. A family of performance indicators related to selected conditions, for example, cancer, cardiovascular disease, and respiratory diseases -- the three top diseases causing high premature mortality-- could also be collected and monitored consistently across countries. Subject to sufficient resources being made available to undertake this work, the following tasks could be undertaken:

- organise a network of experts in interested countries to oversee this work.

- undertake a critical review of the status of knowledge and experience regarding the development and use of performance and quality of care indicators for the selected conditions in OECD, with a specific focus on examining reliability of indicators and definitions; and availability of data related to these indicators;

- derive a framework for the development of an international set of performance of medical care and quality of care indicators for the selected conditions.

REFERENCES

Apolone, G., Mosconi, P., Ware, JE. (1997), "Questionario sullo stato di salute SF-36: Manuale d'uso e guida allínterpretazione del risultati", Istituto di Richere Farmacologiche "Mario Negri," Milan.

Australian Institute of Health and Welfare (1996), *Cancer in Australia 1989-1990*, Cancer series, no.5, Canberra.

Bebbington A.C., Darton R.A. (1996), "Healthy Life Expectancy in England and Wales: Recent Evidence", Discussion Paper, 1205, HSMO, London.

Bone M.R., Bebbington A.C., Jagger C., Morgan K. and Nicolaas G. (1995) *Health Expectancy and Its Uses*, HMSO, London.

Brazier, J., Usherwood, T., Harper, R., Thomas, K., Deriving a Single Index Value for Health from the UK SF-36 Health Survey, forthcoming.

Bruckner, G. (1997), "Health Expectancy in Germany: What do we learn from the Reunification Process?" Paper presented at the REVES 10 Meeting of the Network on Health Expectancy, October 1997.

Byrne, DJ., Lynch, W., Napier A et al. (1994), "Wound infection rates: the importance of definition and post-discharge wound surveillance." *J. Hospital Infection*; 26: 37-43.

Cambois, E. and Robine, J-M. (1997), "What do we know about available surveys to adjust tem for harmonisation", Room Document No. 1, OECD Working Party on Social Policy, Ad Hoc Meeting of Experts in Health Statistics, December, 1997.

Centraal Bureau voor de Statistiek (1996), *Vandemecum gezondheidsstatistiek Nederland*, Voorburg/Heerlen/Rijswijk.

Chen J., Verma, R., George, M.V. (1993), "Projections of Persons with Disabilities at Work, Canada, Provinces and Territories, 1991-2016", report, Statistics Canada.

Crimmins E.M., Saito, Y., Ingegneri D. (1997), "Trends in Disability-Free Life Expectancy in the United States, 1970-90", *Population and Development Review*, 23(3): 555-72.

Crimmins E.M., Saito, Y., Ingegneri D. (1989), "Chances in life expectancy and disability-free life expectancy in the United States", *Population and Development Review*, 15: 235-67.

Cutler D.M. and Richardson E. (1997), "Measuring the Health of the U.S. Population", *Brookings Papers on Economic Activity*, Brookings Institution.

Directorate General V (1993), Framework for Action in the Field of Public Health. European Commission: COM 93 559.

Directorate General V and Eurostat. (1996), Minutes of Working Group on Public Health Statistics meeting on 9.2.96.

Donabedian, A. (1980), *The Definition of Quality and Approaches to its Assessment*, Health Administration Press, Ann Arbor, Michigan.

Gandek, B. Ware, J., (1998), "Methods of Validating and Norming Translations of Health Status Questionnaires: The IQOLA Project Approach." *Journal of Clinical Epidemiology*, 51(11) in press.

Gold, M., Siegel, J., Russell, L., Weinstein, M. (1996), *Cost-effectiveness in Health and Medicine*, Oxford University Press, New York.

Grotvedt, L. and Viksand G. (1994), "Life Expectancy without disease and disability in Norway", in Mathers CD, McCallum J, Robine JM, (eds), *Advances in Health Expectancies*, Canberra: Australian Institute of Health and Welfare, AGPS: 224-235.

