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Dare to Compare!

Benchmarking Dutch health with the European Community Health Indicators (ECHI)

With respect to the front cover:

In English the idiom '*comparing apples and oranges*' is commonly used to indicate that some items have not been validly compared. In some languages fruit other than apples and oranges can (or rather cannot) be compared. For example, apples and pears are compared in Danish, Dutch, German, Spanish, Swedish, Czech, Romanian, Slovene and Luxembourgish.

Comparing health items between 27 European countries sometimes resembles comparing apples and oranges (or apples and pears). Different languages, cultures and health systems indeed complicate comparisons and, apart from the international comparisons in this report, the question is raised whether data are actually available and technically comparable. However, exercises like these are very informative and valuable and we are convinced that the combined efforts of EU-funded projects, Eurostat, OECD, WHO and individual Member States have largely contributed (and will continue to do so) to increased data quality and more valid comparisons.

Dare to Compare!

Benchmarking Dutch health with the European Community Health Indicators (ECHI)

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PREFACE

Since the Amsterdam Treaty (1997), the public health agenda of the European Union (EU) has gradually gained importance. This has become apparent from the successive Programmes of Community Action in the field of Health, from 1998 onwards, and recently in the European Commission's Health Strategy (2007). In practice, it has resulted in the operation of many Europe-wide networks in health and public health. It also resulted in a much enhanced activity of Eurostat and other international organizations on data collection in the field of health. Finally, it has stimulated the formulation of various indicator sets to enable comparisons of health across the Member States. One of these sets is the so-called ECHI (European Community Health Indicators) shortlist, covering the entire public health area. This list was adopted by the European Commission as a priority list for harmonizing public health and health care data among EU countries.

Simultaneously, policy makers at the national level have become increasingly interested in assessing their own country's position among the other EU Member States. For the Dutch situation, this has become apparent, for instance, from the prominent place of international comparisons in the national health reports (Public Health Status and Forecasts Reports). International comparisons have also put the unfavourable developments in female life expectancy and perinatal mortality on the Dutch political agenda. Since 2006, the Dutch Health Care Performance report has placed emphasis on international comparisons wherever possible. In 2006, the Dutch Minister of Health, Welfare and Sport (VWS) has announced the ambition to bring the Netherlands back into the top five for health, within the EU.

At the same time, we see that many European countries face similar public health challenges, for example: an increasing number of people with overweight, adverse health behaviours concentrating in young people, unnecessary health differences between population subgroups, chronic conditions and quality of life in the elderly, substantial mental health problems, insufficient application of coordinated preventive efforts. This is another reason to use the instrument of international comparison, or benchmarking: not only for assessing the situation, but also for the Member States to learn from each other's experiences. The latter was the subject of the recent study 'Learning from our neighbours', comparing countries' policies on a range of public health issues.

This is why the Ministry of Health, Welfare and Sport has asked RIVM to update the picture of Dutch public health against other EU Member States, and to base this on the ECHI indicator shortlist. The picture that arises from the international comparisons in this report is quite diverse. For some issues, the Netherlands ranges among the top five within the EU, but for a few others, we are among the bottom ones. Such diversity is not unexpected, rather it points at the need to further investigate underlying patterns: why are we doing well on some issues, and what can we learn for policy action on the ones that lag behind? For this, we need subsequent steps to follow up on the straightforward indicator benchmarking done in this study. Another thing shown by this diverse picture is that the practice of ranking countries by just one composite index for 'health' or 'public health', as has been done in the past, only generates a very simplistic view of the actual situation and of policy opportunities.

Behind all this, the question is raised whether for all the ECHI indicators, data are actually available and really comparable, i.e. based on similar mechanisms of data collection. The results of the study show that the Netherlands is doing relatively well on this point. Throughout the EU, Member States are making progress, but we still have a long way to go. The ECHIM (ECHI Monitoring) project and Joint Action, as EU initiatives under the EU Health Programme, have been, and hopefully will continue to be instrumental in keeping these developments going. For the Netherlands, we are ready to take interest in complementing these EU activities by arranging adequate guidance, coordination and central ownership concerning the regular collection of the required data.

This report is primarily aimed at the Dutch policy maker and public health professional, as it is a direct comparison of many of the currently prevailing issues. At the same time it is also of prime interest at the EU level, because it is an exercise on the feasibility of using the Europe-wide ECHI shortlist for health monitoring in a specific country. I hope that the report will further stimulate our European orientation. This includes our awareness of how we can learn from our neighbours and our readiness to serve as an inspiring example within the EU.

Director Public Health Department
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KERNBOODSCHAPPEN

Nog een flinke inspanning nodig om Nederland tot één van de gezondste EU-landen te maken

In 2006 heeft de minister van Volksgezondheid, Welzijn en Sport de ambitie uitgesproken om de Nederlandse volksgezondheid terug te brengen in de top vijf van Europa door een nieuwe beleidsaanpak op het gebied van preventie. Deze 'benchmark' studie laat zien dat Nederland voor sommige gezondheidsindicatoren op de goede weg is, maar dat er verbeteringen nodig zijn voor een aantal andere ECHI-indicatoren. Deze European Community Health Indicators zijn gebruikt om de Nederlandse gezondheid en zorg met die van andere Europese Unie (EU) landen te vergelijken. In dit rapport staat Nederland centraal en wordt aangegeven hoe Nederland het doet in vergelijking met de rest van de EU. In een apart hoofdstuk vestigt het rapport de aandacht op jongeren en ouderen. Tevens wordt een overzicht gegeven van de beschikbaarheid, vergelijkbaarheid en kwaliteit van de Nederlandse en Europese gezondheidsdata.

Nederlandse levensverwachting op EU-15 niveau bij mannen en op EU-27 niveau bij vrouwen

Na een periode van stagnatie stijgt de levensverwachting van Nederlandse vrouwen weer, maar deze ligt nog steeds onder het gemiddelde van de EU-15 en dichter bij het (lagere) EU-27 gemiddelde. De levensverwachting van Nederlandse mannen volgt het niveau van het nog steeds toenemende EU-15 gemiddelde. De levensverwachting in goede gezondheid, zoals die wordt gemeten met de 'Healthy Life Years' indicator is relatief hoog voor Nederlandse mannen, en gemiddeld voor Nederlandse vrouwen. Voor vrijwel alle andere indicatoren geldt dat ze binnen Europa sterk variëren. Voor sommige scoort Nederland beter, voor andere slechter dan gemiddeld. Voor een aantal indicatoren bestaan nog geen goede, vergelijkbare gegevens.

Waarin zijn we beter?

Nederland scoort goed voor hart- en vaatziekten, ongevallen, bewegen en overgewicht, en voor sommige indicatoren voor kwaliteit van zorg

In vergelijking met andere EU-landen doet Nederland het goed ten aanzien van sterfte door hart- en vaatziekten (zoals beroerte), en door externe oorzaken van letsel, zoals verkeersongevallen. De sterfte aan deze doodsoorzaken behoort tot de laagste in de EU en daalt nog steeds. Voor deze aandoeningen is niet alleen de sterfte laag in Nederland. Ook is het aantal nieuwe gevallen van deze ziekten en van ongevalsletsels laag.

Nederland hoort tot de besten voor een aantal determinanten van gezondheid, zoals lichamelijke activiteit (bewegen) en overgewicht (inclusief obesitas), hoewel het vóórkomen van obesitas snel stijgt, evenals in veel andere landen. Onder de indicatoren van preventie en zorg is de deelname aan screening en vaccinatie relatief hoog in Nederland. Ook scoort Nederland hoog op een aantal indicatoren voor kwaliteit van zorg. De overlevingskansen bij kanker zijn relatief goed, de 'case-fatality rate' na opname in een ziekenhuis voor een hartinfarct is laag, evenals het percentage mensen dat zorg nodig had, maar niet kreeg. Dit kleine aantal indicatoren waarvoor voldoende data beschikbaar zijn, geeft echter een nogal beperkt beeld van de kwaliteit van zorg in Nederland en andere EU-landen, vooral op het gebied van langdurige zorg.

Waarin zijn we slechter?

In Nederland is de sterfte aan kanker en ademhalingsziekten slechter dan gemiddeld, evenals roken, gebruik van ecstasy en het geven van borstvoeding

Nederland behoort bij de slechtst scorende landen voor sterfte aan kanker en ademhalingsziekten, waaronder COPD, en dit geldt in het bijzonder voor vrouwen en op hogere leeftijd. Het verschil met het EU-gemiddelde wordt zelfs groter voor kankersterfte bij vrouwen omdat deze sterfte in de EU sneller daalt dan in Nederland. Dit komt doordat sterfte aan longkanker bij Nederlandse vrouwen sterk stijgt.

Wanneer we naar determinanten van gezondheid kijken, is de Nederlandse positie slecht voor roken en voor het geven van borstvoeding. De trend in roken lijkt ook minder gunstig dan in andere EU-landen. Hoewel roken ook in Nederland afneemt, blijft het percentage rokers tot één van de hoogste in Europa behoren, vooral bij vrouwen. En terwijl het gebruik van illegale drugs laag tot gemiddeld is, is het ecstasygebruik in Nederland relatief hoog. Van de indicatoren voor kwaliteit van zorg is vooral de 30-dagen ‘case-fatality rate’ bij ziekenhuisopname voor een hersenbloeding relatief hoog.

Hoe zit het met onze jongeren?

Het kan beter in Nederland voor pasgeborenen, maar we scoren goed bij tieners, behalve voor sommige leefstijlfactoren

Perinatale en zuigelingensterfte liggen in Nederland rond het EU-gemiddelde, maar zijn hoog binnen de groep van economisch meer ontwikkelde EU-landen. Nederland nam voor deze indicatoren enkele tientallen jaren geleden een veel betere positie in, maar deze sterftecijfers zijn in de afgelopen twintig jaar in Nederland iets langzamer gedaald dan in veel andere EU-landen. Relatief weinig Nederlandse baby’s krijgen borstvoeding (als enige voeding) in de eerste 6 maanden, zoals wordt aanbevolen. Na het eerste levensjaar lijken Nederlandse kinderen de wat moeizame start weer goed te maken, met één van de laagste sterftecijfers in Europa voor kinderen tussen 1 en 19 jaar oud. Vooral de sterfte door ongevallen is erg laag bij Nederlandse kinderen en tieners.

Tijdens de adolescentie ontwikkelt de leefstijl van Nederlandse kinderen zich ongunstig: gezond gedrag lijkt met de leeftijd plaats te maken voor riskant gedrag. Eenzelfde trend wordt ook in andere EU-landen gezien. Alcoholgebruik is echter bijzonder hoog onder Nederlandse 15-jarigen in vergelijking met hun Europese leeftijdsgenoten. Voor roken is het beeld iets gunstiger: het percentage Nederlandse 15-jarigen dat rookt is gemiddeld in de EU en de trend is dalend. Een ongezonde leefstijl komt in Nederland vaker voor bij kinderen uit lagere sociaaleconomische klassen. Dit is in veel andere EU-landen ook het geval.

Op het gebied van preventie en zorg kent Nederland een hoge vaccinatiegraad bij kinderen. Verder is de ECHI-indicatoren set te beperkt om een goede vergelijking te geven van zorg, preventie en gezondheidsbevorderingsprogramma's bij kinderen.

En met onze ouderen?

Nederlandse ouderen ervaren de gevolgen van hun vroegere leefstijl

De Nederlandse ouderen lijken momenteel de volle omvang van de tabaksepidemie te voelen, in de vorm van een hoge sterfte aan longkanker, diverse andere kankers en ademhalingsziekten. Deze sterfte, die sterk door voormalig roken beïnvloed wordt, daalt bij mannen, maar bij vrouwen boven de 65 jaar is een stijging in longkankersterfte te zien.

Data voor internationaal vergelijkbare indicatoren voor gezondheid en zorgaspecten zijn beperkt beschikbaar voor ouderen. Binnen de EU bestaan belangrijke verschillen in patronen van zorgverlening en de Europese gezondheidssystemen zullen met een toenemend aantal oudere burgers te maken krijgen. Een belangrijke vraag hierbij is of ouderen in Europa en in Nederland gezonder worden. Er is meer onderzoek en regelmatige gegevensverzameling nodig om dat vast te stellen.

Niet één winnaar, maar Zweden heeft goede kaarten

Dit rapport wil niet één winnaar van de 'indicator race' aanwijzen. De indicatoren zijn niet gelijkwaardig in de zin dat sommige een beperkt gezondheidsgebied beslaan en anderen min of meer 'paraplu indicatoren' zijn. Wanneer we naar de laatste kijken, kunnen we zeker stellen dat Zweden succesvol is op het gebied van gezondheid. De Zweden scoren hoog bij levensverwachting en ervaren hun gezondheid veelal beter dan andere Europeanen. Het percentage rokers is er flink gedaald, wat veel gezondheidstrends in gunstige richting ombuigt. Toch is er ook in Zweden verbetering mogelijk; het percentage mensen dat zegt een chronische ziekte te hebben is er hoog en ook bewegen de Zweden nog niet voldoende volgens de internationale criteria. Voor de meeste indicatoren wordt de top vijf bezet door wisselende landen die als voorbeeldland zouden kunnen dienen.

De ECHI-indicator shortlist als vergelijkingsinstrument

Deze eerste ECHI benchmark exercitie benadrukt het belang van een goede beschikbaarheid van recente, vergelijkbare en kwalitatief hoogwaardige gegevens. Deze dienen als de solide basis waarmee landen het internationaal perspectief aan hun nationale gezondheidsprofiel kunnen toevoegen en als randvoorwaarde voor beleidsmakers bij het toekennen van beleidsprioriteiten en middelen.

De ECHI-shortlist kan voor Nederland worden ingevuld, maar er blijven vergelijkbaarheidsproblemen

Deze studie laat zien dat er voor zo'n 65% van de 82 ECHI-indicatoren zowel in Nederland als in de meeste EU-landen gegevens beschikbaar zijn. Voor vier indicatoren zijn er geen Nederlandse data. Voor de resterende indicatoren zijn de data minder regelmatig beschikbaar of voor een kleiner aantal landen, maar inclusief Nederland. Slechts voor 25% van de indicatoren kunnen de data, volgens dit rapport, beschouwd worden als zonder meer goed vergelijkbaar. Voor de meeste andere zijn de vergelijkbaarheidsproblemen beperkt, maar in zo'n 10% van de gevallen zijn die problemen 'serieus' zoals in de appendices van dit rapport wordt beschreven.

Op Europees en EU-niveau zijn er belangrijke stappen gemaakt bij het verbeteren van de beschikbaarheid en vooral de vergelijkbaarheid van gegevens, meestal door organisaties zoals de Wereldgezondheidsorganisatie (WHO), de Organisatie voor Economische Samenwerking en Ontwikkeling (OESO) en Eurostat en in door de EU gesubsidieerde projecten. Voorbeelden zijn de ontwikkelingen rond het zogenaamde 'System of Health Accounts' voor zorgdata, de standaardisering van ziekenhuisregistraties en de overeenkomst om tot een uniforme Europese gezondheidsenquête (EHIS, European Health Interview Survey) te komen. Deze verbeteringen in de gegevensverzameling hebben betekenis voor een groot aantal van de ECHI-indicatoren. De komst van een Eurostat richtlijn voor de verzameling van gezondheidsgegevens is in dit kader van groot belang.

De beschikbaarheid van Nederlandse data is vrij goed, maar verbeteringen en meer coördinatie zijn nodig

Met betrekking tot de beschikbaarheid van gegevens is de Nederlandse situatie vrij goed in vergelijking met de EU-landen. Voor sommige onderwerpen zijn de data die voor nationale trendbeschrijvingen gebruikt worden zelfs superieur aan data die geschikt zijn voor internationale vergelijkingen. Voorbeelden daarvan zijn data uit huisartsenregistraties en uit een aantal specifieke enquêtes. Op deze gebieden zou de praktijk in Nederland een voorbeeld kunnen zijn voor verbeteringen in andere landen. Een zwak punt aan de Nederlandse situatie is de versnipperde verantwoordelijkheid voor de primaire dataverzameling. Hier wordt de noodzaak duidelijk om het huidige gedecentraliseerde model te veranderen in de richting van een sterkere nationale coördinatie en eigenaarschap voor het regelmatig verzamelen van primaire gegevens op het terrein van volksgezondheid en zorg.

Voor een blijvende en structurele bijdrage van Nederland, rekening houdend met ontwikkelingen in Europa, worden de volgende aanbevelingen gedaan:

- Ondersteun de implementatie van de EU-standaard voor gezondheidsenquêtes (EHIS) in het Nederlandse systeem van gezondheidsenquêtes.
- Neem maatregelen tegen de afnemende beschikbaarheid van ziekenhuisdata in Nederland. Het systeem dat enkele tientallen jaren operationeel was (LMR, Landelijke Medische Registratie) staat zwaar onder druk en er zullen grote inspanningen nodig zijn om instorting te voorkomen.

- Stimuleer een aantal andere ontwikkelingen die nodig zijn voor betere vergelijkbaarheid en aanlevering van betere data aan internationale organisaties, zoals die in dit rapport zijn aangegeven.
- Zorg in Nederland voor centrale coördinatie voor het verzamelen en verspreiden van data. Dit behelst ook de aanlevering van data aan internationale organisaties, zoals de WHO, de OESO en Eurostat. Dit is nodig om aan de nationaal en internationaal toenemende vraag naar data tegemoet te komen.
- Zorg voor een duidelijk eigenaarschap op beleidsniveau van deze centrale coördinatie.

KEY MESSAGES

A major effort is needed to upgrade the Netherlands to one of the healthiest EU countries

In 2006 the Dutch Minister of Health, Welfare and Sport announced the Ministry's ambition to move the Netherlands back into the top five of Europe in Public Health through a new policy approach in the area of prevention. This benchmark study shows that the Netherlands is on the right track for some health indicators, but that improvements are still needed for quite a few of the other European Community Health Indicators (ECHI) that were used for comparing health (care) in the Netherlands with the other European Union (EU) countries. It focuses on the Dutch situation and highlights how health in the Netherlands compares to health in other countries. Specific attention is given to the young and the old. Simultaneously, this study provides an overview of the availability, comparability and quality of Dutch and European health data.

Dutch male life expectancy parallels the EU-15 average; female life expectancy is around the EU-27 average
Following a period of stagnation, the life expectancy of Dutch women is once more on the increase, but it is still below the EU-15 average and lies closer to the EU-27 average, which is lower than that of the EU-15. The life expectancy of Dutch men, however, is still in line with the ever increasing EU-15 average. Life expectancy in good health, as measured by the Healthy Life Years indicator, is relatively high for Dutch men, but average for Dutch women. Other indicators vary considerably throughout Europe. For some indicators the Netherlands scores better than average, for others worse and for some indicators no good comparable data are available as yet.

Our strengths...

The Netherlands scores well on heart disease, injuries, physical activity and overweight and some quality of care indicators
In comparison with other EU countries the Netherlands is doing well with respect to mortality caused by circulatory diseases (such as stroke), as well as mortality caused by external causes of injury (such as traffic accidents). The mortality rates for these causes are among the lowest in the EU and are still decreasing. Not only mortality, but also the incidence of these diseases and of injuries is low in the Netherlands.

The Netherlands is among the best countries for some health determinants, such as physical activity and overweight and obesity, although the latter is increasing fast as in many other countries. Focusing on the prevention and care indicators, cancer screening uptake and vaccination coverage are relatively high in the Netherlands. The Netherlands also ranks highly on several indicators of quality of care. Survival rates for cancer are relatively good, and the case fatality rate in hospitals for acute myocardial infarction is low, as is the percentage of people with unmet health care needs. However, this small set of indicators for which adequate data are available, gives only a very limited picture of the quality of health care, especially with respect to long-term care.

Our weaknesses...

Dutch mortality rates for cancer and respiratory disease are worse than average, as is smoking, ecstasy use and breastfeeding

The Netherlands scores particularly poorly on mortality from all cancers and from respiratory diseases, which includes COPD, and this is especially the case for women and for higher age groups. The gap between the Netherlands and the EU average is in fact widening for female cancer mortality, because this mortality rate is decreasing faster in the rest of the EU than in the Netherlands. This is due to a considerable increase in lung cancer mortality in Dutch women.

Focusing on determinants of health, the Dutch position is poor with respect to daily smokers and the practice of breastfeeding. The trend in smoking also seems to be less favourable than in other EU countries. Although smoking is also decreasing in the Netherlands, its prevalence remains one of the highest in Europe, especially among women. Similarly, although illicit drug use is low to average, ecstasy use is relatively high in the Netherlands. With respect to the quality of care indicators, the high 30-day in-hospital case-fatality rates for haemorrhagic stroke are worrying.

How about the young...?

The Netherlands could improve on newborn-related indicators, but scores favourably in higher age groups among the young, except on some lifestyle factors

Perinatal and infant mortality in the Netherlands are about average in the EU, but are high when compared to the more affluent EU countries. The Netherlands had a much better ranking for these indicators a few decades ago, but has shown a somewhat slower decline than many other EU countries over the past two decades. Relatively few Dutch babies are exclusively breastfed for the recommended period of 6 months. After the first year of life, however, Dutch children appear to compensate for this somewhat difficult start in life with one of the lowest mortality rates among 1-19 year-olds in Europe. Especially mortality due to injuries and other external causes is very low in Dutch children and adolescents.

During adolescence the lifestyle of Dutch children develops in an unfavourable way: positive health behaviour tends to decrease, while at the same time risk behaviour increases with age. The same trend is seen for youth in the other EU countries. However, alcohol use is particularly high among Dutch 15-year-olds in comparison to their European peers. For smoking the picture is slightly better: smoking prevalence among Dutch 15-year-olds is about average and decreasing. Unhealthy lifestyles are more common among socio-economically disadvantaged adolescents in the Netherlands, and the same situation can be seen in many other EU countries.

In the area of prevention and health care, the coverage of childhood vaccination is high in the Netherlands. However, apart from the above, the ECHI indicator set is considered to be too limited to enable a fair comparison of the performance of health care or prevention and health promotion programmes in children.

How about the old...?

Dutch elderly face the consequences of their past habits

The Dutch elderly currently appear to be facing the full impact of the tobacco epidemic, as Dutch elderly men have high lung cancer mortality rates, as well as high mortality rates from other cancers and from respiratory diseases, which are all strongly influenced by past smoking. These rates are falling in men, but an increase has been observed in Dutch women aged 65 and over.

Data on internationally comparable indicators on health and care issues are limited for the elderly. Within the EU, important differences in care-delivery patterns exist and health systems will have to cope with an increasing share and number of elderly citizens. A major question in this respect is whether the elderly are getting healthier throughout Europe and in the Netherlands. Further study and regular data collection is needed to confirm this.

No actual winner, but Sweden is a frontrunner

This report does not intend to announce ‘a winner of the indicators’. The indicators are dissimilar in a sense that some indicators cover a small health area while others are more like an umbrella indicator. Looking at some of the latter types, however, it is fair to say that Sweden is successful in being healthy. The Swedes rank high on life expectancy and perceive their own health as one of the best in the EU. They also achieved a major decline in smoking prevalence, positively influencing many health trends. Yet, Sweden too could improve on some indicators; the self-reported chronic morbidity is high and physical activity is insufficient according to the international criteria. For most indicators the top five consists of a varying set of countries that can serve as examples of success.

The ECHI indicator shortlist as a benchmark tool

This first ECHI benchmark exercise emphasizes the need for good access to up-to-date, comparable, and qualitatively sound data. These should serve as a solid basis enabling countries to add an international perspective to their national health profile, and as a prerequisite for policy makers at the European level for allocating resources and policy attention.

The ECHI shortlist can be implemented in the Netherlands, but comparability problems remain

This study shows that for 65% of the 82 ECHI indicators data are readily available in the Netherlands and in most other EU Member States. There are only four indicators for which no Dutch data are available. For most of the remaining indicators, data are available either less regularly or from only a limited number of countries, including the Netherlands. This report states that for only 25% of the indicators can the data be considered comparable between countries without constraints. Some issues of comparability remain for most of the other indicators, but these are mostly minor, and are only considered 'serious' in 10% of cases, as discussed in the appendices to this report.

At the European and EU level, important achievements have been realized in improving the availability and particularly the comparability of data, most often by organizations like the World Health Organization (WHO), the Organisation for Economic Co-operation and Development (OECD) and Eurostat and by EU-funded projects. Examples are the development of the 'System of Health Accounts' for health care data, the standardization of hospital registries, and the agreement on a uniform European Health Interview Survey (EHIS). These improvements in datasets relate to a large number of ECHI indicators. The implementation of the Eurostat regulation on data delivery in the health area is also important in this respect.

Dutch data availability is rather good, but improvements and more coordination is needed

With respect to data availability, the Dutch position among EU countries is relatively good. For some issues, the data used for national trend descriptions in the Netherlands are even superior to data that are available for international comparisons. Examples are the data from primary care registries, and from several special surveys. Here, the Dutch practice could be an example for improvements in other countries. A weak point of the Dutch situation is the scattered responsibilities for primary data collection. Here the need is apparent for a change from the present decentralized model to a stronger national coordination and ownership for the regular collection of primary data in the area of public health and health care.

For a sustained Dutch contribution, taking into account current EU developments, a number of actions are recommended:

- Support the implementation of the EU standard for Health Interview Surveys (EHIS) in the Dutch system of health surveys.
- Counteract the decreasing availability of hospital-based data in the Netherlands. The system that has been operating for several decades (LMR, National Medical Registry) is under severe pressure and it will take substantial efforts to prevent its collapse.
- Stimulate other developments towards better comparability and delivery of better data to international organizations, as indicated in this report.
- Establish a central coordinating function for health data collection and dissemination within the Netherlands. This would include the data provision to international bodies such as WHO, OECD and Eurostat. Such a central function is necessary to meet the increasing national and international demand for sound data.
- Establish clear ownership at the policy level on this issue of central coordination.

1 INTRODUCTION

International benchmark of Dutch public health, with a focus on youth and the elderly

Increasingly, Dutch policy makers and health professionals are consulting comparisons between countries and regions for their orientation: How do we stand among our neighbours? What can we learn from them? Where do we see unfavourable trends? What could we possibly do about these? During the past years, much of such comparative information on, for example specific diseases, health determinants and preventive measures was gathered for the National Public Health Compass website, for the Public Health Status and Forecasts Report 2006 (*box text 1.1*), and for the report 'Learning from our neighbours' (Van der Wilk et al., 2008). However, most of this information has been published with different scopes and purposes and the comparisons are restricted to the population as a whole and at most divided by sex.

This report intends to fulfil the need of an updated overview of public health in the Netherlands compared with other countries in the European Union. In addition, since many policy incentives aim at specific subgroups in the population, particularly young people and the elderly, data on these groups have been especially highlighted. This focus is also fed by the first of three strategic objectives in the European Health Strategy: 'Fostering good health in an ageing Europe'. According to the strategy, supporting healthy ageing means both promoting health throughout the life-span, aiming to prevent health problems and disabilities from an early age, and tackling inequities in health linked to social, economic and environmental factors (EC, 2007b).

ECHI shortlist serves as a basis for international comparisons

In the selection of topics for comparison, this report focuses on the so-called ECHI (European Community Health Indicators) shortlist. This ECHI shortlist (including over 80 indicators) has been developed within the EU Public Health Programme (2003-2008) as a priority list for data harmonization among EU countries, in which 'harmonization' refers to uniformity of indicator definition as well as of underlying data collection. The shortlist indicators were selected by expert panels to represent a core set of 'the most important public health items, from a general policy maker's point of view'. The selection was also driven by national public health priorities (Kramers, 2005). The list was adopted by DG SANCO (Directorate-General Health and Consumers) as a central guide for the further implementation of health monitoring and reporting at the EU level, and mentioned as such in the recent EU Health Strategy (EC, 2007b). In the future, the well-defined and fully implemented items in the list may become mandatory for data delivery by a Eurostat regulation.

The choice of the ECHI list as the basis for comparisons in this report thus serves two purposes: 1) to base the comparisons on an EU-wide agreed set of items, and 2) to evaluate to which extent the availability, comparability and quality of Dutch data would meet the ECHI shortlist requirements, or, as it is worded by the ECHIM project (see *chapter 3*), to which extent, the ECHI shortlist can be implemented for the Netherlands. A priori, a

Box text 1.1: Public Health Status and Forecasts Report

Published every four years, the Public Health Status and Forecasts (PHSF) Report summarizes the key developments in the public health domain and examines a number of themes - selected in consultation with the Ministry of Health, Welfare and Sport (VWS) - in more detail. In the report a conceptual framework (*figure 3.1*) is used to structure the information and deal with it systematically.

The PHSF Report is part of a wider, continuous process, the purpose of which is to supply information to support policy-makers and professionals working in the public health domain, not only at the central government level, but also at the regional and local levels. The latest detailed information is published on websites, through a process of continuous collation, processing and updating of health-related information (e.g. www.nationaalkompas.nl (National Public Health Compass) and www.zorgatlas.nl (National Atlas of Public Health)). In addition, PHSF theme reports are produced, which provide medium-term explorations of particular policy issues.

high rate of implementation is to be expected since the Dutch data situation is better than in many other EU countries. Nevertheless, some isolated but important data gaps or bottlenecks may be identified.

Study questions

The previous has led to the following main questions to be answered in this report:

- How does Dutch public health compare to public health in other European countries, in general and with a focus on young people and the elderly? Where possible, issues of socio-economic inequalities will be addressed.
- To what extent are Dutch data available and suitable to meet the specifications of the ECHI shortlist, and what are the main gaps and bottlenecks when making international comparisons based on the ECHI shortlist?

Report outline

This report consists of three parts. Part I focuses on the health of the general population and reflects the four main categories of the ECHI indicators: Health and disease, Determinants of health, Prevention and care, and the Demographic and socio-economic situation. Part II focuses on the health of young people and the elderly. Part III gives details on data and possible problems of international comparison.

2 METHODS

In Part I, a fixed format has been applied to each indicator in section 1 (data are readily available and reasonably comparable) and section 2 (data partly available and/or sizeable comparability problems) of the ECHI shortlist (June 2008 version).

The format consists of:
- The indicator definition and rationale.
- A bar graph or (when possible) trend graph showing the position of the Netherlands in relation to other EU countries. In bar graphs, the Netherlands and the top and bottom five are shown, sorted on the basis of the values for men and women combined. Space between the bars means that country values are left out of the figure. The trend graphs show the Netherlands, the average of EU-15, EU-25 and/or EU-27 (depending on availability) and the range of figures for all EU countries displayed by a grey area.
- A short text on the current situation explaining how the Netherlands compares with other EU-27 countries. Sometimes age, sex or socio-economic differences, or a link with related subjects, are highlighted.
- A text paragraph on time trends.

The focus of the international comparison is on the ‘old’ EU-15 and the EU-27.

A crucial part has been the selection of the appropriate data (source) for presentation. Several data sources are often available for the same item or indicator, although with different characteristics. Another common phenomenon is that the ‘best’ data for internal use in the Netherlands are not the same as the ‘best’ Dutch data for international comparisons. These issues are important for understanding data quality and (lack of) comparability, and are outlined in Part III.

In Part II, data are given for a selection of ECHI indicators specifically pertaining to young people or the elderly, respectively, and presented by the respective age bands. More than in Part I, the text has been built to elaborate on comparisons across related indicators.

For the most recent version of the ECHI shortlist, the work carried out by the ECHIM (European Community Health Indicators Monitoring) project was consulted, especially:
- The definitions and recommendations on each individual indicator given in the draft indicator documentation sheets (http://www.echim.org/docsheets.html and www.healthindicators.org) (ECHIM, 2008).
- The ‘ECHIM country report’ for the Netherlands, in which a compilation is made of the data for the shortlist indicators from the major databases of the World Health Organization Regional Office for Europe (WHO-Europe), Eurostat and the Organisation for Economic Co-operation and Development (OECD) (Kilpeläinen & Aromaa, 2008).

The following sources were consulted for data and metadata:
- The WHO Health for All database (WHO-HFA database).
- The WHO European mortality database (WHO-MDB database).

- The OECD Health database.
- The databases of Eurostat.
- The database of EUCAN/GLOBOCAN (for cancer).
- The presentation of ECHI indicator data on the DG SANCO website (http://ec.europa.eu/health/ph_information/dissemination/echi/echi_en.htm).
- The Euphix website: data and information on ECHI indicators (http://www.EUPHIX.org).
- European indicator projects, for example:
  - The MINDFUL mental health indicator database.
  - EUROTHINE - Tackling Health Inequalities in Europe; providing data on health inequalities.
  - EUDIP/EUCID - European Diabetes Indicators Project and the European Core Indicators in Diabetes project; providing data on diabetes.

For each indicator, data sources were examined for:
- Availability (including timeliness): are data readily available and accessible?
- Comparability: are data comparable taking into account their different types of sources and methods? (data from national statistical offices, questionnaires, Health Interview Survey (HIS), European Statistics on Income and Living Conditions survey (EU-SILC), European Community Household Panel (ECHP), Health Examination Survey (HES), standardization, age groups, etc.).
- Quality (validity, reliability): this may refer to characteristics of the data source (e.g. representativeness, sample size); possibility to make the required indicator calculation, etc.

A brief description of this analysis is available in *appendices 4 to 7* for each indicator.

3 ECHI BACKGROUND AND CONCEPTS

Comparable health information is a major priority for the European Commission
As indicated by the subtitle and explained in the introduction, the international comparisons presented in this report are based on the ECHI (European Community Health Indicators) shortlist. This shortlist has resulted from a series of activities under three subsequent EU programmes, i.e. the Health Monitoring Programme (1998-2003), and the 'information strands' within the first (2003-2008) and second (2008-2013) Programme of Community Action in the Field of Health.

From the beginning, the Health Monitoring Programme has aimed at 'the establishment of a Community health monitoring system', in order to:

- Measure health status, its determinants, and trends therein throughout the Community.
- Facilitate the planning, monitoring and evaluation of Community Programmes and actions.
- Provide Member States with appropriate health information to make comparisons and support their national health policies.

In slightly different words, the Community Public Health Programme 2003-2008 set down the objective of 'establishing and operating a sustainable European health information and knowledge system'. The continuity of this focus on comparable health information through subsequent EU programmes is obvious.

ECHI shortlist prioritizes the Commission's work for harmonization of data collection
As a first step towards the implementation of these aims, a comprehensive set of indicators was proposed by the ECHI-1 and ECHI-2 projects. In the selection of these indicators, the following criteria and characteristics were central:

- Be comprehensive: all domains of the public health field should be included, adopting a conceptual approach as is done by the Dutch Public Health Status and Forecasts Report (PHSF, VTV in Dutch) (*box text 1.1* and *figure 3.1*).
- Meet user needs: the set of indicators should cover the main policy priorities of the Commission and the Member States.
- Where possible use earlier work of international organizations (Eurostat, OECD and WHO-Europe) in defining indicators.
- Be innovative: the set should not just be data-driven, but also indicate development needs.
- Use results of Health Monitoring Programme and Public Health Programme projects.

As the comprehensive ECHI list expanded too much to be practical, the ECHI-2 project selected the so-called 'ECHI shortlist', in order to prioritize and focus the European Commission's work for harmonization of data collection by EU Member States. The indicators on the shortlist were selected from the comprehensive list ('long list') by a panel of public health generalists, discussed and amended in all Working Parties operated under the Public Health Programme (2003-2008) and finally adopted by DG SANCO as a central basis for further work. The shortlist selection was guided by two additional criteria:

- The indicator should be relevant from the point of view of the 'general public health official'.
- The indicator should be oriented towards the 'large public health problems', the 'large health inequalities' and the 'large possibilities for improvement', in terms of health impact and options of (cost-)effective intervention.

The availability of data was not taken as a primary selection criterion for the shortlist, in order to ensure that innovative aspects are taken into account.

During 2005-2008, the ECHIM project (ECHI Monitoring) has continued the work on the ECHI shortlist by:

- Improving and expanding the definitions, data source description and documentation of each indicator, laid down in 'documentation sheets'.
- Mapping the availability of the indicators and underlying data at national level, by analyzing the existing international databases (WHO-HFA, Eurostat, OECD), and by a survey among the Member States.
- Identifying problem areas in the harmonization of data collection.

After 2008, this work will be continued in a so-called 'Joint Action', in which DG SANCO works together with the Member States and Eurostat, to further improve the implementation of the ECHI shortlist and other indicators throughout the EU.

The use and dissemination of the ECHI shortlist is increasing

The European Commission (DG SANCO as well as Eurostat) have started to use the ECHI shortlist as a basis for quite a few activities connected to the harmonization of data collection by Member States. DG SANCO is publishing data according to the shortlist on its website (http://ec.europa.eu/health/ph_information/dissemination/echi/echi_en.htm). Hyperlinks have been established between the EU Public Health Portal (http://ec.europa.eu/health-eu/) and the EUPHIX website (www.euphix.org; a web-based health information system also based on the ECHI structure). Furthermore, several European countries (e.g. Ireland, Latvia and Cyprus) already use the ECHI shortlist to guide data collection in their country. The importance of the shortlist is also underlined by the future European regulation on community statistics on public health and health and safety at work that takes the ECHI shortlist as one of the starting points (EC, 2007a). Moreover, the Council of the European Union has welcomed the new European Health Strategy 2008, which emphasizes the importance of a 'System of European Community Health Indicators with common mechanisms for collection of comparable health data at all levels, including a Communication on an exchange of health-related information (Commission)' (EC, 2007b; Council, 2007). Finally, the Council 'calls upon the Member States and the Commission to build upon existing work on health indicators and select and measure the relevant ones for monitoring and evaluation of the Health Strategy' (Council, 2007).

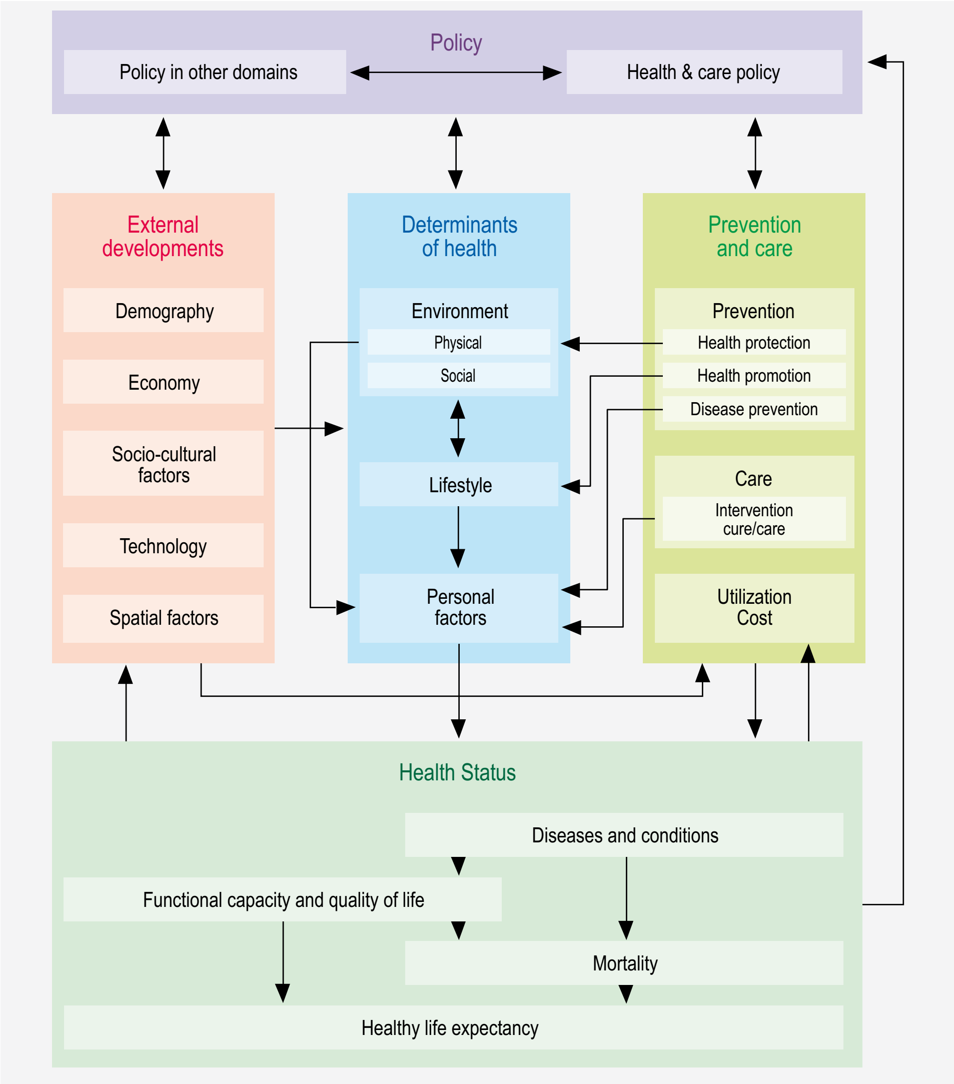
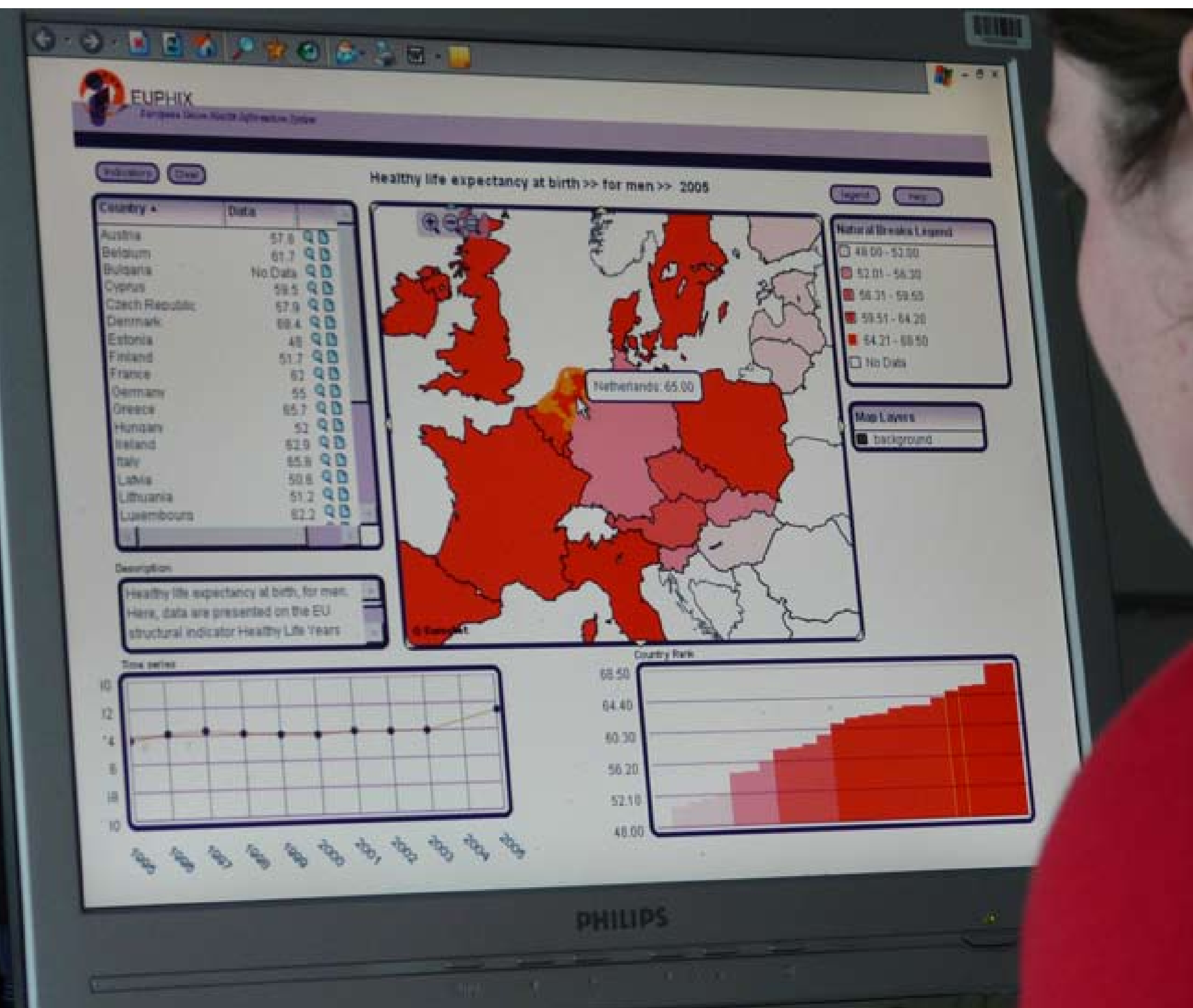


Figure 3.1: Conceptual model of the basic principles governing public health (De Hollander et al., 2007).

From all this, it is clear that the ECHI shortlist will be an important cornerstone in building the envisaged 'European health information and knowledge system'. This is why this indicator list has been taken as the basis for the international comparisons in this report.

For more information on ECHI and ECHIM, see Kramers (2005), www.healthindicators.org and www.echim.org.

PART I DUTCH HEALTH INTERNATIONALLY COMPARED



4 HEALTH STATUS

In this chapter an international comparison of health and disease is presented. The topics addressed are life expectancy and prominent causes of death (e.g. cancer and injuries). Furthermore, some priority diseases of the Dutch Prevention memorandum (Opting for a healthy life) are compared (diabetes and depression) as well as several other diseases from the ECHI shortlist (e.g. lung cancer, breast cancer and asthma). The chapter also includes information about perceived and functional health and the summary measure healthy life expectancy.

4.1 Mortality

4.1.1 Life expectancy

Life expectancy is the number of years that a newborn can expect to live on average, assuming that age-specific mortality levels remain constant. It is a commonly used summary measure based on death rates of the population in a given year. Life expectancy is usually reported as life expectancy at birth, although other base years are also used. Remaining life expectancies at ages 1, 15, 45, 60 and 65 are often used to reflect how life expectancy changes over a lifetime.

Dutch life expectancy higher than EU-27 average for men

Life expectancy at birth for Dutch men was 77.8 years in 2006, which is clearly higher than the average EU-27 life expectancy of 75.6. With 82.1 years, life expectancy for women is more or less similar to that of the EU-27, which is 81.8 (*figure 4.1*) (WHO-HFA, 2008). There are large differences between the old and the new EU countries. Swedish and Cypriote men (almost 79 years) and Spanish and French women (almost 84 years) are European frontrunners with the highest life expectancies. The lowest life expectancies at birth are currently found in the Baltic States for both men and women. The difference in life expectancy between men in Lithuania (65 years) and Sweden (almost 79 years) adds up to more than 13 years. For women the difference is slightly more than 8 years (almost 84 years in Spain and France versus 76.2 years in Romania). In all countries women live longer than men. The difference between men and women is largest in the three Baltic States (WHO-HFA, 2008).