Haber, L.D., Dowd, J.E., (1994), "A Human Development Agenda for Disability: Statistical Considerations," prepared for the United Nations Statistical Division (UNSTAT) of the Department for Economic and Social Information and Policy Analysis (DESIPA).

Haley, R., Culyer, D.H. and White J.W., (1985), "The efficacy of infection surveillance and control programmes in preventing nosocomial infections in US hospitals," *American Journal of Epidemiology*, 121: 182-305.

Holland, W.W. (1988), *European Community Atlas of "Avoidable Death,* Oxford University Press, Oxford.

IARC (1993), *Facts and Figures of Cancer in the European Community*, WHO, Commission of the European Community, International Agency for Research on Cancer, Lyon, France.

Inoue, T, Shigematsu T., and Nanjo, Z. (1997), "Health life tables in Japan, 1990: a quality of longest life expectancy in the world", *Minzoku Eisei*, 63(4): 226-240.

Lee S-K. (1997), "A Study on Disability-free Life Expectancy of Elderly in Korea", REVES paper 308, presented in 10th Workgroup meeting REVES, Tokyo, October 1997.

Lozano, R., Murray C., Frenk J., Bobadilla J-L. (1995), "Burden of Disease Assessment and Health System Reform: Results of A Study in Mexico", *Journal of International Development*, vol. 7, no.3, 555-63.

Mason, V. Bridgwood, A., (1997) "Methods of Collecting Morbidity Statistics," prepared for the Eurostat Working Group on Public Health Statistics, Luxembourg.

Mathers, C. (1991), *Disability-free and handicap-free life expectancy in Australia, 1981 and 1988*, AGPS: Australian Institute of Health, Health Differentials Series No. 1, Canberra.

Mathers, C. (1994), *Health differentials among adult Australians aged 25-64 years*. Health Monitoring Series No. 1, Australian Institute of Health and Welfare, Canberra.

Mathers, C. (1996), *Issues in the measurement of health status*, 9th Meeting of the International Network on Health Expectancy (REVES), Rome, December 11-13, 1996.

Mathers C. (1996), "Trends in health expectancies in Australia, 1981-1993", *Journal of the Australian Population Association*, vol.13, no.1, 1-15.

Mathers, C. (1997a), "Developments in the use of health expectancy indicators for monitoring and comparing the health of populations,"report prepared for the OECD Directorate for Education, Employment, Labour, and Social Affairs, June 1997, Paris.

Mathers, C. (1997), "Health expectancies and DALYS: Towards consistency of measures", OECD Working Party on Social Policy, room document no.4, December 1997, Paris.

Mathers, C. (1998), *Burden of Disease and Health System Costs of Heart Disease, Mental Health Problems, and Musculoskeletal Disorders in Australia*, Paper presented at the NHMRC National Health Forum, Canberra.

McDowell, I., Newell, C. (1996), *Measuring Health: A Guide to Rating Scales and Questionnaires,* Oxford University Press, New York.

McWhinnie, J.R. (1982), "Measuring Disability," OECD Social Indicator Development Programme, no.5.

Mossey, JM, Shapiro ES. (1982), "Self-rated health: a predictor of mortality among the elderly." *Am J Public Health*, 1982; 72: 800-8.

Mossialos, E. (1997) Citizens' Views on Health Care Systems in the 15 Member States of the European Union. *Health Economics*, Vol. 6: 109-116.

Murray C., Lopez A. (1996), *Global Burden of Diseases*, Harvard University Press, Boston, Massachusetts.

Nord, E. (1997), "Multi-Attribute Health Status Instruments and Calculation of Health Status Indices," OECD Working Party on Social Policy, room document no. 3, December 1997, Paris.

OECD (1987), *Financing and Delivering Health Care: A Comparative Analysis of OECD Countries*, OECD Social Policy Studies, no.4, Paris.

Patrick, D.L., Erickson, P., (1993), "Applications of health status assessment to health policy." In Quality of Life and Pharmacoeconomics, Lippincott-Raven, Philadelphia.

Perenboom RJM, Boshuzien, H.C. Van de Water HPA. (1993), "Trends in health expectancies in the Netherlands, 1981 to 1990" In: Robine, JM, Mathers, CD, Bone MR, Romieu, I. Eds. *Calculation of health expectancies: harmonisation, consensus achieved and future perspectives*. Montrouge: John Libbey Eurotext: 309-320.

Robine, JM., Mormiche P. (1993), "L'esperance de vie sans incapacite augmente", *INSEE Premiere*, 281.

Robine, JM., Romieu, I., Cambois, E., van den Water, HPA., Boshuizen, HC, Jagger, C. (1994), Global Assessment in Positive Health: Contribution of the Network on Health Expectancy and the Disability Process to the World Health Report 1995 'Bridging Gaps.' Montpellier: Laboratoire d'Epidemiologie et d'Economie de la Sante.

Robine, JM., Mathers C., Brouard, N. (1996), "Trends and differentials in disability-free life expectancy: concepts, methods, and findings." In: Caselli G., Lopez, A. (eds). (1996) *Health and Mortality among Elderly Populations*, Clarendon Press, Oxford, p. 182-201.

Rutstein, D., Berenberg, W., Chalmers, T.C., Child, C., Fishman, A., Perrin, E. (1976), "Measuring the quality of medical care: clinical method." *New England Journal of Medicine*, 294: 582-9.

Rutstein, D.D., Berenberg, W., Chalmers, T.C., Child, C.G., Fishman, A.P., Perrin, E.B., Zuidema, G.D., (1980), "Measuring the quality of medical care: second revision of table of indexes" *New England Journal of Medicine*, 302: 1146.

Statistics Netherlands and Ministry of Welfare, Health and Cultural Affairs. (1992), Vademecum of health statistics of the Netherlands 1992. The Hague, SDU.

Sullivan D.F. (1971), "A single index of mortality and morbidity", *HSMHA Health reports*, vol.86, no.4, 347-354.

Sullivan, M., Karlsson, J., Ware, JE. (1994), *SF-36 Halsoenkat: Svensk manual och tolkningsguide,* Goteborg: Goteborgs Universitet och Sahlgrenska Sjukhuset.

TNO (1994), *An International Comparison of Health Expectancies*, report for Institute of Preventive Health Care, Netherlands.

United States Department of Health and Human Services (1996), *Health in United States*, Hyattsville, Maryland.

Van den Berg, J. (1997), *Harmonisation of Health Indicators in European Union: Perceived Health Status, Prevalence of Disability and Specific Conditions*, Room Document No. 7, OECD, December 1997.

Van Sonsbeek, J.L.A. (1991), "Self-rated health: methodological effects with self-rated health in health interview surveys", *Maandbericht gezondheidsstatistiek*, 10(9): 15-23.

Verbrugge, L.M. (1989), "The twain meet: empirical explanations of sex differences in health and mortality", *J Health Soc. Behav*. 30: 282-304.

Ware, JE. et al. (1993), *SF-36 Health Survey Manual and Interpretation Guide*. Health Assessment Lab: Boston.

Weinberger, M, Darnell, JC, Tierney, WM, Martz, BL, Hiner, SL, Barker, J, Neill, PJ. (1986), "Self-rated health as a predictor of hospital admission and nursing home placement in elderly public house tenants", *Am J Public Health*, 76: 457-9.

Wilkins, R., J. Chen, and E. Ng (1994), "Changes in health expectancy in Canada from 1986 to 1991", in *Advances in Health Expectancies*: *Proceedings of the 7th meeting of the International Network on Health Expectancy (REVES)*, Canberra, February 1994.

World Bank (1993), *Investing in Health: World Development Indicators*, World Development Report, Oxford University Press, New York.

WHO (1958), The First Ten Years. The Health Organisation. World Health Organisation, Geneva.

WHO (1980), *International Classification of Impairments, Disabilities and Handicaps*, Geneva.