Female life expectancy in the Netherlands on the increase again

From 2000 onwards female life expectancy in the Netherlands has been on the increase again (WHO-HFA, 2008). At the beginning of the millennium it was noted that female life expectancy in the Netherlands stagnated during the 1990s and dropped below the EU-15 average (*figure 4.1*). This was due to an unhealthy lifestyle (e.g. smoking and drinking alcohol) that Dutch women started to adopt in the 1960s and 1970s. A similar pattern was seen in Denmark, where women had started smoking and drinking alcohol in large numbers since they had entered the job market. Many years later they paid the price for their unhealthy lifestyles in terms of higher mortality, mainly from lung cancer and

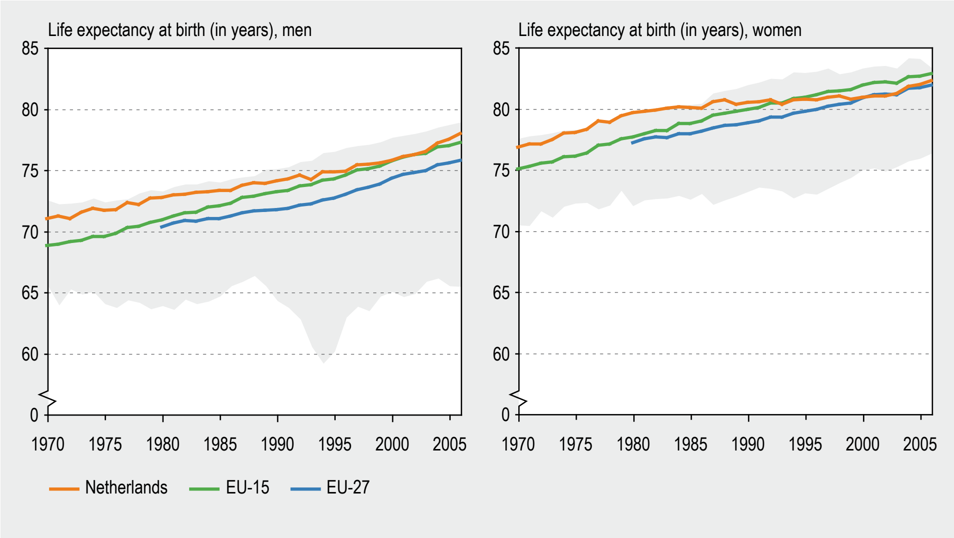


Figure 4.1: Trend in life expectancy at birth (in years) for men and women, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

cardiovascular diseases (Ministry of Health in Denmark, 1994). The more favourable trends in the Netherlands today are also seen in Denmark, where female life expectancy started to climb a couple of years earlier than in the Netherlands (WHO-HFA, 2008).

Life expectancy for Dutch men has shown a steady increase over the past decades. EU countries of the former Soviet Union (i.e. the Baltic States) show a large dip in life expectancy in the mid-1990s. However, since the dissolution of the Soviet Union, life expectancy in these countries rose steadily (WHO-HFA, 2008). See also *appendix A4.1.1*.

4.1.2 Infant mortality

Infant mortality is defined as the number of deaths of infants younger than one year of age (day 0-364) in a given year per 1,000 live births in that year. The infant mortality rate is a basic indicator for population health and for the quality of health care services. It is a measure of the longer term consequences of pregnancy-related, perinatal and neonatal events. It is a particularly important indicator for monitoring the outcomes for high risk groups such as very preterm babies and growth restricted babies. Part of infant mortality consists of mortality of live born babies in their first week(s) of life. This part is also included in the perinatal mortality rate (see *paragraph 4.1.3* on perinatal mortality).

Infant mortality rate in the Netherlands slightly higher than the EU-25 average
In 2006, 820 Dutch infants died in the first year of their life, corresponding to a mortality rate of 4.4 per 1,000 live births. This mortality rate is slightly higher than the EU-25 average of 4.2 (*figure 4.2*). The highest mortality rate per 1,000 live births is recorded in the newest Member States Romania (13.9) and Bulgaria (9.7), while the lowest rates are found in Luxembourg (2.5), Finland and Sweden (2.8) (Eurostat, 2008n). In the Netherlands

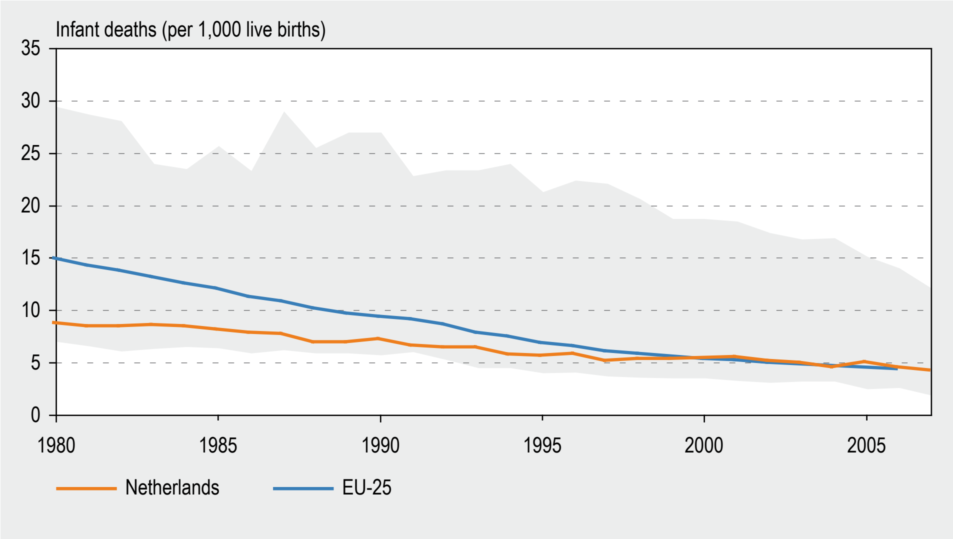


Figure 4.2: Trend in infant mortality (per 1,000 live births), for the Netherlands and EU-25 average, 1980-2007. Range for EU-27 in grey. EU-25 average presented due to limited availability of EU-27 average (Eurostat, 2008n).

the infant mortality rate is higher among newborn children of non-western foreign origin (Statistics Netherlands, 2008b).

Decrease in infant mortality rates in the Netherlands is moderate compared to other EU countries

Since the beginning of the 1990s the Netherlands has lost its position among the 5 EU countries that have the lowest infant mortality rates. Currently the Netherlands has a slightly higher infant mortality rate than the EU-25 average. Although the Netherlands shows a decrease in infant mortality in the last decades, this decrease has been moderate compared with most other EU countries. However, the differences between countries that had high mortality rates in the past and countries with lower mortality rates are diminishing. For example, in 1960 Portugal had the highest infant mortality rate (77.5) and the Netherlands had the lowest (16.5) among 23 EU countries. In 2006 the highest rate among 27 EU countries was recorded for Romania (13.9) and the lowest rate (2.5) for Luxembourg (*figure 4.2*). Romania, Bulgaria and Latvia have shown large decreases in infant mortality in the past decade, while the Netherlands, Austria and Germany have shown small decreases (Eurostat, 2008n).

A part of infant mortality is caused by ‘cot death’ or SIDS (Sudden Infant Death Syndrome). Since 1987, the advice in the Netherlands has been to let newborns sleep on their back instead of their stomach. Sleeping in the prone position (on the stomach) is associated with a higher risk of SIDS. These and other recommendations in the early 1990s have led to a large decrease in mortality due to SIDS in the Netherlands. Similar preventive advice has later been given in many other countries (McKee et al., 1996). These recommendations are regularly updated based on more recent research (Flinsenberg et al., 2008). In 2006, 11 Dutch infants died due to cot death, compared with 50 infants that still died by this cause in 1996 (Statistics Netherlands, 2008b). See also *appendix A4.1.2*.

4.1.3 Perinatal mortality

Perinatal mortality is defined as the number of foetal deaths plus deaths in the early neonatal period (up to 6 or 28 completed days after birth) after live birth at a certain minimum weight or after a minimum of 22, 24 or 28 complete weeks of gestation in a given year, expressed per 1,000 live and stillbirths in the same year. Perinatal mortality is a very sensitive measure of health in the perinatal period and is an important indicator for the quality of perinatal health care, and preventive care.

Dutch perinatal mortality rate close to EU-27 average in 2006
The perinatal mortality rate in the Netherlands is 6.0 per 1,000 births (2006). This is close to the EU-27 average (6.1). The highest perinatal mortality rates are recorded in the new and less affluent EU Member States Bulgaria (10.7) and Romania (10.0), while the lowest are found in Finland (3.0) and Malta (1.8) (WHO-HFA, 2008). In 2006 a total number of 185,057 babies were born alive in the Netherlands. A total of 642 were born dead after at least 28 weeks of gestation and 469 died in the first week of their life. This resulted in a perinatal mortality rate after 28 weeks of gestation of 6.0 per 1,000 births (or 1,111 babies) (Statistics Netherlands, 2008b). Including babies born dead between 24 and 28 weeks of gestation will increase these numbers and rates.

Definition differences complicate international comparisons of perinatal mortality by using the WHO-statistics. More precise and detailed comparative studies, based on registry data (PERISTAT) (see *appendix A4.1.3*) found the perinatal mortality rate in the Netherlands to be higher than in most other EU countries (Buitendijk et al., 2003). A higher prevalence of a number of risk factors for perinatal health may have contributed to this relatively high mortality (Buitendijk & Nijhuis, 2004; Achterberg & Kramers, 2001; Mackenbach, 2006):

- A relatively high smoking rate during pregnancy among Dutch women.
- A relatively high average age of Dutch mothers.
- A relatively high rate of multiple births, partly caused by fertility treatments.
- A relatively high number of foreign mothers of non-western origin.

As improved quality of care may also improve perinatal outcomes, the Ministry of Health, Welfare and Sport in the Netherlands has financed the nation-wide implementation of a system of perinatal audit to support quality improvement through a collaborative effort by all care providers (Merkus, 2008).

Decreasing perinatal mortality rates in the Netherlands and the EU
The Netherlands, along with the rest of the EU countries, shows a decline in perinatal mortality, although the decrease has been more moderate than in most other countries in the last decade (*figure 4.3*). A few decades ago the perinatal mortality rate in the Netherlands was among the lowest in Europe and similar to other European countries

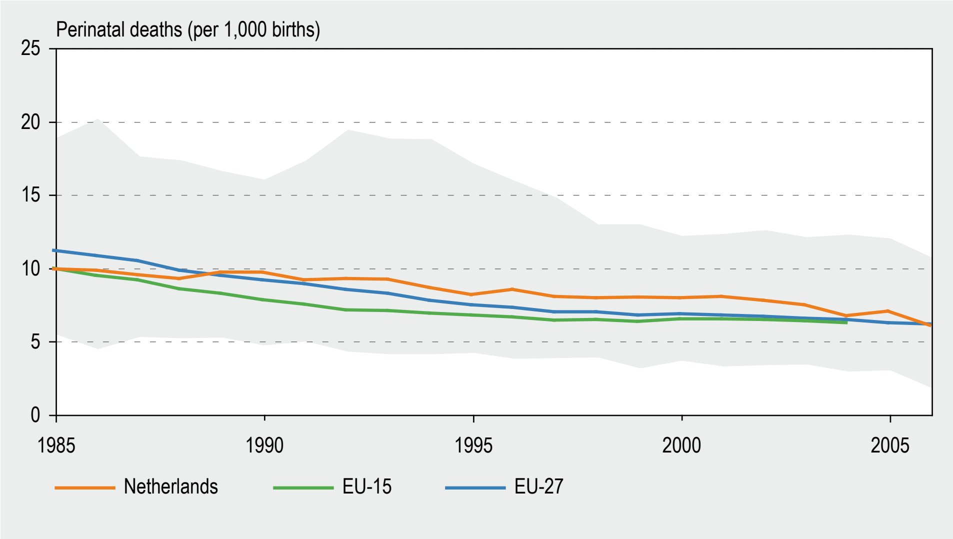


Figure 4.3: Trend in perinatal mortality (per 1,000 births), for the Netherlands and EU averages, 1985-2006. Range for EU-27 in grey (WHO-HFA, 2008).

with high national incomes. In 2006, however, the Netherlands rated 4th highest out of 17 EU-27 countries that reported perinatal mortality rates in that year. This is partly caused by the narrowing gap between countries which had high mortality rates in the past and countries with lower mortality rates. For example, in 1985 Hungary had the highest mortality rates (18.8 per 1,000 births) and Sweden had the lowest (5.5) among 25 countries. In 2006, this large difference has decreased considerably with the highest rate (10.7) currently being recorded in Bulgaria and the lowest rate (1.8) in Malta. Portugal and the Czech Republic have shown large decreases in perinatal mortality rates over the past two decades, while the Netherlands, Finland and Sweden have shown more moderate decreases (WHO-HFA, 2008).

4.2 Cause-specific mortality

4.2.1 Disease-specific mortality

Deaths caused by specific diseases per 100,000 inhabitants. Presentation is restricted to mortality due to four main groups of diseases that are responsible for the majority of deaths in the Netherlands: circulatory diseases (ICD-10 code I00-I99), cancer (ICD-10 code C00-C97), respiratory diseases (ICD-10 code J00-J99) and external causes of injury and poisoning (ICD-10 code V00-V99, W00-W99, X00-X99, Y00-Y99). In 2005, cancer and circulatory diseases both caused about 30% of all deaths in the Netherlands, respiratory diseases 10% and injuries and poisoning 4%. Mortality data are age-standardized in order to be comparable between countries. Therefore, standardized death rates (SDR) are presented (see *appendix A4.2.1*).

Dutch have low mortality from circulatory diseases and injuries

In comparison with other countries the Netherlands is doing well on mortality due to circulatory diseases (e.g. stroke and ischaemic heart disease) and external causes of injury and poisoning (*figures 4.4-4.6*). Both Dutch men and women have very low mortality rates by external causes, when compared to other EU countries. This goes especially for men. Men generally die more often from external causes of injury and poisoning than women. A large part of these deaths takes place between the ages of 15 and 45 and is caused by traffic accidents (20%), while other important causes of death in this mortality group are suicides (30-40%) and accidental falls (10-20%) (WHO-HFA, 2008). For mortality due to ischaemic heart diseases and stroke see *paragraph 4.3.7* and *paragraph 4.3.8*.

Relatively high mortality due to cancer and respiratory disease in the Netherlands

The situation is less favourable with regard to cancer and respiratory diseases (including Chronic Obstructive Pulmonary Disease, COPD), especially for women (*figure 4.4*) (WHO-HFA, 2008). Lung cancer mortality accounts for about 25% of cancer mortality in the Netherlands and is the leading cause of cancer deaths among both men and women. Therefore differences in smoking prevalence in the past are important in explaining differences in cancer mortality. Also mortality from COPD is highly correlated with smoking behaviour in the past two decades. The relatively high percentage of Dutch women smoking in the past decades is reflected in the less favourable mortality rates for cancer and respiratory diseases in Dutch women (*figure 4.4*). For women both cancer mortality and COPD mortality are highest in Denmark (WHO-HFA, 2008; Levi et al., 2004a; Levi et al., 2004b). In the past two decades Denmark had the highest percentage of women smoking. Although still a high percentage of Danish women smoke, the percentage has decreased sharply since the second half of the 1990s. At present, Dutch women smoke more than Danish women. As smoking is currently still very prevalent among younger women, a further increase of the female lung cancer incidence and mortality rates can be expected (see *paragraph 5.2.1* for smoking and *paragraph 4.3.3* for lung cancer incidence).

Mortality is higher among people with low education

Throughout the EU, mortality is higher among people with a low level of education. Inequalities in mortality are lower than the European average in southern European countries and higher than average in most eastern European countries and the Baltic States. In particular, larger inequalities in cardiovascular disease mortality make an important contribution to larger inequalities in mortality from any cause in eastern European countries and the Baltic States. However, in eastern European countries inequalities in cancer mortality and in the Baltic States inequalities in mortality from injuries, also contribute substantially to inequalities in mortality from all causes in these regions (Mackenbach et al., 2008).

Large decline in mortality for circulatory diseases in the Netherlands

Since 1980, mortality from circulatory diseases has been declining in most European countries. In comparison with other European countries trends for circulatory diseases are favourable in the Netherlands. Especially mortality from ischaemic heart disease (IHD) declined sharply in the Netherlands between 1980-2004 (Van der Wilk et al., 2004; Statistics Netherlands, 2008b) (see also *paragraph 4.3.7* on AMI/IHD). Also mortality from

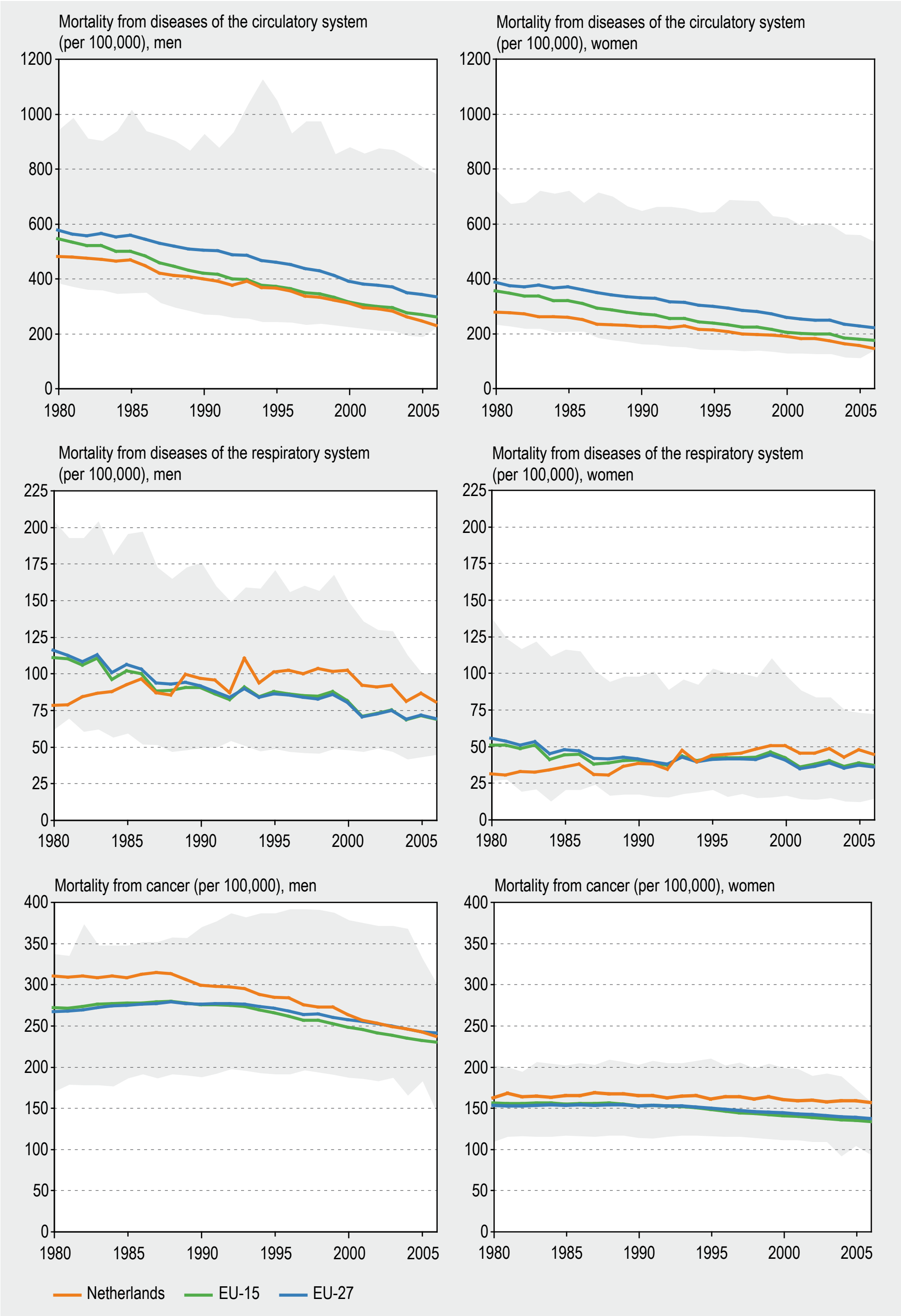


Figure 4.4: Trend in mortality (SDR per 100,000) from selected disease groups for men and women, for the Netherlands and EU averages, 1980-2006. Range for EU-27[1]in grey (WHO-HFA, 2008).

[1] Data for Malta in 1980 and 1981 not included in range for circulatory diseases.

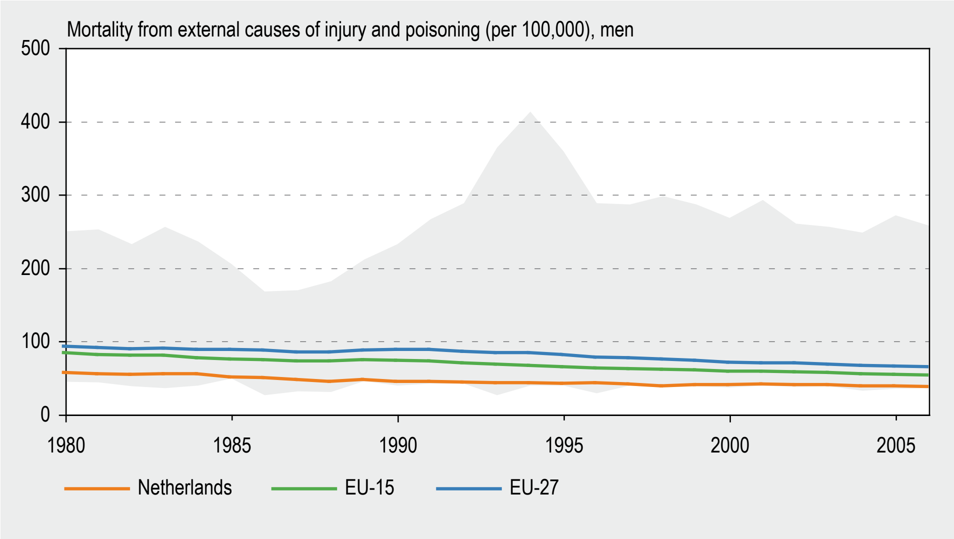


Figure 4.5: Trend in mortality (SDR per 100,000) from external causes of injury and poisoning for men, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

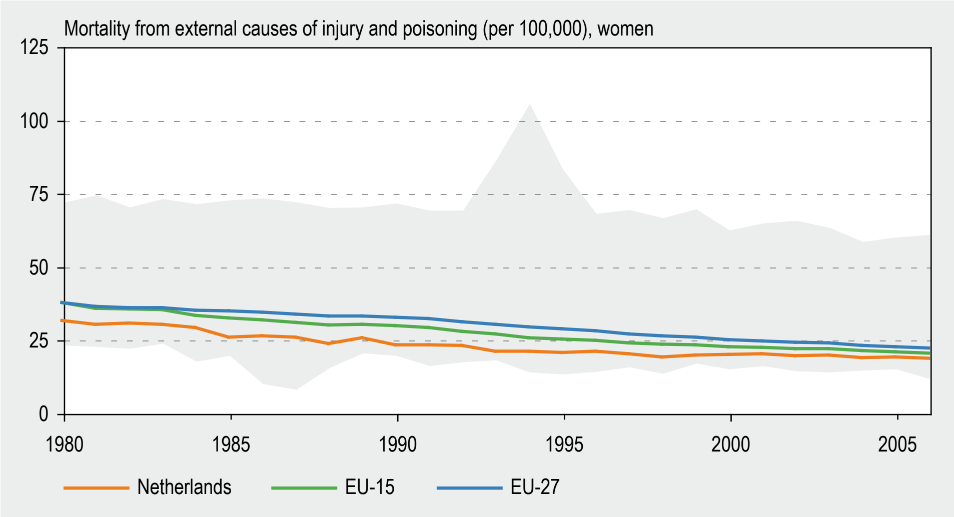


Figure 4.6: Trend in mortality (SDR per 100,000) from external causes of injury and poisoning for women, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

external causes of injury and poisoning is still declining slowly both in the Netherlands and in the EU.

Decrease in Dutch female mortality from cancer and respiratory diseases lagging behind

The gap between female cancer mortality in the Netherlands and the average cancer mortality in the EU is widening, because this mortality rate is decreasing faster in the rest

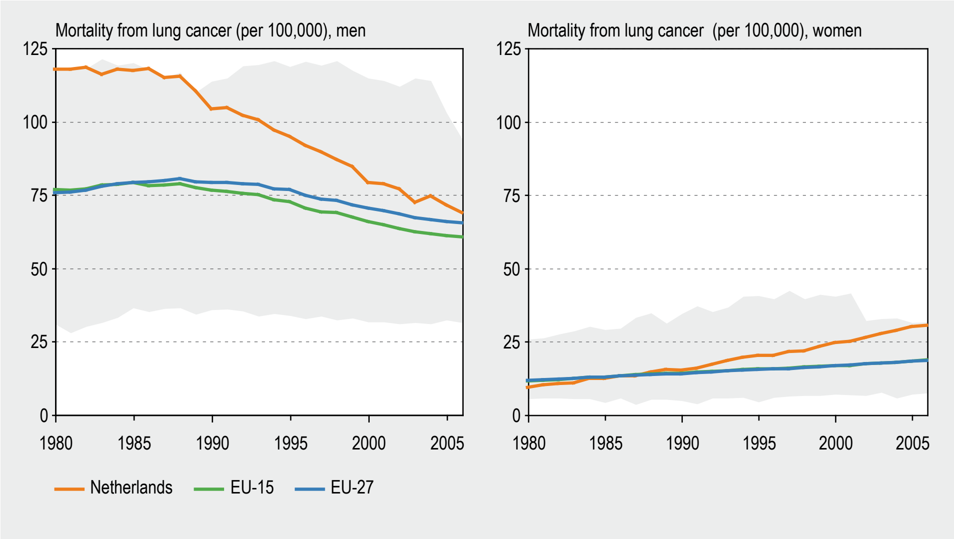


Figure 4.7: Trend in mortality (SDR per 100,000) from lung cancer (ICD-10 code C33-C34) for men and women, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

of the EU than in the Netherlands. This is due to a large increase in lung cancer mortality in Dutch women (*figure 4.7*). On the other hand, the relatively sharp decrease in cancer mortality for Dutch men is caused by a large decrease in lung cancer mortality, although other types of cancer are also declining (Levi et al., 2004b).

Breast cancer used to be the leading cause of cancer deaths for Dutch women, but in 2007 for the first time more Dutch women died from lung cancer than from breast cancer. This is because breast cancer mortality is decreasing, while at the same time lung cancer mortality is increasing (Statistics Netherlands, 2008c). Lung cancer mortality among women is rising in almost all EU countries, but the rise is biggest for Danish, Hungarian and Dutch women, although in Danish women the rise seems to have levelled off. Also in the United Kingdom (UK) and Ireland lung cancer mortality among women is high (WHO-HFA, 2008).

Mortality due to respiratory diseases increased in the Netherlands until 2000, while in most other EU-27 countries it has decreased since 1980. Approximately half of mortality from respiratory diseases consists of COPD mortality. Because lung cancer and COPD are both related to past smoking behaviour, Dutch trends in COPD mortality follow lung cancer mortality trends. For men, mortality due to respiratory diseases has decreased since the end of the 1990s. For women, mortality rose between 1980 and 1998 and remained constant thereafter. Also in Denmark and the United Kingdom mortality due to respiratory diseases increased particularly among women (WHO-HFA, 2008). Apart from smoking, air pollution may also influence the occurrence of respiratory diseases.

4.2.2 Drug-related deaths

The EMCDDA (European Monitoring Centre for Drugs and Drug Addiction) definition of drug-related deaths refers to those deaths that are caused directly by the consumption of drugs of abuse. These deaths occur generally shortly after the consumption of the substance(s). Often these deaths are referred to as 'overdoses', although equivalent concepts are also 'deaths directly related to drug use', 'poisonings' or 'drug-induced deaths'. Drug-related deaths is an important indicator of the health impact of the more severe forms of drug use, and can also be useful for monitoring trends in problem drug use.

Few drug-related deaths in the Netherlands

The number of drug-related deaths per million people is relatively low in the Netherlands (*figure 4.8*). In 2005, 10.9 per million persons aged 15-64 died as a direct result of drug use. Mortality due to drug-related death varies widely among European countries, ranging from 4 to almost 80 deaths per million in the population aged 15-64. Compared with other European countries the difference in mortality between 15-39 year-olds and 15-64 year-olds is rather small in the Netherlands (*figure 4.8*). In absolute numbers, 120 persons aged 15-64 died in 2005 as a direct result of drug use of which 64 persons were aged 15-39. This reflects the fact that the population of problem drug users in the Netherlands is ageing. Also in most other EU-15 Member States the mean age of drug-related deaths is increasing, suggesting a decrease in the incidence of heroin use among young people. Furthermore, in all European countries mortality rates among men are substantially higher than among women.

Factors influencing the number of drug-related deaths in a community are the number of people using drugs associated with overdose (particularly opioids), the proportion of injectors, prevalence of polydrug use, availability and policy of treatment services and emergency services (EMCDDA, 2007a). An explanation for the relatively low number of drug-related deaths in the Netherlands could be the relatively small proportion of heroin users that inject and the relatively high number of methadone users (EMCDDA, 2007a) (see also *paragraph 5.2.5* on use of illicit drugs).

Between 2000 and 2004 decreasing trends in drug-related deaths

During the 1980s and early 1990s, the number of drug-related deaths increased sharply in the EU-15, possibly paralleling the expansion of heroin use and injection. Drug deaths continued to increase between 1990 and 2000, although less sharply. Since 2000, many EU countries have reported decreases, possibly related to increases in treatment availability, harm-reduction initiatives and decreases in the proportion of heroin users that inject. However, this decreasing trend came to a halt in 2004. The same pattern, although to a lesser degree, can be seen in the Netherlands (EMCDDA, 2005; EMCDDA, 2007a). See also *appendix A4.2.2*.

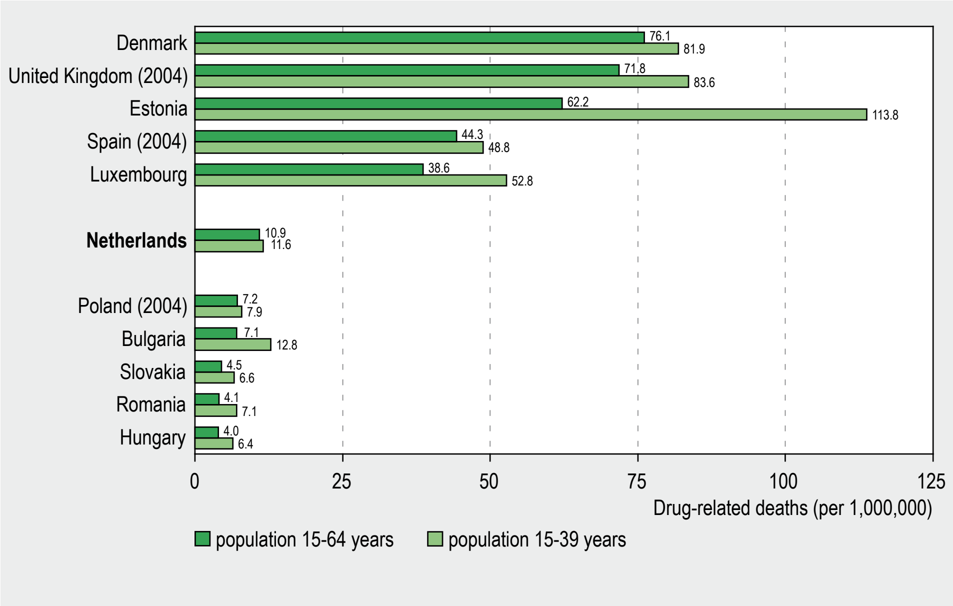


Figure 4.8: EU-27 countries with the highest and lowest mortality due to drug-related deaths (DRD/million population) for the population aged 15-64 years and the population aged 15-39 years in 2005 (EMCDDA, 2007b)[2,3]. Countries sorted by values for population aged 15-64 years.

4.2.3 Smoking-related deaths

Deaths caused by smoking. There are two approaches in calculating this indicator:
1) Deaths from all ICD-causes in which smoking is implicated, per 100,000 inhabitants. The WHO applies this method. This method considers malignant neoplasms of mouth and pharynx (ICD-10 code C00-C14), larynx, trachea, bronchus, lung (C32-C34) and oesophagus (C15), ischaemic heart disease (I20-I25), cerebrovascular diseases (I60-I69) and chronic obstructive pulmonary disease (J40-J47).
2) Smoking-attributable deaths. Assuming that relative risks from the US Cancer Prevention Study (II) can be applied across the EU, then the added information required is smoking prevalence by sex and, ideally, broad age group. Peto et al. (2005) have calculated smoking-attributable deaths by country with this approach.
Smoking-related deaths form an important group of preventable deaths. Information on smoking-related mortality can help to better rank countries and can be used to better monitor trends in deaths associated with tobacco than would have been possible by using separate causes only.

[2] The calculations of population mortality rates are based on 2004 population sizes as reported by Eurostat. Rates are not age-standardized.
[3] EMCDDA provides two different estimates for the United Kingdom. The other estimate gives lower but still relatively high figures: 43.5 per million for the population 15-64 years and 60.6 for the population 15-39 years.

Sources are contradictory on levels of smoking-related mortality in the Netherlands
According to the WHO-HFA database, in 2006, mortality from selected smoking-related causes was low in the Netherlands, compared to other EU countries (*figure 4.9*). Approximately 127 Dutch women and 250 Dutch men per 100,000 died from smoking, which is below average in the EU-27, but about equal to the EU-15 average. Three times as many men and women are killed by smoking in Latvia and Lithuania. Among men, the French and the Cypriotes do well. Among women, the Spanish are added to this favourable list.

A more sophisticated approach to assess 'smoking-attributable deaths' is applied by Peto et al. (2005) (www.deathsfromsmoking.net) (see *appendix A4.2.3*). According to this source, the position of Dutch women is worse. For 2000, it was estimated that 21% of total mortality in women was caused by smoking. This compares with 11% for both EU averages (EU-25 and EU-15) (Peto et al., 2005). For the ranking of the Dutch men, the estimates correspond broadly with the ranking of WHO's estimates. For 2000, 31% of total mortality in Dutch men was caused by smoking, compared with 31% in the EU-25 and 29% in the EU-15.

The difference between the two approaches (at least for Dutch women) may have to do with the favourable position that the Netherlands occupies for some important smoking-related causes of death, namely ischaemic heart disease and stroke (see *paragraph 4.3.7* and *paragraph 4.3.8*).

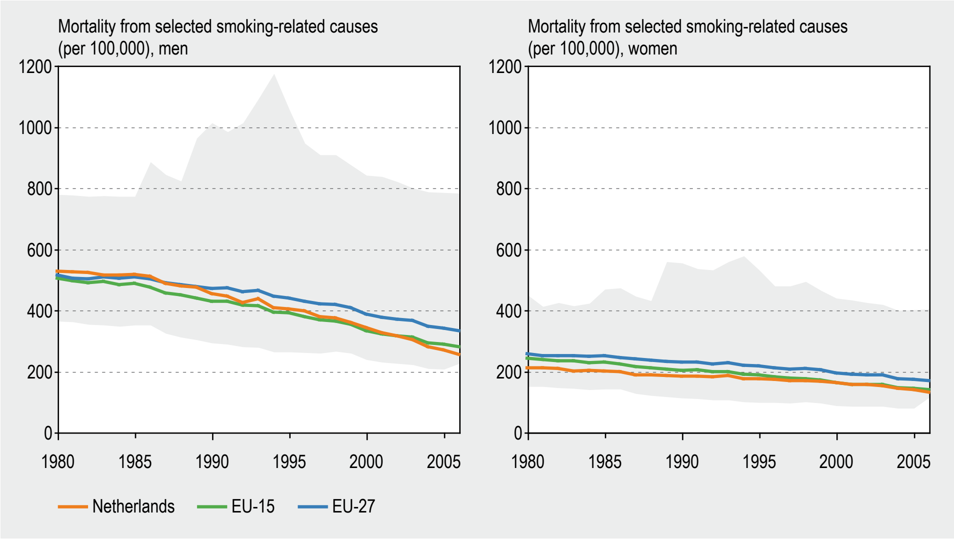


Figure 4.9: Trend in mortality from selected smoking-related causes (SDR per 100,000) for men and women, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Trend is declining among Dutch men, but among women this remains questionable
The trend in smoking-related deaths is clearly on the decrease in men and, looking at *figure 4.9*, this is also the case in women, although the trend line is not as steep as in the figure for men.

Peto et al. (2005) estimated that the deaths attributable to smoking in Dutch men was 36% of all mortality in 1995 (EU-25 average 34%; EU-15 average 32%). For Dutch women, this percentage was 17% in 1995 (EU-25 and EU-15 average: 10%). From these estimates it can be concluded that smoking-related mortality has indeed decreased among Dutch men, both in absolute as in relative terms compared to men from other EU countries. However, in women, the gap that existed between Dutch women and their counterparts in other countries in 1995 (17% versus 10%) had widened by the year 2000 (21% versus 11%). Moreover, the proportion of deaths attributable to smoking has increased in Dutch women (Peto et al., 2005).

4.2.4 Alcohol-related deaths

Deaths caused by the use of alcohol per 100,000 inhabitants. The definition refers to deaths that are caused by long-term use, as well as sudden poisonings directly related to the use of alcohol. Alcohol-related deaths are an important group of preventable deaths: harmful alcohol consumption is the third cause of early death and illness in the EU.

Alcohol-related deaths in the Netherlands very low
The Netherlands has a very low alcohol-related death rate compared to other EU countries (*figure 4.10*). Malta, Greece, Ireland and Italy also have low rates. Higher rates of alcohol-related deaths exist in the new Member States of Lithuania, Estonia, Latvia, Hungary and Romania. Rates of alcohol-related deaths are not always compatible with alcohol consumption in a country, though the trends seem to follow trends in drinking levels (Norström et al., 2001). For example, the rate of alcohol-related deaths in the Netherlands is almost the lowest, whereas the alcohol consumption levels are not far below average (see *paragraph 5.2.3* on total alcohol consumption). Furthermore, alcohol-related deaths are not uniquely caused by volume of alcohol consumption, but also depend on drinking patterns in terms of the percentage of so-called risky drinkers, or the prevalence of binge drinking. Looking into differences between sexes, men have rates about twice as high as women. The WHO-HFA figures presented here are very rough figures, representing a wide selection of alcohol-related causes. They have been calculated by pooling causes of death in which alcohol consumption is a risk factor, irrespective of the actual proportion of deaths due to alcohol for each cause. Alternative calculations have been proposed, but fewer data are available for those (see *appendix A4.2.4*).

Decrease in deaths, but some temporary peaks in the new Member States
Since the end of the 1970s, the number of alcohol-related deaths has been decreasing in the Netherlands as well as in other European countries on average (*figure 4.10*). However, the alcohol-related death rate in the Netherlands was further below the European average

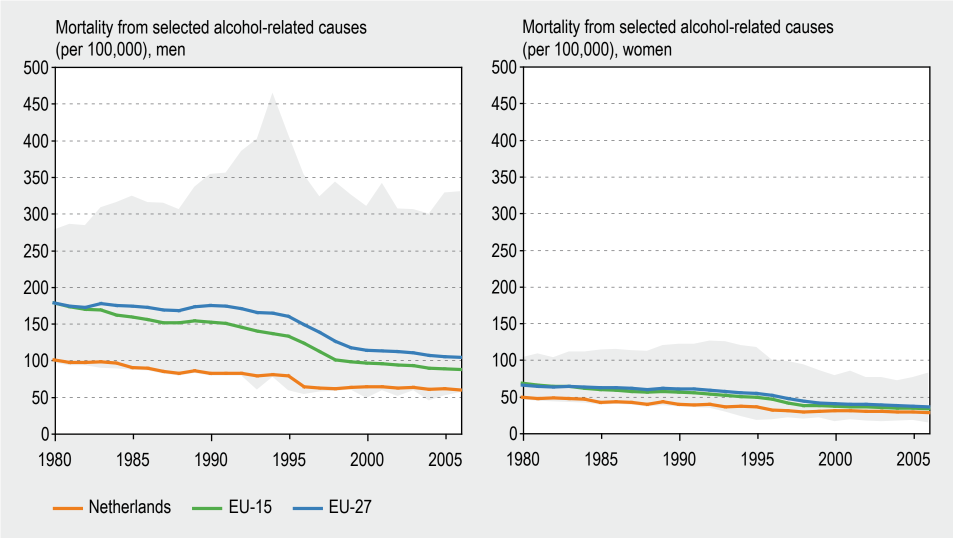


Figure 4.10: Trend in mortality from selected alcohol-related causes (SDR per 100,000) for men and women, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

in 1980 than in 2006. This was because the EU-27 average for men dropped with about 75 deaths per 100,000 in the period 1980-2006, while the Dutch rate - already down at the bottom - dropped at a slower pace with about 40 per 100,000. For women the EU-27 average dropped with about 30 deaths per 100,000 and the Dutch rate with 20 per 100,000. The new Member States with the highest rates of alcohol-related deaths are an exception: instead of a continuous decrease they show peaks of alcohol-related deaths in the mid-1990s. Furthermore, trends in Finland and the United Kingdom appear to be increasing in recent years rather than decreasing (WHO-HFA, 2008).

4.2.5 Excess mortality by heat waves

The calculation of excess mortality by heat waves is based on day-by-day regional mortality and temperature analysis. In other words, the daily number of observed deaths in a region during a heat wave in relation to the expected number of deaths in that period, expressed as numbers or death rates. High temperatures can induce excess mortality in the population, particularly in those who are old or ill. The EU launched a call for a global study on the excess mortality in Europe during the summer of 2003 because of the current concerns related to global warming.

965 extra deaths during the 2003 heat wave in the Netherlands

In twelve European countries (including Switzerland and Croatia) affected by the summer 2003 heat wave 71,445 additional deaths were recorded during the summer compared to the 1998-2002 reference period. Although 965 of these deaths were Dutch, the excess mortality in the Netherlands (2.2%) was not as high as in the southern European countries of Spain, France and Italy. August was the most lethal month of 2003 with an excess mortality of 44,876 people. Luxembourg, Spain, France and Italy were most affected; mortality increased by 14.3%, 13.7%, 11.8% and 11.6% respectively (*table 4.1*). The mortality dropped on average by more than 1% in four countries that were not affected by the heat wave. Excess mortality increases sharply with age. The distribution of mortality by sex also varied considerably during the mortality crisis. On average during summer 2003 more men died than women, 50.6% against 49.4%. However on the most lethal day, August 12, 60% of the people who died was female and 40% male (Robine et al., 2007). See also *appendix A4.2.5*.

Table 4.1: Excess mortality due to the heat wave of summer 2003 in selected EU countries (Robine et al., 2007).

Country	Excess mortality (absolute numbers)	Excess mortality (%)
England & Wales	301	0.18
Netherlands	**965**	**2.20**
Germany	9,355	3.56
Belgium	1,175	3.62
Slovenia	289	4.96
Portugal	2,696	8.73
Italy	20,089	11.63
France	19,490	11.84
Spain	15,090	13.68
Luxembourg	166	14.34
Total	71,445	6.99

4.3 Disease-specific morbidity

4.3.1 Selected communicable diseases

The indicator for selected communicable diseases consists of two sub-indicators:
1) Incidence (per 100,000 population) of selected communicable diseases, which comprises the diseases with the highest incidence and/or disease burden, minimally *Chlamydia*, hepatitis C and tuberculosis.
2) Incidence (per 100,000 population) of vaccine-preventable diseases, which comprises a set of vaccine-preventable diseases with variable coverage of vaccination, minimally pertussis, measles and hepatitis B.
Communicable diseases (potentially) cause significant disease burden in terms of morbidity and/or mortality. They are also diseases for which effective preventive measures are available with a protective health gain. They are also important indicators to monitor the effectiveness of childhood vaccination programmes.

Genital Chlamydia infection is not a notifiable disease in most EU countries
In most European countries, including the Netherlands, genital *Chlamydia* infection is not a notifiable disease. Because of this and because of differences in surveillance systems,

it is not possible to make international comparisons. Only fifteen of the EU-25 countries reported data on the number of *Chlamydia* infections in 2005 to the European Centre for Disease Prevention and Control (ECDC). Based on data from these fifteen countries the overall incidence of *Chlamydia* in the EU was estimated at 91 per 100,000 persons (*table 4.2*). The majority of cases were reported in the United Kingdom, Sweden, and Denmark. During the last ten years, the incidence of *Chlamydia* infection decreased in eastern and central European Member States, but increased steadily over the period 1995-2004 in the Nordic countries, Belgium, the United Kingdom and Ireland. The figures reflect the large variations in surveillance systems providing the data and are not representative of the true European epidemiological picture of *Chlamydia* infection. The highest incidence rates were reported by the Nordic countries where *Chlamydia trachomatis* notification is mandatory and where obligatory contact tracing is commonly practised (Amato-Gauci & Ammon, 2007) (see also *appendix A4.3.1*). The ECDC annual report does not provide data for the Netherlands, but according to the CISID database (Centralized Information System for Infectious Diseases) the number of newly diagnosed *Chlamydia* cases is also increasing in the Netherlands (CISID, 2008).

Table 4.2: Incidence (per 100,000) of selected communicable diseases in the Netherlands and the EU-25, in 2005 (Amato-Gauci & Ammon, 2007).

	Netherlands	EU-25	Maximum		Minimum	
Chlamydia	n.a.	91.03	Denmark	441.29	Poland	0
Hepatitis C	0.18	8.70	Ireland	34.99	Greece	0.12
Tuberculosis	7.1	12.8	Lithuania	75.0	Cyprus	4.4
Pertussis	40.17	3.96	**Netherlands**	**40.17**	Luxembourg	0
Measles	0.02	0.28	Ireland	2.26	several countries	0
Hepatitis B	1.75	1.49	Latvia	7.37	France	0.23

n.a. not available

International comparisons of hepatitis C not possible

The currently available data are inadequate to describe the true hepatitis C infection trend and to compare incidence rates between European countries. This is due to the nature of the disease (mainly chronic, asymptomatic infections) and the relatively recent introduction of hepatitis C virus infection to the list of diseases under surveillance at national level. For example Sweden and Austria report a high number of cases due to the inclusion of chronic infections, while others (including the Netherlands) only report cases with evidence of acute clinical hepatitis (Amato-Gauci & Ammon, 2007). Therefore the high incidence rate in Sweden (28.96 per 100,000) cannot be compared to the low rate of 0.18 newly diagnosed hepatitis C cases per 100,000 in the Netherlands in 2005.

Tuberculosis incidence low and decreasing in the Netherlands

In 2005, the overall incidence rate of tuberculosis (TB) in the EU-25 was 12.8 per 100,000. Incidence in the Netherlands was lower (7.1 per 100,000). Incidence was highest in Lithuania (75.0 per 100,000) (*table 4.2*). However, since the EU expansion in 2007, Romania is the country with the highest incidence (135 per 100,000 in 2005). TB rates have declined in most EU countries since the 1990s and have reached very low levels in recent years.