WHO, European Region & Central Bureau of Statistics in the Netherlands *(*1996), *Health interview surveys: towards international harmonisation of methods and instruments.* Copenhagen: WHO Regional Publication European Series no. 58.

Worning, Anne-Marie, (1994) "Strategies for Reduction of Hospital-Acquired Infections: A Model for Quality Development," Health: Quality and Choice, OECD Health Policy Studies No. 4.

ADDENDUM 1. ADL INSTRUMENTS FOR THE MEASUREMENT OF GENERAL HEALTH STATUS AND DISABILITY

OECD Instrument, 1976 (Mc Whinnie, 1982)

Short-term disability:

During the past two weeks, did you have to cut down on any of the things you normally do (about the house, at work or in your free time), because of illness or injury

Long-term disability items:

*   Is your eyesight good enough to read ordinary newspaper print (with glasses if usually worn)

Is your eyesight good enough to see the face of someone from 4 meters

Can you hear what is said in a normal conversation with 3 or 4 persons (with hearing aid if usually worn)

*   Can you hear what is said in a normal conversation with another person (with hearing aid if usually worn)

*   Can you speak without difficulty

*   Can you carry an object of 5 kilos for 10 meters

Could you run 100 meters

*   Can you walk 400 meters without resting

*   Can you move between rooms

*   Can you get in and out of bed

*   Can you dress and undress

Can you cut your toenails

*   Can you (when standing) bend down and pick up a shoe from the floor

Can you cut your own food (meat, fruits)

Can you both bite and chew on hard foods

* Included in 10 item minimum core set

Response categories:

Yes, without difficulties;   yes with minor difficulties;   yes, with major difficulties;   no, not able

---

WHO-CBS instrument, 1990 (WHO-CBS, 1996)

Self-perceived health:

How is your health in general   *Very good, good, fair, bad, very bad*

Activity Restriction:

Think about the two weeks ending yesterday, have you cut down on any of the things you usually do (about the house, at work or in your free time), because of illness or injury.

How many days

On how many of these days were you in bed for all or most of the day.

Think about the two weeks ending yesterday, have you cut down on any of the things you usually do (about the house, at work or in your free time), because an emotional or mental health problem.

How many days

On how many of these days were you in bed for all or most of the day.

Handicap:

Mobility   Permanently confined to bed even with help to get up   *Yes/no*

               Sit in a chair all day even with help to walk   *Yes/no*

               Confined to house, flat and garden   *Yes/no*

Disability:

Locomotion Furthest you can walk without resting

               or stopping or severe discomfort   *few steps<200 meters<more*

Transfer   Can you get in and out of bed on your own

               Can you get in and out of a chair

Dressing   Can you dress and undress

Washing   Can you wash hands and face

Feeding   Can you feed yourself including cutting up food

Toilet   Can you get to and use toilet

Answer modalities   *Without difficulty, with some difficulties, with someone to help me*

Continence Do you ever lose control of your bladder

               at least once a week; less than once a week; less than a month

Hearing   Is your hearing good enough to follow TV program (with hearing aid if necessary) with acceptable volume for others; with volume turned up; no

Seeing   Can you see well enough to recognise the face of a friend at distance (with glasses or contact lenses if necessary)   *at a distance of 4 meters; of 1 meters; no*

Optional Items		
Stairs	Can you walk up and down a flight of 12 stairs without resting	*yes, if hold on and take rest/no*
Retrieval	Can you (when standing) bend to pick up a shoe from the floor	*yes/no*
Speaking	Can you speak without difficulty	*yes/no*

ADDENDUM 2. SOURCES FOR TABLE 14: PREVALENCE OF HOSPITAL-ACQUIRED INFECTIONS IN SELECTED COUNTRIES

Australia   McLaws, Mary-Louise, Gold, J., King, K., Irwig, L., Berry, G., The prevalence of nosocomial and community-acquired infections in Australian hospitals, The Medical Journal of Australia, 149, December 1988. All hospitals with 50 or more acute care beds -- excluding psychiatric and rehabilitation beds -- were invited to participate in July 1984 -- 269 out of 459 hospitals participated. Classification of infections were adapted from those of SENIC and NSIH studies in US and UK, respectively (see footnotes 24 and 36).