In the Baltic States, in contrast, rates increased in the late 1990s, but have decreased since 2001. In Sweden and the United Kingdom, TB incidence has increased substantially between 2001 and 2005. This increase was mainly due to TB in immigrants. Incidence rates in the Netherlands continued to decline, from 10.5 in 1995 to 7.1 in 2005 (Amato-Gauci & Ammon, 2007).

EU countries fall into three broad patterns:
- Western countries: TB rates are low and foreign-born individuals represent the majority of notified cases. Furthermore, the disease increasingly concentrates in subgroups and settings associated with poverty and lowered immunity. Drug resistance is low but usually higher in cases of foreign origin. HIV infection among TB cases varies from low to high.
- The Baltic States: TB rates are high and the proportion of foreign-born TB is low. Drug resistance is also high and levels of HIV infection are increasing among TB patients.
- The countries in central Europe which joined the EU in 2004: TB rates are moderate to high but on the decline, and cases of foreign origin, HIV co-morbidity and drug resistance are yet uncommon (Amato-Gauci & Ammon, 2007).

Netherlands has by far the highest pertussis incidence

In 2005, the Netherlands reported more than half of the 12,321 pertussis cases in the EU-25. Not surprisingly the Netherlands had by far the highest pertussis incidence (40 per 100,000) followed at considerable distance by Sweden (15 per 100,000). Ten countries reported rates lower than 1 per 100,000. The overall incidence rate in the EU-25 was 4 per 100,000. Between 1995 and 2005, the overall incidence in Europe decreased, but since 2002 several countries have shown increasing trends. Overall the incidence increased in Estonia, Finland, the Netherlands and Sweden. The Netherlands has reported some large outbreaks between 1998 and 2002. In the United Kingdom and Ireland incidence decreased dramatically over the whole period (Amato-Gauci & Ammon, 2007). See also *paragraph 6.1.1* on vaccination coverage in children and *paragraph 8.4* in *chapter 8* Children and young people.

Measles incidence has decreased significantly in Europe

In 2005, three persons contracted measles in the Netherlands. The corresponding incidence rate of 0.02 per 100,000 was low compared with other countries. The average incidence in the EU-25 was 0.28 per 100,000. More than 50% of all 1,291 persons who contracted measles in 2005 lived in Germany. The highest incidence was reported by Ireland (2.26 per 100,000), followed by Germany (0.94 per 100,000). The incidence of measles in Europe has decreased significantly over the past decade from almost 35 per 100,000 before 1997 to less than 10 per 100,000 after 1998. In France and in Italy in particular, the number of cases decreased sharply, but the incidence has decreased greatly in most of the countries over the last ten years. This decrease is possibly due to the increased use of the two-dose vaccination policy in most countries. Since 2000, France, Germany and Italy still have a significant number of cases. Furthermore, an outbreak of measles was observed in the Netherlands (1999-2000), Spain (2003), Poland (1998) and Lithuania (2002). Few countries have been able to maintain an incidence rate below the target of 1 per 1,000,000 over the past few years. Therefore elimination of measles has not been achieved yet. Most of the measles cases reported in Europe occur in unvaccinated groups and persons (Amato-Gauci & Ammon, 2007). See also *paragraph 6.1.1* on vaccination coverage in children.

Dutch hepatitis B incidence comparable with EU average

The incidence of acute hepatitis B in the Netherlands (1.75 per 100,000) is similar to the EU-25 average (1.49) (*table 4.2*). Latvia reported the highest incidence rates (7.37 per 100,000) followed by Austria, Estonia, Belgium and Lithuania. Most countries only report acute hepatitis B (Amato-Gauci & Ammon, 2007). During the past decade, the incidence of acute hepatitis B in Europe decreased steadily. Nevertheless, strong differences in incidence still exist between EU countries, and Austria and Belgium appear to have a rising trend (Amato-Gauci & Ammon, 2007). Since 1990 the incidence of acute hepatitis B has remained stable in the Netherlands. Between 2001 and 2004 there was a slight increase among men followed by a similar decrease between 2001 and 2004 (Koedijk, 2008). Hepatitis B is increasingly being considered as a sexually transmitted disease. However, there is evidence that common practices (tattooing, beauty treatments, etc.) still carry a significant risk of transmitting hepatitis B virus infection. For infants the main source of infection is perinatal transmission from infected mothers during birth (Amato-Gauci & Ammon, 2007).

4.3.2 HIV/AIDS

Incidence rates of 1) HIV-infected and 2) AIDS cases. The rates are calculated as the number of newly diagnosed cases (of HIV and AIDS) per million inhabitants and per calendar year, based on cases reported by national surveillance systems. Rates are calculated in year x for the year x-1, to account for delayed reporting. HIV remains one of the most important communicable diseases in Europe. It is an infection associated with serious morbidity, high costs of treatment and care, significant mortality and shortened life expectancy.

HIV infection rates vary greatly across the EU, the Netherlands ranks average

The total number of adults (15-49 years) living with HIV/AIDS in the Netherlands in 2005 is estimated at 18,500 (Op de Coul et al., 2006). Taking an average position in the EU, HIV incidence rate in the Netherlands is 6.3 per 100,000 in 2006 (CISID, 2008). The rate of HIV infection varies considerably across the EU. Estonia ranks remarkably high and the lowest rates are found in central European countries such as Slovakia, Hungary, Czech Republic and Poland. Italy and Spain do not report national data. Regional data from Italy and Spain (representing approximately a third of the population in each country) are available and it is therefore known that these countries have high rates of new HIV infection (EuroHIV, 2007). Data presented here concern cases that have been diagnosed and reported. A large proportion of HIV-infected persons have not been diagnosed. Estimates of the undiagnosed fraction of the HIV-infected population vary across countries, ranging from 15% in Sweden to 32% in the United Kingdom and 60% in Poland (Amato-Gauci & Ammon, 2007). In the Netherlands approximately 40% is not aware of the HIV positive serostatus (Op de Coul et al., 2006).

In the EU, the predominant route of transmission is heterosexual contact (53%) of which a large proportion is among persons originating from countries with generalized epidemic (e.g. countries in Sub-Sahara Africa). Men who have sex with men (MSM) and injecting drug users form another large proportion of the HIV-infected population in the EU (EuroHIV, 2007).

AIDS cases dropped significantly after introduction of antiretroviral therapy
After the introduction of highly active antiretroviral therapy (HAART) in 1996, the number of AIDS cases and AIDS-related deaths dropped significantly in the Netherlands and the rest of western Europe. By the end of 2006, a cumulative total of 7,278 AIDS cases were registered in the Netherlands. The number of new AIDS cases peaked in 1995, and declined sharply over the subsequent four years. Since 1999, the rate of decline had slowed and the curve stabilized around 300 cases per year.

In general the number of reported HIV infections has continued to rise in the EU. According to the 20 Member States that have consistently reported data, the rate of newly diagnosed cases of HIV infection has nearly doubled from 1999 (28.8 per million inhabitants) to 2006 (57.5 per million inhabitants). The number of new HIV diagnoses among MSM has increased by almost 50% since 2000. In the Netherlands too, the annual growth of the HIV-infected population has increased since 1996. This increase has been most noticeable in the MSM population, but the annual number of diagnoses amongst heterosexuals has increased slightly over time as well (Gras et al., 2007). It is difficult to be precise about new cases per year, because HIV-infected people may not be aware of their infection and newly diagnosed cases may have been infected earlier on. See also *appendix A4.3.2*.

4.3.3 Cancer incidence

Cancer remains one of the biggest causes of death in the Netherlands and the rest of the EU
Cancer remains one of the biggest causes of death in the Netherlands as well as in the rest of the EU. In 2006, there were about 2.3 million new cases of cancer in the former EU-25 (Coleman et al., 2008). In the Netherlands in 2005, 81,000 cases of cancer were diagnosed, 42,000 in men and 39,000 in women (IKCnet, 2008). Because 10% of the cases were diagnosed in patients already known to have some type of cancer, the number of new cancer patients approximated 73,000 in 2005. Of the total disease burden (new cases and deaths), slightly more than half (55%) is born by men, both in the EU as well as in the Netherlands. In 2005, out of every 1,000 Dutch men 5.2 developed cancer versus 4.7 out of every 1,000 women (crude rates). The age-standardized incidence rates (European standard population) were 4.7 and 3.8 per 1,000, respectively. The estimated incidence rates for the EU-25 are 4.6 for men and 3.3 for women (Ferlay et al., 2007).

Cancer of the breast, prostate, colorectum and lung dominate the cancer burden in the EU
Four cancers dominate the overall cancer burden profile throughout the EU: cancers of the breast (in women), prostate, colorectum (colon and rectum combined) and lung

accounted for over half of the total cancer incidence burden in 2006. With an estimated 320,000 new cases, female breast cancer was the most frequently diagnosed cancer in the EU-25, closely followed by around 300,000 new cases estimated for both prostate and colorectal cancer.

Breast cancer was the most frequently diagnosed cancer (12,200 new cases) in the Netherlands in 2005 (IKCnet, 2008). This cancer accounts for one third of the total cancer incidence in women. The next most frequent types in 2005 were colorectal cancer, lung cancer and prostate cancer. Prostate cancer is the most common cancer in men and accounts for 21% of the total cancer incidence in men. Lung cancer is the second cancer in men. Among women, lung cancer ranks third (9% of the total cancer incidence among women).

Incidence of cancer is not stable in the Netherlands

The number of diagnosed cancers in the Netherlands is not stable. During the past decade, several cancers have become less common, while others have increased. On average, the number of new cases of cancer increases by 1.5-2% per year, mainly due to the growth and ageing of the population. After adjustment for these effects, there is a slight increase in cancer incidence (0.5% per year) (IKCnet, 2008).

The ten recommended cancer categories to be included in the ECHI list are: 1) all cancers combined without non-melanoma skin (ICD-10 code C00-C97), 2) trachea, bronchus or lung (ICD-10 code C33-34), 3) breast (ICD-10 code C50), 4) colorectal (ICD-10 code C18-C21), 5) prostate (ICD-10 code C61), 6) stomach, 7) melanoma, 8) cervical (ICD-10 code C53), 9) leukaemias/lymphomas and 10) all childhood cancers. In this report breast cancer and lung cancer are further elaborated on. *Chapter 8* Children and young people and *chapter 9* Elderly people also contain information about cancer.

Breast cancer

Breast cancer incidence is the number of female patients with newly diagnosed breast cancer during the given calendar year per 100,000 women (ICD-10 code C50). The breast is the most common site of cancer (excluding non-melanoma skin cancer) in women in the Netherlands as well as in the rest of the EU.

Breast cancer incidence high in the Netherlands

The incidence of breast cancer among Dutch women is relatively high compared to other EU countries, about 143 per 100,000 women (*figure 4.11*). Breast cancer incidence rates in the EU range from 52 per 100,000 in Romania to 171 per 100,000 in Belgium, a three-fold difference. One in ten women in the EU-27 will develop breast cancer before the age of 80 years (Curado et al., 2007).

Breast cancer incidence rates increase with age, increasing rapidly among pre-menopausal and more slowly among post-menopausal women. This levelling off after menopause suggests that reproductive hormones play a role in the development of breast cancer. Full-term pregnancies reduce the risk of breast cancer, as well as an early age at first delivery

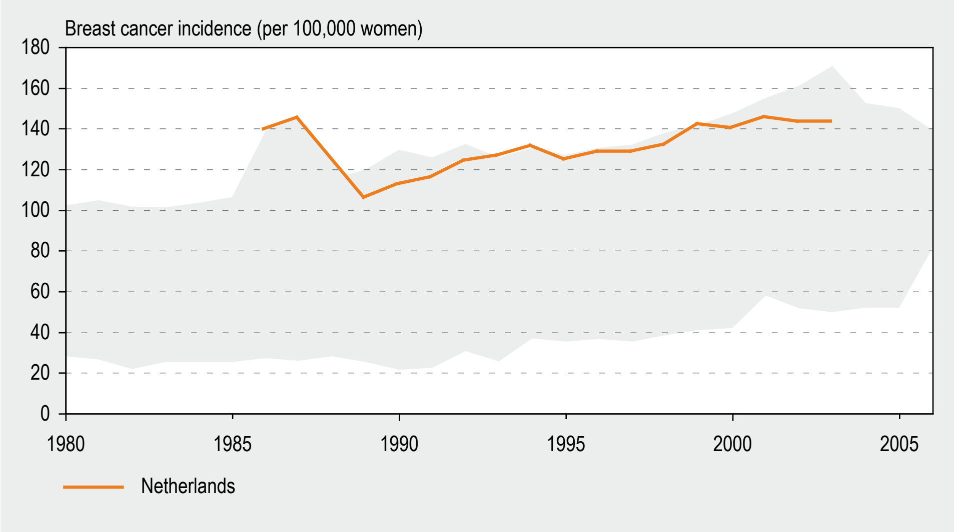


Figure 4.11: Trend in breast cancer incidence (per 100,000 women), for the Netherlands, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

and breastfeeding. Alcohol consumption and overweight after menopause increase the risk of breast cancer, as does the use of certain hormonal therapies during menopause (CGHFBC, 2002). Carriers of mutations in the BRCA1 and BRCA2 genes have a ten-fold increased risk of developing breast cancer in their life-span. This genetic susceptibility however is rare in most populations and it explains only about 5% of breast cancer cases (Ferla et al., 2007).

Breast cancer incidence has been rising for decades, but the first signs of stabilization have been observed

In the Netherlands the absolute number of women who are diagnosed with breast cancer has increased from 7,900 in 1989 to 11,700 in 2003 (Dutch Cancer Registry). It is estimated that about half of this increase is due to the breast cancer population screening that was introduced in 1990. In the EU, population-based Cancer Registries have consistently documented a continuing rise of incidence rates since the 1960s. Incidence is still on the increase but the first slow-downs have been observed since 2002 (Ferlay et al., 2007). According to national statistics that are not presented in the WHO-HFA database, this is also the case in the Netherlands (Dutch Cancer Registry).

In the 1990s mass screening by mammography has boosted the increase of registered incidence wherever it was introduced, by earlier detection of cases. The degree of increase depended on the coverage and intensity of the programmes. Before the introduction of mass screening, breast cancer incidence was highest in northern Europe, intermediate in central Europe and lowest in southern and eastern European countries. Estimates for 2006 show that geographical differences have been shrinking, due to rapid increases in incidence rates in the south (Pisani, 2008) (www.euphix.org).

Lung cancer

Lung cancer incidence is the number of patients with newly diagnosed lung cancer during the given calendar year per 100,000 population (ICD-10 code C33-C34). The ICD-10 classifies these cancers under C34 as malignant neoplasms of the bronchus and lung. For the purpose of reporting, routine statistics for the lung and bronchus are often pooled with those of the trachea (C33). Lung cancer is the third most commonly occurring form of cancer in the EU (after colorectal and breast cancer and excluding non-melanoma skin cancers).

Incidence of lung cancer in the Netherlands is average in the EU

The incidence of lung cancer in the Netherlands is average in the EU, for men as well as for women. It has been estimated that in 2006, lung cancer accounted for almost 72 male and 22 female newly diagnosed cases per 100,000 in the EU-25, compared with 63 men and 33 women per 100,000 in the Netherlands (Ferlay et al., 2007). EU Member States, regions and populations differ significantly in lung cancer incidence (*figure 4.12*). Southern (Italy, Greece) and eastern and central European (Hungary, Czech Republic) men currently have the highest incidence rates of lung cancer within the EU. Women in northern and western Europe (Denmark, United Kingdom) have the highest incidence of lung cancer for women in the EU. Hungary also has a high lung cancer incidence among women. Southern European countries (Malta, Cyprus, and Portugal), where women traditionally rarely smoked, show the lowest incidence rates for women. Female rates are approaching male rates in some countries, as a result of the increase in smoking prevalence among women several decades ago.

Almost 90% of lung cancers are smoking-related, but not all smokers develop lung cancer. There is a clear dose-response relationship between the number of cigarettes smoked per day, the duration of the smoking habit and the risk of lung cancer. A lifetime smoker has a 20-40 times greater risk of developing lung cancer than a non-smoker (Tyczynski et al., 2003). Passive exposure to tobacco smoke, also known as exposure to environmental tobacco smoke (ETS), increases the risk of lung cancer by 15-25% (Tyczynski et al., 2003). (Occupational) exposure to substances such as asbestos, radon and certain metals is known to increase the risk of lung cancer. In general, the contribution of environmental factors, except for cigarette smoke, to the risk of lung cancer is small.

Lung cancer is rarely diagnosed in people under 40 years of age, but incidence rises steeply thereafter, peaking between the ages 75-84 (see also *chapter 9* Elderly people). The risk of lung cancer is associated with poverty and low educational levels, as is smoking. Genetic factors may predispose some persons to the development of lung cancer: first-degree relatives of lung cancer patients have an increased risk of developing lung cancer (Bailey-Wilson et al., 2004).

Lung cancer incidence has peaked among men, but continues to rise among women

The majority of northern (Sweden, Finland) and western (France, Netherlands, Germany) European countries show stable or declining lung cancer incidence rates for men. In recent decades, the incidence of lung cancer has been rising among women in almost all EU

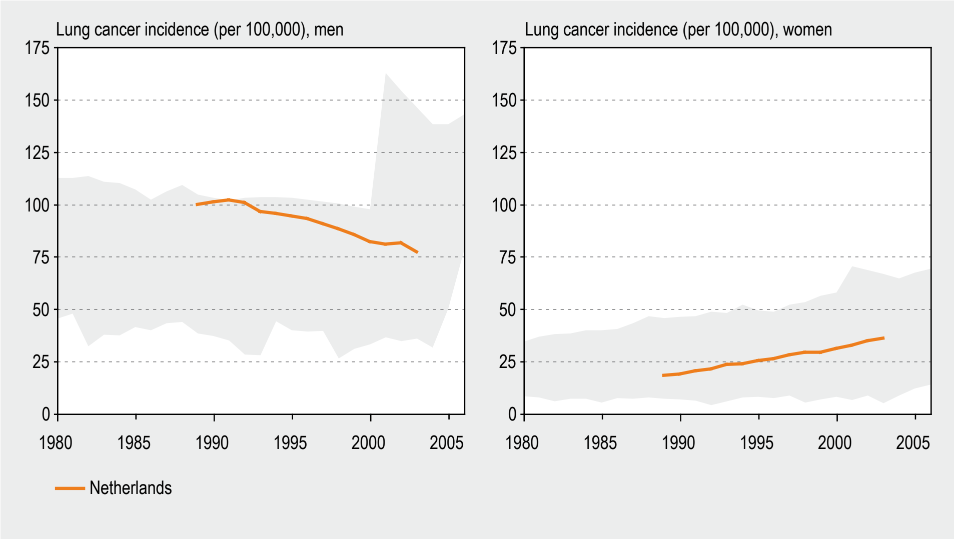


Figure 4.12: Trend in lung cancer incidence (per 100,000) for men and women, for the Netherlands, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

countries. For women in the Netherlands, the increase has been slightly steeper than in most other countries. For Dutch men on the other hand, the decrease has been steeper than in most other countries (*figure 4.12*). As smoking is currently still very prevalent among younger women, a further increase of the female lung cancer incidence rates can be expected (see also *paragraph 5.2.1* on smoking and *appendix A4.3.3*).

4.3.4 Diabetes

Proportion of persons with (any type of) diabetes. Diabetes has become one of the most important public health challenges of the 21st century. It is a chronic disease that can cause damage to blood vessels and nerves through chronically increased concentrations of glucose in the blood. This may lead to serious complications and consequences, such as chronic kidney failure and blindness, or amputation of a limb with a severe loss of quality of life.

Diabetes prevalence is average in the Netherlands

The scarcely available international data (see *appendix A4.3.4*) seem to indicate that the Dutch diabetes prevalence of 30 per 1,000 persons is average compared with other EU-27 countries. Age-standardized prevalence of diabetes varies from about 26 per 1,000 in Finland to 76 per 1,000 in Cyprus (*figure 4.13*) (EUCID, 2008). In several European countries, including the Netherlands, diabetes shows a higher prevalence among lower socio-economic groups (with education as socio-economic indicator) when compared to higher socio-economic groups. The differences in diabetes prevalence between socio-economic groups are greater in women than in men (Dalstra et al., 2005).

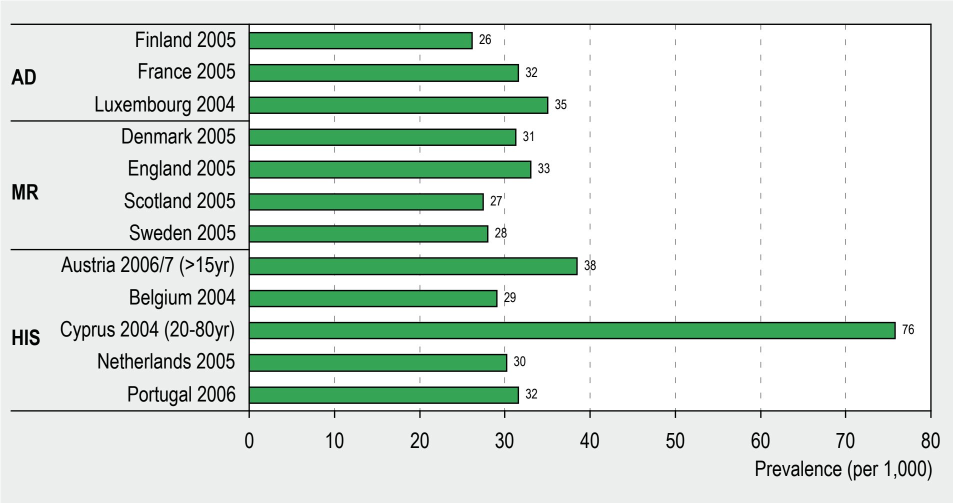


Figure 4.13: Age-standardized prevalence of diagnosed diabetes (per 1,000) in the general population in selected countries[4] (EUCID, 2008).

In the EU diabetes prevalence has increased considerably in the past decade
In the Netherlands diabetes prevalence has increased since the second half of the 1990s. From 1995 to 1999 diabetes prevalence also increased considerably in several other European countries, particularly in the United Kingdom, Germany, and France (Passa, 2002). This increase is expected to continue. The International Diabetes Federation estimates that the absolute number of people with diabetes in the EU-27 will increase from approximately 31 million (8.6%) in 2007 to 37 million (10.2%) in 2025. This is probably an underestimation, because the increasing prevalence of obesity was not taken into account (IDF, 2006). See also *paragraph 5.1.1* on body mass index.

4.3.5 Dementia/Alzheimer

Proportion of persons with clinically diagnosed dementia. The term ‘dementia’ refers to the progressive decline in cognitive and intellectual functions (such as thinking, concentrating, remembering and reasoning) of such severity that they affect a person’s daily activities. This is caused by brain diseases resulting in the damage and loss of brain cells. Loss of brain cells is a natural process, but in people with dementia this occurs at a much faster rate. There are several types of dementia, of which Alzheimer’s disease is the most common form. Dementia is becoming an increasingly important public health issue as the European populations are ageing rapidly.

Percentage of people with dementia is average in the Netherlands
According to Alzheimer Europe the percentage of people with dementia in the Netherlands is a little lower than the EU-25 average (*figure 4.14*). In 2005 between 1.0 and 1.1% of the Dutch population had dementia (Ferri et al. (2005) and EURODEM estimate,

[4] HIS Health Interview Survey, MR Medical Register, AD Administrative Database.

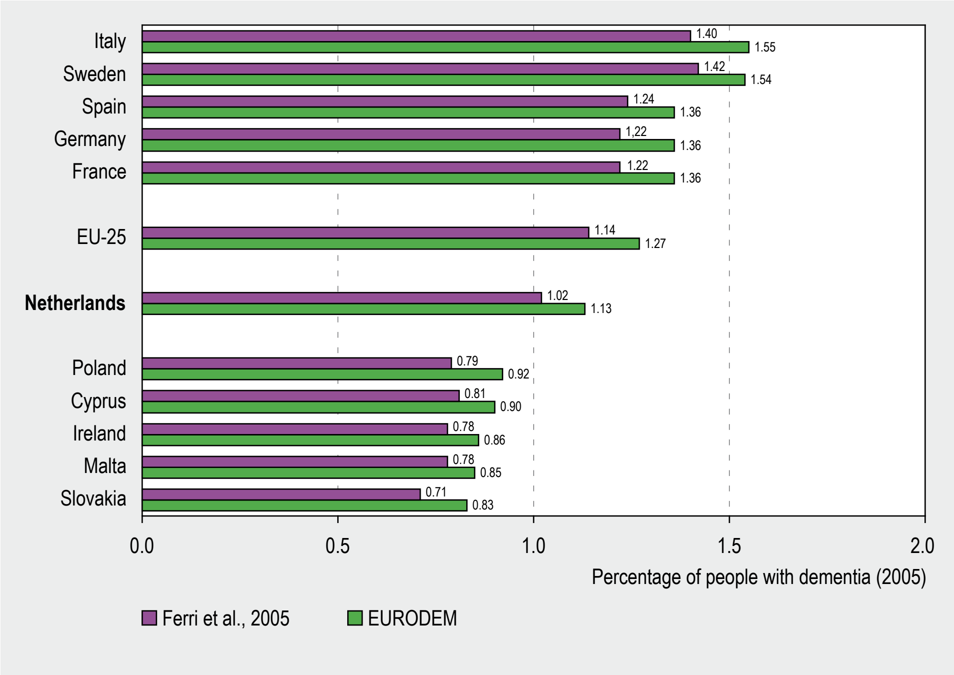


Figure 4.14: EU-27 countries with the highest and the lowest percentage of people with dementia according to EURODEM and Ferri et al. estimates in 2005. EU-27 average is not available (Alzheimer Europe, 2006).

respectively; see *appendix A4.3.5* for estimation method). This is between 165,500 and 183,500 persons. Of all citizens in the EU-25, between 1.1% and 1.3% are living with a form of dementia, ranging from 1% in the age group 60-64 to more than 30% in the age group 90-94 (Alzheimer Europe, 2006; Hofman et al., 1991; Ferri et al., 2005). Italy and Sweden have the highest percentage of people living with dementia and Slovakia, Malta and Ireland have the lowest percentages. These are also the countries with the highest and the lowest percentages of the population 65 years and over and 80 years and over (see also *chapter 9* Elderly people). In contrast, the Netherlands still has a relatively young population which might explain the lower estimates for the Netherlands. Comparing the scarcely available prevalence rates for the age groups 65-74 years, 75-84 years and 85 years and over (data available for eleven EU countries) figures for the Netherlands do not deviate from those in the other countries (Berr et al., 2005).

Total number of people with dementia is increasing in the Netherlands and the EU
The number of people with dementia in the Netherlands almost trebled between 1960 and 2005. As a percentage of the total population, the increase was just over 100% (Alzheimer Europe, 2006). This increase is due to ageing and to the earlier detection and diagnosis of dementia (De Lange & Poos, 2007). Dementia prevalence has also increased substantially in other European countries over the past 45 years, both in absolute as well as in relative terms (Alzheimer Europe, 2006). With the ageing of European populations, the number of people with dementia in Europe is expected to double by 2040 (Ferri et al., 2005). See also *chapter 9* Elderly people.

4.3.6 Depression

Proportion of persons who have had episode(s) of major depression during the past 12 months. Major depression is a mental disorder characterized by sustained depression of mood, inability to experience pleasure from normally enjoyable experiences, sleep and appetite disturbances, and feelings of worthlessness, guilt, and hopelessness. Diagnostic criteria for a major depressive episode (DSM-IV) include a depressed mood, a marked reduction of interest or pleasure in virtually all activities, or both, lasting for at least two weeks. Depression causes over 12% of the years lived with disability worldwide, and ranks as the third leading contributor to the global burden of disease.

Prevalence of depression in the Netherlands is not particularly high
Although international comparable data on depression is scarce, they seem to indicate that 12-month prevalence of major depression in the Netherlands is not particularly high. This emerges from data available from the European MINDFUL database and the WHO World Mental Health (WMH) Survey (MINDFUL, 2008; Demyttenaere et al., 2004) (see *appendix A4.3.6*). In the Netherlands the 12-month prevalence of major depression was 6.2% in 1996. The prevalence of depression was highest in France (11.5% in 2001) and lowest in Finland (4.9% in 2001) (*table 4.3*) (MINDFUL, 2008). According to the WMH Survey, the prevalence of mood disorders, including major depression, was 6.9% in the Netherlands and ranged from 3.6% in Germany to 8.5% in France (Demyttenaere et al., 2004).

Broadly speaking, western European countries show a 12-month prevalence of major depression of around 5%, with a two-fold variation which is probably attributable to methodological differences. Higher prevalences are found in women, the middle-aged and less privileged groups (low income, poorer education, unemployment, economical inactivity) (Paykel et al., 2005).

Table 4.3: Age and sex adjusted 12-month prevalence (%) of major depression according to CIDI-SF in selected countries (MINDFUL, 2008).

Country	Year	Age group	Prevalence
Finland	1996	15-75 years	9.3
Finland	2001	30+ years	4.9
France	2001	18-74 years	11.5
Germany	2001	18-74 years	7.9
Greece	2001	18-74 years	10.9
Netherlands	**1996**	**18-64 years**	**6.2**

No indications of increase in depression prevalence
There are no indications that the prevalence of depression is increasing in the Netherlands (Schoemaker et al., 2005). However, the number of people with depression diagnosed by their general practitioner and the use of antidepressants have increased during the last decade (Van Wieren et al., 2008) (see also *paragraph 6.3.8* on medicine use). Population surveys carried out in the United States between 1990 and 2003 also found a stabilization

in the number of people with depression (Kessler et al., 2005). The Netherlands Institute of Mental Health and Addiction (Trimbos-instituut) is currently carrying out a follow up of NEMESIS (Netherlands Mental Health Survey and Incidence Study) from 1996, which will shed more light on whether the prevalence of depression in the Netherlands has changed since 1996.

4.3.7 Acute myocardial infarction - ischaemic heart disease

The indicator consists of three subtypes:
1) Incidence/attack rate of acute myocardial infarction (AMI) or coronary death in the population.
2) Mortality from ischaemic heart disease (IHD), including AMI, in the population.
3) Prevalence of past AMI in the population.
Among cardiovascular diseases (CVD), IHD is the single most common cause of death in the EU, accounting for 744,000 deaths each year (EU-25): around one in six men (17%) and over one in seven women (16%) die from the disease.
Only mortality from IHD for all ages is presented in this report. For preferred calculations of all subtypes, see *appendix A4.3.7* on AMI-IHD.

Mortality from ischaemic heart disease in the Netherlands is below EU average
Mortality from IHD, which includes AMI, is low in the Netherlands compared with other EU countries. In 2006, 54 persons per 100,000 died from IHD compared with 100 per 100,000 on average in the EU-27 and 78 in the EU-15 (WHO-HFA, 2008). Many more people die from IHD in the Baltic States. Mortality is particularly high in Lithuania, 347 per 100,000 (2006) (see also *paragraph 4.2.1* on disease-specific mortality). According to the International Classification of Diseases (ICD), as shown in *table 4.4*, IHD includes acute myocardial infarction (AMI, commonly known as heart attack), acute coronary syndrome (ACS), angina pectoris and other forms of coronary heart disease (CHD). Hospital discharges for IHD in the Netherlands are also lower than the EU-27 average, 541 versus 661 per 100,000 in 2005 (WHO-HFA, 2008).

The WHO MONICA (MONItoring trends and determinants in CArdiovascular disease) project examined the incidence of myocardial infarction (or coronary event) in different populations throughout Europe (Madsen et al., 2007) (see *appendix A4.3.7*). The project has shown that the incidence of coronary events is higher in populations in northern, central and eastern Europe than in southern and western Europe. For example the coronary event rate for men aged 35 to 64 living in Warsaw (Poland) is nearly three times higher than it is in Catalonia (Spain); for women it is four times higher. The highest coronary event rates were found in Glasgow (United Kingdom) in both men and women. The geographical pattern in coronary event rates is similar to the pattern in death rates (Madsen et al., 2007).

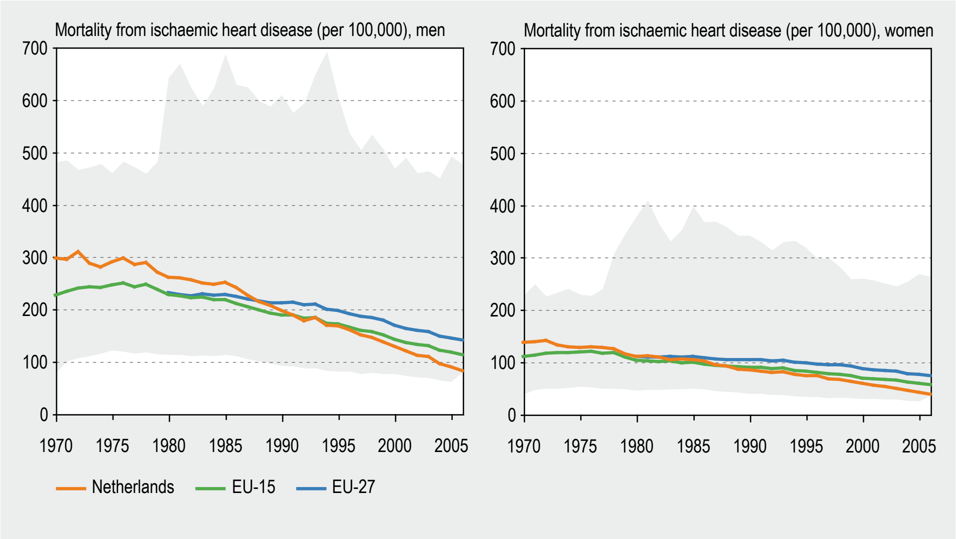


Figure 4.15: Trend in mortality (SDR per 100,000) from ischaemic heart disease (ICD-10 code I20-I25), for men and women, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Large decrease in IHD mortality in the Netherlands

In the 1970s and 1980s, mortality from IHD in the Netherlands was slightly higher than the EU-15 average, but since the end of the 1990s the standardized mortality from IHD has dropped below the EU-15 average and the Netherlands is now among the countries with the lowest mortality from IHD (*figure 4.15*). As said, the Baltic States represent the highest mortality rates within the EU-27, but, since a peak in the mid-1990s, their mortality rates have been declining too.

The results of the MONICA project also show that the incidence of coronary events is falling rapidly in most of the MONICA populations in northern and western Europe, but is not falling as fast in the populations in southern, central and eastern Europe and in some cases is rising in these populations (Madsen et al., 2007). For example, incidence rates for men aged 35 to 64 living in North Karelia (Finland) fell by 6.5% per year over the study period (1983 to 1996) but rose by 1.2% per year for men of the same age living in Kaunas (Lithuania). For women aged 35 to 64 living in North Karelia, the incidence rate fell by 5.1% per year but rose by 2.7% per year for women living in Kaunas. The geographical pattern in trends in incidence rates is similar to the geographical pattern in trends in death rates (Madsen et al., 2007).

Table 4.4: Division of ischaemic heart disease according to the International Classification of Diseases (ICD) (EUROCISS, 2003).

	ICD-9		ICD-10
Ischaemic heart disease	410-414	Ischaemic heart disease	I20-I25
Acute myocardial infarction	414	Acute myocardial infarction	I21, I22
Other acute and subacute forms of ischaemic heart disease	411	Other acute ischaemic heart disease	I20.0
Old myocardial infarction	412	Old myocardial infarction	I25.2
Angina pectoris	413	Angina pectoris	I20
Other forms of chronic ischaemic heart disease	414	Chronic ischaemic heart disease	I25 (excl. I25.2)

4.3.8 Stroke

The indicator stroke consists of three subtypes (see *appendix A4.3.8* for exact calculations):
1) Age-standardized incidence/attack rate of stroke (cerebrovascular diseases) by sex in age group 35-84 per 100,000, based on hospital discharge and mortality data.
2) Age-standardized mortality by sex in age group 35-84 per 100,000 (see also *appendix A4.2.1* on disease-specific mortality).
3) Number of persons with past stroke, per 100,000, based on a Health Interview Survey.
Due to a lack of comparable data, only mortality figures and hospital discharges are presented for this indicator. Stroke by itself is the second leading cause of death in the EU, and the annual number of stroke cases is expected to increase within the next few decades, mainly due to a growth in the proportion of older people.

Mortality from stroke is very low compared to other countries
Mortality from stroke (or cerebrovascular diseases) is lower in the Netherlands than in most other EU countries, for men and women alike. In 2006, 44 men and 38 women per 100,000 inhabitants died of stroke (WHO-HFA, 2008). This compares with 73 men on average in the EU-27 and 59 women. Romanian, Bulgarian and Latvian people fall victim to cerebrovascular diseases most often in the EU. The French die least from stroke (WHO-HFA, 2008). See also *paragraph 4.2.1* on disease-specific mortality.

The number of hospital discharges for cerebrovascular diseases is also relatively low in the Netherlands, approximately 230 per 100,000 per year and this has been stable since 1990. In 2005, the EU-27 average of hospital discharges for cerebrovascular diseases was around 386 and the EU-15 average was around 333 per 100,000 (WHO-HFA, 2008). See also *paragraph 6.3.1* on hospital in-patient discharges.

Mortality from stroke in the Netherlands shows a stable decline
Mortality from stroke in the Netherlands shows a stable decline from slightly over 100 per 100,000 in 1970 for both men and women, to 44 per 100,000 for men and 38 per

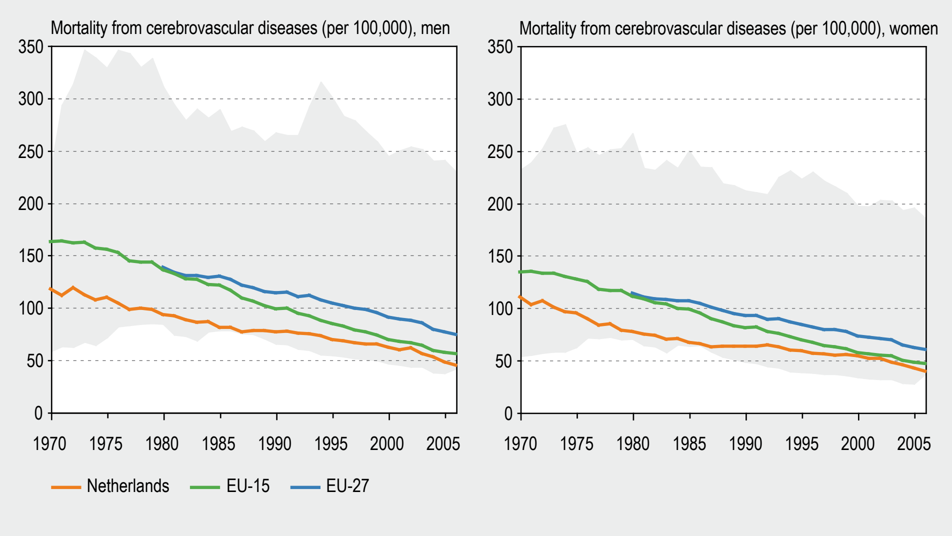


Figure 4.16: Trend in mortality (SDR per 100,000) from cerebrovascular diseases (ICD-10 code I60-I69), for men and women, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

100,000 for women in 2006 (*figure 4.16*) (WHO-HFA, 2008). The Dutch figures parallel the EU-15 average, but the differences within the EU are huge. The countries with the highest stroke mortality (Romania, Bulgaria and Latvia) have shown a gap with the rest of the EU since the mid-1990s. If these countries are not taken into account, the EU-27 shows a converging trend for mortality from stroke.

4.3.9 Asthma

Prevalence of persons with asthma in the population, with specification for children. Asthma is a significant public health problem and a high-burden disease for which prevention is partly possible and treatment can be quite effective. For the prevalence of asthma among children see *chapter 8* Children and young people.

Relatively few people hospitalized for asthma in the Netherlands
Prevalence of asthma, compared on the basis of hospital discharges, is relatively low in the Netherlands (*figure 4.17*) (Eurostat, 2008n). In 2005, 43 women and 40 men per 100,000 were discharged from hospital after being hospitalized for asthma. Latvia, Slovakia, Finland and Lithuania have the highest number of hospital discharges due to asthma. Estonia, Romania and Bulgaria also have high numbers, but they are not shown in the figure because they do not have data for men and women separately. Apart from the Netherlands, low numbers are also found in Luxembourg, Italy, Cyprus and Portugal (Eurostat, 2008n). Hospital discharge data instead of prevalence data are compared here, because comparable data on asthma prevalence at national level are not routinely available (see *appendix A4.3.9*).

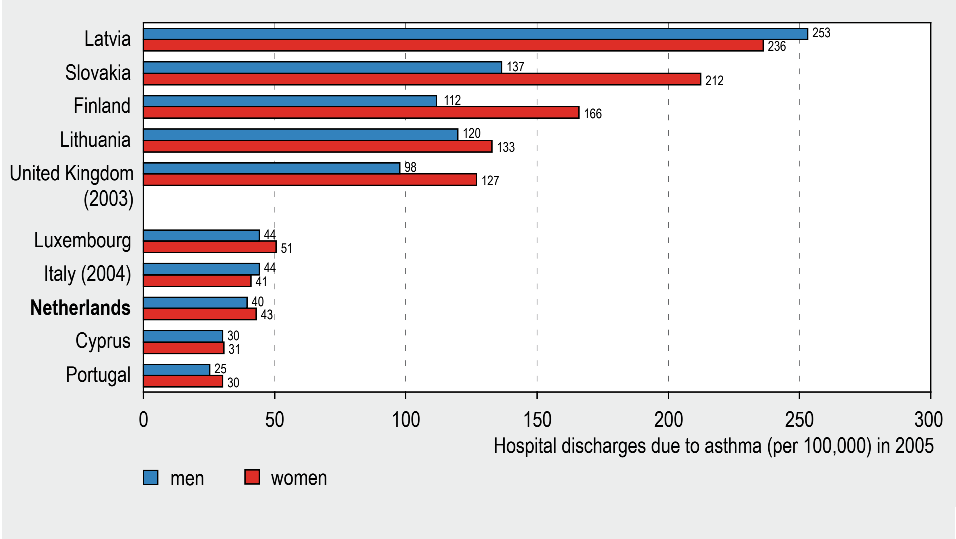


Figure 4.17: EU-27 countries with highest and lowest number of hospital discharges (per 100,000) due to asthma (ICD-10 code J45-J46) in 2005 (data not available for five countries) (Eurostat, 2008n).

The European Community Respiratory Health Survey (ECRHS) carried out from 1991-1993 has shown that there are large geographical differences in the prevalence of asthma, with high prevalence rates in English speaking countries and low prevalence rates in the Mediterranean region and eastern Europe (Janson et al., 2001). According to this somewhat older survey, the prevalence of asthma attacks and the use of asthma medication among 20-44 year-old adults in the Netherlands were no different from those of our neighbouring countries. Only ‘wheeze with shortness of breath’ and nasal allergy was more prevalent in the Netherlands (Burney, 1996). Furthermore, among the international participants in ECRHS who were re-examined in ECRHS II (1999 to 2001) a lower educational level was associated with an increased risk of asthma with no atopy, and lower socio-economic groups tended to have a higher prevalence and incidence of asthma (Ellison-Loschmann et al., 2007; Basagana et al., 2004).

Asthma prevalence is no longer increasing

In most EU countries the numbers of hospital discharges due to asthma fell between 2000 and 2006, for example, from 146 to 104 per 100,000 in Ireland and from 175 (in 2002) to 120 in Finland. Such a decrease was not observed in the Netherlands, but data for the Netherlands are only available for 2003 to 2005 (see *appendix A6.3.1* on hospital in-patient discharges), which makes it difficult to comment on trends (Eurostat, 2008n). According to data from GP registries (CMR-Nijmegen), asthma prevalence in the Netherlands increased sharply between 1984-1997, but remained constant between 1998 and 2003 (Smit et al., 2006). Studies from several countries (e.g. England and Wales, Italy and Switzerland) also indicate that the increase in asthma is coming to an end (Fleming et al., 2000; Ronchetti et al., 2001; Braun-Fahrlander et al., 2004). An increased proportion of young adults followed in the ECRHS were treated for asthma in 1999-2001 compared to 1991-1993. The proportion of those reporting asthma symptoms, however, did not increase. This could be due to the increased use of effective treatments leading to decreased morbidity (Chinn et al., 2004).

4.3.10 Chronic Obstructive Pulmonary Disease

Chronic Obstructive Pulmonary Disease (COPD) (ICD-10 code J40-J44, J47) is characterized by chronic airway obstruction resulting in airflow limitation that is not fully reversible. ECHIM defines the indicator as the prevalence of persons with COPD in the population. COPD is among the leading causes of chronic morbidity and mortality in the Netherlands and the rest of the EU. It is a high-burden disease for which prevention is partly possible and treatment can be quite effective.

Low number of hospital discharges but high mortality rates of COPD in the Netherlands

In the Netherlands the low number of reported hospital discharges due to COPD compared with other EU countries does not match the relatively high mortality rates. The reason for this is that assessing prevalence from hospital discharge data underestimates the true burden of COPD in a country (see *appendix A4.3.10*). Hospital discharge data are compared here, because comparable data on COPD prevalence at national level are not routinely available. In the 2005 and 2006 the highest number of hospital discharges due to COPD per 100,000 population was recorded for Romania (438 for total, no data available for men and women separately); the lowest for Cyprus (men 64, women 30), and in between for the Netherlands (men 137, women 117) (*figure 4.18*). COPD is more prevalent in men than in women. However, there is increasing evidence that women are more susceptible than men to the harmful pulmonary effects of cigarette smoke and to the development of COPD (Massaro & Massaro, 2004). In 2005, 55% of the hospital discharges due to COPD in the Netherlands were attributable to men and 45% to women (*figure 4.18*) (Eurostat, 2008n). See also *paragraph 5.2.1* on smoking and *paragraph 4.2.1* on disease-specific mortality.

Estimates of COPD prevalence rates vary widely, from 0.2% to 18.3%, partly as a result of real differences in prevalence among countries and regions, but also because of methodological differences. Some well-designed studies have found a measured prevalence of 4-10% of adults with COPD in Europe (Halbert et al., 2003). Tobacco smoking and environmental pollutants are the main contributors to the COPD prevalence. In addition, age plays an important role due to the decline in lung function with age. Also, lower socio-economic status, independent of smoking behaviour, negatively affects the pulmonary function and thus the susceptibility to, and the severity of COPD (Pauwels, 2000).