Belgium   Mertens, R. *et al*. The national prevalence survey of nosocomial infections in Belgium, 1994. Journal of Hospital Infection, 9, 219-229, 1987. A prevalence survey was conducted among hospitals (acute care with either a surgical or intensive care department ranging from less than 100 beds to over 600) willing to participate at the end of March 1984. Classification of infections were based from CDC guidelines and those used in SENIC project (see footnote 26 and Centers for Disease Control, Outline for Surveillance and Control of Nosocomial Infections, US Department of Health and Human Services--Public Health Service. Appendix I, 1972).

Czechoslovakia   Sramova, H. *et al*. National prevalence survey of hospital-acquired infections in Czechoslovakia, Journal of Hospital Infections, 11, 328-334, 1988. A one day prevalence survey was conducted in seven regions of the Czech Socialist Republic involving 12, 260 patients in 23 hospitals including two teaching hospitals, three regional hospitals, and 18 district hospitals ranging in size from 213 to 1183 beds. Performed the first two weeks in October 1984, using classifications developed by WHO requirements (WHO, Surveillance,control, and prevention of hospital-acquired nosocomial infections. Report of an Advisory Group. Geneva, World Health Organisation, 1981).

Denmark   Jepsen, O. and Mortensen, N. Prevalence of nosocomial infection and infection control in Denmark, Journal of Hospital Infection (1980) 1, 237-244. Two prevalence surveys were conducted in 1978 and 1979 (eight months apart). These covered 25 hospitals, 20 of which participated in both surveys. Guidelines for classification were based on the Centers for Disease Control definitions (CDC, 1972).

France	Report of the Enquete Nationale de Prevalence des Infections Nosocomiales, June 1997 -- Secretariat d'Etat a la santé et a la securite sociale and Comite Technique national des Infections Nosocomiales. A one day prevalence survey in all of the public and private institutions that were willing to participate was conducted in May-June 1996. All activities of hospitalisation were considered in the survey: short-term, medium-, long-term stays and psychiatric services. Classification were based on number of sources including issues du Conseil superieur d'hygiene publique de France parues dans le Bulletin epidemiloque hebdomadaire (BEH) en juin 1992; CDC 1988 definitions; au guides des definitions du CCLIN Paris-Nord.
Germany	Ruden, H, et al. Nosocomial and Community-Acquired Infections in Germany. Summary of the Results of the First National Prevalence Study (NIDEP), Infection 25 (1997). Strict CDC definition was used, only counting the "certain"nosocomial infections and not the probable ones as other prevalence studies did. Kampf, G. *et al.* Analysis of risk factors for nosocomial infections--results from the first national prevalence survey in Germany (NIDEP study, part 1), Journal of Hospital Infection (1997) 37, 103-112. Known as the NIDEP study (Nosocomial Infections in Germany -- Surveillance and Prevention), which was 10 month study in 1994. Hospitals were randomly selected from the 1992 National Hospital Register according to size and location.
Italy	Moro, M.L. Stazi, M.A., Marasca, G., Greco, D. and Zampieri, A., National Prevalence survey of hospital-acquired infections in Italy, 1983. Journal of Hospital Infection, 8, 72-85, 1986. A one-day prevalence survey was conducted among hospitals willing to participate. Classification of hospital infections were based on CDC guidelines 1972.
Norway	Hovig, B., Lystad, A., and Opsjon, H. A Prevalence Survey of Infections among Hospitalised Patients in Norway, NIPH Annals, Vol. 4, No. 2, December, 1981. Aavitsland, P., Stormark, M., and Lystad, A. Hospital-acquired infections in Norway: A National Prevalence Survey in 1991. Scand J Infect Dis 24: 477-483, 1992. The 1991 study performed in one day on April 25, 1991. All Norwegian somatic acute care hospitals and speciality hospitals for orthopaedics, rheumatology, oncology, and lung diseases were included; 76 out of 84 fully participating with a total of 14,977 patients. Used CDC guidelines for classifying infections. The number of patients surveyed in each hospital ranged from 0 to 1245 patients. Prevalence rate is not a true rate as it is measured by infections in numerator and patients in denominator.
Spain	Vaque, J. *et al.* Nosocomial infections in Spain: Results of Five Nationwide Serial Prevalence Surveys (EPINE Project, 1990 to 1994), Infection Control and Hospital Epidemiology, Vol. 17, No. 5, 1996. Known as the EPINE Project, five nationwide serial prevalence survey from 1990-1994. A convenience sample of acute care hospitals where they voluntarily participated -- a core sample of 74 hospitals, which participated in all five surveys included a mean of 23,871 patients per year. Survey was conducted every year during a 2-week period in May. Guidelines were those defined by CDC. Prevalence rate of patients with nosocomial patients (number of patients with nosocomial infections*100/all patients surveyed).