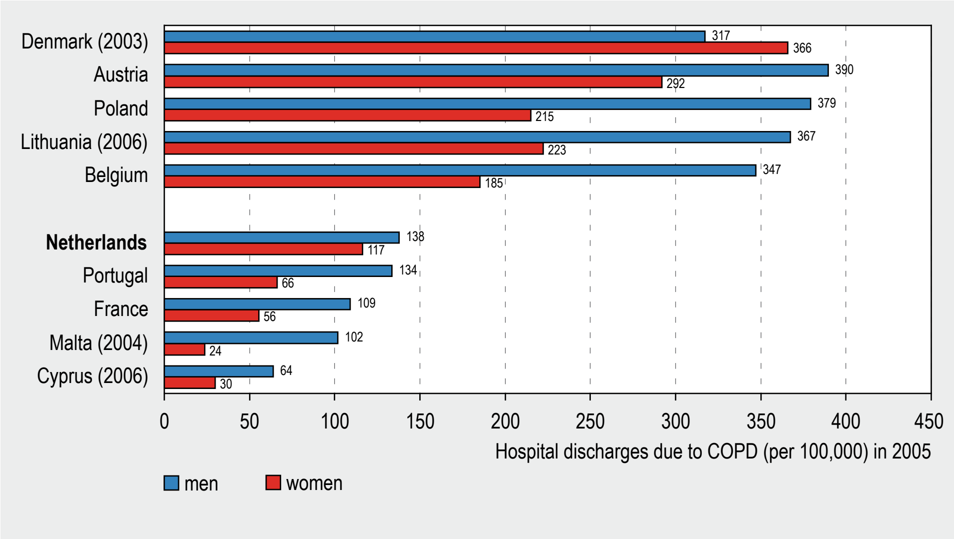


Figure 4.18: EU-27 countries with highest and lowest number of hospital discharges (per 100,000) due to COPD (ICD-10 code J40-J44, J47) in 2005 (data not available for four countries) (Eurostat, 2008n).

COPD prevalence is decreasing slightly among Dutch men and is stable among women

National data (from GP registries, CMR-Nijmegen and RNH) show that the prevalence of COPD in men in the Netherlands was constant until the beginning of the 1990s; afterwards (until 2004) a slight decrease was recorded. In women, between the years of 1984 and 1994 the prevalence approximately doubled; between 1994 and 2004 the prevalence of COPD remained constant (Boezen et al., 2006). This is in line with the decreasing trend in smoking observed in the Netherlands since the 1980s.

However, COPD prevalence (and mortality) is expected to rise in most parts of the world. There are two main reasons for this (Loddenkemper et al., 2003):
1) Patterns of COPD prevalence follow patterns of smoking prevalence with a delay of several decades. Smoking prevalence rates are still increasing among women in several European countries.
2) COPD prevalence increases with age. The ageing of the EU population will further contribute to the burden of COPD.

4.3.11 Low birth weight

Number of live births weighing less than 2500 grams in a given year, expressed as a percentage of total number of live births of any birth weight. This is an important indicator for pregnancy related conditions and perinatal prevention and care. Low birth weight is associated with a higher mortality rate, increased morbidity and long-term impairments.

Relatively few Dutch babies have a low birth weight
In 2004, 4.9% of Dutch babies had a low birth weight. In that year Finland and Sweden had the lowest percentage of babies with a low birth weight (4.2%). Ireland had the same rate as the Netherlands. These rates for most countries were measured in national birth registries, in contrast to the Dutch rate, which was measured by asking a sample of parents in the general health survey (Statistics Netherlands, Permanent Survey on Living Conditions (POLS)) (see *appendix A4.3.11*). The highest rates were recorded for Greece (8.6%) and Hungary (8.3%) (*figure 4.19*) (OECD, 2008d). Among the countries that are not covered by the OECD Health database, it appears that Estonia and Lithuania also have low percentages of low birth weight, while Bulgaria and Romania have a high percentage (WHO-HFA, 2008).

The Dutch data for low birth weight in international databases (OECD and WHO) are derived from small-sampled health surveys and an adapted definition and are therefore far from optimal. Better data, based on perinatal registries have become available and should in the future be delivered to international organizations by the Netherlands. According

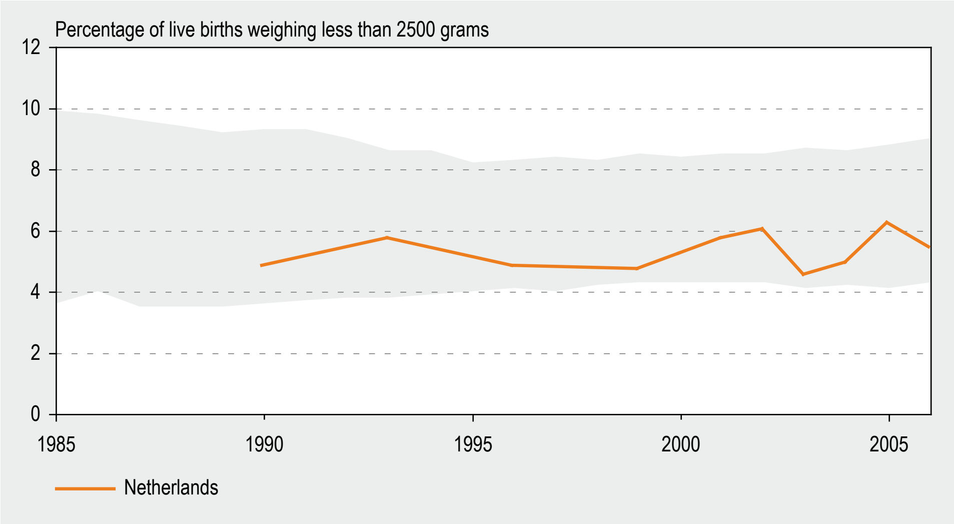


Figure 4.19: Trend in percentage of low birth weight (number of babies weighing less than 2500 grams as a percentage of total number of live births), for the Netherlands[5], 1985-2006. Range for EU-19 in grey (OECD, 2008d).

[5] For the Netherlands, data from three survey years are combined (1989/1991, 1992/1994, 1995/1997, 1998/2000) in order to provide a sufficiently large sample.

to the earlier mentioned PERISTAT study (Buitendijk et al., 2003) 6.54% of Dutch babies weighed less than 2500 grams, while this study found between 4.5% and 8% of all live born babies having birth weights below 2500 grams for other EU countries.

Percentage of Dutch babies with a low birth weight rather variable over the last decade

The percentage of Dutch babies with a low birth weight fluctuated between 4.7 and 6.2% from 1999 to 2006 (*figure 4.19*). From 1999 until 2002 an increase was recorded from 4.7% to 6.0%. Hereafter it varied from 4.5% in 2003, to 6.2% in 2005 and 5.4% in 2006 (OECD, 2008d). The general trend for the EU-27 shows a gradual increase in the percentage of babies with a low birth weight. For example, in 1982, 94.0% of the babies in the EU-27 weighed more than 2500 grams compared with 92.9% in 2006 (WHO-HFA, 2008).

4.3.12 Injuries: home/leisure

Incidence of accidents at home and/or in freetime. Including injuries caused by violence in this indicator is still under debate. Here, only home and leisure injuries are taken into account.

Data on home and leisure accidents are scarce but the Netherlands seems to do well

For the participating countries in the IDB (European Injury Database) project, the rate of hospital treated home and leisure accidents ranges from 40 per 1,000 inhabitants in the Netherlands to 94 per 1,000 in the United Kingdom (Eurosafe, 2007). Internationally comparable data about non-fatal home and leisure accidents are scarce. An attempt to collect and combine accident and injury data from selected emergency departments of Member State hospitals is done by the European Injury Database (IDB; see *appendix A4.3.12*). Overall, males and females are almost equally distributed among the hospital treated injuries. However, more males sustain an injury in childhood and adolescence whereas the situation is inverted in age groups of 50 years and above (Eurosafe, 2007).

Nearly half of all home and leisure injuries occur in the home setting. Bathrooms, staircases and kitchens are some of the injury hotspots where, in particular, children and elderly people get injured as these are the places where they spend most of their time (Eurosafe, 2007). Football is responsible for the most sport-related injuries treated in hospital and almost 70% of all football injuries are incurred by people under the age of 25. See also *chapter 8* Children and young people and *chapter 9* Elderly people.

Slight decrease in the Netherlands but incidence rate is expected to rise

Over the period 2002-2006 the incidence rate has dropped slightly in the Netherlands from 45 to 37 per 1,000 (Eurosafe, 2007). Only France shows a sharp increase of hospital treated home and leisure accidents, from 73 per 1,000 in 2003 to 148 per 1,000 in 2006. Long-term trends are not available. Home and leisure injuries are expected to rise in the coming years due to the growing number of elderly people, increased leisure time for all ages and enhanced promotion of physical activity for all (Eurosafe, 2007).

4.3.13 Injuries: road traffic

Number of persons injured in road traffic accidents. A road traffic accident is any accident which occurred or originated on a street or road, in which at least one moving vehicle has participated and which resulted in one or more persons being injured. Injured means any person who was not killed but sustained one or more serious or slight injuries as a result of the accident.

The Netherlands is among the European frontrunners in the field of road safety

With slightly more than 200 people injured in traffic per 100,000 persons, the Netherlands is among the European frontrunners in the field of road safety. Particularly during the last decades of the previous century the country has achieved significant improvement in the number of accidents and fatalities on the Dutch roads. Austria and Belgium are among the countries with the highest numbers of traffic injuries. Traffic injuries in the EU countries represented in the OECD (see *appendix A4.3.13*) range from 140 per 100,000 in Denmark to 683 per 100,000 in Austria in 2004 (OECD, 2008d).

Road traffic injuries continue to fall in the Netherlands and elsewhere

According to OECD data, the number of injuries sustained on the Dutch roads have decreased from 528 per 100,000 in 1970 to 205 in 2004, an annual decrease of almost 3% (*figure 4.20*) (OECD, 2008d). Most other EU countries also have decreasing trends, except the Czech Republic, Slovakia, Sweden and Poland, but those countries have historically low numbers of injuries.

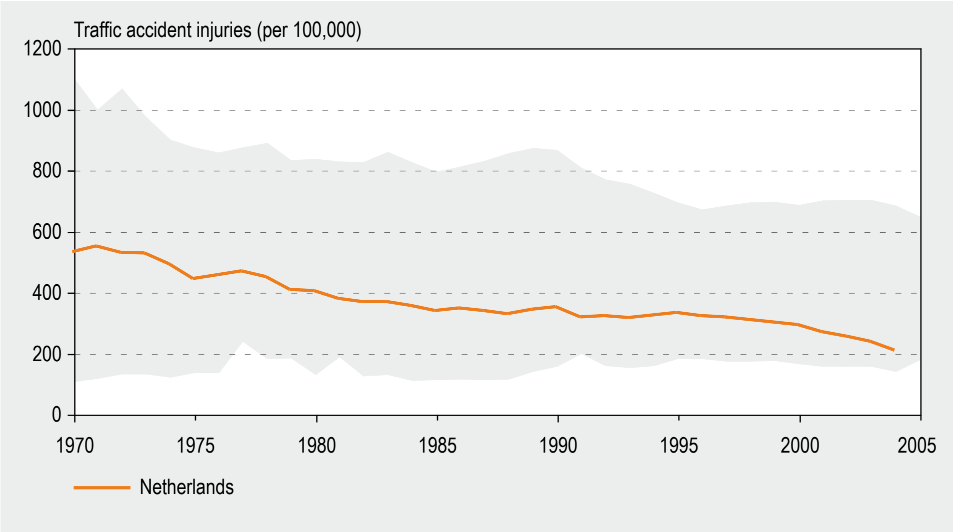


Figure 4.20: Trend in traffic accident injuries (per 100,000), for the Netherlands, 1970-2005. Range for EU-19 in grey (OECD, 2008d).

4.3.14 Injuries: workplace

Injuries at the workplace is measured by means of 'incidence of accidents at work'. An accident at work is an accident during working hours in connection with wage-earning employment or independent business which leads to physical or mental harm.
The indicator consists of two types of accidents: serious and fatal accidents:
1) The incidence rate of serious accidents at work is the number of accidents at work resulting in more than three days' absence per 100,000 persons in employment.
2) The incidence rate of fatal accidents at work is the number of fatal accidents at work per 100,000 persons in employment.

Number of serious accidents at the workplace is relatively low in the Netherlands
The incidence of serious accidents at the workplace in the Netherlands is slightly below the EU-15 average (*figure 4.21*). In 2005, 2,653 per 100,000 Dutch workers got injured so severely that more than three working days per year are lost due to the accident. Spain ranks highest with an incidence rate of around 5,700. In other southern EU countries, the incidence of serious accidents is also high. Luxembourg also ranks quite high in this respect, but this may have to do with the large number of people working in Luxembourg but living abroad. Sweden, Ireland and Great Britain have low scores of around 1,200 per 100,000 (Eurostat, 2008n). Within the Netherlands, the risk of a serious injury is four times higher for men than for women (Lanting & Hoeymans, 2008). Eurostat's database currently presents data from the European Statistics on Accidents at Work (ESAW) project on non-fatal serious accidents at work only for the old EU Member States (EU-15) and Norway. In a recent publication new Member States are also included (Eurostat, 2008b). The ESAW methodology to calculate accidents at work is in accordance with the ILO (International

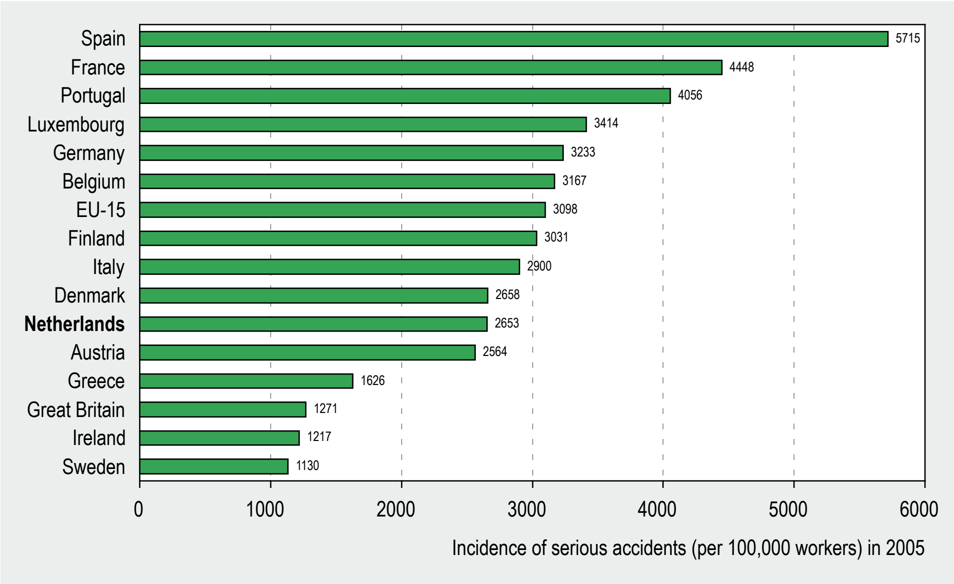


Figure 4.21: Incidence rate of serious accidents at work (per 100,000 workers) in the EU-15 in 2005 (Eurostat, 2008n).

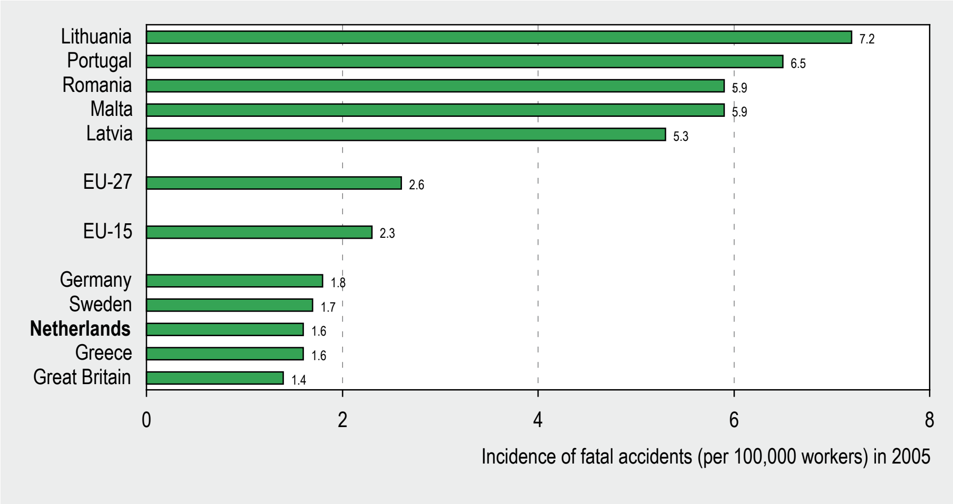


Figure 4.22: EU-27 countries with the highest and lowest incidence of fatal accidents at work, excluding road traffic accidents and accidents on board of any means of transport in the course of work in 2005 (per 100,000 workers) (Eurostat, 2008n).

Labour Office) Resolution of 1998 concerning statistics of occupational injuries that result from occupational accidents. This ESAW methodology is being implemented in the new Member States (and in the candidate countries).

The number of fatal accidents at work (accidents that lead to death) is very low in the Netherlands compared to other countries: 1.6 per 100,000 people in employment in 2005 (*figure 4.22*). However, due to the national registration procedure, data for the Netherlands involve a significant underestimation (see *appendix A4.3.14*). Similar numbers are found in Great Britain (1.4) and Greece (1.6). Relatively high numbers of fatal accidents at work occur in Lithuania (7.2), Portugal (6.5) and Romania (5.9) (Eurostat, 2008n).

The Dutch incidence rate for serious accidents at work is falling

As in other EU-15 countries, the incidence rate of serious accidents at work has fallen over the past years in the Netherlands, from around 3,900 per 100,000 in 1998 to almost 2,700 per 100,000 in 2005. By 2004 the incidence rate had decreased by 21% in relation to 1998 for the EU-25 (Eurostat, 2008b). Only three Member States reported a higher incidence of serious accidents at work in 2004 compared with 1998: Estonia (24% higher), Cyprus and Romania (both 3% higher). At the other end of the scale, the incidence of serious accidents in Bulgaria and Slovakia was almost halved between 1998 and 2004.

During the same period, there was a 24% reduction in fatal accidents at work in the EU-25. The majority of the Member States reported a reduction in the incidence of fatal accidents at work, although this was not the case in Lithuania (13% increase), Austria (7% increase), Romania (3% increase), Finland (2% increase) and Germany (no change). Italy, Denmark and Luxembourg all reduced their incidence of fatal accidents at work by at least half. These figures may in part reflect the shift of the European economy towards services, where the risks of accident and death at work are usually smaller than within construction, agriculture or industry (Eurostat, 2008b).

4.3.15 Suicide attempt

Proportion of persons having ever attempted suicide. Age and sex adjusted prevalence of cases giving a positive answer to the specific question: Have you ever attempted suicide?

No comparable data about people who have attempted suicide at some stage in their life

Statistics on suicide attempts in EU countries are collected within the MINDFUL project (www.stakes.fi/mindful). The availability of these data, however, is quite poor. Limited data are only available for Finland, France, Germany and Greece. All countries report a lifetime prevalence of 1.0% in the year 2001. Greece reports additional numbers for 1998 (1.6%) and 2004 (1.2%).

In the Netherlands, data for this indicator is measured by the Netherlands Institute of Mental Health and Addiction (Trimbos-instituut), within the NEMESIS study (1996-1998). This is a representative study of mental health problems in the adult population aged between 18 and 64. Currently Trimbos is carrying out a follow up study, NEMESIS-2. According to NEMESIS, 2.7% of Dutch adults attempted suicide at some stage in their life and 0.9% attempted suicide in the last 12 months (Ten Have et al., 2006). Another source of Dutch data on suicide attempts is the Continuous Morbidity Registration in the Netherlands (CMR). However, in CMR both attempts and completed suicides are combined into one number. These data are collected via health providers instead of the general population of people having gone through depression. The suicide attempt rate, according to CMR, has decreased from 6 per 10,000 inhabitants in 1997 to 3 in 2006, the lowest rate in this ten year period (Donker, 2007).

According to the Dutch NEMESIS data, adults who attempted suicide or had suicidal thoughts during the past year are often unemployed, have a low income and tend to live in large urban areas (Ten Have et al., 2006).

4.4 Perceived and functional health

4.4.1 Self-perceived health

Prevalence of good self-perceived health is the proportion of persons who assess their own health to be good to very good. It is assessed by self-evaluation of the general health state rather than the present state of health, as the question is not intended to measure temporary health problems. Subjective health measurements, such as self-perceived health, contribute to the evaluation of health at the population level. Studies have shown perceived health to be a good predictor of subsequent mortality.

A high percentage of Dutch men and women assess their own health as good
The Netherlands belongs to the group of EU countries with the highest percentage of people assessing their own health as good or very good (*figure 4.23*). In 2005, 79.5% of Dutch men and 73.5% of Dutch women considered their own health to be good or very good. This compares with an EU-25 average of 66.8% for men and 61.2% for women. Only people in Denmark, Greece and Ireland perceive their own health as good or very good more often. People in Latvia, Lithuania and Hungary perceive their own health as good least often. In all European countries men assess their own health as good or very good more often than women. Furthermore, as is the case in the Netherlands, in most EU countries people with a higher educational status more often believe they are in good health (Eurostat, 2008n).

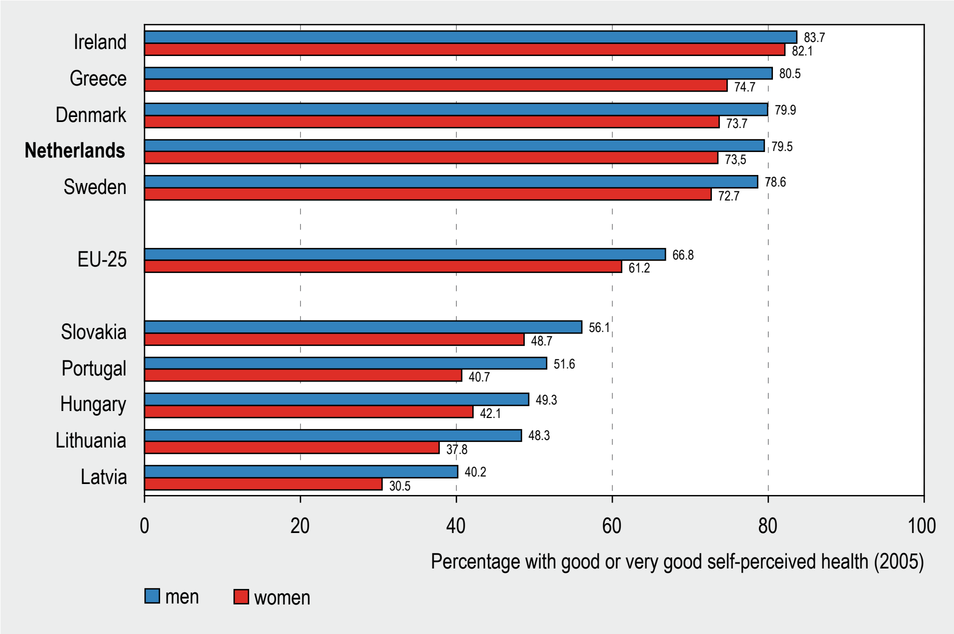


Figure 4.23: EU-25 countries with the highest and lowest percentage of people perceiving their own health as good or very good in 2005 (Eurostat, 2008n).

Higher rates of poor self-assessed health among lower socio-economic groups
The EUROTHINE project also observed large differences in self-assessed health in relation to both educational status and household income in several EU countries. Groups with a lower socio-economic status have higher rates of poorer self-assessed health (Eikemo et al., 2007; Kunst et al., 2005; Mackenbach et al., 2008). Countries with a so-called Bismarckian welfare system (including the Netherlands) have the smallest education-related health inequalities. The Scandinavian, eastern European and Anglo Saxon welfare regimes rank relatively close together (Eikemo et al., 2007). Income inequalities in self-assessed health are remarkably high in northern and western Europe, particularly in England and Wales where income inequalities are also large (Mackenbach et al., 2008). For the combined average of the EU countries studied, the magnitude of inequalities in self-assessed health remained more or less stable between the 1980s and 1990s, but increasing inequalities are observed for Italian and Spanish men and women and for Dutch women, whereas inequalities in Nordic countries showed no tendency to increase (Kunst et al., 2005).

No recent trend for self-perceived health available
A shift in data source - from ECHP to EU-SILC - in 2004 causes a break in trend, although question wording remained the same in both surveys. Furthermore, data from ECHP are only available for the 'old' EU-15 countries for the period 1996-2001 and comparability is limited due to differences between countries in the survey design (see *appendix A4.4.1*). This makes it difficult to compare recent trends and therefore trend data are not shown.

4.4.2 Self-reported chronic morbidity

Self-reported chronic morbidity is defined as the proportion of persons who report to suffer from a chronic (long-standing) illness or condition. It is a widely used measure of general health.

Prevalence of chronic morbidity average in the Netherlands
The percentage of Dutch men and women who report to suffer from a chronic (longstanding) illness or condition is comparable with the EU-25 average (*figure 4.24*). In 2005, 27.5% of Dutch men and 33.0% of Dutch women suffered from a chronic illness compared with 29.1% of European men and 32.9% of European women. People in Greece, Austria and Italy suffer least often from a chronic illness whereas people from Hungary, Sweden and Finland suffer from a chronic condition most. In all European countries, women report chronic illness more often than men. Furthermore, as is the case in the Netherlands, in most EU countries people with a higher educational status report less chronic morbidity (Eurostat, 2008n).

No recent trend data for self-reported chronic morbidity available
A shift in data source - from ECHP to EU-SILC - in 2004 causes a break in the trend. This makes it difficult to compare recent trends. Furthermore, data from ECHP are only available for the 'old' EU-15 countries and comparability is limited due to differences between countries in the survey design and question wording (see *appendix A4.4.1*). Therefore trend data are not shown.

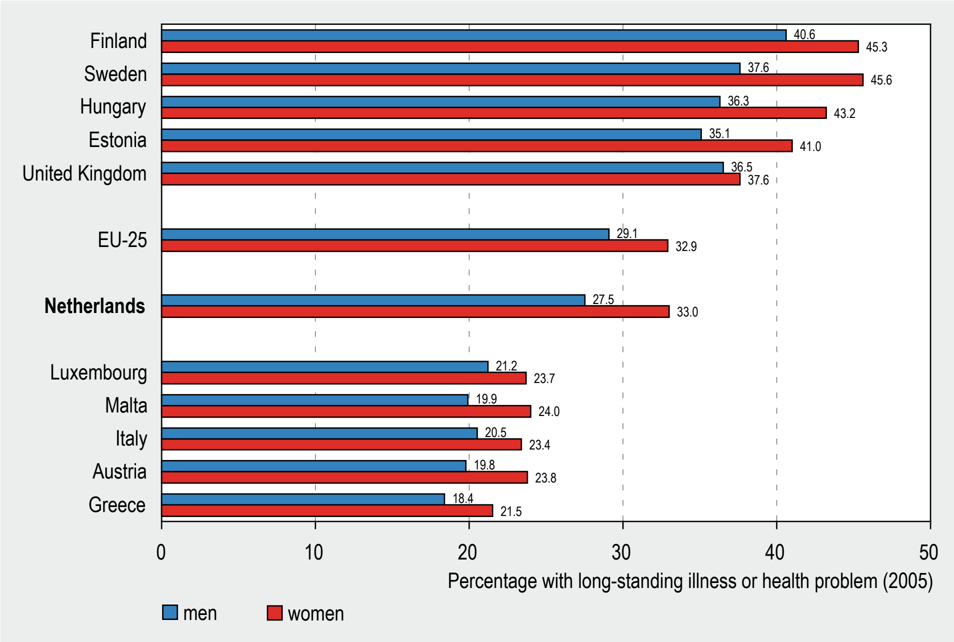


Figure 4.24: EU-25 countries with the highest and lowest percentage of people suffering from a long-standing illness or health problem in 2005 (Eurostat, 2008n).

4.4.3 Long-term activity limitations

Limitation in activities due to health problems is defined as the percentage of the population that indicates to be limited in their usual daily activities because of health problems for at least the last 6 months. It is a widely used measure of health-related limitations in performing everyday activities.

Low prevalence of activity limitations in the Netherlands

The Netherlands belongs to the six EU countries with the lowest percentage of people who are limited in normal daily activities (*figure 4.25*). Only 16.7% of Dutch men and 24.7% of Dutch women reported to be limited (both severely and to some extent) in usual daily activities compared with an EU-25 average of 22.4% for men and 26.7% for women. Other countries with a low percentage are Malta, Poland and Greece. In Finland, Estonia and Germany a high percentage of people report being hampered by activity restrictions. The percentage of Dutch men (6.7%) and women (8.6%) that are severely limited is almost the same as the EU-25 average. European women report more activity limitations than men. Furthermore, as is the case in the Netherlands, in most EU countries people with a higher educational status tend to have less activity limitations (Eurostat, 2008n). Due to some differences in the question wording in the Danish survey, data for Denmark have been omitted from the figure.

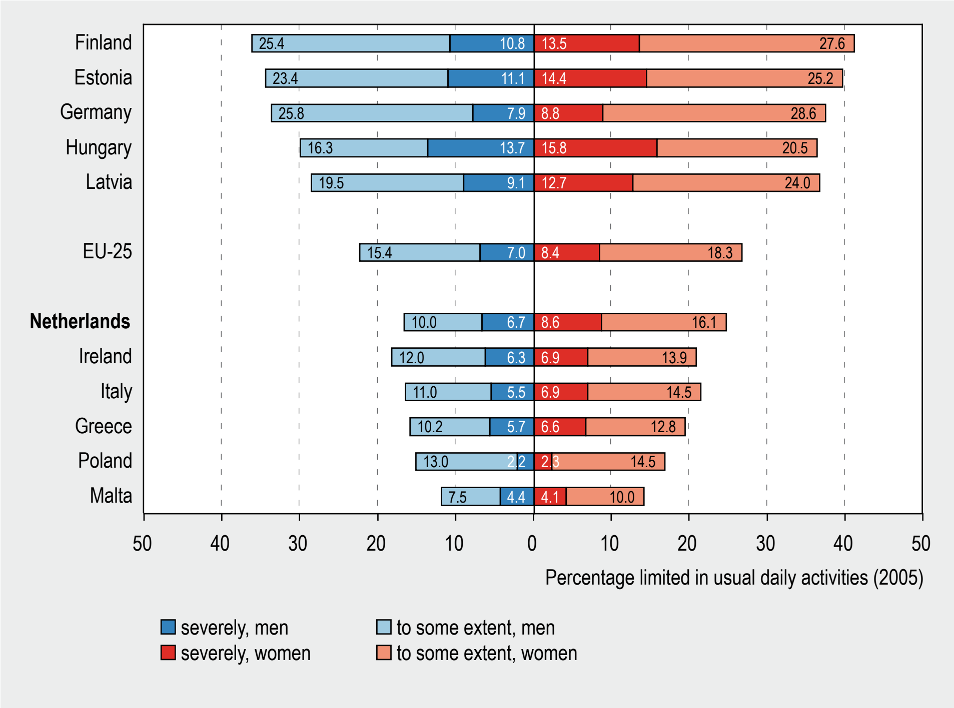


Figure 4.25: EU-25 countries with the highest and lowest percentage of people limited in usual daily activities in 2005 (Eurostat, 2008n).

No recent trend data for activity limitations available
A shift in data source - from ECHP to EU-SILC - in 2004 causes a break in the trend. This makes it difficult to compare recent trends. Furthermore, data from ECHP are only available for the 'old' EU-15 countries and comparability is limited due to differences between countries in the survey design and question wording (see *appendix A4.4.1*). Therefore trend data are not shown.

4.4.4 Physical and sensory functional limitations

The percentage of people who have physical and sensory functional limitations (on seeing, hearing, mobility, speaking, biting/chewing, and agility), as declared by the persons themselves. The rise of life expectancy in western societies is linked with a growing number of people with functional limitations, because the prevalence of functional disability increases with age. Adequate physical function plays a prominent role in maintaining independence of older adults. Declining physical functioning contributes to the need of assistance in performing basic tasks and to increased rates of institutionalization.

No international comparisons because comparable data are not yet available
Comparable data for all functional limitations is not yet available for EU-27 countries. Selected items on functional limitations may have been taken into account in many

national surveys but due to the specific design of national instruments the data are not directly comparable. Questions on several aspects of physical limitations are included in the European Health Interview Survey (EHIS) questionnaire (EC, 2006), which is the preferred data source of the future. Representativeness of the surveys is not always optimal because institutionalized people (i.e. in nursing homes) are excluded from the survey sample.

In 2007, 10.2% of Dutch men and 14.5% of Dutch women aged 12 years and over had limitations in seeing, hearing, mobility and/or speaking (Statistics Netherlands, 2008b). These data have been collected by means of seven questions in the module 'Health and Work' of the HIS questionnaire POLS. The questions in POLS measure similar things as those in EHIS, but question wording is different.

4.4.5 General musculoskeletal pain

General musculoskeletal pain is defined as the prevalence of musculoskeletal pain, affecting muscles, joints, neck or back which affects the ability to carry out the activities of daily living. Musculoskeletal conditions include rheumatoid arthritis, as well as more unspecific conditions like chronic widespread musculoskeletal pain and low back pain. These conditions are a major cause of sickness absence and disability pension.

Comparable data for general musculoskeletal pain are lacking
National and international data are not sufficient for making valid comparisons of the prevalence of general musculoskeletal pain in different countries. Studies have reported a wide range of prevalence rates for musculoskeletal disorders, with 12-month prevalence ranging from 2.3% to 41% in different countries. In most cases prevalence was studied in specific (occupational) groups. Open population studies are rare (Huisstede et al., 2006).

4.4.6 Psychological distress

Occurrence and extent of psychological distress during the past month. The indicator is described by a mean score based on answers to a short questionnaire (MHI-5, Mental Health Index). A score below the norm indicates a case of mental ill-health. Distress is associated with high use of health services and is a predictor of mortality.

Comparison of distress not possible, but Dutch people report positive feelings more often
Comparison of population mean levels of psychological distress between EU countries is not possible. It has not been measured and calculated as such. But the 2005/2006 Eurobarometer study used questions similar to the MHI-5 (see *appendix A4.4.6*). This Eurobarometer indicates that more Dutch people report positive feelings (feeling happy or calm and peaceful) than people from other EU-27 countries. Also more people from Finland report positive feelings than other Europeans. When it comes to negative feelings (feeling

down, depressed or particularly tense) an average percentage of Dutch people report to never or rarely experience such feelings. This compares with a small percentage of Italians reporting positive feelings or absence of negative feelings. Other consistencies in the answers from the EU countries are not visible. The quality of the composite indicator and the comparability of this indicator are under discussion (see *appendix A4.4.6*).

In the Netherlands psychological distress was stable, EU trends are not available
In the Netherlands the percentage of people with psychological distress remained stable between 1989 and 2000. EU trends are not available. In 2000, the Dutch way of measuring distress changed from ABS (affect balance scale) to the MHI-5 (see *appendix A4.4.6*). Not enough data have become available since then to show trends (Schoemaker & Hoeymans, 2005).

4.4.7 Psychological well-being

Occurrence and extent of energy and vitality during the past month. The indicator is described by a mean score based on answers on a short questionnaire (EVI, Energy and Vitality Index). A maximum score represents optimal mental health. The sense of energy and vitality is one of the core indicators to cover the mental health issue, and an important indicator of positive mental health.

An international comparison of well-being is not possible, but the Dutch report positive feelings more often
As with psychological distress (see *paragraph 4.4.6*), a comparison of population mean levels of psychological well-being between EU countries is not possible. It has not been measured and calculated as such. But the 2005/2006 Eurobarometer study used questions similar to the EVI (see *appendix A4.4.6*). The picture from this Eurobarometer for the Netherlands is the same as for distress: more Dutch people report positive feelings (feeling vital and energetic) than do people from other EU-27 countries. And also the picture is similar when it comes to reporting the absence of negative feelings: an average percentage of Dutch people report feeling worn out or tired rarely or never. Again, Finland has high percentages of people feeling vital and energetic. Also Denmark consistently shows high percentages of people reporting energy and vitality, while Estonia consistently shows low percentages, for both the presence of positive feelings and the absence of negative feelings. The quality of the composite indicator and the comparability of this indicator are under discussion (see *appendix A4.4.6*).

No trends for EU or the Netherlands available for psychological well-being
Neither for the EU, nor for the Netherlands trends are available on mental well-being as defined as a score on the EVI.

4.5 Composite health status measures

4.5.1 Health expectancy: Healthy Life Years

The Healthy Life Years (HLY) indicator measures the number of remaining years that a person of a specific age is still expected to live in a healthy state. In the case of the EU structural indicator HLY, a healthy state is defined by the absence of long-term activity limitations (see also *paragraph 4.4.3*). Therefore, the emphasis is not exclusively on the length of life as in the case of life expectancy, but also on the quality of life. As there are many ways to measure health, HLY is one of many health expectancies. Other types of health expectancies are based on morbidity, self-perceived health or good mental health (see *paragraph 4.5.2*). Healthy Life Years is a different concept to the Health-Adjusted Life Expectancy (HALE) indicator used by the WHO, which is based on quite different premises and calculations (WHO, 2000).

Healthy Life Years at birth relatively high for Dutch men, average for Dutch women
The Healthy Life Expectancy at birth (measured as HLY) for Dutch men is 65.0, which is relatively high compared with HLY for men in other EU-25 countries. The HLY for Dutch women is 63.1 and this is average in Europe. Within the EU-25, HLY at birth ranges from 48.0 for Estonian men to 68.5 for Maltese men and from 52.2 for Estonian women to 70.1 for Maltese women (*figure 4.26)* (Eurostat, 2008n). Due to some differences in the question wording in the Danish survey, data for Denmark have been omitted from the figure (see *appendix A4.4.1*).

Although in the Netherlands life expectancy for women is 4.3 years higher than for men (see *paragraph 4.1.1* on life expectancy), HLY is about the same for both sexes. The same

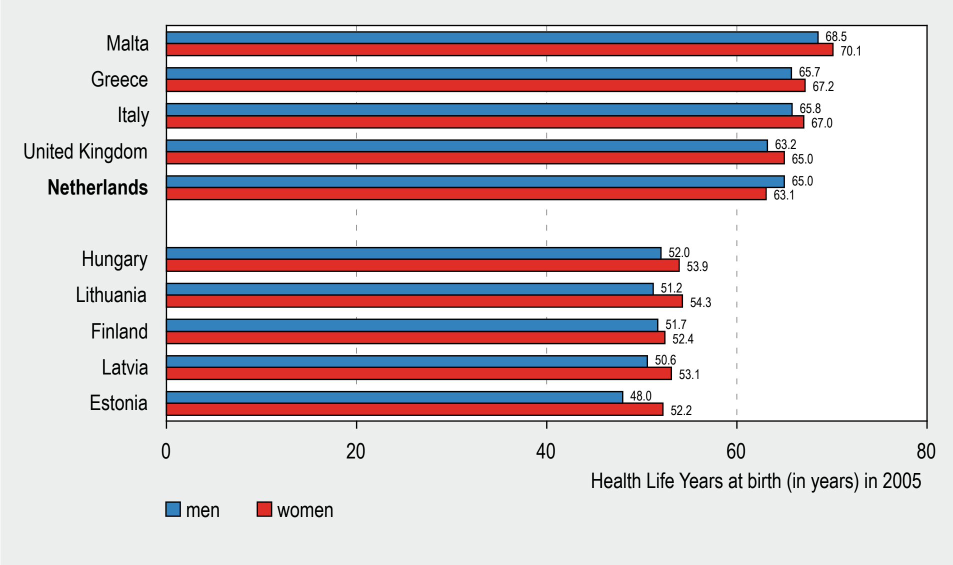


Figure 4.26: EU-25 countries with the highest and lowest Healthy Life Years at birth, for men and women in 2005 (Eurostat, 2008n). EU-25 average is not available.

is true for other European countries. This means women live longer than men but men and women live just as long in good health. The number of years that women live longer than men are generally spent in an unhealthy state (Eurostat, 2008n).

Healthy Life Years is increasing in most EU countries
Within the EU-15, HLY at birth for both men and women increased or remained constant in most countries between 1995 and 2003, but the Netherlands, Ireland and Finland showed a decline for women. The countries that showed an increase in HLY at birth for women were Belgium, France, Italy, Spain and Sweden. Also HLY at birth for Dutch men increased in the same period as did HLY for men in Austria, Belgium, Finland, Germany, Greece, Italy and Spain (EHEMU, 2005; Jagger, 2005).

It is difficult to compare more recent trends, because of a shift in data source - from ECHP to EU-SILC - in 2004. This causes a break in the trend. Data for 2005 show a higher value than previously, both for Dutch men and Dutch women. The question used in the EU-SILC survey may result in people reporting limitations of different severity than previously, and Dutch men and women may be less likely to report minor problems than before (EHEMU, 2008a). Furthermore, trend data from ECHP are only available for the 'old' EU-15 countries and comparability is limited due to differences between countries in the survey design and question wording (see *appendix A4.4.1*).

4.5.2 Other health expectancies

Other types of health expectancies are the life expectancy in good self-perceived health, and life expectancy without self-reported chronic morbidity. Like the Healthy Life Years indicator in the previous paragraph they measure the number of remaining years that a person of a specific age is still expected to live in a healthy state as calculated from population data on mortality and on health. Monitoring time trends of life expectancy and healthy life years together enables assessment of whether years of life gained are healthy years or not.

Dutch life expectancy in good self-perceived health is relatively high
Life expectancy in good self-perceived health for Dutch 16-year-old men is 47.1 and for Dutch 16-year-old women 46.9. This gives the Netherlands a relatively high position in a comparison with EU-25 countries. Within the EU-25, life expectancy in good self-perceived health ranges from 20.4 for Latvian men to 49.4 for Irish men and from 19.3 for Latvian women to 51.6 for Irish women (*figure 4.27)* (EHEMU, 2008b).

For life expectancy without chronic morbidity the Netherlands ranks tenth in the EU-25. Dutch 16-year-old men can expect to live 43.2 years without chronic morbidity and Dutch 16-year-old women 42.9 years. Within the EU-25, life expectancy without chronic morbidity ranges from 33.2 for Estonian men to 48.7 for Greek men and from 35.0 for Hungarian women to 51.1 for Italian women (*figure 4.28)* (EHEMU, 2008b).

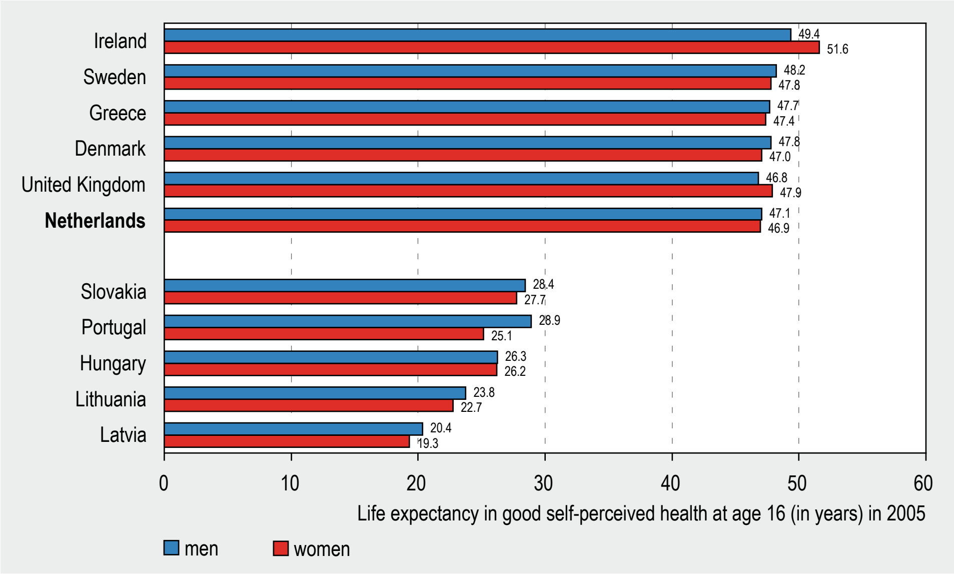


Figure 4.27: EU-25 countries with the highest and the lowest life expectancy in good self-perceived health at age 16, for men and women in 2005 (EHEMU, 2008b). EU-25 average is not available.

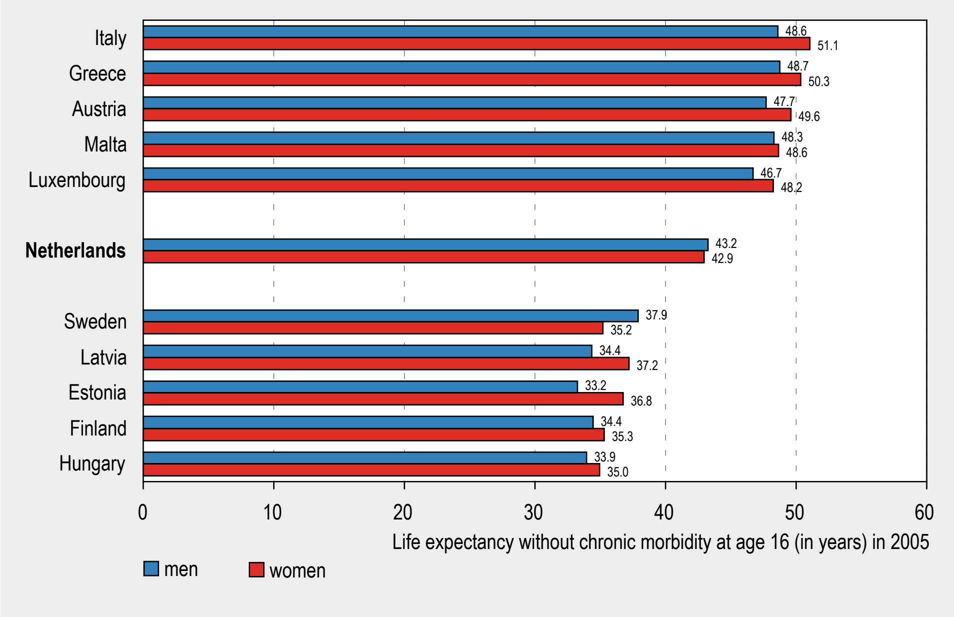


Figure 4.28: EU-25 countries with the highest and the lowest life expectancy without chronic morbidity at age 16, for men and women in 2005 (EHEMU, 2008b). EU-25 average is not available.

Similar to HLY, life expectancies in good self-perceived health and without chronic morbidity are also about the same for both sexes in the Netherlands. The same is true for most other European countries. This means women live longer than men but men and women live just as long in good health. The number of years that women live longer than men are generally spent in an unhealthy state (EHEMU, 2008b).

No recent trend data for other health expectancies available

A shift in data source - from ECHP to EU-SILC - in 2004 causes a break in trend. Furthermore, data from ECHP are only available for the 'old' EU-15 countries for the period 1996-2001 and comparability is limited due to differences between countries in the survey design and question wording (see *appendix A4.4.1*). This makes it difficult to compare recent trends and therefore trend data are not shown.

4.6 Summary

Following a period of stagnation, female life expectancy in the Netherlands is on the increase again, but it is still below the EU-15 average and lies closer to the (lower) EU-27 average. On the other hand, men's life expectancy is in line with the old EU-15 average and is higher than the EU-27 average.

In comparison with other countries the Netherlands is doing well for mortality due to circulatory diseases and external causes of injury and poisoning. The number of alcohol and drug-related deaths is also low.

However, the situation is less favourable with regard to mortality from cancer (particularly lung cancer), respiratory diseases (including COPD), and smoking-related deaths, especially for women. Furthermore, time trends highlight an increasing deviation from EU averages for these smoking related conditions in women. Infant and perinatal mortality remain around the EU-27 averages, but they are still high compared with the more affluent EU countries.

Focusing on specific diseases, the picture is mixed for several communicable diseases. Compared with other EU countries the incidence of measles and tuberculosis is low, the incidence of HIV infection is average, but the incidence of pertussis is very high in the Netherlands. The low incidence of injuries and of ischaemic heart disease and stroke matches the low mortality from external causes of injury and poisoning and from circulatory diseases, respectively. The incidence of lung cancer is decreasing for men but increasing for women, and this corresponds to the opposite trends in lung cancer mortality for men and women. The prevalence of diabetes and dementia is average but increasing in the Netherlands and other European countries, while the prevalence of depression remains stable.

The Netherlands is doing relatively well on several indicators of perceived and functional health, for example self-perceived health, long-term activity limitations and psychological distress and wellbeing. The prevalence of chronic morbidity is average.

Life expectancy in good health is a summary measure of health status and addresses the question of whether an increase in life expectancy is accompanied by an increase in the time lived in good health. Compared to other EU countries, life expectancy in good health, measured with the EU structural indicator Healthy Life Years is relatively high for Dutch men, but average and tending to decline for Dutch women.

An overview of health status indicators is given in *table 4.5*. The column 'NL compared to EU' shows how the Dutch situation compares to the situation in the EU. The column 'NL trend' shows the direction of the Dutch trend.

- Green:
  - NL clearly better than EU average.
  - NL trend: improving.
- Red:
  - NL clearly worse than EU average.
  - NL trend: worsening.
- Amber:
  - NL around EU average.
  - NL trend: about stable.
- Blank cell: an assessment can not be made based on the data in this report.
- ☹ Recent Dutch trend less favourable than trend in other EU countries.
- ☺ Recent Dutch trend more favourable than trend in other EU countries.

This table presents a very concise summary of the data given in this report. For more information, please consult the corresponding text sections.

Table 4.5: Summary of health status indicators.

			NL compared to EU	NL trend
4.1	**Mortality**			
4.1.1	Life expectancy	men		
		women		
4.1.2	Infant mortality			
4.1.3	Perinatal mortality			
4.2	**Cause-specific mortality**			
4.2.1	Disease-specific mortality (main groups)	circulatory, men		
		circulatory, women		
		injuries, men		
		injuries, women		
		respiratory, men		
		respiratory, women		☹
		cancer, men		
		cancer, women		☹
4.2.2	Drug-related deaths			
4.2.3	Smoking-related deaths	men		
		women		☹
4.2.4	Alcohol-related deaths			
4.2.5	Excess mortality by heat waves			

Table 4.5: continued

			NL compared to EU	NL trend
4.3	**Disease-specific morbidity**			
4.3.1	Selected communicable diseases	*Chlamydia*		
		hepatitis C		
		tuberculosis		
		pertussis		
		measles		
		hepatitis B		
4.3.2	HIV/AIDS	AIDS		
		HIV		
4.3.3	Cancer incidence	breast, women		
		lung, men		☺
		lung, women		☹
4.3.4	Diabetes			
4.3.5	Dementia/Alzheimer			
4.3.6	Depression			
4.3.7	AMI/IHD			
4.3.8	Stroke			
4.3.9	Asthma			
4.3.10	COPD	men		
		women		
4.3.11	Low birth weight			
4.3.12	Injuries: home/leisure			
4.3.13	Injuries: road traffic			
4.3.14	Injuries: workplace			
4.3.15	Suicide attempt			
4.4	**Perceived and functional health**			
4.4.1	Self-perceived health	men		
		women		
4.4.2	Self-reported chronic morbidity	men		
		women		
4.4.3	Long-term activity limitations	men		
		women		
4.4.4	Physical and sensory functional limitations	men		
		women		
4.4.5	General musculoskeletal pain			
4.4.6	Psychological distress			
4.4.7	Psychological well-being			
4.5	**Composite health status measures**			
4.5.1	Health expectancy: Healthy Life Years	men		
		women		
4.5.2	Other health expectancies	self-perceived health, men		
		self-perceived health, women		
		chronic morbidity, men		
		chronic morbidity, women		

5 DETERMINANTS OF HEALTH

A person's health or disease state is determined by many, often interacting, factors. In this chapter international comparisons are presented on a wide range of determinants of health, arranged into three major groups including:

1) Personal and biological factors: overweight and blood pressure.
2) Health behaviours: smoking, alcohol use, drug use, consumption/availability of fruit and vegetables, physical activity and breastfeeding.
3) Living and working conditions: social support, airborne particulate matter and working conditions.

5.1 Personal and biological factors

5.1.1 Body mass index

The most common approach to determining the degree of overweight is measuring the body mass index (BMI). BMI is defined as the body weight (in kilograms) divided by the square of the body height (in meters), preferably calculated from actual measurements and not from self-reports. For adults the criterion for overweight is a BMI of 25 kg/m^2 and over, and for obesity (severe overweight) a BMI of 30 kg/m^2 or more. Excessive body weight predisposes to various diseases, such as cardiovascular diseases, certain cancers, diabetes type 2, sleep apnoea and osteoarthritis.

Overweight problem in the Netherlands not as large as in other EU countries

The overweight problem in the Netherlands is serious, but not as large as in other EU countries. According to self-reported data from 2005 about 50% of Dutch men and 40% of Dutch women is overweight. The prevalence of overweight (mostly based on self-reported data) ranges from 30% in Austrian women to more than 68% in men in Malta (*table 5.1*). In all EU countries except Latvia, overweight is more common among men than among women. For obesity the pattern varies. The proportion of adults who are obese in the EU-25 ranges from less than 9% in Italian women to more than 26% in women from the United Kingdom and in Greek and Maltese men (WHO, 2008b). The Netherlands ranks low with 11.4% of women and 9.9% of men being obese (data from POLS).

In the Netherlands, overweight (including obesity) occurs more often in population groups with a lower educational level and in Turkish and Moroccan ethnic groups (Health Council, 2003; EUROTHINE, 2007). Moreover, overweight and obesity in the Netherlands are related to health inequalities - something that also applies to other countries (Pickett et al., 2005). Obesity is (just like smoking), strongly socially patterned in many countries, and therefore potentially relevant for explaining international variations in health inequalities. Over the past decades, obesity has become more prevalent in the lower socio-economic groups in many countries (EUROTHINE, 2007; Schrijvers et al., 2008). Especially in women, educational differences within countries are large in

Table 5.1: Prevalence (%) of overweight and obesity in EU-27 countries[a] (WHO, 2008b).

Country	Age (years)	Women Over-weight	Women Obesity	Men Over-weight	Men Obesity	Survey period	Data collection method
Austria	20+	30.4	9.1	63.4	9.1	1999	self-reported
Belgium	18+	37.8	13.4	50.6	11.9	2004	self-reported
Bulgaria	15+	42.3	13.5	50.1	11.3	2001	self-reported
Cyprus	15+	38.7	11.8	53.9	12.9	2003	self-reported
Czech Republic	16+	47.4	16.3	56.7	13.7	2002	self-reported
Denmark	16+	34.0	9.1	49.6	9.8	2000	self-reported
Estonia	16-64	40.6	14.9	45.7	13.7	2004	self-reported
Finland	15-64	40.2	13.5	59.7	14.9	2005	self-reported
France	15+	36.3	13.0	47.4	11.8	2006	self-reported
Germany	18+	41.2	12.3	57.7	13.6	2003	self-reported
Greece	20-70	48.1	18.2	67.1	26.0	2003	self-reported
Hungary	18+	49.5	18.2	58.9	17.1	2003-2004	self-reported
Ireland	18-64	48.4	15.9	66.4	20.1	1997-1999	measured
Italy	18+	34.5	8.7	51.4	9.3	2003	self-reported
Latvia	15-64	43.4	19.5	42.0	11.9	2004	self-reported
Lithuania	20-64	46.2	16.9	52.5	14.2	2004	self-reported
Malta	20-64	49.4	20.4	68.2	26.6	2002	self-reported
Netherlands	**20+**	**39.6**	**11.4**	**50.4**	**9.9**	**2005**	**self-reported**
Poland	19+	48.6	19.9	56.7	15.7	2000	measured
Portugal	18-64	45.2		52.9		2003-2004	measured
Romania	15+	38.1	9.5	45.8	7.7	2000	self-reported
Slovakia	15-64	37.4	15.0	57.8	13.5	2002	self-reported
Slovenia	25-64		13.8		16.5	2001	self-reported
Spain	16+		13.6		11.9	2001	self-reported
Sweden	16-84	37.0	11.0	53.0	12.0	2005	self-reported
United Kingdom[b]	16+	59.7	26.0	65.4	22.4	2003-2004	measured

[a] Most recent nationally representative data collected by a country are shown. In absence of nationally representative data, local data are also shown. The prevalence of overweight (BMI ≥ 25 kg/m²) includes the prevalence of obesity (BMI ≥ 30 kg/m²).

[b] sub-national data

southern European countries like Portugal, France, Italy and Spain. Compared to these countries, inequalities in the Netherlands are moderate in women, but for men, where the relative inequalities are generally smaller, differences are larger in the Netherlands than in other countries (EUROTHINE, 2007).

Overweight came to a halt, but obesity did not and other countries do worse
In the Netherlands, as in many other countries, the number of overweight people has steadily increased over the past decades. However, the increase of overweight in Dutch adults, which had been observed since 1981, came to a halt in 2005 (Statistics Netherlands, 2006). In 2005, 45% of the adult population were overweight. This is slightly less than in the two previous years, but still a higher proportion than the 33% in 1981. Obesity among the Dutch increased from 5.1% in 1981 to 10.7% in 2005, and no recent decline in obesity has been shown. The increasing trend of obesity in the Dutch population is comparable with that of many other countries of the EU, but some countries are doing worse. In the United Kingdom (England), the annual health survey has recorded dramatic increases in obesity from 13% to 22.4% in men and 16% to 26% in women, in just ten years, until 2004. This compares with an obesity prevalence of 6% to 7% in 1980 (IOTF, 2005).

5.1.2 Blood pressure

High blood pressure (hypertension) is measured as the prevalence of actual and potential hypertensives. The indicator is calculated as the number of those whose systolic blood pressure was at least 140 mmHg or diastolic blood pressure was at least 90 mmHg or who reported that they are taking medication to lower their blood pressure, divided by the number of all survey respondents.
High blood pressure is a strong indicator of the risk of coronary heart disease, stroke and diabetes. Small changes in the average blood pressure values of a population may be of considerable importance to public health. Both drug treatment and lifestyle changes - particularly weight loss, an increase in physical activity, and a reduction in salt and alcohol intake - can effectively lower blood pressure.

No comparable data on blood pressure in the European Union
The most comparable data on blood pressure in different European countries are available from the WHO MONICA project, in which the Netherlands did not take part (for details see www.ktl.fi/monica). The last available data on blood pressure in the WHO MONICA project date from the mid-1990s. The MONICA project shows substantial differences in the prevalence of hypertension between European countries. When a threshold of 140/90 mmHg is applied, prevalence of elevated blood pressure ranges from 19% to 60% among men and from 20% to 54% in women (Antikainen et al., 2006). Generally, blood pressure appears to be higher in north-eastern European countries than in south-western European countries.

Whereas the MONICA project group used regional surveys, Wolf-Maier and colleagues brought together a series of population-based national surveys in England, Finland, Germany, Italy, Spain, Sweden, Canada and the United States that were conducted in 1988-1999 (Wolf-Maier et al., 2003). Participants in all but one of the surveys were aged 35-74 years (Spain: 35-65). The prevalence of hypertension in the European countries among men, based on the standard cut-off point of 140/90 mmHg or use of antihypertensive treatment, ranged from 45% in Italy and Sweden to 60% in Germany. Among women, the prevalence ranged from 31% in Italy to 50% in Germany. The respective data for North

America (Canada and United States combined) indicate a much lower prevalence of hypertension in both men (30%) and women (25%).

An estimated 42% to 51% of the Dutch adults (aged 35-70) had a high blood pressure during the period 2003-2007 (Verschuren & Van Leent-Loenen, 2008). This range is based on percentages from two sources, the 'Lokale en Nationale Monitor Gezondheid' (42% among 35-70 year-olds) and the Doetinchem Cohort Study (51% among 36-70 year-olds) (see *appendix A5.1.2*). These percentages give just an indication because the data have some drawbacks, especially due to small sample sizes. As elsewhere in the EU, high blood pressure is more prevalent among men (around 47-58%) than among women (around 36-46%).

Higher prevalence of high blood pressure among lower socio-economic groups
Analyses from eight nationally representative health surveys in Europe show that elevated blood pressure occurs more frequently in lower educated groups (as an indicator of socio-economic position) than in the higher educated population (Dalstra et al., 2005). This socio-economic difference in the prevalence of elevated blood pressure decreases in later life and is greater among women than among men.

No valid data on trends in the Netherlands
There are no valid data on trends in the prevalence of high blood pressure in the Netherlands (Verschuren & Van Leent-Loenen, 2008). Trend data from the MONICA project show that between the mid-1980s and mid-1990s the majority of European populations included in the study experienced a decline in average systolic blood pressure (Antikainen et al., 2006).

5.2 Health behaviours

5.2.1 Regular smokers

Percentage of daily smokers in the population aged 15 years and older. A daily smoker is someone who smokes any tobacco product at least once a day.
Tobacco use is one of the leading preventable causes of death and disease in the EU. It is a major risk factor for diseases of the heart and blood vessels, Chronic Obstructive Pulmonary Disease (COPD), chronic bronchitis and emphysema, cancers of the lung and other diseases.

Percentage of smokers in the Netherlands is quite high compared to other EU countries
The percentage of adult smokers in the Netherlands is quite high in comparison with other EU-27 countries (*figure 5.1*). According to the Dutch Foundation on Smoking and Health (Stivoro), 28% of the Dutch population aged 15 years and older smoked in 2006 (Stivoro, 2008; Eurostat, 2008n). WHO-HFA presents a percentage of 30.8% for 2006 (WHO-HFA, 2008) (see *appendix A5.2.1*). Countries with the highest percentage of smokers are Greece (38% in 2000) and Germany (34%) (WHO-HFA, 2008).

In general, more men in southern, eastern and central Europe smoke than do men in northwestern Europe. In Greece, as in Latvia, almost half (47%) of the male population smokes (last available year for Greece is 2000), whereas only 14% of Swedish men smoke (2005) (WHO-HFA, 2008). This situation is reversed for women in the EU. In western and northern Europe there are more female smokers than in southern Europe. In the Netherlands, 26% of the women smoke, compared to less than 12% of the women in Portugal. In comparison with other EU countries, Dutch women score very unfavourably (WHO-HFA, 2008).

Socio-economic inequalities in smoking among education levels have increased

Socio-economic inequalities in smoking have been recognized for more than a decade and the differences in smoking prevalence among education levels seem to have increased during the past ten years. By the year 2000, among men, smoking was more common among lower socio-economic groups in all EU Member States. Among women, the same applies for northern Europe, whereas in southern Europe inequalities in smoking were beginning to emerge, especially among young women (Kunst et al., 2004). In most EU Member States, smoking followed the tobacco epidemic model, which describes that men in higher socio-economic groups begin to smoke first, followed by women who are better-off, after which smoking gradually becomes common practice among the low socio-economic status groups, while the higher educated quit (Cavelaars et al., 2000).

Poor socio-economic conditions in youth and adolescence influence smoking uptake through a range of factors (Kunst et al., 2004). People with a lower level of education start smoking at a younger age and therefore they have a higher chance of becoming addicted to nicotine. Adult smokers with a low education, a low-level occupation or a low income quit smoking less frequently and have higher chances of relapse. Unsuccessful smoking cessation attempts are due to higher levels of nicotine addiction, but also to other factors such as lack of social and instrumental support (Kunst et al., 2004). As a result, the percentage of smokers among the worse-offs is currently substantially higher than among the well-to-do (Mackenbach et al., 2008).

Dutch smoking prevalence remains high, especially in Dutch women

The prevalence of smoking in the Netherlands has remained relatively high over the past decades (*figure 5.1*). Dutch women, in particular, continue to be the frontrunners in the EU-27. Between 1980 and 2006, the percentage of men who smoke decreased in most of the EU countries. As in the rest of Europe, the difference between men and women in the Netherlands has continued to decrease during the past decade. Today in Sweden, female smokers outnumber the male smokers, 18% versus 13.9% in 2005 (WHO-HFA, 2008). Moreover, the most spectacular decrease in the total percentage of smokers occurred in Sweden, from 32% of the population in 1980 to 16% in 2005. In Denmark smoking is also decreasing faster than in the Netherlands. Between 1994 and 2004 smoking prevalence decreased from 39% to 29% in Danish men and from 35% to 23% in Danish women.

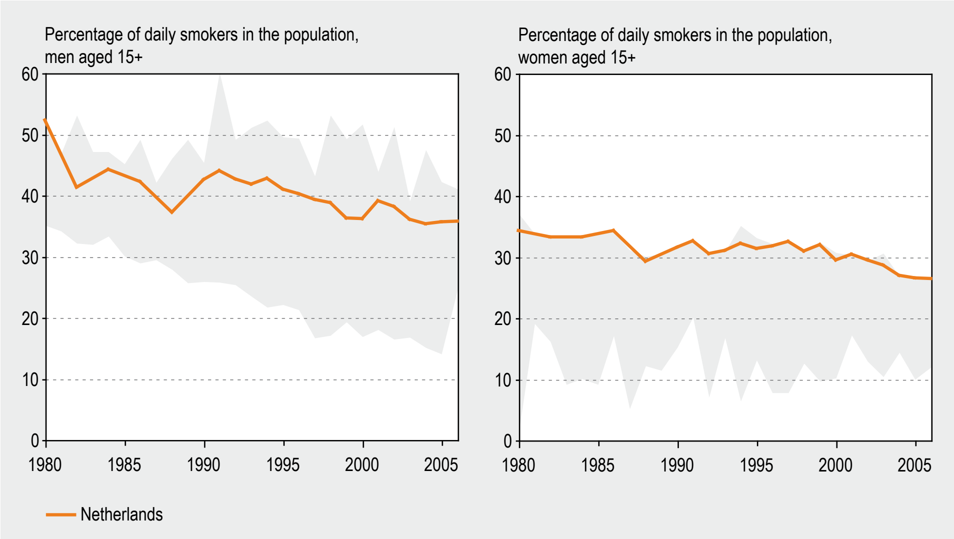


Figure 5.1: Trend in percentage of daily smokers (15 years and over) for men and women, for the Netherlands, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

5.2.2 Pregnant women smoking

The number of women who smoke during the third trimester of pregnancy expressed as a percentage of all women delivering live or stillborn babies. Smoking during pregnancy is associated with adverse perinatal outcomes including spontaneous abortion early in pregnancy, growth restriction, preterm birth and perinatal death.

In the Netherlands 14% of pregnant women smoke
During pregnancy, 14% of Dutch women smoke (Lanting et al., 2007). This is concluded from a cross-sectional study conducted in 2001, 2002 and 2003. Questionnaires were handed out to parents with infants aged 0-6 months. Of all respondents 11% smoked throughout pregnancy (average 5 cigarettes daily), and 3% stopped some time during pregnancy.

International comparable data on future mothers who maintain their smoking habit while pregnant have been collected by an EU project named PERISTAT. The first round of this project yielded smoking prevalences for eight EU countries (excluding the Netherlands) in the period 1998-2000. The percentage of pregnant women smoking in their second or third trimester ranged from 6.0% in Sweden to 23.7% in France (Breart et al., 2003). PERISTAT's successor, EURO-PERISTAT will publish new results on this indicator at the end of 2008 (see *appendix A5.2.2*). Because of differences in the surveys and point in time of measurement, the Dutch figures mentioned above can not be compared directly to the PERISTAT figures.

Low educated women more often continue to smoke during pregnancy
In the Dutch Generation R Study, a large population-based cohort study from foetal life until young adulthood, smoking habits during pregnancy (non-smoking, smoked until

pregnancy was known) were studied in the period 2002-2006. From the lowest educated groups, 45% (low education) and 20.6% (mid-low education) of women continued smoking when they found out they were pregnant. This differs greatly from the 5.1% and 11.7% of women with high and mid-high education (Jansen et al., 2008). In Germany and the United Kingdom as well, lower educated women smoke significantly more during pregnancy than higher educated women (Schneider et al., 2008; Kayemba-Kay's et al., 2008).

Percentage of women who smoke during pregnancy has dropped in the Netherlands
Considering the above mentioned 14% of pregnant women who smoke during pregnancy, the percentage has dropped significantly since the mid-1990s. In 1996, 21% of Dutch women smoked during pregnancy (Crone et al., 2000). An older study revealed that in 1979, 36% of pregnant women continued smoking during pregnancy; in 1988 this was 27%, a decrease of 25% over this period (Verkerk & Van Noord-Zaadstra, 1991; Roovers, 2003). In the same period the percentage of smokers in the Netherlands decreased by 27%, thus the relative decrease of women who smoke during pregnancy followed the national trend.

5.2.3 Total alcohol consumption

Total alcohol consumption is defined as litres of pure alcohol consumed per person per year, based on trade and production data. Alcohol consumption is an important determinant of health. It is also amenable to interventions. A correlation exists between the level of per capita alcohol consumption and the level of alcohol-related problems and diseases in the population.

Per capita alcohol consumption in the Netherlands is below average
Alcohol consumption in the Netherlands (7.8 litres per capita in 2003) is below the EU-27 average (9.1 litres) (*figure 5.2*). Consumption in EU countries ranges from 5.0 (Bulgaria) to 14.6 (Luxembourg). Drinking levels traditionally show a north-south gradient (high in the south of Europe, lower in the north). In 2003 it is clear that most alcohol is consumed in west and central European countries. Countries with low consumption levels are in the north of Europe and in the east of Europe. But these figures could be underestimated, especially in the eastern countries, because of unregistered illegal production and trade (see *appendix A5.2.3*). Remarkable is Italy, one of the traditional wine-producing and wine-drinking countries, having one of the lowest consumption levels in 2003 (7.6 litres). Italy was in fact, after France, one of the two countries with the highest consumption in 1970, but has had a very steep decline in alcohol consumption since the mid-1970s (WHO-HFA, 2008).

Alcohol consumption in the Netherlands closing in on the EU average
Since 1980 the total alcohol consumption in the Netherlands has come closer to the EU-27 average. The Dutch alcohol consumption level peaked in the beginning of the 1980s and then slowly came down to a more or less stable situation in the mid-1990s. In the same period the EU-27 average consumption levels also decreased, but quicker than in the Netherlands, and they did not stabilize (*figure 5.2*). Looking at trends in all EU-27

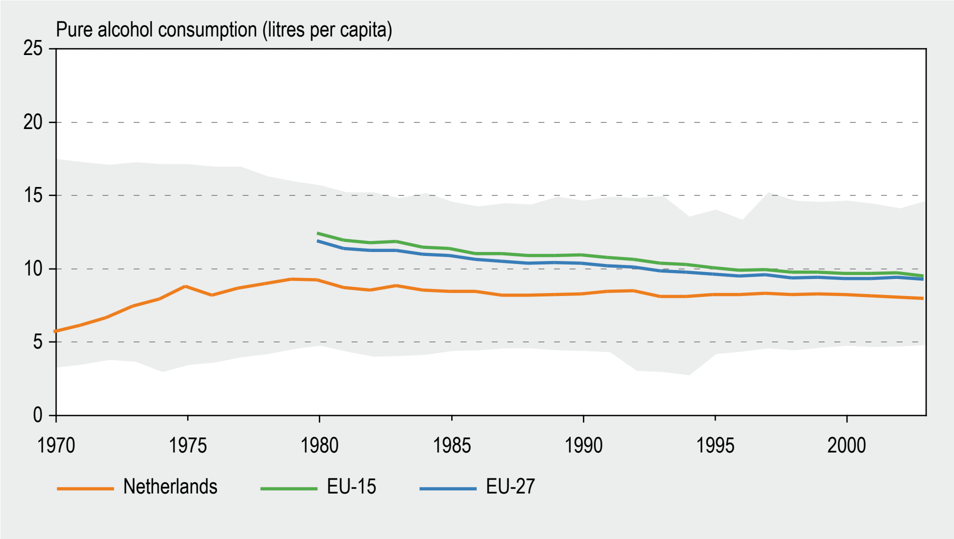


Figure 5.2: Trend in total alcohol consumption, for the Netherlands and EU averages, 1970-2003. Range for EU-27 in grey (WHO-HFA, 2008).

countries, one can conclude that drinking levels have been converging in Europe over the last four decades (Anderson & Baumberg, 2006). This is particularly clear for alcohol consumption levels in the EU-15. Total alcohol consumption in the southern European countries, which was relatively high (like in Italy - see previous section - and France), has become lower. And in the northern and central European countries (like the United Kingdom, Ireland and Finland) total consumption, which was relatively low, has become higher. As a result, the differences in total consumption between the EU-15 countries have declined. Also the consumption levels of the new EU Member States are currently closer to those of the EU-15 than ever before, although substantial differences still exist between these new Members (Anderson & Baumberg, 2006).

5.2.4 Hazardous alcohol consumption

Hazardous alcohol consumption is measured as an average rate of consumption of more than 20 grams pure alcohol daily for women and more than 40 grams daily for men. Hazardous alcohol consumption is a level of consumption or pattern of drinking that is likely to result in harm should these drinking habits persist. Alcohol consumption is an important determinant of health and alcohol-related health problems usually occur with increasing alcohol consumption. Health damage can be caused by a single occasion of heavy drinking (for example due to accidents) or can be linked to regular heavy drinking (for example liver cirrhosis or possible increased risk of cardiovascular disease).

Hazardous alcohol consumption in European region most prevalent in the world
The prevalence of hazardous alcohol consumption is most prevalent in European regions, compared to the rest of the world. This is shown by regional estimates carried out within the scope of the WHO CHOICE (CHOosing Interventions that are Cost Effective) project

(Chisholm et al., 2004). Comparable data on hazardous alcohol consumption in European countries are not available (see *appendix A5.2.4*). For the CHOICE project the prevalence of hazardous alcohol consumption was estimated for twelve regions in the world, including three European regions. Two of the European regions (including the Netherlands, Austria, Czech Republic, Denmark, Finland, France, Germany, Ireland, Italy, Estonia, Hungary, Latvia and Lithuania) had the highest prevalence of hazardous consumption of all the world regions. The estimates were done using data on total consumption combined with data on abstinence, sex and age groups and information on drinking patterns (Chisholm et al., 2004). Looking into socio-economic differences, the pattern is not consistent for men and women. A study including ten EU countries showed a general pattern of men being more likely to drink heavily when they have a lower educational level, whereas among women the higher educated were more likely to drink heavily (Bloomfield et al., 2006).

Trends in EU countries unclear due to a lack of data, but stable in the Netherlands
Due to the lack of comparable data, trends in hazardous alcohol consumption in the EU are unclear. In the Netherlands 'heavy drinking' is regularly monitored by Statistics Netherlands. A different definition is used than for hazardous alcohol consumption: the prevalence of people consuming at least six units of alcohol on one or more days per week. The trends in heavy drinking in the Netherlands have been fairly stable in the period 2001-2007, with 14% of the Dutch population aged 12 and over falling into the category of heavy drinkers in 2001, 12% in 2002 and around 11% since 2003 (Van Laar et al., 2008).

5.2.5 Use of illicit drugs

Use of illicit drugs is the use of specific psychoactive drugs (cannabis, cocaine, amphetamine, ecstasy, LSD) among adults and school students. Lifetime prevalence is any use during the person's life and recent use is any use during the previous year (last-12-months prevalence). A third type, current use, or any use during the previous month (last-30-days prevalence), is not described here. Illicit use of drugs can be a determinant and a consequence of health and social problems. It also correlates with other health and social problems, especially for youth.

Cannabis use is average in the Netherlands
In the Netherlands 22.6% of 15-64 year-olds have used cannabis at least once during their lifetime, which is comparable with an EU-27 average of about 22%. National figures range from 2% to 37% with the lowest figures in Bulgaria, Malta and Romania, and the highest in Denmark, France, the United Kingdom, Italy and Spain (*table 5.2*). With about 70 million European adults having used cannabis at least once in their life, cannabis continues to be the illegal substance most frequently used in Europe. See also *appendix A5.2.5* for notes on comparability.

Estimates for use in the last year are somewhat lower but the general picture is the same. In the Netherlands 5.4% of adults used cannabis in the last year, compared to an EU-27 average of 7%. National figures range from 0.8% to 11.2%, with the lowest figures

Table 5.2: Lifetime prevalence (%) of drug use among all adults (aged 15-64 years old) in EU-27 countries (EMCDDA, 2007).

Country	Year	Age	Cannabis	Cocaine[a]	Amphet-amines	Ecstasy[b]	LSD
Austria	2004	15-64	20.1	2.3	2.4	3.0	1.7
Belgium	2004	15-64	13.0				
Bulgaria	2005	18-60	4.4	1.1	1.4	1.3	0.8
Cyprus	2006	15-64	6.6	1.1	0.8	1.6	0.9
Czech Republic	2004	18-64	20.6	1.1	2.5	7.1	1.4
Denmark	2005	16-64	36.5	4.0	6.9	1.8	1.7
Finland	2004	15-64	12.9	1.2	1.9	1.4	0.7
France	2005	15-64	30.6	2.6	1.4	2.0	1.5
Germany	2003	18-59	24.5	3.2	3.4	2.4	2.5
Greece	2004	15-64	8.9	0.7	0.1	0.4	0.3
Hungary	2003	18-54	9.8	1.0	2.5	3.1	1.7
Ireland	2002-03	15-64	17.4	3.0	3.0	3.7	2.9
Italy	2005	15-64	29.3	6.6	2.4	2.5	3.1
Latvia	2003	15-64	10.6	1.2	2.6	2.4	1.1
Lithuania	2004	15-64	7.6	0.4	1.1	1.0	0.3
Luxembourg	1998	15-64	12.9	0.2		1.2	1.4
Malta	2001	18-64	3.5	0.4	0.4	0.7	0.5
Netherlands	**2005**	**15-64**	**22.6**	**3.4**	**2.1**	**4.3**	**1.4**
Poland	2002	16-64	7.7	0.8	1.9	0.7	1.2
Portugal	2001	15-64	7.6	0.9	0.5	0.7	0.4
Romania	2004	15-64	1.7	0.4	0.2	0.3	0.2
Slovakia	2004	15-64	15.6	1.1	1.5	4.0	
Spain	2005-06	15-64	28.6	7.0	3.4	4.4	
Sweden	2006	16-64	12.0				
United Kingdom	2004		29.6	6.5	11.7	6.7	5.9

[a] Cocaine in any form.

[b] For Spain: ecstasy and other designer drugs.

reported by Malta, Bulgaria and Greece (ranging from 0.8% to 1.7%), and the highest by Italy, Spain, the Czech Republic, the United Kingdom and France (ranging from 11.2% to 8.6%) (data not shown in table).

Ecstasy use is high in the Netherlands; use of LSD, amphetamine and cocaine is less common

Together with the United Kingdom, the Czech Republic and Spain, the Netherlands belongs to the group of countries where ecstasy use is most widespread (*table 5.2*). In the Netherlands 4.3% of adults have at some stage tried ecstasy, while the EU-27 average is an estimated 3%. Ecstasy use in EU countries ranges from 0.3% to 7.2%. Again the prevalence of previous year use is much lower with rates ranging from 0.2% to 3.5% of adults with the general picture being the same as for lifetime use. In many European countries ecstasy is, after cannabis, the most popular illicit drug (EMCDDA, 2007a; EMCDDA, 2007b).

While ecstasy use is relatively high in the Netherlands, the use of amphetamines, LSD and cocaine is less common. About 2.1% of Dutch adults have used amphetamines at least once in their life which is below the EU average of nearly 3.5%. Lifetime prevalence of amphetamine use ranges from 0.1% to 3.6% of adults in the majority of EU countries. However in Denmark (6.9%) and the United Kingdom (11.5%) lifetime prevalence is remarkably higher (*table 5.2*). This reflects a higher past use, whereas current use is more in line with other countries. In most countries use of LSD is even less common than amphetamine use with two thirds of countries, including the Netherlands (1.4%), reporting lifetime prevalence rates between 0.4% and 1.7%. Also for cocaine, the percentage of Dutch adults who have at some stage used it (3.4%) is slightly below the European average (4%). National figures range from 0.2% to 7.3%. Spain, Italy and the United Kingdom report values of more than 5% (*table 5.2*). These countries also have the highest figures for previous year use (EMCDDA, 2007a; EMCDDA, 2007b).

Use of cannabis, amphetamine and ecstasy stabilizing, cocaine use increasing in Europe

Cannabis use is levelling off, after a marked increase during the 1990s in almost all EU countries, particularly among young people. The increase has continued until recently in many countries. Now in some countries (including the Netherlands) the upward trend is levelling off, albeit at historically high levels. There are also indications of stabilization or even decrease in amphetamine and ecstasy use in some countries. Amphetamine use has declined clearly among young adults in the United Kingdom (England and Wales) since 1996, and to a lesser extent in Denmark and the Czech Republic. In other countries the prevalence levels seem stable or with small increases. Several countries have also reported some stabilization or even moderate decreases in ecstasy use, especially among the younger age groups. This downward trend follows increases in use during the 1990s. On the contrary, the number of young adults (15-34 years) that have used cocaine in the last year is increasing across Europe, although there may be some levelling off in the Member States with the highest prevalence levels (Spain and the United Kingdom). Data from Spain, Denmark, and the United Kingdom suggest that cocaine is replacing amphetamines and ecstasy as the most popular stimulant drug. In the Netherlands the picture is slightly different: among younger adults cocaine and amphetamine use are decreasing whereas ecstasy use is still increasing (EMCDDA, 2007a; EMCDDA, 2007b).

5.2.6 Consumption/availability of fruit and vegetables

In this paragraph the two indicators for consumption/availability of fruit and consumption/availability of vegetables are described in combination. Consumption/availability of fruit and vegetables reports on the amount of fruit and vegetables consumed or available per person per (kilo)gram, per year. The consumption of fruit and vegetables is a proxy for a healthy diet. Fruit and vegetables are a major dietary protective factor, for example for tobacco-related and several other cancers.

Fruit and vegetable availability in the Netherlands is slightly above EU average

In the Netherlands the fruit and vegetable availability (256 kg per person per year) is slightly above the EU average (233 kg in 2003) (WHO-HFA, 2008), but in southern European countries like Greece (423 kg), Italy (309 kg) and Portugal (297 kg), fruit and vegetables are more readily available. Inhabitants of the new Member States of Slovakia (130 kg), Poland (148 kg) and the Czech Republic (151 kg) have far less access to healthy fruit and greenstuffs. The availability in the northern European countries of Norway, Sweden and Finland is also below the EU-27 average. There is a geographical pattern with higher availability in the south and lower availability in the north of Europe (WHO-HFA, 2008; Trichopoulou & Naska, 2003; Naska et al., 2006). The WHO-HFA data presented in this paragraph are based on production and trade data (see *appendix A5.2.6*).

Availability of fruit and vegetable has been rising in the EU

Over the past decades, the availability of fruit and vegetables in EU countries has been rising and the historical differences between north and south have been decreasing (Naska et al., 2006). The Netherlands has had a stronger rise than most other countries. Up to the beginning of the 1990s availability was below the EU-27 average. In the beginning of

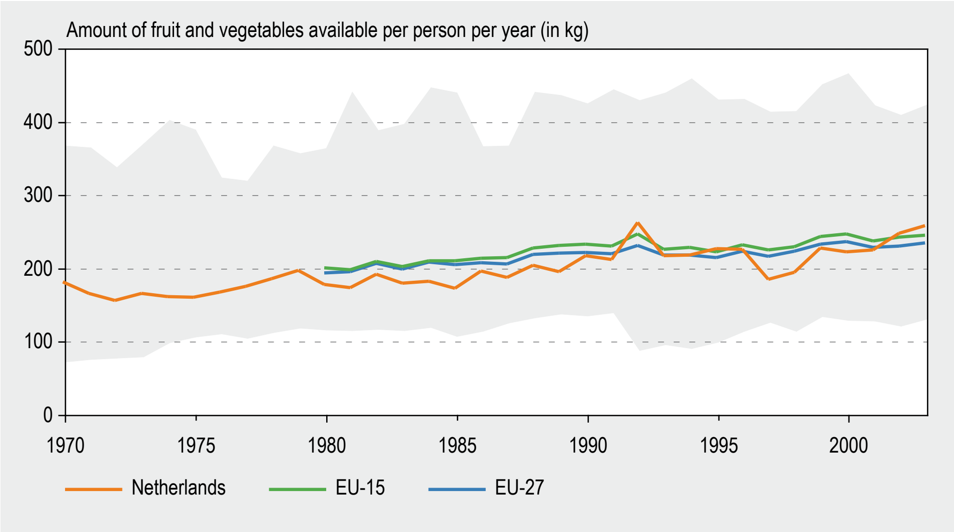


Figure 5.3: Trend in availability of fruit and vegetables, for the Netherlands and EU averages, 1970-2003. Range for EU-27 in grey (WHO-HFA, 2008).

the 1990s it reached the EU-27 average, after which it dipped in the middle of the 1990s, to rise again above the EU-27 average in the beginning of this century (*figure 5.3*). New Member States have only been monitored since 1980. The average availability of fruit and vegetables was gradually decreasing in these countries during the 1980s and the beginning of the 1990s, but had started to rise again by the mid-1990s (WHO-HFA, 2008).

5.2.7 Breastfeeding

The ECHI shortlist suggests using the rates of breastfeeding at 48 hours and at 3 and 6 months after birth as indicators. WHO recommends that infants be exclusively breastfed for the first 6 months of their life and thereafter still be breastfed in combination with appropriate complementary foods for some considerable time. A lack of breastfeeding is associated with increased health risks in childhood, while breastfeeding is associated with having a protective effect on the mother against certain diseases, such as diabetes type 2 and pre-menopausal breast and ovarian cancer.

In the Netherlands breastfeeding rates are relatively low

Compared with other European countries not many women in the Netherlands breastfeed their children. In 2006 only 28.4% of the infants in the Netherlands were at least partially breastfed at the age of 6 months, in comparison with, for example, the highest percentage of 72% that was recorded for the infants of the same age in Sweden in 2005 (WHO-HFA, 2007). Considering the scanty data available in the WHO-HFA database (see *appendix A5.2.7*) and data reported by countries participating in EU-funded projects (Cattaneo et al., 2005) it seems that breastfeeding rates (initiation, exclusivity as well as duration) are relatively high in Scandinavian countries, lower in Belgium, France, Greece, Ireland and the United Kingdom, and in between in all other countries (Cattaneo, 2008). In any event, the rates in the Netherlands as well as in other EU countries fall short of WHO recommendations.

Mothers who decide to breastfeed in the Netherlands are generally higher educated and non-smokers (Lanting et al., 2005). This is also the case in other European countries (Cattaneo, 2008). It was also suggested that differences in mean duration of breastfeeding between European countries are attributable to the length of paid pregnancy leave for working mothers. For instance, in the Nordic European countries, where paid pregnancy leave lasts up to one year, higher breastfeeding rates are found (Lanting et al., 2005).

The percentage of breastfed infants is higher in 2007 than a decade ago

In the Netherlands, the percentage of infants that were at least partially breastfed at the age of 6 months increased slightly since the mid-1990s. The scanty data available from other EU countries, often at sub-national level, also seem to indicate an upward trend in the same period, especially in Estonia and the Czech Republic (*figure 5.4*) (Cattaneo, 2008; WHO-HFA, 2007). The percentage of Dutch infants that were exclusively breastfed at the age of 6 months also increased; from 6% in 1996 to 20% in 2005. Furthermore, in 2007, 81% of Dutch infants were breastfed immediately after their birth. This percentage is higher than the 70% that was recorded in 1996 (Lanting & Van Wouwe, 2007).

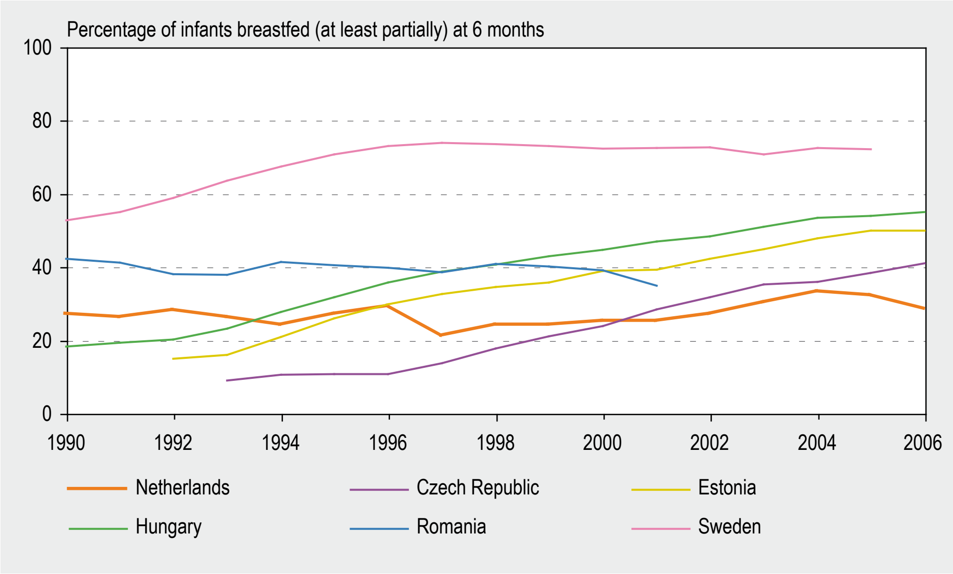


Figure 5.4: Trends in percentage of infants who were breastfed (at least partially) at 6 months of age in selected EU countries, 1990-2006 (WHO-HFA, 2008).

5.2.8 Physical activity

Physical activity refers to the concept of 'health enhancing physical activity', covering a whole range of physical activities including leisure time physical activities, exercises, sports, occupational activities, commuting and daily tasks. Intensity as well as frequency of the effort is taken into account. Cut-off points are used to assess whether physical activity is sufficient. Physical activity has a substantial impact on health status. Lack of physical activity is associated with the development of non-communicable diseases, such as cardiovascular disease, some cancers, obesity, diabetes and osteoporosis.

Sufficient physical activity highest in the Netherlands
Although less than half of the Dutch people are sufficiently physically active (44%), the Netherlands is still rated highest of all the 15 EU Member States in which this was analyzed (*figure 5.5*) (Sjöström et al., 2006). Next in line are the Germans (40%) and the Greeks (37%). On the other hand Sweden (23%), France (24%) and Belgium (25%) have the lowest percentage of people taking enough physical exercise. The EU-15 average is 29%. Notably, countries with a good infrastructure for active transport (such as bike paths), including the Netherlands, Germany and Denmark, have a relatively high proportion of sufficiently active people. Southern European countries have a relatively low proportion. For this comparison Eurobarometer data on physical activity were recalculated to fit the cut-off points for sufficient activity. The cut-off points were chosen according to international guidelines: 5x30 (of moderate) or 3x20 (of vigorous) on top of a basal 60 minutes of moderate activity per day (see *appendix A5.2.8*). In the EUROTHINE study, prevalence of a sedentary lifestyle was found to be lowest in the highest educational group and

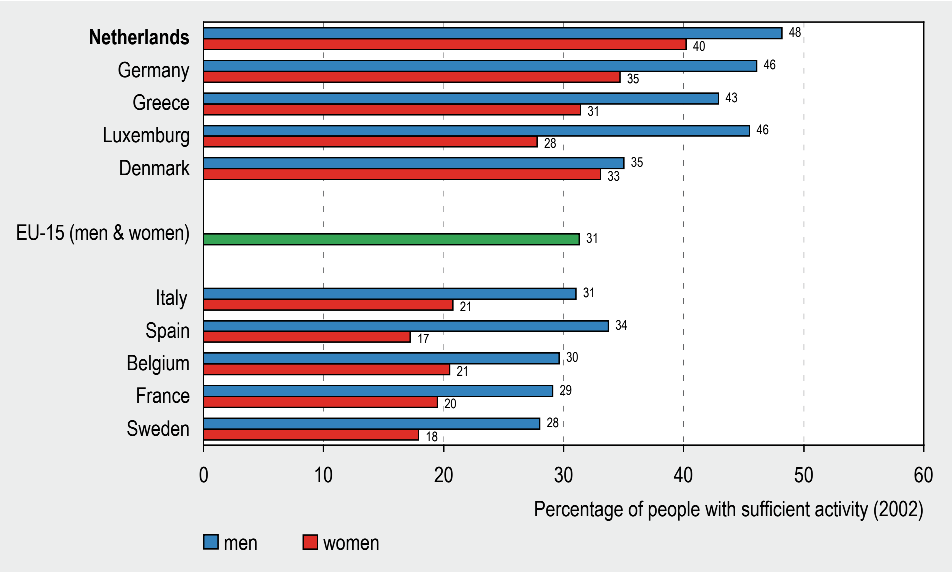


Figure 5.5: EU-15 countries with the highest and lowest percentage of people who are sufficiently physically active in 2002 (Sjöström et al., 2006).

highest in the lowest educational group in 14 EU countries including the Netherlands (Demarest et al., 2007).

Trends in physical activity are unclear because of a lack of comparable data
Since data on physical activity are limited and because international data collected at different moments in time are not comparable, a reliable comparison of time trends of physical activity in EU countries is not possible (see also *appendix A5.2.8*).

5.3 Living and working conditions

5.3.1 Work-related health risks / job quality

Work-related health risks is defined as the number of employees who think that their health or safety is at risk because of work, and the number of employees who think their health is affected by work and working conditions. Working place conditions are important for health.