England and Wales/United Kingdom	Meers, P.D., Ayliffe, G.A.J, Emmerson, A.M., Leigh, D.A., Mayon-White, R.T., Mackintosh, C.A., Stronge J.L., Report on the National Survey of Infection in Hospitals 1980. J Hospital Infection 1981; 2: Suppl 1-51. Emmerson, A.M. *et al*. The Second National Prevalence Survey of Infection in Hospital, Journal of Hospital Infection, Vol. 32, 175-90, 1996. The 1980 study included only England and Wales surveying 43 teaching or district hospitals with more than 500 beds. The 1993-1994 study, including Republic of Ireland, performed over a 15-month period between May 1993 to July 1994 in a two-month study period. Study examined 157 hospitals and 37,111 patients. The number of patients surveyed in each hospital ranged from 11 and 781. All hospitals interested in participating in the survey were encouraged. Larger hospitals were only asked to sample a per centage. It should be noted that 30 per cent of patients examined were over 75 years of age.

LABOUR MARKET AND SOCIAL POLICY OCCASIONAL PAPERS

Most recent releases are:

No. 35 *WHAT WORKS AMONG ACTIVE LABOUR MARKET POLICIES: EVIDENCE FROM OECD COUNTRIES' EXPERIENCES* (1998) John Martin

No. 34 *MEASURES OF JOB SATISFACTION - WHAT MAKES A GOOD JOB? EVIDENCE FROM OECD COUNTRIES* (1998) Andrew E. Clark *(available in French)*

No. 33 *SOCIAL AND HEALTH POLICIES IN OECD COUNTRIES: A SURVEY OF CURRENT PROGRAMMES AND RECENT DEVELOPMENTS* [Text and Annex] (1998) D.W. Kalisch, T. Aman and L. A. Buchele

No. 32 *THE GROWING ROLE OF PRIVATE SOCIAL BENEFITS* (1998) Willem Adema and Marcel Einerhand

No. 31 *KEY EMPLOYMENT POLICY CHALLENGES FACED BY OECD COUNTRIES (1998) OECD SUBMISSION TO THE G8 GROWTH, EMPLOYABILITY AND INCLUSION CONFERENCE* - London, 21-22 February 1998

No. 30 *PRIVATE PENSIONS IN OECD COUNTRIES - FRANCE* (1997) Emmanuel Reynaud (*available in French*)

No. 29 *OECD SUBMISSION TO THE UK LOW PAY MISSION* (1997)

No. 28 *OECD SUBMISSION TO THE IRISH NATIONAL MINIMUM WAGE COMMISSION* (1997)

No. 27 *CHILDCARE AND ELDERLY CARE: WHAT OCCUPATIONAL OPPORTUNITIES FOR WOMEN?* (1997) Susan Christopherson

No. 26 *THE CONCENTRATION OF WOMEN'S EMPLOYMENT AND RELATIVE OCCUPATIONAL PAY: A STATISTICAL FRAMEWORK FOR COMPARATIVE ANALYSIS* (1997) Damian Grimshaw and Jill Rubery