Relatively low number of employees in the Netherlands consider work to be unhealthy
After Germany and the United Kingdom, the percentage of employees who consider work a risk factor for health or influencing their health is lowest in the Netherlands (*figure 5.6* and *figure 5.7*). Latvia, Poland and Greece have a relatively high proportion of employees considering work to be risky for health or affecting their health. In general, employees from new EU Member States consider their work to be a risk for health more often than employees from EU-15 countries. Taking into account specific self-reported health

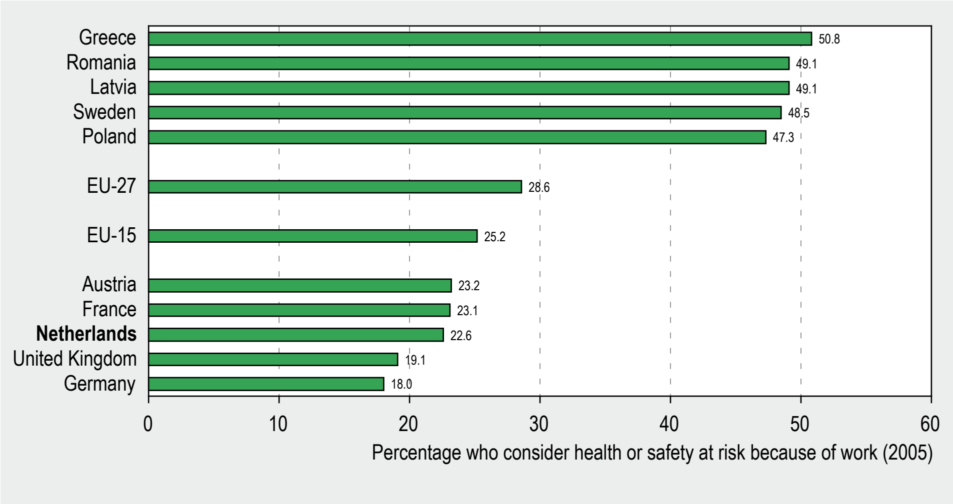


Figure 5.6: EU-27 countries with the highest and lowest percentage of employees considering work to be a risk for health and safety in 2005 (EUROFOUND, 2007).

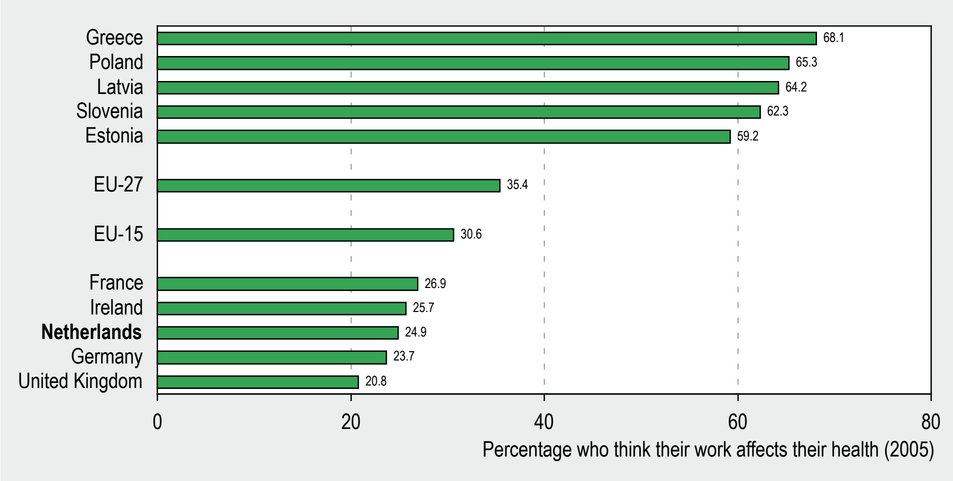


Figure 5.7: EU-27 countries with the highest and lowest percentage of employees who think their work affects their health in 2005 (EUROFOUND, 2007).

complaints from work, remarkable differences exist between the physical and psychological complaints in some countries. In Poland, Slovenia and Slovakia, for example, a high percentage of workers experience physical complaints, but a low percentage experience psychological complaints. The opposite is true for Sweden (EUROFOUND, 2007).

Declining proportion of European workers considers health at risk

A declining proportion of European workers consider their health and safety at risk because of their work. However, the new Member States report significantly higher levels than the EU-15 countries (EUROFOUND, 2007) (see also *appendix A5.3.1*).

5.3.2 Social support

Social support is defined as the perceived availability of people whom the individual trusts and who make one feel cared for and valued as a person. Social support is measured by means of the Oslo-3 Social Support Scale (OSS-3). Social support is a protective factor in times of stress. A low level of social support is associated with ill-health (e.g. depression and somatic diseases).

The level of social support is high in the Netherlands compared to other EU countries
In the Netherlands the level of social support is high in comparison with most EU-15 countries. This emerges from a comparison of mean scores on the 3-item Oslo Social Support Scale (OSS-3) (MINDFUL, 2008) (*figure 5.8*). Although differences in Social Support Scales between countries could be caused by translation bias, the variations between countries could also reflect real differences in social support. This is underpinned by the fact that within a country a higher percentage of people experiencing a high level of social support tends to correspond with a low percentage of people with psychological distress and vice versa (EORG, 2003).

No trend data for social support available
Since data on social support are limited and not regularly reported, no trends in time are available (see *appendix A5.3.2*).

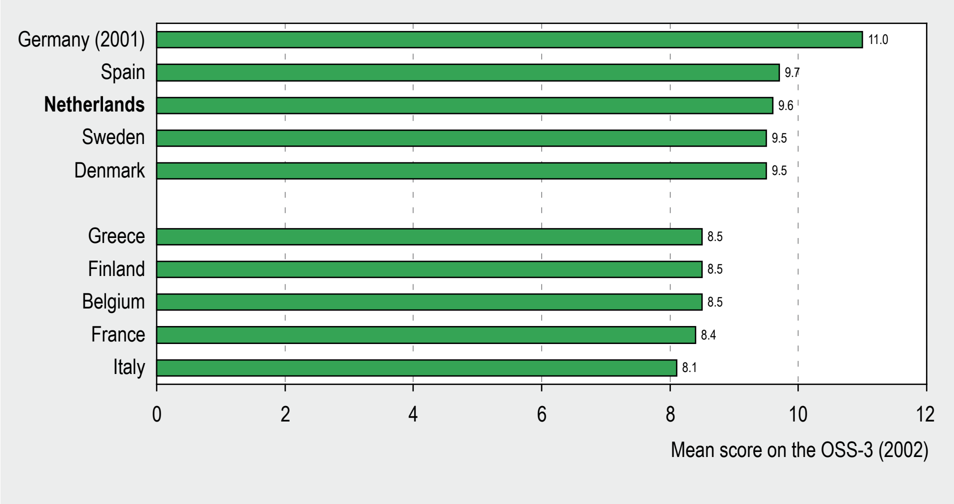


Figure 5.8: EU-15 countries with the highest and lowest mean scores on the 3-item Oslo Social Support Scale (OSS-3) in 2002 (MINDFUL, 2008).

5.3.3 Particulate matter exposure

Annual average exposure to outdoor air particulate matter (PM_{10}). Particulate matter (PM) is an air pollutant consisting of a mixture of solid and liquid particles suspended in the air. PM_{10} refers to particulates with an aerodynamic diameter less than 10 micrometers (µm). In general, smaller particles (PM_{10} and smaller) are more important for health effects than larger particles since they penetrate deeper into the lungs.

The Netherlands occupies a mid position regarding particulate matter in the air
In 2004 the Netherlands occupied a mid position within the EU regarding average PM_{10} levels in the outdoor air (*figure 5.9*; data from www.enhis.org) (Vocaturo et al., 2008a). Country average PM_{10} exposure levels varied from 13-14 µg/m³ (Finland, Ireland) to 53-56 µg/m³ (Bulgaria, Romania). A wide (three-fold) variation in the level of exposure to PM_{10} was observed within some countries.

Most (89%) people in European cities where PM_{10} is monitored are exposed to PM_{10} levels exceeding the WHO Air Quality Guideline level (20 µg/m³), giving rise to a substantial risk to health, especially children's health. For 14% of people, the EU limit value of 40 µg/m³ is exceeded (Vocaturo et al., 2008a).

WHO-HFA also presents PM_{10} levels per country, but these refer to the levels in capital cities for the year 2003 (WHO-HFA, 2008). The order of countries based on WHO-HFA data corresponds largely with the order of countries presented by ENHIS (European Environment and Health Information System). However, the Netherlands (capital city Amsterdam), with a concentration of 36.9 µg/m³, does worse than the EU-27 average of 30.5 µg/m³. The biggest difference between the scores given by the two sources is for Latvia, that scores relatively low (14.3 µg/m³) on a national level, but scores worst on the capital level (Riga), with 58 µg/m³ (WHO-HFA, 2008). See also *appendix A5.3.3*.

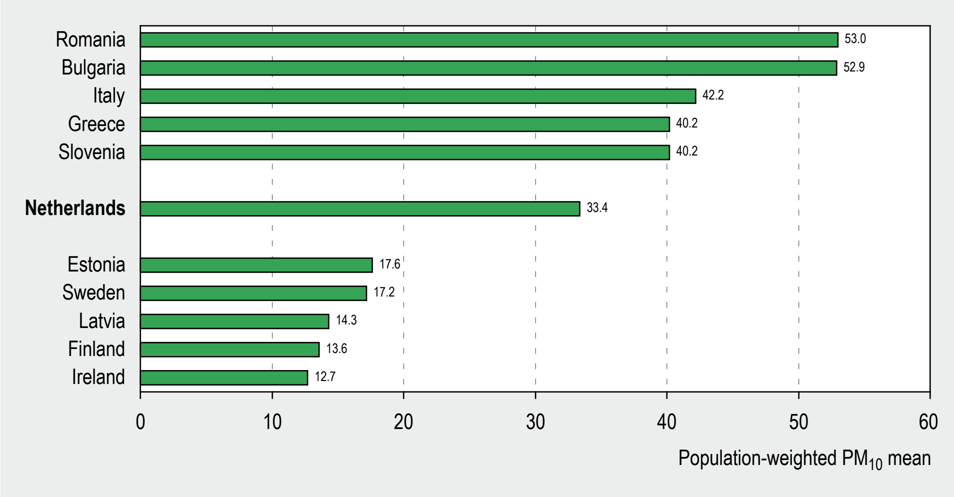


Figure 5.9: EU-27 countries with the highest and lowest population-weighted PM_{10} means in outdoor air (µg/m³) in 2004. Data from www.enhis.org (Vocaturo et al., 2008a).

Country average level of PM_{10} has not changed in the last few years
There are no long-term time trends available for PM_{10} levels, but the country average level of this type of air pollution has not changed substantially in the last few years in most of the WHO European Region (Vocaturo et al., 2008a). In the Netherlands the average annual PM_{10} concentrations have decreased between 1994 and 2006 (RIVM, 2007a).

5.4 Summary

The Netherlands is among the countries with the most favourable estimates of physical activity and overweight, although the latter is increasing fast. This is also the case in many other countries and is clearly recognized as a problem. Alcohol use in adults is also below average, whereas consumption of vegetables and fruit (although increasing), and cannabis use are average in the Netherlands.

At the other end of the range, the Dutch position is poor with respect to daily smokers, ecstasy use and the practice of breastfeeding. Furthermore, the trends in smoking seem to be less favourable than in other EU countries. Several EU countries have shown large decreases in smoking. The most spectacular decrease in the total percentage of smokers occurred in Sweden, from 32% of the population in 1980 to 16% in 2005. Sweden also has the highest breastfeeding rates, which remained high during the last decade.

An overview of the indicators for determinants of health is given in *table 5.3*. The column 'NL compared to EU' shows how the Dutch situation compares to the situation in the EU. The column 'NL trend' shows the direction of the Dutch trend.

- Green:
  - NL clearly better than EU average.
  - NL trend: improving.
- Red:
  - NL clearly worse than EU average.
  - NL trend: worsening.
- Amber:
  - NL around EU average.
  - NL trend: about stable.
- Blank cell: an assessment can not be made based on the data in this report.

This table presents a very concise summary of the data given in this report. For more information, please consult the corresponding text sections.

Table 5.3: Summary of determinants of health.

			NL compared to EU	NL trend
5.1	**Personal and biological factors**			
5.1.1	Body mass index	overweight		
		obesity		
5.1.2	Blood pressure			
5.2	**Health behaviours**			
5.2.1	Regular smokers	men		
		women		
5.2.2	Pregnant women smoking			
5.2.3	Total alcohol consumption			
5.2.4	Hazardous alcohol consumption			
5.2.5	Use of illicit drugs	cannabis		
		ecstasy		
		LSD		
		cocaine		
		amphetamine		
5.2.6	Availability of fruit and vegetables			
5.2.7	Breastfeeding			
5.2.8	Physical activity			
5.3	**Living and working conditions**			
5.3.1	Work-related health risks			
5.3.2	Social support			
5.3.3	Particulate matter exposure			

6 PREVENTION AND CARE

Many activities are undertaken to promote our health and prevent disease. This chapter presents comparisons on a wide range of such activities, including vaccination and screening, health care resources and utilization, health care quality and expenditures on health.

6.1 Prevention, health protection and health promotion

6.1.1 Vaccination coverage in children

Percentage of infants reaching their first and second birthday in the given calendar year who have been fully vaccinated (according to national immunization schemes) against selected important diseases such as: diphtheria, tetanus, pertussis (whooping cough), measles (2nd birthday), poliomyelitis, invasive disease due to *Haemophilius influenzae* type b (Hib), hepatitis B, mumps (2nd birthday) and rubella (2nd birthday). Vaccination is one of the most cost-effective health interventions available.

High vaccination coverage in the Netherlands
Vaccination coverage is high in the Netherlands. In 2005, 96.3% of Dutch infants were vaccinated against measles and 97.8% against diphtheria, tetanus, pertussis, Hib and poliomyelitis. Furthermore, about 96% of children were vaccinated against rubella and mumps (data for 2004 and 2002). The percentages of vaccinated infants in the Netherlands have been higher than the EU-27 and EU-15 average in the past two decades and they are still well above these averages (*figure 6.1*, poliomyelitis, mumps and rubella not shown in figure) (WHO-HFA, 2008). Vaccination of infants against hepatitis B is not universal in the Netherlands. Although Dutch infants are vaccinated against pneumococcal (introduced 2006) and meningococcal infection (introduced 2002), these vaccinations are not universally introduced in all EU countries (Isken & Burgmeijer, 2005; Amato-Gauci & Ammon, 2007). See also *appendix A6.1.1*.

In general (except for Hib), the EU-27 average is higher than the EU-15 average. For all vaccinations (except poliomyelitis in France) the EU-15 countries Austria, France, Greece, United Kingdom and Ireland belong to the countries with the lowest vaccination coverage. Several new Member States consistently have a high vaccination coverage (WHO-HFA, 2008). It can be concluded that the coverage of the basic childhood immunization programmes is generally good in the EU. The main problem is to achieve better coverage, also in the hard-to-reach groups with low vaccine uptake as these have frequently been implicated in outbreaks (Amato-Gauci & Ammon, 2007). In the Netherlands vaccination is on a voluntary basis, whereas in several EU countries it is mandatory.

Percentage of vaccinated infants is still increasing
The percentage of vaccinated infants is still increasing in the Netherlands, as are the averages for the EU-27 and EU-15 (*figure 6.1*) (WHO-HFA, 2008). Although, in general

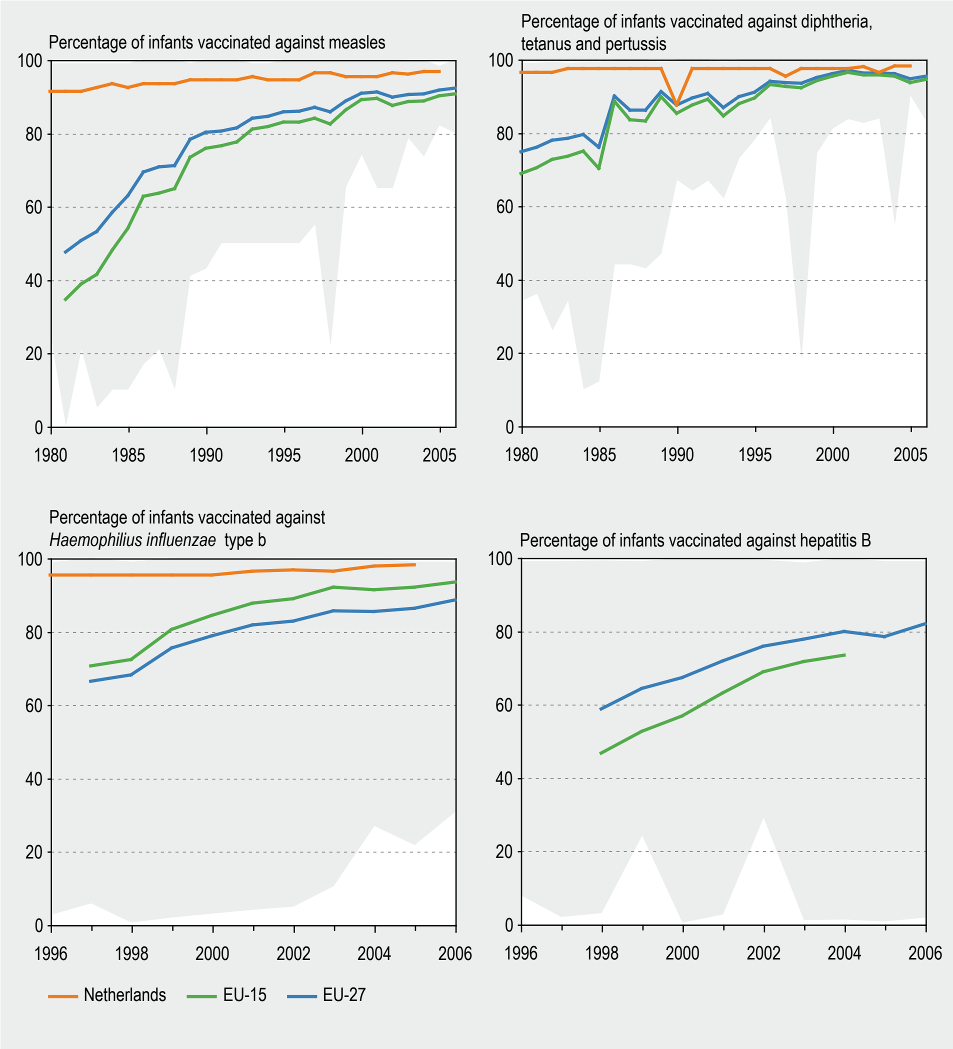


Figure 6.1: Percentage of infants fully vaccinated against measles, diphtheria (including tetanus and pertussis[6]), Hib and hepatitis B[7], for the Netherlands and EU averages. Range for EU-27 in grey (WHO-HFA, 2008).

terms, vaccination coverage in the EU is increasing, some western European countries have to cope with a decrease in previously reached high levels. For example, in England coverage of vaccination against measles, mumps and rubella has declined significantly since 2000. This can have significant consequences for the re-emergence of these diseases and possible outbreaks (Amato-Gauci & Ammon, 2007).

[6] Vaccins against diphtheria, pertussis and tetanus are combined in a cocktail, therefore trend figures of the percentages of infants vaccinated against diphtheria, pertussis and tetanus are (almost) the same and only one trend figure for the three is shown.

[7] No data available for the Netherlands in WHO-HFA database.

The number of countries with universal hepatitis B immunization of neonates and infants has increased over the last decade, following the 1992 WHO recommendation to introduce universal immunization against hepatitis B. However, the Netherlands, Finland, Ireland, Sweden, the United Kingdom, and Denmark did not follow this recommendation because they have very low endemicity and consider hepatitis B to be a limited public health problem that does not justify the additional expense. They provide the hepatitis B vaccine only to well-defined risk groups, in addition to screening pregnant women to identify and immunize neonates exposed to hepatitis B infection (WHO, 2008a). In the Netherlands, infants with at least one parent from a country with a prevalence above 2% are defined as a risk group (De Wit & Busch, 2006; Health Council, 2001). The expansion of the vaccination programmes has probably not yet come to an end. New vaccines have recently been, or soon will be, licensed (e.g. against varicella, human papilloma virus and rotavirus). This raises the question of whether they should be included in vaccination programmes (Amato-Gauci & Ammon, 2007). In all cases it is important to assess the balance between beneficial and harmful effects (effectiveness and safety).

As a result of the effective childhood vaccination programmes, most of the childhood diseases that are now preventable by vaccination have been decreasing in number over the past few years. Outbreaks still occur in population subgroups where vaccination uptake remains poor (Amato-Gauci & Ammon, 2007). The WHO European region was declared polio free in June 2002. The WHO also has the target of eliminating measles and rubella in Europe by 2010 (WHO-Europe, 2005).

6.1.2 Influenza vaccination rate in the elderly

The influenza vaccination rate in the elderly is the proportion of people aged 65 and over who have been immunized against influenza during the last 12 months. Elderly have an increased risk of complications associated with influenza which can result in hospitalization and mortality.

The Dutch influenza vaccination rate in the elderly is highest in Europe

A large percentage of Dutch elderly are vaccinated against influenza each year. In 2005, 75% of people aged 65 and over in the Netherlands and the United Kingdom were vaccinated against influenza. These countries have the highest rates in Europe and are the only countries that have met the WHO target of 75% for those aged 65 years and over by 2010. There are large variations in vaccination coverage in Europe. In Slovakia (26%), Hungary (34%) and Portugal (42%) relatively few elderly get their jab each year (*figure 6.2*) (OECD, 2008d). These variations could be caused by differences in financial incentives for both physicians (extra income) as well as patients (vaccination free of charge) and the use of personal invitations (Kroneman et al., 2006). See also *appendix A6.1.2*.

Increase in vaccination rate levelling off in most countries including the Netherlands

Since 2002 the vaccination rate in the Netherlands has reached a plateau of approximately 75%. A plateau seems to have also been reached in other countries (*figure 6.2*). The Netherlands has seen a large increase since the start of a national vaccination campaign

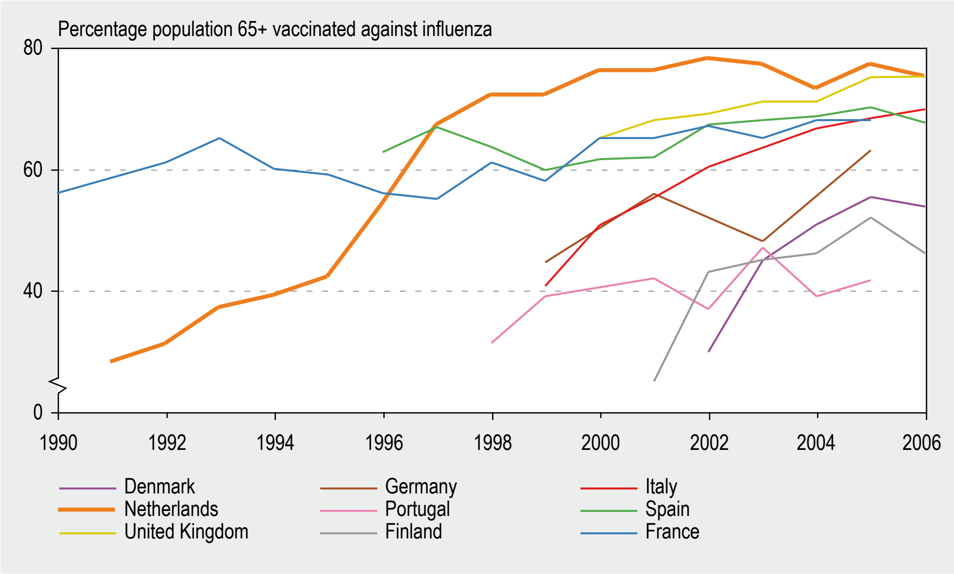


Figure 6.2: Trend in influenza vaccination rate (%) among elderly in selected EU countries (OECD, 2008d).

in 1992 (OECD, 2008d). In the United Kingdom vaccine uptake has also increased since the start of an immunization programme for people aged 65 years or over in 2000, but also in the United Kingdom it started to level off in 2006 (Salisbury et al., 2006; Begum & Pebody, 2008). Since 2008, people aged 60-64 are also included in the Dutch influenza vaccination programme.

6.1.3 Breast cancer screening

The indicator is defined as the percentage of women (aged 50-69) that have undergone a breast cancer screening test within the past two years, measured as the coverage rate of mammography testing. Women are asked during a population survey if they have had a breast cancer screening within the past two years. This population screening aims to prevent mortality from breast cancer by detecting the disease in an early stage. Breast cancer screening programmes based on mammography and organized at the population level enable an effective decrease in breast cancer mortality by 30% among women aged 50 to 69 years. One of the requisites however is that at least 70% of the women take part in the screening programme.

Relatively many women in the Netherlands are screened for breast cancer
The Netherlands has a high attendance rate for breast cancer screening (*figure 6.3*). Every two years, Dutch women aged 50-75 are invited for screening. The national breast cancer screening programme has been gradually introduced in the Netherlands since 1990. All EU Member States, except Bulgaria, currently have a national breast cancer screening programme, either in place, piloted and planned or with the roll-out ongoing (Von Karsa et al., 2008). Not all programmes are population-based (yet). There is broad consensus

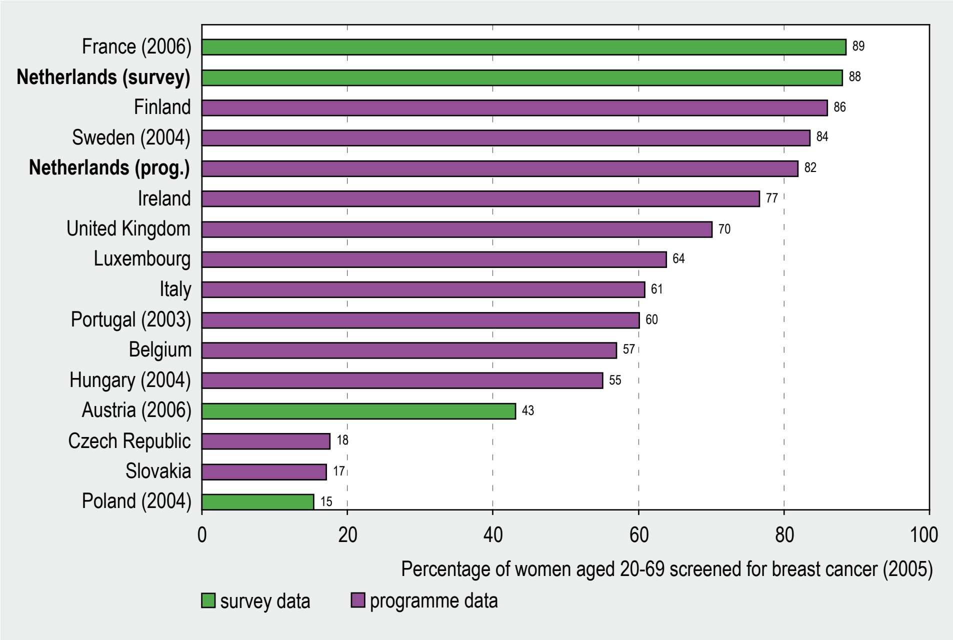


Figure 6.3: Percentage of women aged 50-69 who have been screened for breast cancer with a mammography within the past two years (determined in 2005). Programme and survey data combined for all EU countries available in the OECD Health database (OECD, 2008d).

about the screening interval. In all countries, the screening interval is two years, except in the United Kingdom and Malta, where the interval is three years. According to OECD Health Data, presenting data from the Dutch HIS (POLS), 88% of women in the target group have had at least one mammography during the last two years. The National Evaluation Team for Breast Cancer Screening (NETB) reports an attendance rate of 82% for Dutch women (OECD, 2008d) (see *appendix A6.1.3*).

In France, Finland and Sweden too, more than 80% of the invited women have had a mammography within the last two years. For breast cancer screening, the EU has set the desired rate of attendance at 75% or higher (Perry et al., 2008). Some countries, including the Netherlands, do indeed meet this standard (*figure 6.3*). Eastern European countries represented in OECD, have significantly lower attendance rates: less than 20% of the women in Poland, Slovakia and the Czech Republic, has had a mammography during the past two years on a regular basis (OECD, 2008d). In these countries, breast cancer screening is not population-based. Non-population-based programmes do not identify and personally invite all eligible women in the target population. This may lead to over-use of screening by a part of the target population accustomed to consuming health resources, and under-use by many women who would be even more likely to benefit from attending screening. However, the Czech Republic and Poland are currently converting their breast cancer screening into population-based programmes (Von Karsa et al., 2008).

Different approaches to breast cancer screening in the EU
Dutch women aged between 50-75 are invited to have mammography screening in specialized research centres once every two years. Some countries screen the population in younger age groups than the Netherlands does. For example, some areas of Sweden screen from the age of 40 years (OECD, 2008d). In Hungary, women of 45 to 65 years are screened (OECD, 2008d). The Health Council of the Netherlands has indicated that screening women under the age of 50 years is a controversial subject, because evidence for a beneficial effect on the mortality rate is still not convincing (Ten Have et al., 2006). The Cancer Screening Evaluation Unit of the Institute of Cancer Research in the United Kingdom coordinates a multicentre trial to evaluate the effect of annual mammographic screening from age 40 on breast cancer mortality. The Dutch Health Council advises waiting for the results of this British research before announcing any decisions on lowering the age for screening. The Netherlands is the only country that screens up to the age of 75. Only France invites women up to the age of 74. The NHS Breast Screening Programme in the United Kingdom will extend the age range of women eligible for breast screening to the ages 47 to 73 over time. The current age range is 50 to 70.

6.1.4 Cervical cancer screening

This indicator is defined as the percentage of women (aged 20-64) that have undergone a cervical cancer screening test within the past three years, measured as the coverage rate of cervical smear testing. A cytological test, carried out as a cervical smear test, can detect early stages of cancer and cervical cancer itself. When abnormalities such as precancerous symptoms or very early stages of cancer are treated early, then there is a good chance that the disease can be cured.

The attendance rate for cervical cancer screening in the Netherlands is quite high
The attendance rate for cervical cancer screening in the Netherlands was nearly 70% in 2005 (OECD, 2008d). This is quite high compared to other EU countries that have data available (*figure 6.4*). Austria has the highest attendance rate. This is probably due to the fact that in Austria women are recommended to undergo cervical screening once every year (see also *appendix A6.1.4*). The United Kingdom also has a high attendance rate. Dutch women between the ages of 30 and 60 years are called up for a smear test once every five years. Nearly all EU countries screen for cervical cancer and have formulated policies for this purpose. Besides the Netherlands, six other EU Member States have rolled out population-based programmes (everyone in the target group is invited) nationwide (Denmark, Finland, Hungary, Slovenia, Sweden and the United Kingdom) (Arbyn et al., 2008). Non-population-based programmes are established nationwide in eleven other Member States (Austria, Belgium, Bulgaria, Czech Republic, France, Germany, Greece, Latvia, Lithuania, Luxembourg, and Slovakia). In other EU countries, such as Ireland, Portugal, Italy and Poland, nationwide screening programmes are being planned, piloted or rolled out (Arbyn et al., 2008).

There are clear differences between countries with respect to the number of smear tests taken during a person's lifetime. This varies from seven in Finland, Lithuania and the

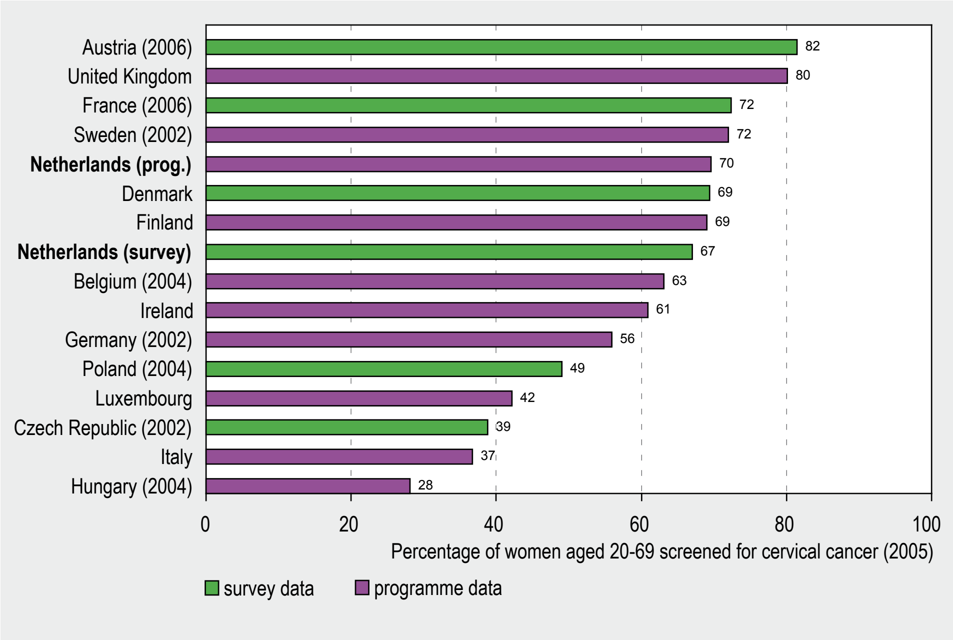


Figure 6.4: Percentage of women aged 20-69 who have been screened for cervical cancer within the past three years (determined in 2005). Programme and survey data combined for all EU countries available in the OECD Health database (OECD, 2008d).

Netherlands up to more than fifty in Luxembourg and Germany (Van der Wilk et al., 2008). The interval between the screening tests is between three and five years in most countries. The target groups vary from 15-year-olds and older in Luxembourg to 50-69 year-olds in some parts of France. In many countries the target group is between the ages of 25 and 64 years (Anttila et al., 2004).

Technological developments call for revising screening policies

Many countries are now revising their policies regarding cervical cancer screening because of current advances in new techniques, detection methods and prevention; these include thin-layer cytology, the human papillomavirus (HPV) test, the HPV home test and the HPV vaccine (Van der Wilk et al., 2008). At present there is still a lot of uncertainty regarding the effectiveness of these new methods and techniques. Some of them look very promising and are already being used in some countries. The current screening programmes will need to be frequently revised due to the introduction of new technology, even if this means breaking down the current infrastructure surrounding the screening. This could be the case, for example, if the efficiency and cost-effectiveness of the screening programmes were to decrease sharply as a result of the implementation of an HPV vaccination programme. All countries appear to be looking for ways in which they can fit the various new technologies into their policies. It appears that the Netherlands is taking the lead with respect to the infrastructure for vaccinating teenagers, trial studies in the areas of HPV screening and initiatives towards implementing a future structure for all screening programmes (Van der Wilk et al., 2008).

6.1.5 Colon cancer screening

The indicator is defined as the percentage of persons (aged 50-74) that have undergone a colorectal cancer screening test within the past two years, measured as the coverage rate of faecal occult blood testing (FOBT). Colorectal cancer is the third most frequent cancer among men and the second among women. Colorectal cancer mortality can be reduced through screening from the age of 50.

The Netherlands is cautious in offering programmatic colorectal cancer screening
Compared to other countries, the Netherlands is still quite cautious in offering colorectal cancer screening. Research studies are ongoing to determine the best strategy to implement a population-based screening programme (Gutierrez-Ibarluzea et al., 2008). Screening for colorectal cancer already takes place in a number of countries. Programmes are currently running or being established in 19 of the 27 EU Member States. Twelve of the Member States have adopted the population-based approach recommended by the Council of the European Union (Cyprus, Finland, France, Hungary, Italy, Poland, Portugal, Romania, Slovenia, Spain, Sweden and the United Kingdom). Seven Member States have established non-population-based programmes (Austria, Bulgaria, the Czech Republic, Germany, Greece, Latvia and Slovakia). Compared to the situation with breast and cervical cancer screening in 2007, colorectal cancer screening programmes were running or being established in a smaller number of the Member States, programme implementation was less advanced, and a smaller proportion of the population specified in the Council Recommendation was targeted (Von Karsa et al., 2008). The intended target group for screening varies from country to country. In France, for example, people between the ages of 50 and 74 years are screened, while in the United Kingdom and Finland the target is people between the ages of 60 and 69 years (Gutierrez-Ibarluzea et al., 2008). Bulgaria is planning to start screening at the age of 31 (Von Karsa et al., 2008). See also *appendix A6.1.5*.

The Dutch consensus group has concluded that screening with the standard FOBT either did comply with the internationally agreed screening criteria (Wilson & Jungner criteria) or will do so within the next couple of years. As far as colorectal cancer screening is concerned, it seems that the FOBT is currently the most suitable method of diagnosis, whilst waiting for further research results on immunogenic FOBTs and sigmoidoscopy testing. People in the age category of 50 to 74 years would be eligible for FOBT screening (De Visser et al., 2005; Pronk, 2005).

6.1.6 Timing of first antenatal visits among pregnant women

The percentage of women having their first antenatal visit in 1st, 2nd, and 3rd trimester or having no visits. Antenatal visit refers to a visit to a certified health care professional, e.g. general practitioner, obstetrician, midwife and public health nurse. Only visits for examinations and/or pregnancy related advice are to be included, and mere prescription of a pregnancy test or booking in a maternity unit should be excluded.
Antenatal care is the best preventive care for pregnant women to reduce morbidity and mortality in both mothers and their babies. Antenatal visits allow for the management of pregnancy, detection and treatment of complications and promotion of good health. It provides an indication of access to antenatal care.

International comparisons of first timing of antenatal visits not possible
Internationally comparable data on the first timing of antenatal visits are not yet available (see *appendix A6.1.6*). According to the 'Amsterdam Born Children and their Development' study the majority of Dutch women in Amsterdam have their first antenatal visit before the 18th week of gestation. After 24 weeks, only 2% of the pregnant women have not yet had their first visit. These percentages were considerably higher in women from Surinam (5%), Turkish (5%), Moroccan (7.1%), Antillean (8.5%) and Ghanaian (12%) ethnic groups (Alderliesten, 2006). Results from the Generation R Study in Rotterdam are similar (Generation R, 2006; Waelput & Achterberg, 2007).

6.2 Health care resources

6.2.1 Hospital beds

Total number of hospital beds per 100,000 inhabitants. Total hospital beds are all hospital beds which are regularly maintained and staffed and immediately available for the care of admitted patients. Divided into sub-categories of acute care hospital beds, psychiatric care hospital beds, long-term care beds (excluding psychiatric care beds) and other hospital beds.
Hospital beds provide information on health care capacities, i.e. on the maximum number of patients who can be treated by hospitals. The adequacy of the number of hospital beds in relation to the population is an issue that should be evaluated in a framework, along with other indicators of health care services and functioning. A decreasing trend in the number of hospital beds per inhabitant does not necessarily indicate a loss of resources but a change in the organization of health services.

Number of hospital beds in the Netherlands is below EU average
In the Netherlands, 438 hospital beds per 100,000 inhabitants were available in 2006 (Eurostat, 2008n). This is below the average number of hospital beds in the EU-27, which is 590 per 100,000. With almost 850 per 100,000, the Czech Republic and Germany had the most beds available in their hospitals. Sweden, Spain, Portugal, Cyprus and Italy all had less than 400 hospital beds per 100,000 in 2006 (Eurostat, 2008n). It should be noted

that comparing hospital beds internationally is problematic because of differences in counting methods (see *appendix A6.2.1*).

Number of beds is decreasing in the EU

In all EU countries, the number of hospital beds has been decreasing since 1985 (*figure 6.5*) and the Netherlands is not an exception. In 2005 there was an average of 590 hospital beds per 100,000 inhabitants within the EU-27, compared with 695 beds in 1997, an overall reduction of 15%. This fall in hospital bed numbers may be the result of a more efficient use of resources, with an increasing number of operations being dealt with in outpatient treatment, and shorter hospital stays following an operation (Eurostat, 2008b). However, there are some serious quality issues in analyzing reductions of hospital beds in the EU (see *appendix A6.2.1*). Looking at the statistics, a remarkable decrease in the number of beds available has taken place in Sweden, for instance. Of all EU Member States, Sweden had the highest number available in 1985 (1,461), but after a steep decline over the past twenty years, Sweden now has the lowest number of hospital beds per 100,000 (288 per 100,000 in 2006) (Eurostat, 2008n). A substantial part of this reduction however can be attributed to decisions to transfer parts of the health care system to the social sector (McKee, 2004). In Sweden, this was the case in 1992 (the Ädel Reform), when municipalities became responsible for the care of many long-term patients. This led to both the redesignation of existing facilities and a programme to build more appropriate long-term facilities outside the hospital sector (McKee, 2004).

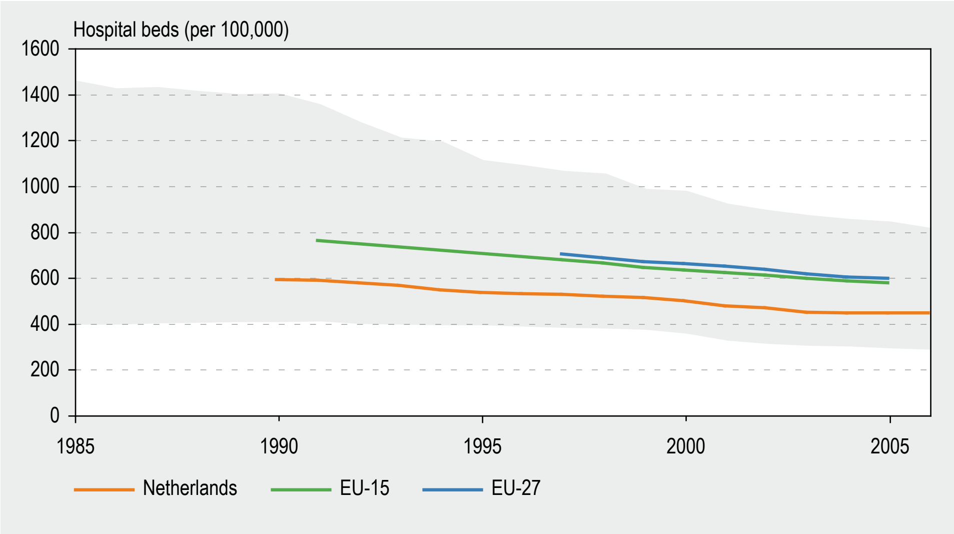


Figure 6.5: Trend in hospital beds available (per 100,000), for the Netherlands and for EU averages, 1985-2006. Range for EU-27 in grey (Eurostat, 2008n).

6.2.2 Physicians employed

Number of physicians per 100,000 population. The indicator is divided into sub-categories of: 1) practising, 2) professionally active, 3) economically active and 4) licensed to practice.
Since the ECHIM group recommends reporting on practising physicians, this sub-category is presented here. Practising physicians provide services directly to patients. Practising physicians' tasks include: conducting medical examination and making diagnosis, prescribing medication and giving treatment for diagnosed illnesses, disorders or injuries, giving specialized medical or surgical treatment for particular types of illnesses, disorders or injuries, giving advice on and applying preventive medicine methods and treatments.

The Netherlands has more practising physicians than average in the EU-27
The number of practising physicians in the Netherlands is 371 per 100,000 population (2006), which is above the EU-27 average of 315 (WHO-HFA, 2008). Greece and Belgium employ a large number of physicians, between 400 and 500 per 100,000. Romania and Poland count less than 200 physicians per 100,000. Historically, the United Kingdom also has a low number - a little over 200 -, but the country lacks data from the past five years. It has to be noted that registration of physicians differs between countries. The Dutch number will probably be overestimated whereas the numbers for Poland and Romania are subject to underestimation (see *appendix A6.2.2*).

Number of physicians steadily rising in all EU countries
Even more so than in most other EU countries, the number of doctors per capita has risen steadily in the Netherlands over the past decades, from 125 per 100,000 in 1970 to 371 in 2006 (*figure 6.6*).

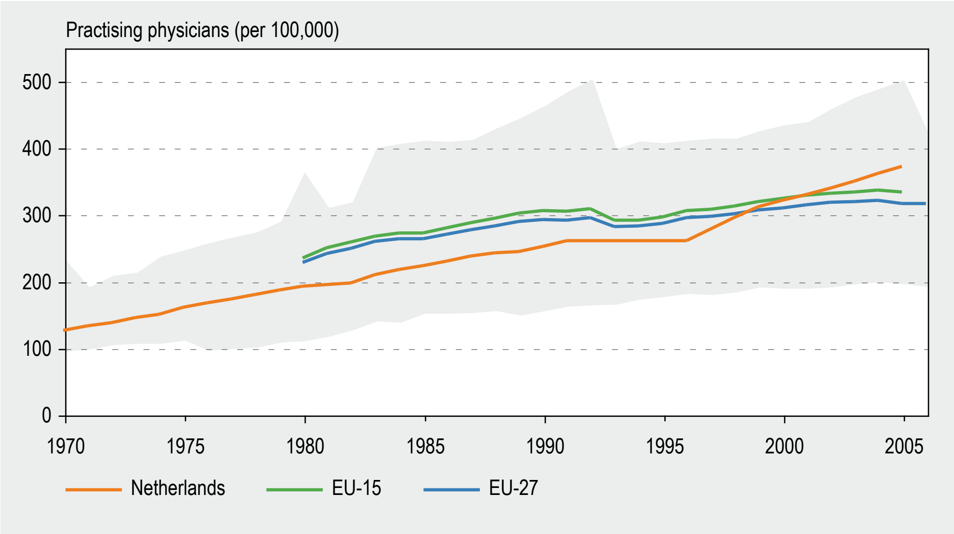


Figure 6.6: Trend in practising physicians (per 100,000), for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

In most European countries the proportion of female physicians increased during the 1990s (Dubois et al., 2006). Similarly, the percentage of women enrolling in medical schools continues to increase in most countries and, in some cases, even outnumbers men. For instance, in the Netherlands, 38% of the total physician population is female, whereas more than 60% of the physicians under 35 years old is female (Eurostat, 2008n).

6.2.3 Nurses employed

Number of nursing and caring professionals (nurses, midwives and caring personnel) per 100,000 population. Divided into sub-categories of: 1) practising, 2) professionally active, 3) economically active and 4) licensed to practice. The indicator is used in assessments of accessibility and/or efficiency in the health care sector.

High number of nurses in the Netherlands
Compared to other EU Member States, the Netherlands is rich in nursing professionals. Per 100,000 inhabitants, more than 1,400 nurses were employed in 2005 (*figure 6.7*) (WHO-HFA, 2008). The number of nurses is - by far - highest in Ireland (around 1,500 per 100,000) and the Netherlands, followed by Hungary and the Czech Republic. International comparisons of nurses employed should be done with caution, because the registration of the occupation varies within the EU (see *appendix A6.2.3*).

Nursing professionals together with related occupations, such as midwives and nurse assistants, are the largest group in any health care system and undertake tasks in all areas of the health services (Dubois et al., 2006). In contrast with practising medicine (see *paragraph 6.2.2* on physicians employed), nursing is viewed historically as a female occupation and remains female-dominated (ICN, 2002).