No. 24 *TRENDS IN SECRETARIAL OCCUPATIONS IN SELECTED COUNTRIES (1980-95)* (H. Steedman) (1997)

No. 23 *PRIVATE PENSIONS IN OECD COUNTRIES - AUSTRALIA* (1997) Hazel Bateman and John Piggott

No. 22 *THE DEFINITION OF PART-TIME WORK FOR THE PURPOSE OF INTERNATIONAL COMPARISONS* (1997) Alois van Bastelaer, Eurostat; Georges Lemaître, OECD; Pascal Marianna, OECD *(available in French)*

No. 20 *OCCUPATIONAL CLASSIFICATION (ISCO-88): CONCEPTS, METHODS, RELIABILITY, VALIDITY AND CROSS-NATIONAL COMPARABILITY* (1997) Peter Elias

No. 19 *NET PUBLIC SOCIAL EXPENDITURE* (1996) Willem Adema, Marcel Einerhand, Bengt Eklind, Jórgen Lotz and Mark Pearson

A complete list of available papers can be found on the internet site: *http://www.oecd.org/els/papers/papers.htm,* through which recent papers can be accessed directly. To receive a paper copy of this list or any particular papers, please send your name, organisation and full address to:

Labour Market and Social Policy Occasional Papers
Directorate for Education, Employment, Labour and Social Affairs
OECD, 2, rue André-Pascal, 75775 PARIS CEDEX 16, FRANCE

Mailing List for free of charge Labour Market and Social Policy Occasional Papers
Please include the following name on the mailing list:
(**write in capitals**)

Name   --

Organisation --

Address   --

RECENT OECD PUBLICATIONS IN THIS FIELD INCLUDE:

"OECD SOCIAL POLICY STUDIES" SERIES

No. 21   *FAMILY, MARKET AND COMMUNITY: EQUITY AND EFFICIENCY IN SOCIAL POLICY* (1997)

No. 20   *AGEING IN OECD COUNTRIES: A CRITICAL POLICY CHALLENGE* (1996)

No. 19   *CARING FOR FRAIL ELDERLY PEOPLE: POLICIES IN EVOLUTION* (1996*)*

No. 18   *INCOME DISTRIBUTION IN OECD COUNTRIES* (1995)

HEALTH POLICY STUDIES

No. 8   *HEALTH CARE REFORM: THE WILL TO CHANGE* (1996)

No. 7   *NEW DIRECTIONS IN HEALTH CARE POLICY* (1995)

MISCELLANEOUS

MAINTAINING PROSPERITY IN AN AGEING SOCIETY (1998)

OECD HEALTH DATA (1998)
available in English or French on diskettes (Windows 3.11) or CD-ROM (Windows 95/NT or 3.11).

THE BATTLE AGAINST EXCLUSION
Social Assistance in Australia, Finland, Sweden and the United Kingdom (1998)

THE BATTLE AGAINST EXCLUSION - Volume 2
Social Assistance in Belgium, the Czech Republic, the Netherlands and Norway (1998)

OECD EMPLOYMENT OUTLOOK June 1998 (published annually)

EARLY IDENTIFICATION OF JOBSEEKERS AT RISK OF LONG-TERM UNEMPLOYMENT --
THE ROLE OF PROFILING (OECD Proceedings) (1998)

BENEFIT SYSTEMS AND WORK INCENTIVES (1998)

THE OECD *JOBS STRATEGY:*
Making Work Pay: Taxation, Benefits, Employment and Unemployment (1997)

TRENDS IN INTERNATIONAL MIGRATION (1998)

THE FUTURE OF FEMALE-DOMINATED OCCUPATION (1998)

For a full list, consult the OECD On-Line Bookstore on: http://www.oecd.org or write for a free written
catalogue to the following address:

OECD Publications Service
2, rue André-Pascal, 75775 PARIS CEDEX 16
or to the OECD Distributor in your country