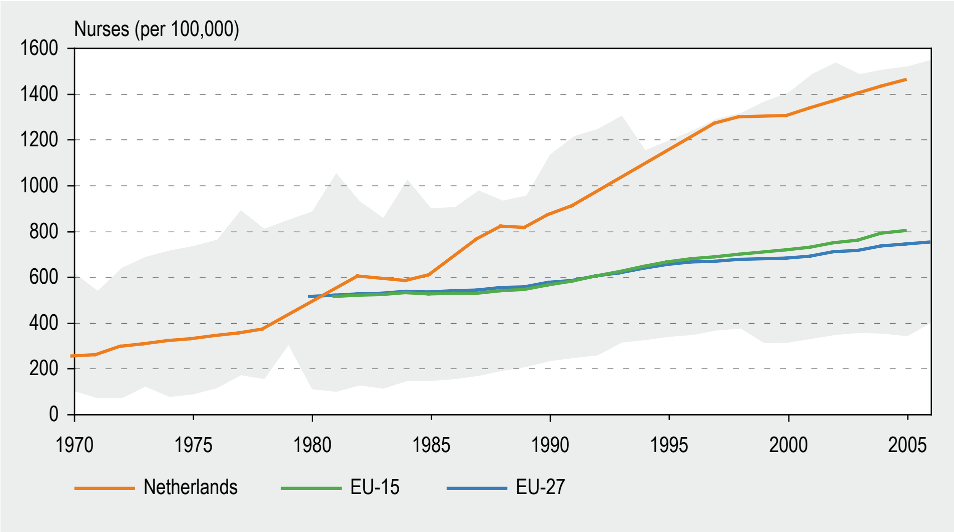


Figure 6.7: Trend in number of nurses (per 100,000), for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Steepest rise of nurses has taken place in the Netherlands
As in all other EU countries, the number of nurses in the Netherlands has increased over the past decades (*figure 6.7*). In fact, the rise has been steepest in the Netherlands, from 245 per 100,000 in 1970 to 1,452 in 2005. Within the EU-15, the working-age population is estimated to decline over the next 25 years (Dubois et al., 2006). The impact of this trend can already be seen in the nursing force. Countries such as Denmark, Sweden and France are witnessing a greying of the nursing workforce: the average age of employed nurses is 41-45 years.

6.2.4 Medical technologies: MRI units and CT scanners

The indicator medical technologies is defined as the number of computer tomography (CT) scanners and the number of magnetic resonance imaging (MRI) units per million population. These technologies are used to obtain images of internal organs and structures of the body. The availability of these equipments is an indicator for up-to-date health care services. There is no general recommendation for an optimal ratio per population. However, a high ratio per population may indicate over treatment (overprovision).

Low reported numbers of MRI units and CT scanners in the Netherlands
In the Netherlands low numbers of MRI units and CT scanners are reported. However, the numbers recorded for the Netherlands for 2005 are underestimated, because these figures represent only the number of hospitals that reported having MRI units or CT scanners. In most other countries the OECD reports on the availability of medical equipments in all health care facilities, including the hospital sector, the ambulatory sector, private facilities and diagnostic centres (see also *appendix A6.2.4*) (OECD, 2007a). According to OECD Health Data, the Netherlands has 5.6 MRI units and 5.8 CT scanners per million population. The highest figure of MRI units in Europe in 2005 was recorded for Austria (16.3), while the lowest was for Poland (2.0) (*figure 6.8*). Belgium had 31.6 CT scanners per million population which was the uppermost number of scanners (*figure 6.9*).

Most EU countries show an increased number of MRI units and CT scanners
The amount of MRI units per million population increased in most EU countries (including the Netherlands) in the past decade. In Europe, comparison between the years 2002 and 2005 indicates an increase of more than 100% in the number of MRI units per million population in Greece (from 2.3 to 13.2), Luxembourg (from 4.5 to 11.0) and Poland (from 0.9 to 2.0).

Over the past decade also a gradual increase was observed in the number of CT scanners in the Netherlands and other EU countries. Comparison of European data from the years 2002 and 2005 shows that the amount of scanners per million population increased by 36% in Poland (from 5.8 to 7.9) and by 50% in Greece (from 17.1 to 25.8). In Greece, however, it should be taken into consideration that prior to 2005 there was an incomplete recording of medical equipment in the private sector (OECD, 2007a). Recent trend data for the Netherlands are not available (see *appendix A6.2.4*).

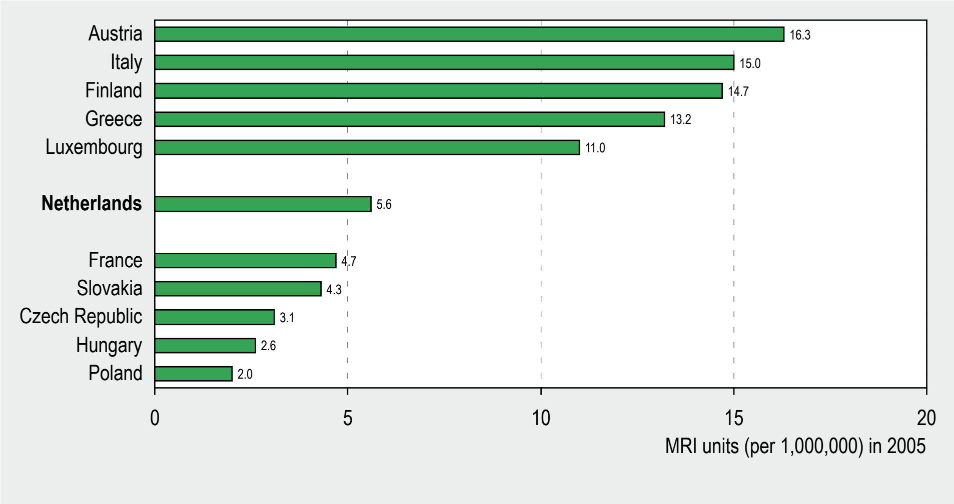


Figure 6.8: EU-19 countries with the highest and lowest number of MRI units (per million) in 2005 (OECD, 2007a).

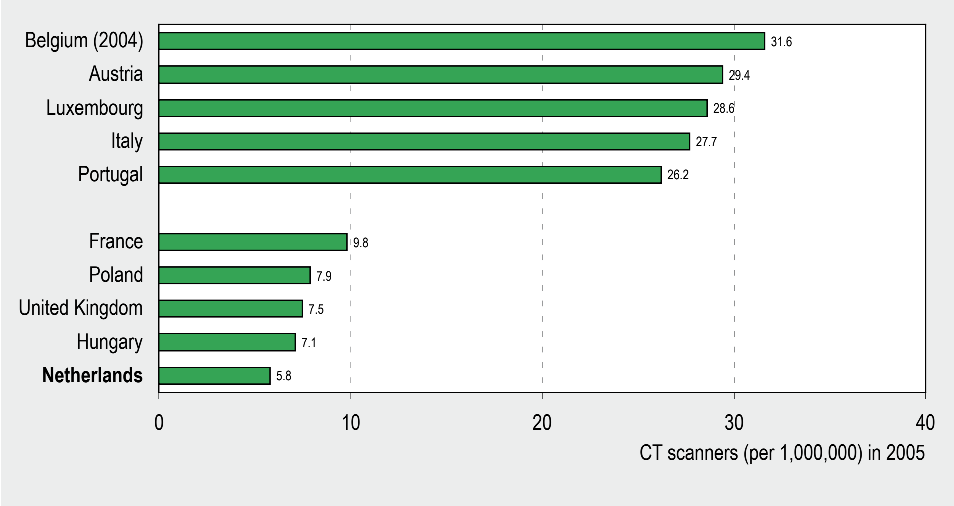


Figure 6.9: EU-19 countries with the highest and lowest number of CT scanners (per million) in 2005 (OECD, 2007a).

6.3 Health care utilization

6.3.1 Hospital in-patient discharges

The hospital in-patient discharges are the hospital in-patient discharges from all hospitals during the given calendar year, with the principal diagnosis falling into the ISHMT (International Shortlist for Hospital Morbidity Tabulation) group of diseases, expressed per 100,000 population. An in-patient is formally hospitalized for a minimum of one night; as opposed to a day-patient, who is planned to be discharged the same day. This indicator is the most commonly used measure of the utilization of hospital services. Indicators based on hospital discharges from particular diseases can be used as an estimate of the burden of these diseases on health services.

Netherlands has overall low rates of in-patient discharges

The Netherlands in general has low rates of in-patient discharges per 100,000 inhabitants compared to other EU countries which have reported these rates (*figure 6.10*). For international comparisons in these paragraphs the following main groups were selected because these conditions are contributing most to the in-patient discharge rates (OECD, 2007a): 1) diseases of the circulatory system, 2) diseases of the digestive system, 3) injuries, poisoning and other external causes, 4) cancers and 5) pregnancy and childbirth. Data from Malta and Cyprus, both very small countries, show consistent low rates of in-patient discharges. There is no country that consistently shows higher rates, although Austria shows remarkably high rates compared to other countries for injuries and other external causes and for cancers. International differences should be interpreted with caution because rates are not age-standardized (see *appendix A6.3.1*).

When comparing the last available data (usually from 2005) for discharges for diseases of the circulatory system Malta, Cyprus, the United Kingdom, Ireland, Spain and Portugal all have rates lower than the Netherlands. Lithuania, Austria, Latvia, the Czech Republic and Germany have the highest rates, with Lithuania far above the others. For diseases of the digestive system Malta and Cyprus again show the lowest rates, followed by the Netherlands. The highest rates occur in Austria and Romania, followed at some distance by Lithuania, Slovakia and Latvia. Also for injuries and other external causes, Malta and Cyprus have the lowest rates, as well as Portugal. Extremely high rates of hospitalization for injuries and other external causes occur in Austria, followed at a distance by Latvia, Lithuania, Finland and Germany. Finally for cancers, the lowest five rates occur in Malta, Portugal, Cyprus, the Netherlands and Spain. Also in this case Austria shows extremely high rates of hospitalization and is followed, at some distance, by Latvia, Lithuania, Finland and Germany.

Low Dutch number of hospital discharges for childbirth because women can choose to give birth at home

For pregnancy and childbirth, Cyprus and the Netherlands come out considerably lower than other countries. Ireland on the other hand comes out considerably higher than the other countries, followed by Bulgaria and Estonia. Practice regarding length of postpartum hospital stay can vary considerably between countries (Wiegers, 2006). The low number of

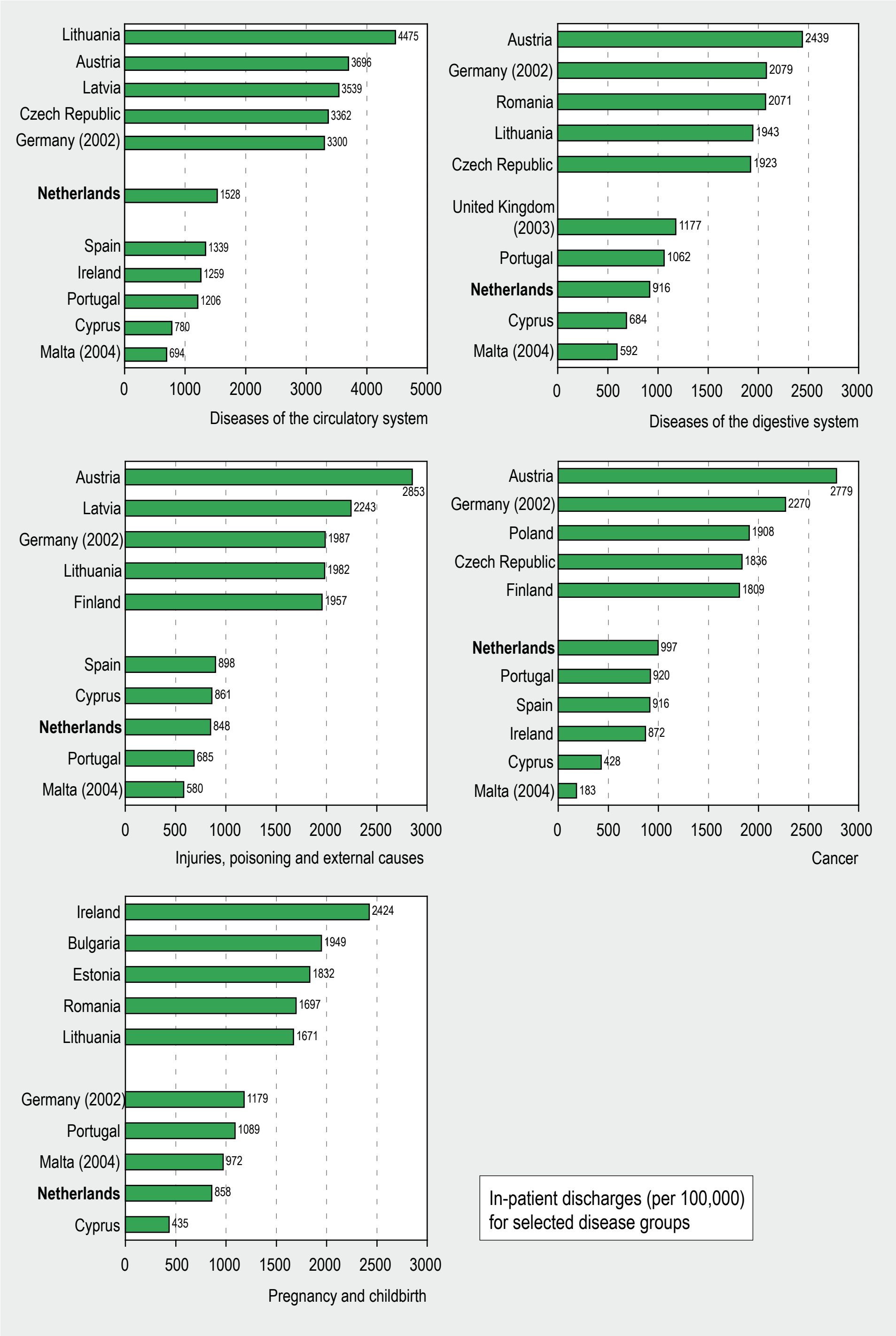


Figure 6.10: EU-27 countries with the highest and lowest number of in-patient discharges (per 100,000) for selected disease groups in 2005. No data available for Hungary and Greece (Eurostat, 2008n).

discharges for the Netherlands is probably due to the established system of risk selection during pregnancy, child birth and until the postpartum period and due to the provision of maternity care assistance. Women with uncomplicated pregnancy, childbirth and the postpartum period remain under the care of the primary level midwife. They can choose whether to give birth at home or at hospital, both under supervision of her own midwife (Amelink-Verburg et al., 2008). Non-in-patient admissions for normal deliveries (mother planned to be in hospital for less than 24 hours) are not included in the Dutch data presented in *figure 6.10* (Eurostat, 2008e) (see also *appendix A6.3.1*). Midwives and maternity care assistants provide post partum care at home, to which all women who do not need hospital based care are entitled, whether in primary or in secondary care, after home or hospital birth. Because of this system women can return home shortly after hospital birth (Wiegers, 2006).

No clear trend for the Netherlands, due to absence of data
No clear time trends are available for the Netherlands, because Eurostat only contains data for 2003-2005 for the Netherlands (see *appendix A6.3.1*). In several countries a modest decline is apparent for diseases of the digestive system and for injuries and other external causes. An exception is Bulgaria, which shows a slow rise rather than a decline for diseases of the circulatory system, digestive system, injuries and external causes and cancers, but not for pregnancy and childbirth.

6.3.2 Hospital day cases

Hospital day cases are the number of hospital day cases from all hospitals during the given calendar year, with the principal diagnosis falling into the ISHMT (International Shortlist for Hospital Morbidity Tabulation) group of diseases, expressed per 100,000 population. A day case refers to a patient who is formally admitted for day care, with the intention of discharge on the same day. The indicator provides information on the burden of disease on health services, complementing the information on hospital discharges (see *paragraph 6.3.1*).

No data for hospital day cases per 100,000 population available
Data per 100,000 population are not available for hospital day cases, but only the total numbers of hospital day cases per disease category are available for some countries in the period 2000-2006 (*table 6.1*). In the Eurostat database Dutch data are only available for 2003-2005 (see *appendix A6.3.1*). ECHIM advises to report on hospital day cases per 100,000 population for a realistic comparison, instead of using absolute numbers (ECHIM, 2008). Data from countries for which they are available, indicate that the total number of day cases is increasing (*table 6.1*).

Table 6.1: Total number of hospital day cases (in thousands) for EU-27 countries for which data are available (Eurostat, 2008n).

Country	2000	2001	2002	2003	2004	2005	2006
Belgium				969	1,041	1,101	
Czech Republic			30	32	33	35	37
Denmark	191	187	208	225			
Germany							495
Estonia	12	14	16	18	22	34	
France	4,300	4,619	4,835	5,107	5,456	6,068	
Italy					3,884		
Netherlands				**1,216**	**1,347**	**1,440**	
Poland				624	719	915	
Portugal						101	
Slovenia							43
United Kingdom	5,535	5,646	5,881	6,160			

6.3.3 Hospital day case/in-patient discharge ratio

The hospital day case/in-patient discharge ratio is the number of hospital day cases from all hospitals to the number of hospital in-patient discharges from all hospitals. Day cases refer to patients who are formally admitted for day care, whereas hospital in-patients are patients who are formally admitted to a hospital for treatment and/or care and stay for a minimum of one night.

Netherlands has highest day cases to in-patient ratio

The Netherlands has the highest ratio of day cases to in-patients in 2005 (0.85), which means that a relatively high proportion of Dutch patients receives day treatment. The United Kingdom also has relatively high ratios, but the latest United Kingdom data are from 2003, while other countries also have data until 2005. In 2005 the day cases/in-patient ratio was lowest in the new Member States of the Czech Republic (0.02), Poland (0.13) and Estonia (0.14) and highest in the west European countries of the Netherlands, Belgium (0.65) and France (0.55) (*figure 6.11*). The ratios presented here are calculated by the authors for all causes, since no ratios have been provided by international data sources. The number of EU countries for which such a calculation could be made, was limited (see *appendix A6.3.1*).

Ratio of day cases to in-patients shows a slow rise over time in Europe

No clear time trends are available for the Netherlands, because Eurostat only contains data on day cases and in-patient discharges for the period 2003-2005 for the Netherlands (see *appendix A6.3.1*). The ratios of day cases to in-patient discharges shows a rise over time in all countries for which the ratio could be calculated. The rise is very similar in all countries for which data are available, except for the Czech Republic, which also shows

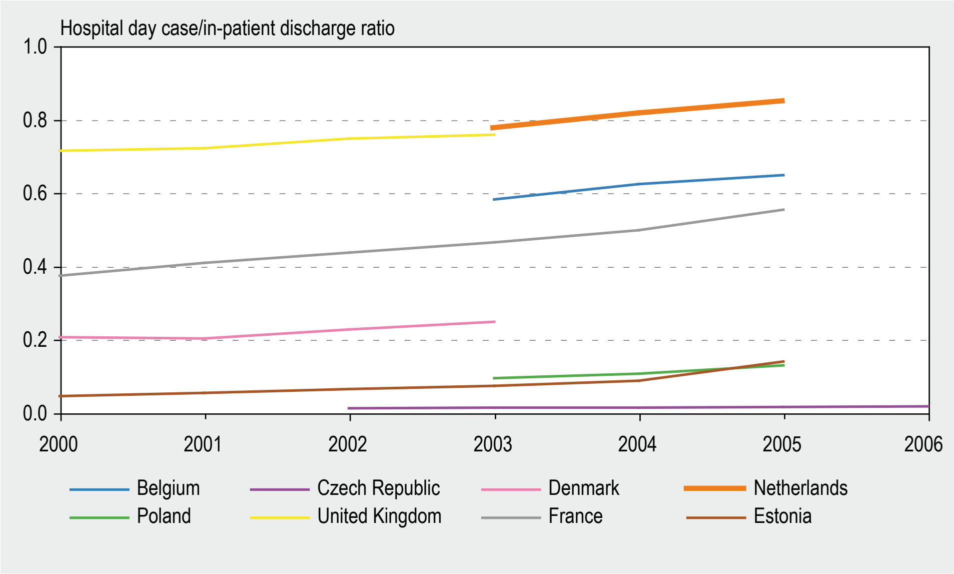


Figure 6.11: Trend in hospital day case/in-patient discharge ratio for all causes and for selected EU countries (Eurostat, 2008n), ratio calculated by the authors.

a rise, but a much slower one (*figure 6.11*). The rise means that a growing proportion of patients is treated on a day case basis.

Ratios are also rising for specific disease groups (the same disease groups as for in-patients in *paragraph 6.3.1*) in all countries for which data are available.

6.3.4 Average length of stay

Average length of stay (ALOS) in a hospital per discharged in-patient, i.e. average duration of a single episode of hospitalization, divided into diagnostic categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT). ALOS is calculated by dividing the number of days stayed (from the date of admission in an in-patient institution) by the number of discharges (including deaths). Day cases are usually not included. ALOS data help to maximize the statistical comparability of hospital activity analysis between countries.

Average or low position for the Dutch length of stay in hospital
For a number of diseases that require hospitalization, the average length of stay in the Netherlands is relatively low or average (*figure 6.12* and *figure 6.13*). For several diseases, Ireland has long stays, for example for breast and lung cancer, but also for myocardial infarction and cerebrovascular disease. Denmark, Sweden and the United Kingdom generally show short hospital stays, which perhaps relates to similarities in the public health systems in those countries. Finland shows an exceptionally long average stay for respiratory diseases, 13.4 days, compared to 7.6 in the Netherlands (OECD, 2008d). See also *appendix A6.3.4*.

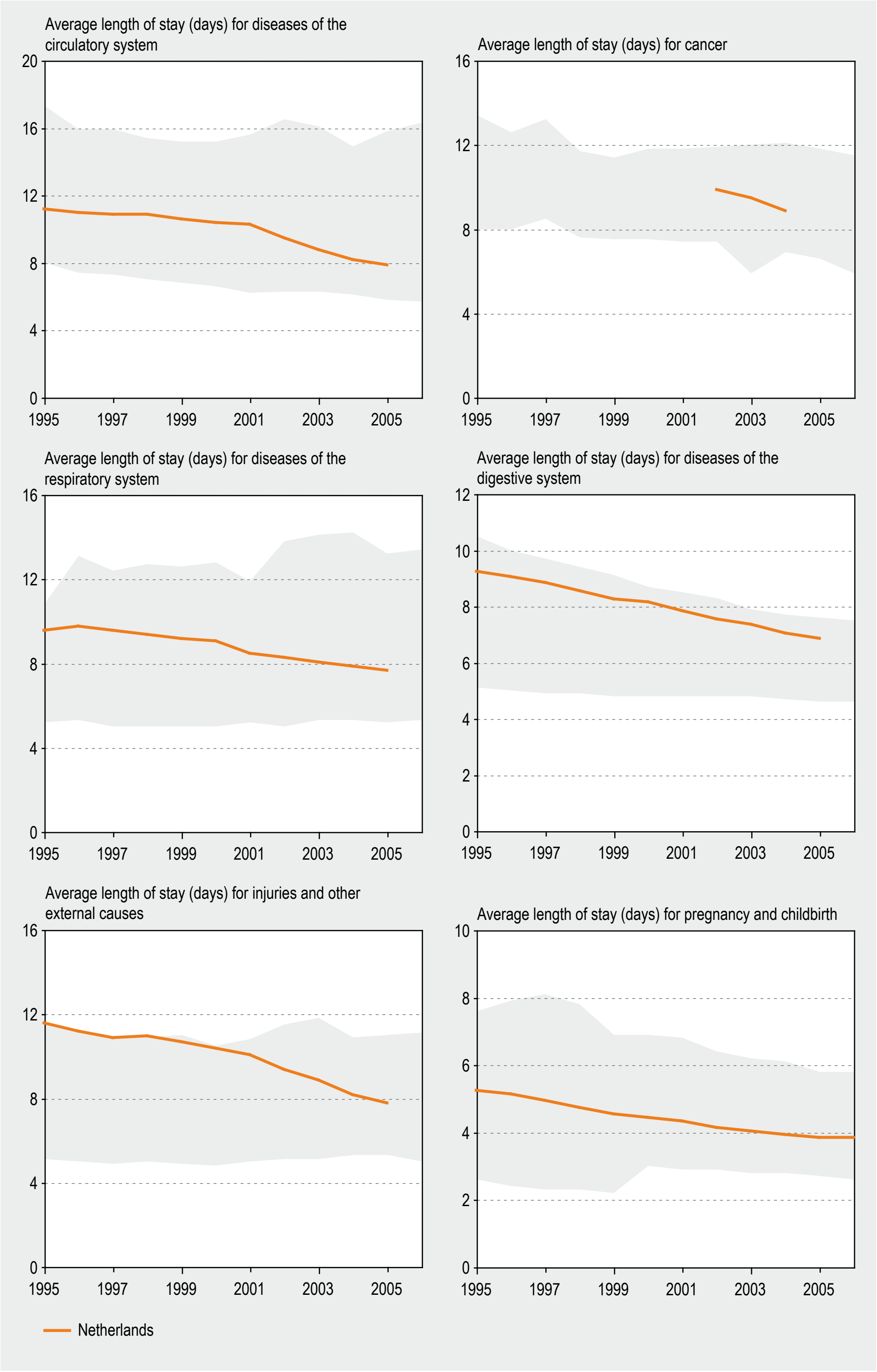


Figure 6.12: Trend in length of stay (days) for selected disease groups, for the Netherlands, 1995-2006. Range for EU-19 in grey (OECD, 2008d).

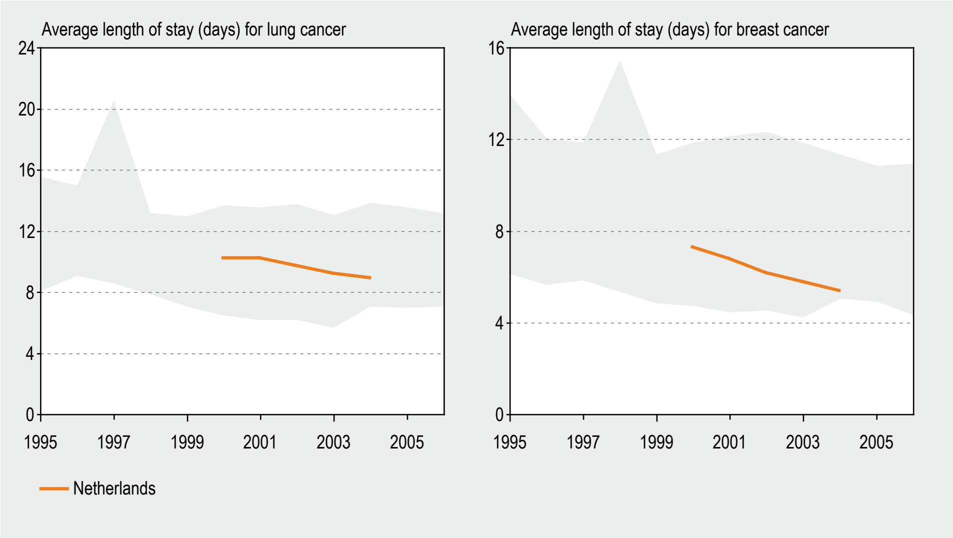


Figure 6.13: Trend in length of stay (days) for lung and breast cancer, for the Netherlands, 1995-2006. Range for EU-19 in grey (OECD, 2008d).

A tendency towards fewer days in hospital

In all EU countries, there is a tendency towards shorter stays in hospital. This is evident in almost all figures about average length of stay. The Netherlands shows specifically steep declines compared to other countries for diseases of the circulatory and the digestive system, for pregnancy and childbirth related conditions and for injuries and other external causes of disease. For total cancer, lung and breast cancer, there are probably serious declines as well, but long time trends are not shown, due to a lack of data in the OECD database (OECD, 2008d).

6.3.5 General practitioner utilization

Mean number of visits to the general practitioner (GP) per person per year. GP utilization is a basic indicator for the use of medical services. The indicator is used in the assessments of costs of health care and (equity of) access to health services.

Dutch people contact their general practitioner less often than other Europeans

The number of GP visits per person is low in the Netherlands compared with other EU countries (*figure 6.14*). On average, Dutch women reported that they visited their GP 3.4 times in 2001. This compares to 5.6 visits by Belgian and Italian women. Dutch men contacted their GP 2.1 times. Belgian, Italian and Austrian men contact their GP twice as often as Dutch men (Eurostat, 2007a). A comparison of GP utilization between countries has some limitations, since in some countries the GP has much more of a gatekeeping function than in others (see *appendix A6.3.5*).

In all countries women contact their GP more often than men. Furthermore, in all eleven countries, lower educated people visit the GP more often than higher educated people. The

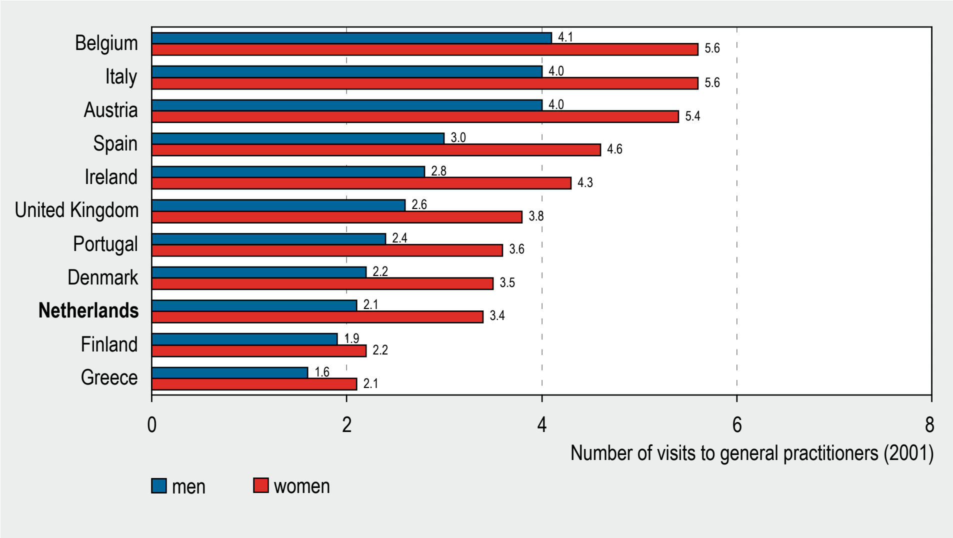


Figure 6.14: Number of visits to general practitioners, by men and women over the past 12 months in selected EU countries in 2001 (Eurostat, 2007a).

same is true for the Netherlands, although the difference seems to be smaller. However, data for the middle educated are missing for the Netherlands. Older people contact their GP more often than younger people. The increase with age is seen in all countries, but this pattern is less pronounced in Finland and Denmark (Eurostat, 2007a).

Number of GP contacts remains constant

Over the period 1996 to 2001, the number of GP contacts per person per year remained fairly constant in the Netherlands, as well as in the other countries for which data are available (Eurostat, 2007a).

6.3.6 Other outpatient visits

Number of contacts per capita per year, for: physiotherapist, alternative practice, maternal/child care, mental health care during the given calendar year. The indicator is used in assessments of cost and (equity of) access.

International comparisons of other outpatients visits is not yet possible

It is not possible to compare the number of other outpatient visits among countries because this indicator is still in development, and data according to the ECHIM definition are not readily available (see *appendix A6.3.6*).

6.3.7 Surgical interventions: coronary angioplasty, hip and cataract

Number of main surgical operations and procedures (Percutaneous Transluminal Coronary Angioplasty (PTCA, coronary angioplasty), hip replacement and cataract) performed in hospitals as day cases (where applicable) and in-patient surgery, per 100,000 population. Angioplasty is the technique of mechanically widening a narrowed blood vessel. In-patient surgery is defined as a surgical procedure that is performed with an overnight stay in an in-patient institution.

The Netherlands does not rank very highly on the number of procedures
Generally speaking, the Netherlands does not rank very highly on 'number of procedures performed', that were studied for this report: coronary angioplasty, hip replacement and cataract surgery (*figure 6.15*) (OECD, 2008d). Although in the international databases no recent figures on coronary angioplasty operations are available for the Netherlands, the latest figure from 2003, 93 per 100,000, is almost the lowest in the EU countries for which data are available in the OECD Health database. Only in Portugal are fewer coronary angioplasty operations performed, 83 per 100,000 in 2006. Belgium scores by far the highest, with 427 per 100,000 in 2005 (OECD, 2008d).

On cataract surgery, the Netherlands scores rather similarly to most other EU countries available in the OECD database, 762 per 100,000. Large differences between countries exist, with some countries performing many more cataract surgeries than the majority of the EU. In Italy more than 1,400 and in Belgium even more than 1,600 cataract surgeries are performed per 100,000 (OECD, 2008d). Less than 400 cataract surgeries take place in Ireland (228 per 100,000) and Portugal (327 per 100,000), countries with the lowest figures.

Somewhat more hips are replaced in the Netherlands than in most other EU countries, a little less than 200 per 100,000. Right at the bottom of the ranking is Poland, where only 32 hips per 100,000 are replaced. Polish data start in 2003, which explains the lower border of the range in the hip replacement figure (*figure 6.15*). The hip replacement frontrunner is Austria where 270 hip replacements are performed, followed by Belgium with 237 per 100,000 (OECD, 2008d). See also *appendix A6.3.7*.

Trend is increasing for all procedures in almost all countries
In the Netherlands, as in most other EU countries, an increase in all surgical procedures presented, has taken place over the past decade (OECD, 2008d). However, the increases shown in other countries are more spectacular. The steepest trend lines are seen in Belgium, which is among the top for all types of procedures presented. Hungary is on the rise as well, especially with coronary angioplasty operations, climbing from 27 per 100,000 in 1999 to 326 per 100,000 in 2005 (OECD, 2008d).

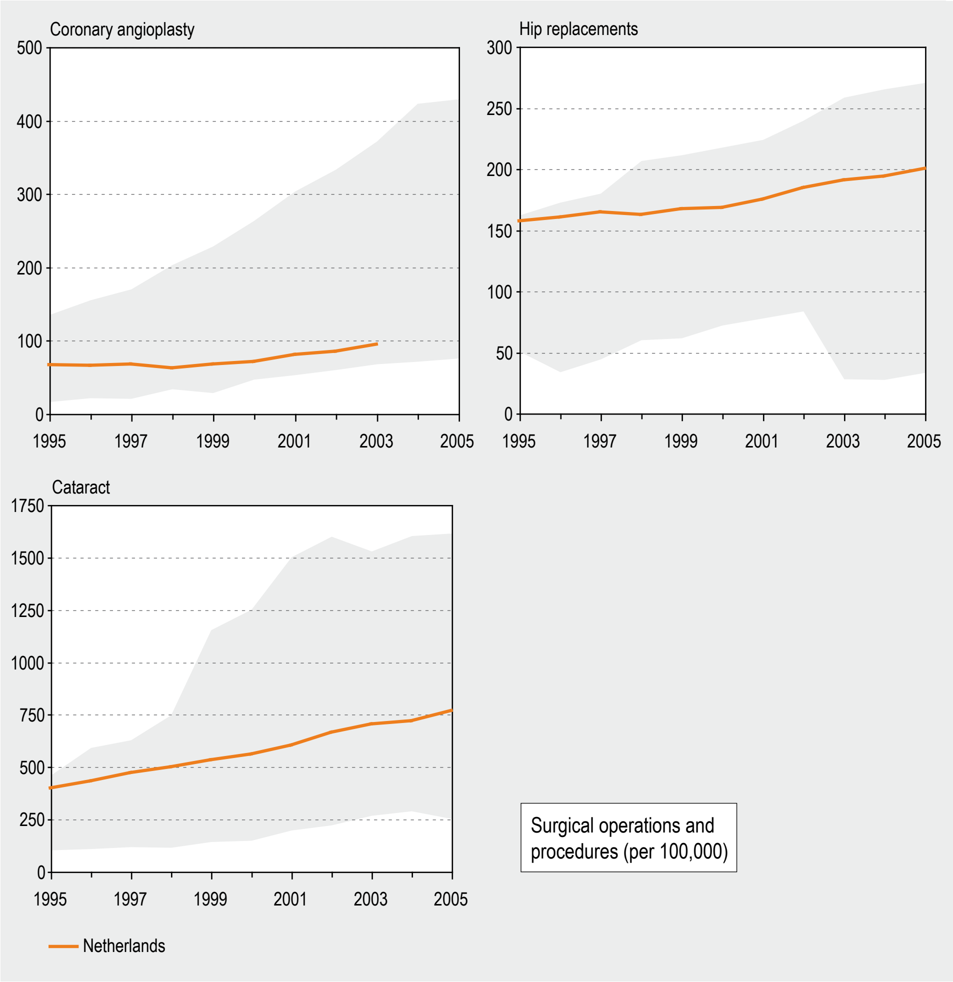


Figure 6.15: Trend in number of surgical operations and procedures (coronary angioplasty, hip replacement and cataract) performed (per 100,000), for the Netherlands, 1995-2005. Range for EU-19 in grey (OECD, 2008d).

6.3.8 Medicine use

Percent of population who have used medication (defined medicine groups) prescribed by a physician during the past two weeks. It has not yet been decided which medicine groups should be included. For this report four groups of medicine have been selected: medication for cardiovascular diseases (CVD), the nervous system, the respiratory system and the alimentary tract. Medicine use indicates aspects of accessibility, up-to-date quality of care and costs.

Medicine use is not very high in the Netherlands

In the Netherlands two thirds of all medicine expenses is spent on four main groups: medication for cardiovascular diseases, the nervous system, the respiratory system and the alimentary tract (including antacids) (SFK, 2007). Therefore, they are selected for

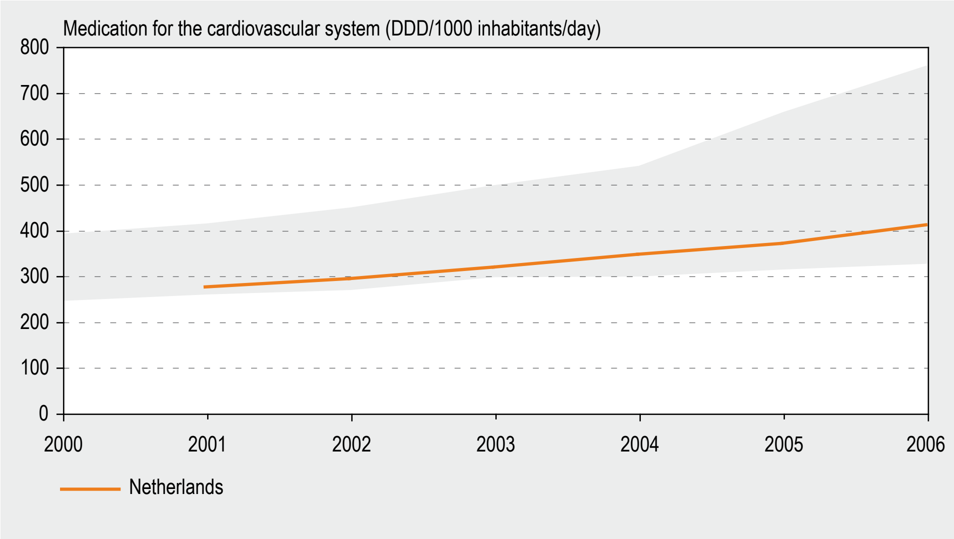


Figure 6.16: Trend in utilization of medicines for cardiovascular diseases, for the Netherlands, 2000-2006. Range for 14 EU-19 countries in grey (OECD, 2008d).

this report. Compared with other EU-27 countries the use of these medicines in the Netherlands is low to average (OECD, 2008d). The relatively high use of medication for the nervous system in the Scandinavian countries is particularly noticeable. The Czech Republic and Hungary have the highest figures for medication for cardiovascular diseases (OECD, 2008d). See also *appendix A6.3.8*.

Use of medication for cardiovascular diseases is increasing in many EU countries
Between 2000 and 2006 the utilization of medicines for cardiovascular diseases rose in many countries, including the Netherlands. However compared with other countries the increase in the Netherlands is moderate (*figure 6.16*). The use of medication for the alimentary tract has also increased in most countries, although the increase is not as steep as for CVD medication. The use of medication for respiratory diseases and the nervous system has remained stable in the Netherlands. However in many countries the use of nervous system medication increased between 2000 and 2006. This increase is mainly due to an increase in the use of antidepressants. The use of antidepressants also increased in the Netherlands (OECD, 2008d).

6.4 Health expenditures and financing

6.4.1 Insurance coverage

The proportion of the population covered by health insurance for total health care, in-patient care, out-patient care and pharmaceuticals, taking into account both public and private sectors. Public health insurance is defined as tax-based public health insurance and income-related payroll taxes including social security contribution schemes. Private health insurance includes: private mandatory health insurance, private employment group health insurance, private community-rated health insurance and private risk-rated health insurance.
Insurance coverage is an indicator of equal access to services and for social inequalities in the health care system.

Almost 100% of EU citizens is insured for health care costs
In all of the 19 EU-27 countries for which data are available insurance coverage is approaching 100% (*table 6.2*). Therefore, differences between countries are small. In 2006, 98.7% of the Dutch population was insured for health care costs. From 2006 the new Health Insurance Act (Zorgverzekeringswet) requires all residents to insure oneself against health care costs. The system is operated by private health insurance companies; the insurers are obliged to accept every resident in their area of activity. Several countries provide universal coverage (100%) to all citizens, through for instance a tax-financed system or a National Health Service (NHS) free of charge, for example the United Kingdom, Portugal and Italy. In most countries, including the Netherlands, the proportion of the population covered by health insurance has been stable during the past two decades. Slovakia is the exception with a slow decrease since 2000 (OECD, 2008d). See also *appendix A6.4.1*.

Table 6.2: Percentage of the population covered by health insurance in the EU-19 countries (OECD, 2008d).

Country	%	Country	%
Austria	99	Italy	100
Belgium	99	Luxembourg (2004)	99.7
Czech Republic	100	**Netherlands**	**98.7**
Denmark	100	Poland	99.3
Finland	100	Portugal (2005)	100
France	99.9	Slovakia	96.3
Germany[a]	89.5	Spain	98.3
Greece	100	Sweden	100
Hungary	100	United Kingdom	100
Ireland (2005)	100		

[a] In Germany 10.3% is covered by private insurance only. This percentage is not included in the German figure.

6.4.2 Expenditures on health

Expenditure on health is defined as the total national health expenditure as percentage of gross domestic product (GDP), divided into public and private sectors. Total expenditures on health represent the current expenditures on health care enlarged by the expenditures on investments. The current expenditures are the economic resources spent on health care services and goods, including administration and insurance. There is a recurrent concern regarding the adequacy of resources and the way they are currently used, and how best to increase the equity, efficiency and effectiveness of health care. Therefore, there is a rising demand for internationally comparable data on health care spending.

Expenditures on health average in the Netherlands

Total expenditures on health as a percentage of GDP in the Netherlands is average compared with the percentages in the 18 more affluent EU countries that are also a member of the OECD. In 2006, 9.3% of GDP was spent on health in the Netherlands according to the definition of the 'Systems of Health Accounts' (see *appendix A6.4.2*) (OECD, 2008d). However, data for the Netherlands are underestimates compared with other countries because they are based on current expenditures instead of total expenditures (see *appendix A6.4.2*) (OECD, 2008a). France spends most on health: 11.1% of the French GDP in 2006. Other countries which spend a high percentage of GDP on health are Germany, Belgium, Portugal and Austria (all between 10% and 11%). Several new EU-27 Member States spend considerably smaller percentages of GDP on health, for example Poland (6.2%) and the Czech Republic (6.8%) (OECD, 2008d). The Netherlands belongs to the countries in which a relatively large part of health expenditures is covered by the private sector (Eurostat, 2008n).

Growth in health expenditures is slowing down in most EU countries

There are some signs of stabilization in the long-term rising trend since 1980. The percentage of GDP spent on health increased considerably between 1980 and 2006 in the Netherlands and almost all of the EU countries (*figure 6.17*). Health expenditure grew particularly fast in many countries between 2000 and 2003. Since 2003, however, this growth has slowed, and in several countries the percentage of GDP devoted to health decreased slightly between 2005 and 2006, while in others (including the Netherlands) it stabilized. In 2006, for the OECD as a whole, the lowest average growth rate was observed since 1997. The stabilization is due to a combination of slower growth in spending on health care and expanding economies. The slower growth in spending has been aided by a slow down in the growth of pharmaceutical spending in many countries in recent years (OECD, 2008c).

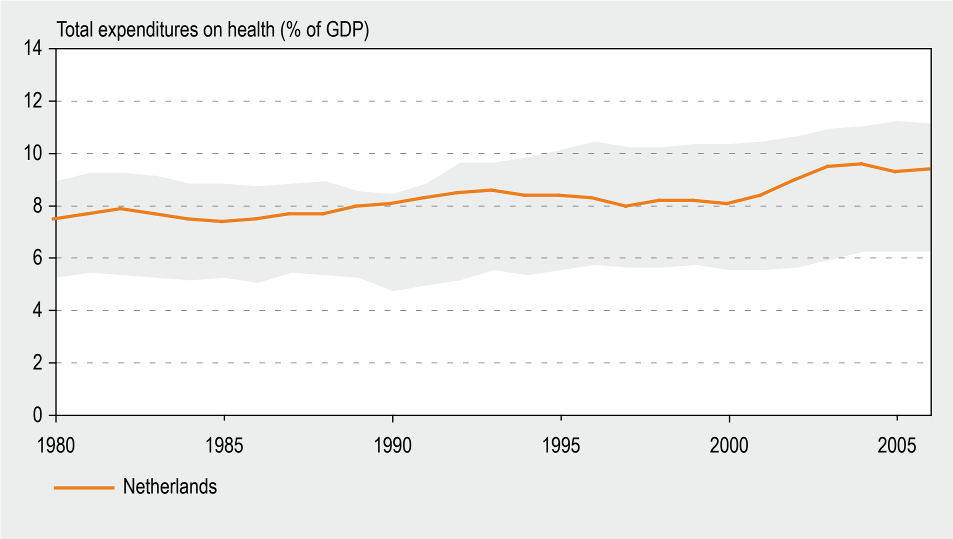


Figure 6.17: Trend in total expenditures on health (in percentage of GDP) for the Netherlands, 1980-2006. Range for EU-19 in grey (OECD, 2008d).

6.5 Health care quality/performance

6.5.1 Survival rates for cancer

The 5-year relative survival rate for cancer is an estimate of the proportion of patients who survive at least five years after diagnosis, after correction for mortality from causes other than cancer. The ten cancers to be included are: all cancers combined without non-melanoma skin (ICD-10 code C00-C97), trachea, bronchus or lung (ICD-10 code C33-34), breast (ICD-10 code C50), colorectal (ICD-10 code C18-C21), prostate (ICD-10 code C61), stomach, melanoma, cervical (ICD-10 code C53), leukaemias/lymphomas and all childhood cancers. Cancer survival is an indicator of the effectiveness of a country's healthcare system in the area of cancer screening, early detection and treatment. The health care system can improve the survival of certain cancers through early detection and appropriate treatment.

Cancer survival is relatively high in the Netherlands

For most cancers survival rates are high in the Netherlands. For example, 82.7% of Dutch women with breast cancer survive at least five years after diagnosis. Of the EU-27 countries for which data are available in the EUROCARE-4 study, survival is only higher in Sweden, Italy and Finland (*figure 6.18*). Furthermore, the Netherlands also has one of the highest survival rates for lung cancer (*figure 6.19*). Also for melanoma, colorectal, prostate and cervical cancer survival is relatively high in the Netherlands. Survival is average for stomach and childhood cancers, leukaemias/lymphomas and also for all cancers combined (*figure 6.20*) (Berrino et al., 2007; Sant et al., 2003; Gatta et al., 2003). For the most prevalent cancers of colorectum, lung, breast and prostate, survival was highest in Nordic countries (except Denmark) and central Europe, intermediate in southern

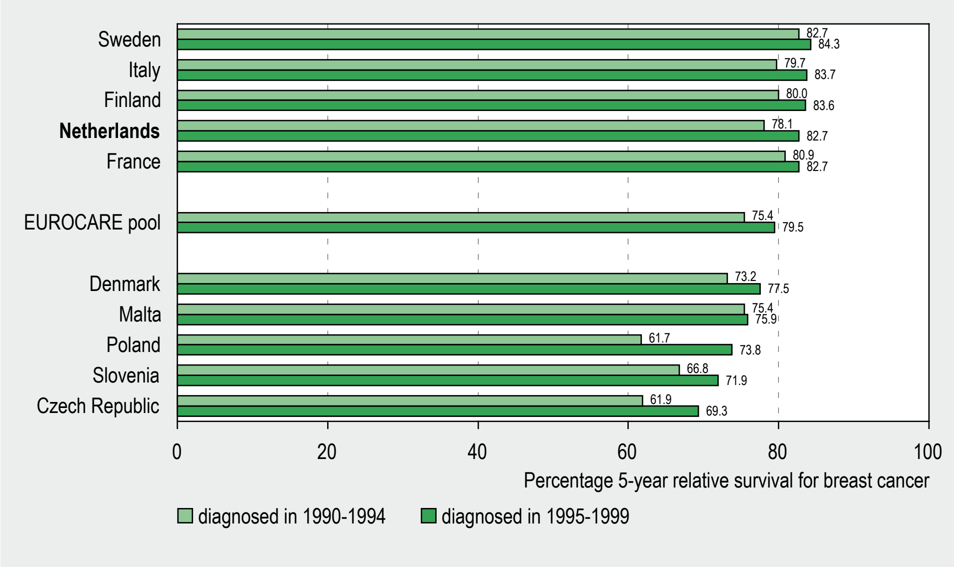


Figure 6.18: EU-27 countries with the highest and lowest age-adjusted 5-year relative survival for breast cancer diagnosed in 1995-1999. Data available for 14 EU-27 countries participating in EUROCARE-4[8] (Berrino et al., 2007).

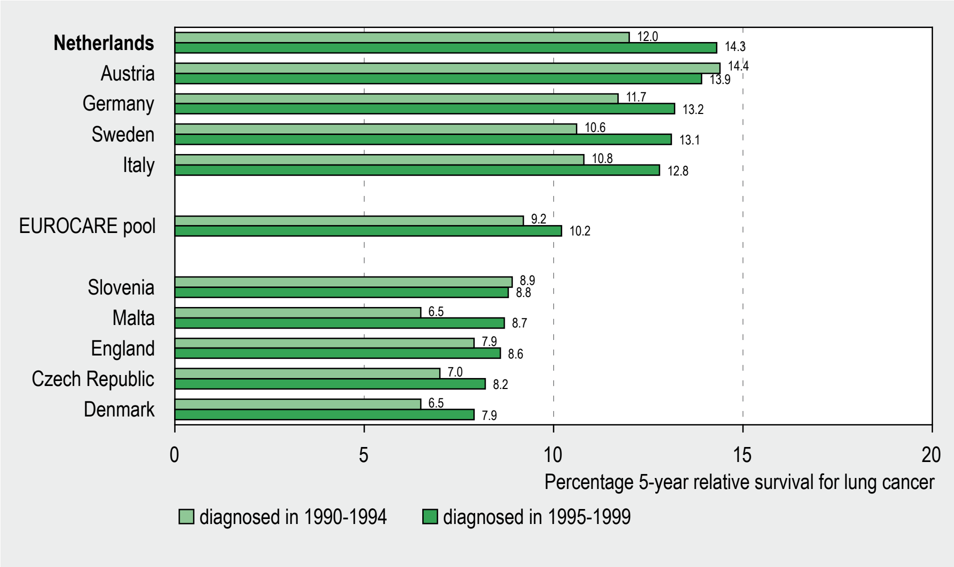


Figure 6.19: EU-27 countries with the highest and lowest age-adjusted 5-year relative survival for lung cancer diagnosed in 1995-1999. Data available for 14 EU-27 countries participating in EUROCARE-4[9] (Berrino et al., 2007).

[8] EUROCARE pool: Unweighted age-adjusted 5-year relative survival of the registries with data available for both 1990-1994 and 1995-1999 study periods. It also includes registries from the non EU-27 members Norway, Iceland and Switzerland.

[9] Idem

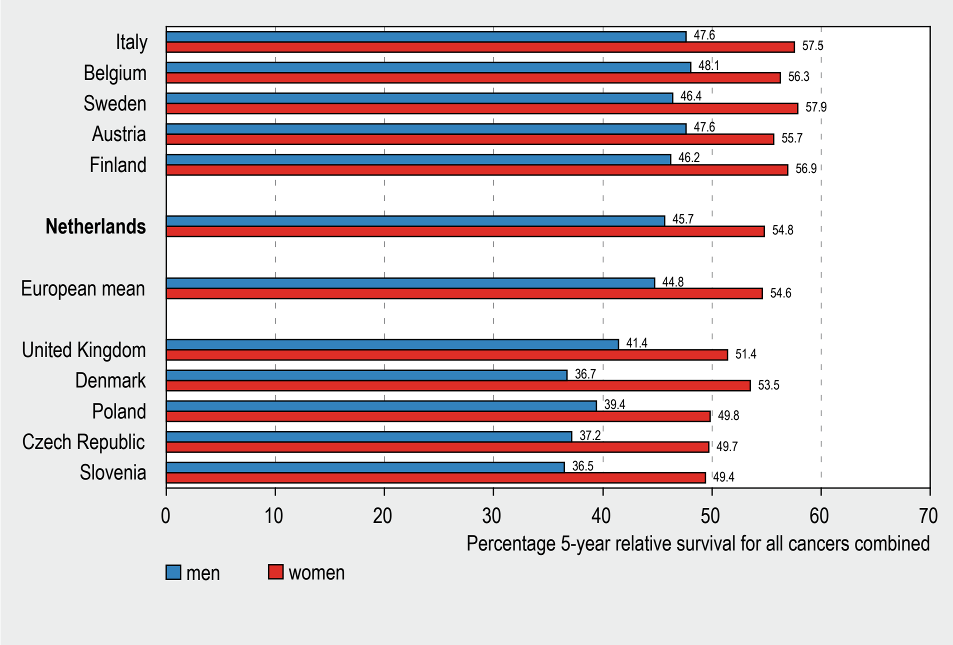


Figure 6.20: EU-27 countries with the highest and lowest 5-year relative survival adjusted for age-mix and case-mix[10] by country for all cancers combined diagnosed in 1995-1999, with area-weighted mean European survival. Data available for 17 EU-27 countries participating in EUROCARE-4[11] (Berrino et al., 2007).

Europe, lower in the United Kingdom and Ireland, and worst in eastern Europe. Survival for melanoma and Hodgkin's lymphoma varied much less geographically (Berrino et al., 2007). Survival varies considerably between cancer types and depends on cancer type and disease stage in which cancer was diagnosed (Berrino et al., 2007). Factors that can contribute to differences between countries are differences in loss to follow-up of patients and differences in the inclusion of patients in the early or precancerous stages (see also *appendix A6.5.1*).

Cancer survival is increasing in the Netherlands and across the EU

The Dutch cancer survival rate increased between the 1990-1994 and 1995-1999 study periods. This increasing trend is seen in all EUROCARE-4 countries and for almost all cancers. Also survival differences between countries narrowed. The gap decreased notably for Hodgkin's lymphoma and cancer of the testis, breast and colorectal, mainly because countries with poor survival in the earlier period had improved survival in the later period (Berrino et al., 2007). Estimations of survival in patients diagnosed in 2000-2002 in a subset of EUROCARE-4 registries support the notion of an increasing survival trend. Survival rates

[10] The data have been adjusted for age-mix and case-mix and are those that would be expected if age distribution and incidence of the different cancers were the same in all populations.

[11] Data for the United Kingdom are calculated as the weighted mean of age-adjusted 5-year relative survival in the four United Kingdom regions and the calculation of mean European survival includes data for Norway, Switzerland and Iceland.

improved in this analysis, especially for patients with colorectal, breast, prostate and thyroid cancer and for Hodgkin's and non-Hodgkin's lymphoma (Verdecchia et al., 2007).

6.5.2 30-day in-hospital case-fatality of acute myocardial infarction and stroke

Proportion of patients admitted to the hospital with primary diagnosis of acute myocardial infarction (AMI) and stroke who die within 30 days after the admission. This is an indicator for the adequacy of AMI and stroke treatment, which is particularly important in the acute phase.

Dutch 30-day in-hospital case-fatality for AMI fall within the lowest five rates
The Netherlands' 30-day in-hospital case-fatality for AMI (8.4%) is the fifth lowest of the 15 EU countries analyzed. Denmark has the lowest fatality rate of the countries compared, followed by France, Poland and Sweden (see *figure 6.21*) (OECD, 2007b). Figures need to be interpreted with caution, though, because several aspects that influence these mortality rates outside of care have not been accounted for (see *appendix A6.5.2*).

In the Netherlands the 30-day in-hospital fatality rates for stroke are relatively high
In relation to the other 15 EU countries that were compared, the 30-day in-hospital fatality rates for stroke in the Netherlands are relatively high. The Dutch 30-day in-hospital fatality rate falls in the mid-range of countries for ischaemic stroke, while rates for haemorrhagic stroke are the second highest (*figure 6.22*). Overall the fatality rates of haemorrhagic stroke are higher than those of ischaemic stroke, illustrating the more severe nature of this condition. Furthermore, the countries in the top or bottom five for haemorrhagic and ischemic stroke are more or less the same (*figure 6.22*). This is probably due to the

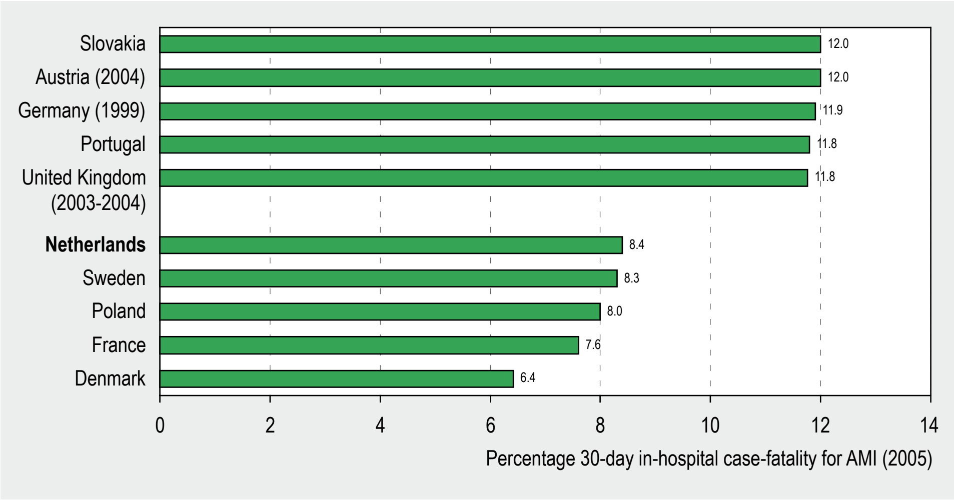


Figure 6.21: EU countries with the highest and lowest percentage of 30-day in-hospital case-fatalities for AMI in 2005 or latest available year, based on a comparison of 15 EU countries (OECD, 2007b).

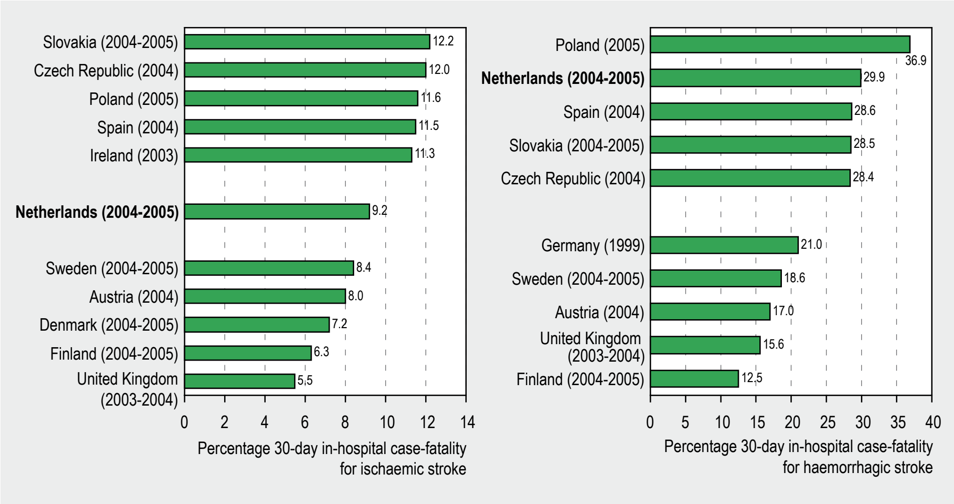


Figure 6.22: EU countries with the highest and lowest percentage of 30-day in-hospital case-fatalities for ischaemic stroke and for hemorrhagic stroke in 2005 or latest available year, based on a comparison of 15 EU countries (OECD, 2007b).

fact that the initial steps of care that are given for both types of stroke are similar (OECD, 2007b). International differences for AMI as well as stroke fatality rates need to be interpreted with caution, because of the big influence that differences in age distribution can have (see *appendix A6.5.2*).

Fatality rates have improved over recent years
The 30-day in-hospital case-fatality rates for AMI and stroke seem to be decreasing. Trend data over longer periods of time are not available for international comparison. However comparing the situation of a couple of years ago with the currently available data shows that in almost all countries these rates are now lower than before (OECD, 2007b). In the Netherlands the fatality rate for AMI dropped from 9.3% in 2004 to 8.4% in 2005.

6.5.3 Equity of access to health care services

Equity of access to health care services is assessed by the percentage of the population perceiving an unmet need for medical examination or treatment for one of the following reasons: because they could not afford the treatment (too expensive); because of a waiting list; or because of travel/transportation problems. Equitable access to health care cannot be addressed only by for example insurance coverage. Equity of access requires that people in equal need of care are treated equally and appear to have equal rates of medical care utilization.

Percentage of population with unmet medical needs is low in the Netherlands
The percentage of the population perceiving an unmet need for medical examination or treatment is low in the Netherlands compared to other EU countries. In 2006, 0.2% of Dutch men and 0.6% of Dutch women experienced an unmet medical need, whereas on

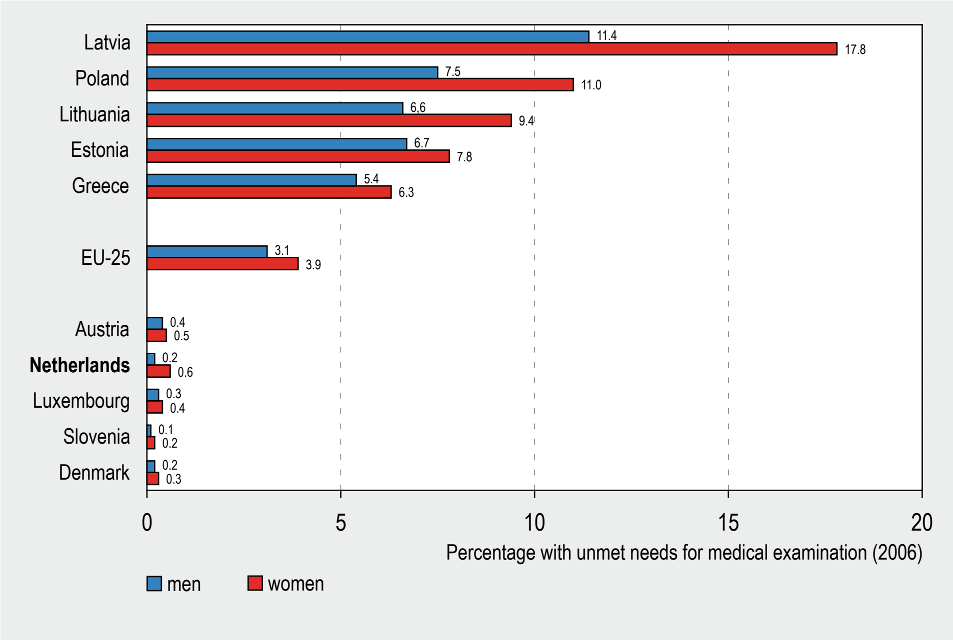


Figure 6.23: EU-25 countries with the highest and lowest percentage of population perceiving unmet needs for medical examination in 2006 (Eurostat, 2008n).

average 3.1% of men and 3.9% of women in the EU had a medical need that could not be met (*figure 6.23*). There are large variations across the EU. The highest percentages are reported in the Baltic States, Poland and Greece and the lowest percentages in Denmark, Slovenia, Luxembourg, the Netherlands and Austria. In all EU countries, except Finland and Spain, more women than men do not always get the necessary medical help. Furthermore, in all EU-25 countries (except Denmark), perceiving unmet needs is associated with lower income. In half of the EU countries, including the Netherlands, the percentage of persons perceiving unmet needs is about 3 to 5 times higher in the 20% of the population with the lowest median income compared to the 20% with the highest median income (Eurostat, 2008n). A study in 21 OECD countries found no evidence of inequity in GP visits across income groups. However, in medical specialist outpatient visits there was inequity: the rich are significantly more likely to see a specialist. No clear pattern emerged for hospital in-patient care utilization (Van Doorslaer & Masseria, 2005).

Not yet possible to compare trends in unmet needs

It is too early to analyze trends. International comparable data are available from the EU-SILC. This survey started in about half of the Member States in 2004, followed by the rest in 2005 and 2006 (see *appendix A6.5.3*).

6.5.4 Waiting times for elective surgeries

Average (both mean and median) in-patient waiting time for elective surgeries of PTCA (coronary angioplasty), hip replacement and cataract operation, measured in number of days. Elective surgery is defined as when surgery is necessary but the patient can be sent home and the timing of the procedure can be scheduled. This is an indicator for the accessibility of health care, with focus on elective interventions. Long waiting times can lead to deterioration in health, loss of utility and extra costs. They generate dissatisfaction for the patients and among the general public.

Long waiting times are less common in the Netherlands

The Netherlands overall has short waiting times for coronary angioplasty, hip replacement and cataract operation compared to other EU countries (*table 6.3*; see also *paragraph 6.3.7* on surgical interventions). Denmark has the lowest waiting times for cataract surgery (71 days). This shows an overview of mean waiting times in six countries, undertaken by the OECD (Siciliani & Hurst, 2004). Median waiting times are not available for the Netherlands. The mean and median can be significantly different. The mean is consistently larger than the median, because a small proportion of patients has to wait a very long time. See also *appendix A6.5.4*.

Table 6.3: Mean in-patient waiting times (number of days) of patients admitted, by surgical procedure, in six EU countries in 2000 (Siciliani & Hurst, 2004).

Country	Coronary angioplasty	Hip replacement	Cataract surgery
Denmark		112	71
Finland	30	206	233
Netherlands	**18**	**96**	**111**
Spain	81	123	104
Sweden			199
England	80	244	206

In the Netherlands the waiting lists have been reduced at the end of the 1990s

EU trends are unclear because of a lack of data. In the Netherlands there has been a decrease in waiting times following the introduction of additional resources for tackling waiting times in 1997 (Hurst & Siciliani, 2003).

6.5.5 Surgical wound infections

The surgical wound infection rate is defined as the percentage of all in-patient surgical operations in all hospitals involving a postoperative surgical wound infection. It is an indicator for the safety of operative interventions. Wound infection can lead to re-operation and prolonged hospital stay, to increased morbidity and mortality among patients and to increased costs for the health care system. Furthermore it is amenable to interventions: the incidence of wound infection can be reduced by proper pre-, intra- and post-operative care, in particular by strict hygiene.

International comparability of surgical wound infection rate is limited
The surgical wound infection rate in the Netherlands is 4.6% (PREZIES, 2007). It is difficult to compare this figure internationally because reliable data are scarce and comparability is limited due to differences in definitions (see *appendix A6.5.5*). For the six countries that provided data for the year 2005 to the WHO-HFA database, the surgical wound infection rate ranged from 0.6% in Finland to 2.6% in Belgium (WHO-HFA, 2008).

No data on trends in surgical wound infection in the Netherlands
Trend data are not available for the Netherlands. Trends for countries in the WHO-HFA database are ambiguous. The Czech Republic, for instance, has experienced a large decrease since the beginning of the 1990s, whereas infection rate increased slightly in Ireland and Finland (*figure 6.24*) (WHO-HFA, 2008).

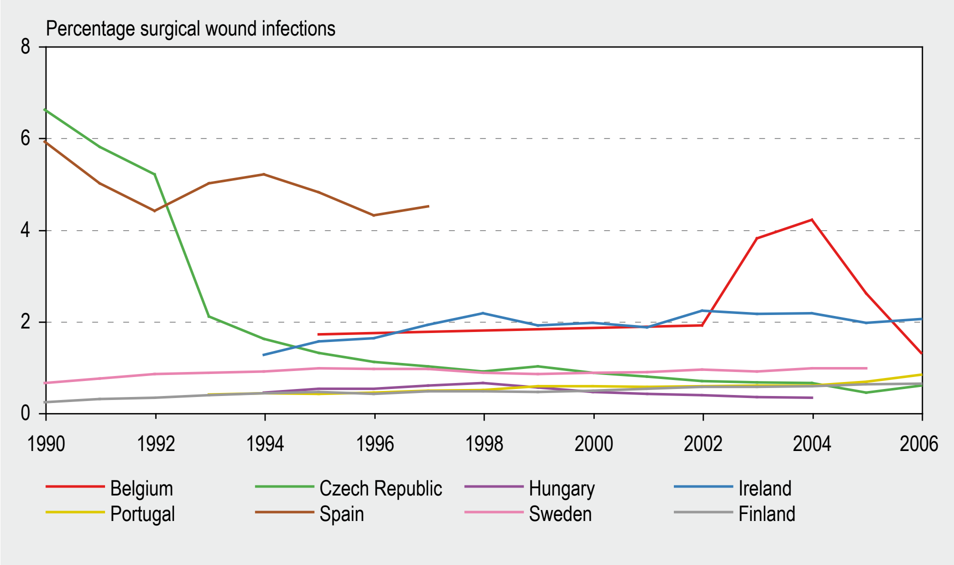


Figure 6.24: Trend in surgical wound infection rates in selected EU countries, 1990-2006 (WHO-HFA, 2008).

6.5.6 Cancer treatment delay

Cancer treatment delay is defined as the average time (in days) between the date of first treatment and the pre-diagnostic date, by cancer site (breast, colon and rectal cancer). It is an indicator for the quality of cancer care. Indicators on cancer treatment quality can explain part of the differences in cancer survival.

International comparisons are not possible, because indicator is being developed
International comparisons are not yet possible, because this indicator has to be further developed. EUROCHIP-II (European Cancer Health Indicator Project-II) organized a pilot study in eleven EU countries to assess whether or not it is feasible to obtain data on cancer treatment delay using Cancer Registries as the data source. According to the pilot study the 'date of first visit to general practitioner' is the most readily available of the three possible pre-diagnostic dates. However, this date is not readily available in the Netherlands. The other two possibilities are the date of first request for a clinical/ hospital appointment and the date of first clinical/hospital appointment. The indicator 'delay of cancer treatment' based on the date of first visit to general practitioner is collectable in the majority of countries. To collect the necessary data, some modifications in Cancer Registry organization might be necessary and comparability has to be improved. In some Member States the Cancer Registry covers the entire population, while in others, one or more Cancer Registries cover a fraction of the population (ECHIM, 2008; Baili & Micheli, 2008).

The Dutch NPK monitor 2008 (National Cancer Control Programme) will contain information on the average time between diagnosis and first treatment. The definition of the indicator is different from the ECHIM definition. The data will be obtained from the Dutch Cancer Registry and the monitor will be available in spring 2009 (Siesling, 2008).

6.5.7 Diabetes control

Proportion of adult diabetics receiving appropriate care. This is an indicator for the quality of diabetes care.

No data for comparison of the Dutch situation compared to other EU countries
No data for comparison of the Dutch quality of diabetic care to that of other EU countries is currently available. Comparable data on diabetic care is scarce. Retinal exam in diabetics is the only indicator of care for diabetics that has been judged to be available for international comparisons. And data on retinal exams are only available for seven EU countries: France (45.1% in 2002), Germany (49.0% in 1998), Italy (56.0% in 2003), Slovakia (47.0% in 2005), Sweden (77.8% in 2005), United Kingdom (83.4% in 2004-2005) and Latvia (54.3% in 2005). Data for the Netherlands are not available and several other indicators have been evaluated as unsuitable for international comparisons (see *appendix A6.5.7*).

6.6 Health interventions

6.6.1 Policies on environmental tobacco smoke exposure

A composite index of enforcement of laws and regulations on smoking restrictions in public domains and in advertisements. These policies contribute to lowering environmental tobacco smoke (ETS) exposures and thus to lowering health risks.

Netherlands in upper range of countries implementing policies on ETS exposure
The Netherlands is in the upper range of EU-27 countries that have implemented policies on ETS exposure (Vocaturo et al., 2008b). Malta, Ireland and Estonia have the highest degree of implementation, scoring 14 points on a composite scale for 'degree of implementation of policies on ETS'. The Netherlands scores 13 points, as do five other EU countries: Czech Republic, Finland, Italy, Latvia and Spain (*figure 6.25* only shows Spain and the Netherlands in the top five category, because of alphabetical ordering). The lowest scores of EU-27 are for the United Kingdom (6), Denmark (8) and Germany and Luxembourg (both 9) (*figure 6.25*; data from 2006). The composite scale reflects the level of prohibition of smoking in different locations, the level of prohibition of tobacco advertising and of selling tobacco to minors. A partial restriction gives a lower score than a total ban. This analysis of policies was done by the ENHIS project, using 2006 data from the WHO tobacco control database. Although some data on tobacco control policies are systematically collected, there is no definition or regular analysis of a composite index for ETS exposure policies. Also the index does not take into account the result of these policies in practice. Thus this indicator needs to be developed further and needs to be used with other information (see *appendix A6.6.1*).

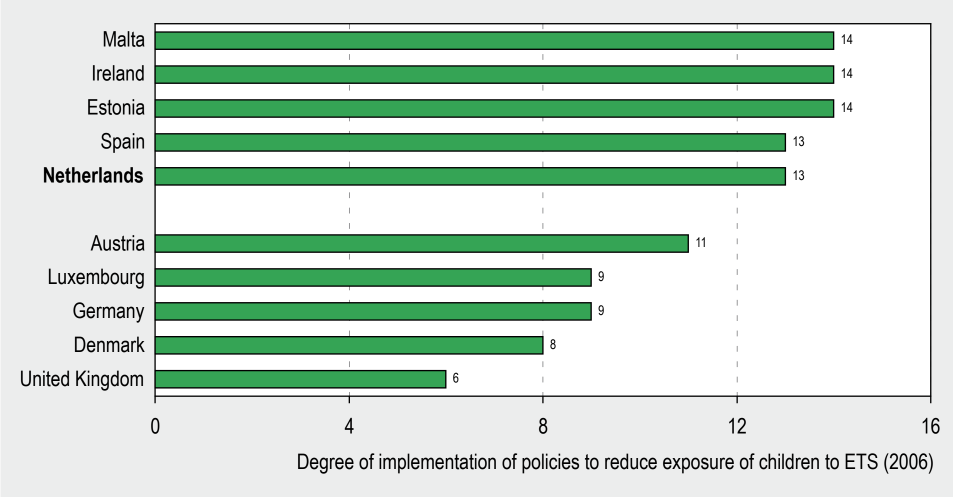


Figure 6.25: EU-27 countries with highest and lowest degree of implementation of policies to reduce exposure to ETS in 2006 (Vocaturo et al., 2008b).

Tobacco policies improved in EU, but Dutch policies only changed recently

Tobacco control policies have improved in the period 2005-2007 in the EU-27 countries, although Dutch policies hardly changed in this period. This shows a comparison of policies using a composite scale, scoring 0-100, on tobacco control policies (Joossens & Raw, 2007). A high score means that a country undertakes a lot of activities to reduce smoking. The composite scale took into account a broader range of policies than policies solely directed towards ETS exposure. For example: tobacco taxes are included in the composite index for tobacco control used by Joosens & Raw, while they are not in the index on policies on ETS, used by the ENHIS project. Overall in the studied years tobacco control policies improved. But the Netherlands scored 2 points lower in 2007 than in 2004; it was on the (shared) 11th place out of 24. The big overall improvement in tobacco control was mainly attributable to a small group of countries improving strongly by imposing smoking bans in public places. These countries did not necessarily rank highly, compared to other countries, since some of them had a low score to begin with. From the countries with a big improvement only the United Kingdom ranked in the top five in 2007. It ranked highest, followed by Ireland, Malta, Sweden and France (Joossens & Raw, 2007). Remarkably, the United Kingdom also ranked highly in 2005 on tobacco control policies, although on the composite index on ETS it ranks lowest. In the Netherlands there has recently been a substantial change in policy, which was not represented in the 2007 data. In 2008 smoking was banned in all horeca establishments, with the exception of special non-serving areas.

6.7 Summary

Focusing on the prevention and care indicators, cancer screening uptake and vaccination coverage are relatively high in the Netherlands. The Netherlands also ranks highly on several indicators of quality of care. Survival rates for cancer are relatively high and the percentage of people with unmet healthcare needs is low. However, the 30-day in-hospital case fatality rates for acute myocardial infarction (low) and haemorrhagic stroke (high) are contradictory. The availability of comparable data on several other indicators of health care quality is limited (for example surgical wound infections, cancer treatment delay and diabetes control). The small set of indicators for which adequate data are available, gives only a very limited picture of the quality of health care in the Netherlands, especially with regard to long-term care.

It is difficult to comment on the position of the Netherlands with respect to the indicators on health care resources (e.g. hospital beds, nurses and physicians employed) and health care utilization (e.g. hospital in-patient discharges, average length of stay). The reason for this is that in this case a 'high' rank does not necessarily mean good or bad. Instead there is an optimum, and in order to assess this optimum more information about the health system in a country is needed. However, together with other indicators they can act as valuable signal indicators. For example, the number of hospital beds is remarkably low in the Netherlands and they are still decreasing in number. On the other hand, the Netherlands has many nurses and also the number of physicians is above average, but this could also be due to differences in registration. The Netherlands seems to use these resources economically: medicine use is low, hospital stays are short and becoming even shorter, and the ratio of hospital day cases to in-patient discharges is high, i.e. a relatively high proportion of Dutch patients receive day treatment.

An overview of prevention and care indicators is given in *table 6.4*. The column 'NL compared to EU' shows how the Dutch situation compares to the situation in the EU. The column 'NL trend' shows the direction of the Dutch trend. For sections 6.2 and 6.3, it cannot be said which direction is better or worse. Therefore, numerical differences, increases or decreases have been indicated by > and <, arrows or ≈.

- Green:
  - NL clearly better than EU average.
  - NL trend: improving.
- Red:
  - NL clearly worse than EU average.
  - NL trend: worsening.
- Amber:
  - NL around EU average.
  - NL trend: about stable.
- NL < EU: Netherlands lower than EU.
- NL > EU: Netherlands higher than EU.
- ↑ increase.
- ↓ decrease.
- ≈ around EU average; for NL trend: about stable.
- Blank cell: an assessment can not be made based on the data in this report.

This table presents a very concise summary of the data given in this report. For more information, please consult the corresponding text sections.

Table 6.4: Summary of prevention and care.

		NL compared to EU	NL trend
6.1	**Prevention, health protection and health promotion**		
6.1.1	Vaccination coverage in children		
6.1.2	Influenza vaccination rate in the elderly		
6.1.3	Breast cancer screening		
6.1.4	Cervical cancer screening		
6.1.5	Colon cancer screening		
6.1.6	Timing of first antenatal visits among pregnant women		
6.2	**Health care resources**		
6.2.1	Hospital beds	NL < EU	↓
6.2.2	Physicians employed	NL > EU	↑
6.2.3	Nurses employed	NL > EU	↑
6.2.4	Medical technologies: MRI units and CT scanners	NL < EU	↑
6.3	**Health care utilization**		
6.3.1	Hospital in-patient discharges	NL < EU	
6.3.2	Hospital day cases		
6.3.3	Hospital day case/in-patient discharge ratio	NL > EU	
6.3.4	Average length of stay	NL < EU	↓
6.3.5	General practitioner utilization	NL < EU	≈
6.3.6	Other outpatient visits		
6.3.7	Surgical interventions: PTCA, hip and cataract	≈	↑
6.3.8	Medicine use	NL < EU	↑
6.4	**Health expenditures and financing**		
6.4.1	Insurance coverage		
6.4.2	Expenditures on health		
6.5	**Health care quality/performance**		
6.5.1	Survival rates for cancer		
6.5.2	30-day in-hospital case-fatality of AMI and stroke		
6.5.3	Equity of access to health care services		
6.5.4	Waiting times for elective surgeries		
6.5.5	Surgical wound infections		
6.5.6	Cancer treatment quality		
6.5.7	Diabetes control		
6.6	**Health interventions**		
6.6.1	Policies on environmental tobacco smoke exposure		

7 DEMOGRAPHIC AND SOCIO-ECONOMIC SITUATION

Age and gender are basic variables of health and disease. Frequently, data reflecting the health status of population groups are shown separately for both men and women, and for different age groups. This helps to ensure a correct interpretation of the overall data and time trends. Every public health system should take the age distribution and dynamics of its population into account. Furthermore for most health problems, a higher prevalence or incidence is observed in the lower socio-economic groups. Therefore, this chapter presents comparisons on demographic indicators such as population size, birth and fertility rates as well as socio-economic factors, such as education, unemployment and poverty.

7.1 Population

7.1.1 Population by gender and age

The total population is the number of inhabitants of a given area on 1 January of the year in question (or, in some cases, on 31 December of the previous year).
The crude rate of population increase is the ratio of the total population change during the year to the average population of the area in question in that year. The value is expressed per 1,000 inhabitants.
The age dependency ratio is the ratio of the economically dependent part of the population to the productive part. The economically dependent part is recognized to be children who are too young to work, and individuals who are too old to work. The productive part makes up the gap in between and is the number of persons of working age, in general ages 15-64. This ratio is important because as it increases, there is an increased strain on the productive part of the population to support the upbringing and pensions of the economically dependent.
See also *appendix A7.1.1*.

Netherlands represents 3.3% of the EU-27 total population
With 16.4 million inhabitants the Netherlands represents 3.3% of the EU-27 total population. Germany has the largest population among the EU Member States with almost 17% of the EU-27 total or 82.3 million persons in 2007, followed by France, the United Kingdom and Italy with 12% to 13% each (*table 7.1*). Therefore these four countries together comprise almost 54% of the total population of the EU-27. The 12 new Member States represent almost 21% of the EU-27's population in 2007, some 103.3 million persons. The countries with the lowest number of inhabitants are Malta, Luxembourg, Cyprus, Estonia and Slovenia (Eurostat, 2008n). All countries have a slightly higher percentage of women than men. This is due to the higher life expectancy in women (see *paragraph 4.1.1*).

Table 7.1: Population size in millions, percentage of women and percentage of total EU population for EU-27 countries in 2007 (Eurostat, 2008n).

Country	Total population	% women	% of EU population	Country	Total population	% women	% of EU population
EU-27	495.1	51.2	100.0	Sweden	9.1	50.4	1.8
Germany	82.3	51.0	16.6	Austria	8.3	51.4	1.7
France	63.4	51.4	12.8	Bulgaria	7.7	51.5	1.6
United Kingdom	60.9	51.0	12.3	Denmark	5.4	50.5	1.1
Italy	59.1	51.4	11.9	Slovakia	5.4	51.5	1.1
Spain	44.5	50.7	9.0	Finland	5.3	51.0	1.1
Poland	38.1	51.7	7.7	Ireland	4.3	50.0	0.9
Romania	21.6	51.3	4.4	Lithuania	3.4	53.4	0.7
Netherlands	**16.4**	**50.6**	**3.3**	Latvia	2.3	53.9	0.5
Greece	11.2	50.5	2.3	Slovenia	2.0	50.9	0.4
Portugal	10.6	51.6	2.1	Estonia	1.3	53.9	0.3
Belgium	10.6	51.0	2.1	Cyprus	0.8	50.8	0.2
Czech Republic	10.3	51.1	2.1	Luxembourg	0.5	50.5	0.1
Hungary	10.1	52.5	2.0	Malta	0.4	50.3	0.1

Population growth in the Netherlands below EU average

In the Netherlands and the EU as a whole, population size is still increasing, although the crude rate of increase in the Netherlands has been below the EU-27 average since 2003 (*figure 7.1*). During the last decade, Ireland, Spain and Cyprus had the highest population growth rates. However, the situation varies across Member States. Population size is decreasing in several new Member States (Hungary, Czech Republic, Bulgaria, Lithuania, Poland and Romania, Latvia and Estonia) and also in Germany (Eurostat, 2008n).

Age dependency ratio is average in the Netherlands

The age dependency ratio is average in the Netherlands (48.3). France has the highest (53.3) and Slovakia (38.9) the lowest age dependency ratio compared with 48.6 for the EU-27. Also the Scandinavian countries, Belgium, Italy, Germany and the United Kingdom have higher than average age dependency ratios. The 12 new EU Member States, Ireland and Spain have lower than average age dependency ratios (Eurostat, 2008n).

In the EU-15 countries the age dependency ratio increased again during the mid-1980s

Since 1950 the age dependency ratio has decreased in all EU countries. However, in the second half of the 1980s it started to increase again in the old EU-15 Member States, including the Netherlands. In Ireland and Spain as well as in most new EU Member States, age dependency ratio is still decreasing. As a result of these opposite trends in the EU-27 as a whole, age dependency ratio decreased very slightly during the last two decades (Eurostat, 2008n). The Dutch age dependency ratio is now approaching the EU-27 average (*figure 7.2*). In the EU-15 countries the age dependency ratio is increasing because

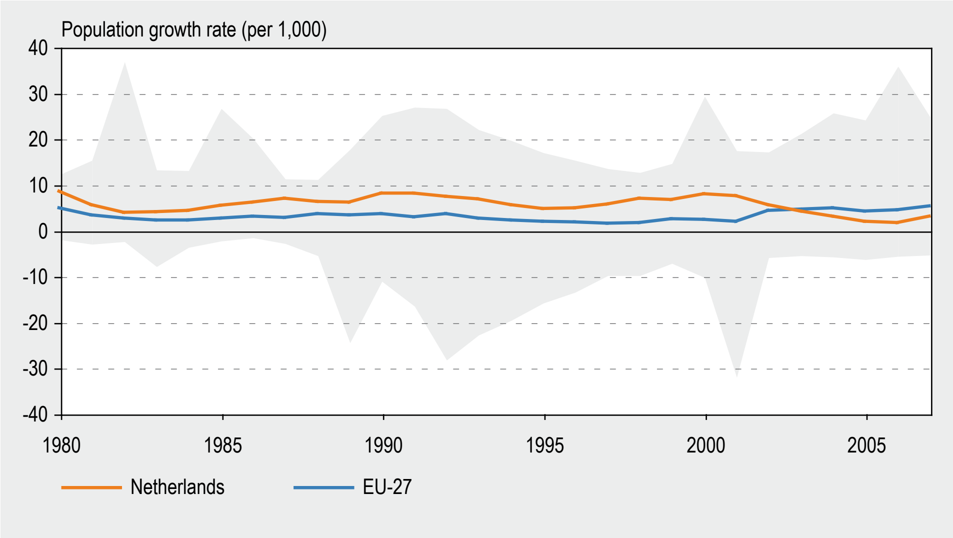


Figure 7.1: Trend in crude rate of population increase (per 1,000), for the Netherlands and EU-27 average, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

the increase in the percentage of the population aged 65 years and over outweighs the decrease in the population aged 0-14 years. In the new EU Member States the percentage of the population aged 65 years and over is also increasing, but this is compensated by a larger decrease in the younger age groups (see also *chapter 8* Children and young people and *chapter 9* Elderly people).

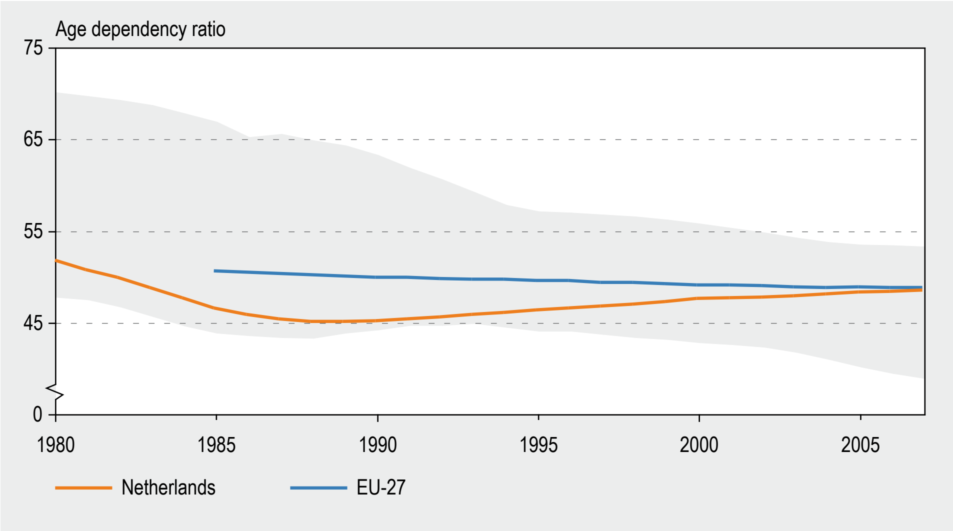


Figure 7.2: Trend in age dependency ratio, for the Netherlands and EU-27 average, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

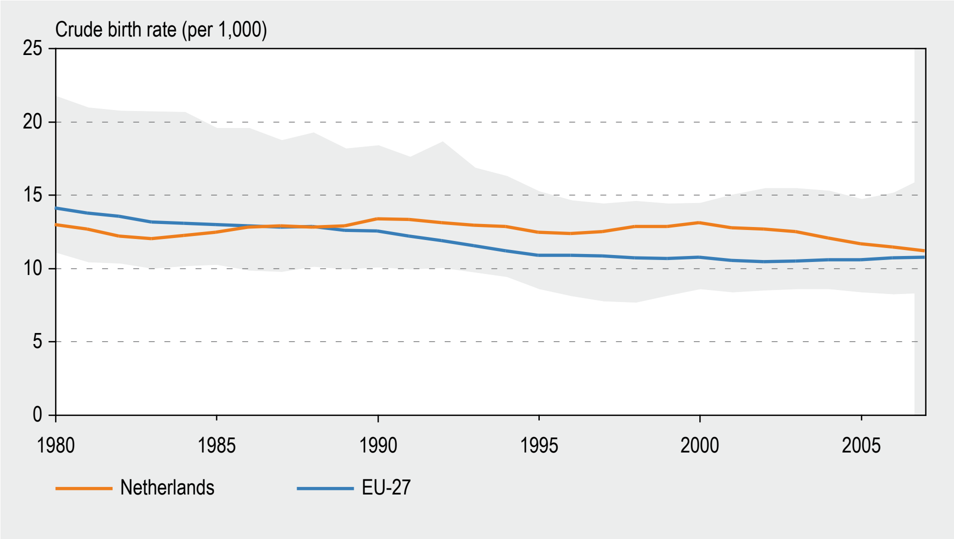


Figure 7.3: Trend in crude birth rate (per 1,000), for the Netherlands and EU-27 average, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

7.1.2 Crude birth rate

Crude birth rate is the ratio of the number of live births during the year to the average population in that year. The value is expressed per 1,000 inhabitants.

The Dutch get slightly more babies than average in the EU
With 11.3 births per 1,000 inhabitants in 2006, the Netherlands belongs to the countries with a crude birth rate higher than the EU average of 10.6 (*figure 7.3*). Ireland, France and the United Kingdom have the highest number of births, whereas a relatively small number of babies are born in Germany, Lithuania and Austria (Eurostat, 2008n).

Decrease in birth rate halted in most countries, except in the Netherlands
After a period of continuous decline since 1960 the crude birth rate seemed to have stabilized or recovered in most countries since the second half of the 1990s. After a short period of increase in the Netherlands the number of births per 1,000 has been declining again since 2001 and is approaching the EU-27 average (*figure 7.3*) (Eurostat, 2008n).

7.1.3 Mother's age distribution

The percentage of live births in a certain age group is calculated from the total number of live births (irrespective of birth order) in a certain age group by the mother's age at last birthday divided by the total number of live births to all mothers. Eurostat defines live birth as birth of a child that shows any sign of life. It is the number of births excluding stillbirths (total births include live births and stillbirths). Both early and late childbearing are associated with higher than average rates of preterm birth, growth restriction and mortality in the perinatal period.

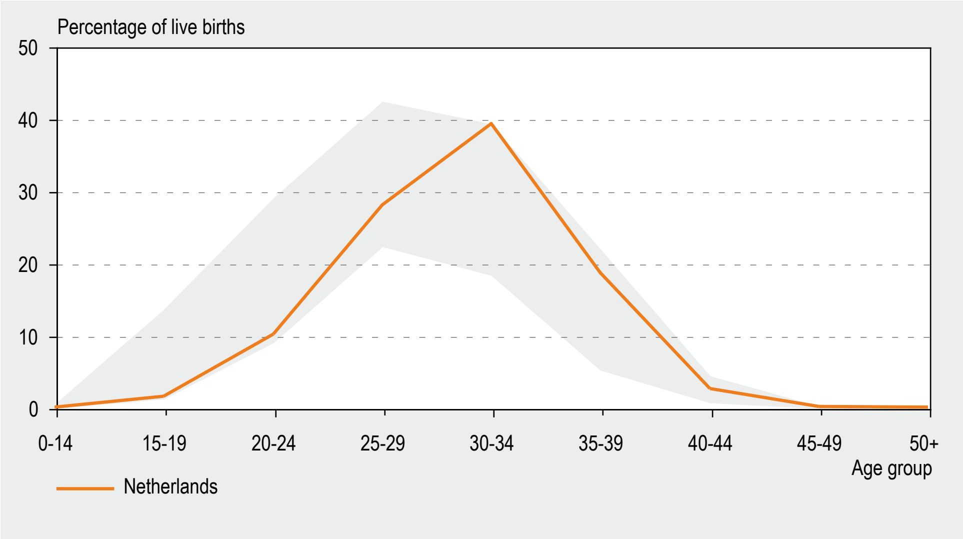


Figure 7.4: Percentage of live births by mother's age group, for the Netherlands in 2005. Range for EU-27 in grey (Eurostat, 2008n).

Dutch mothers have children at a relatively older age

Together with Spain, Italy and Ireland, the Netherlands belongs to a group of EU countries where women have their children at a relatively older age (*figure 7.4*). In these countries (and most other EU-15 Member States) most women have their children when they are between 30 and 34 years old. In the new EU Member States most women have their children when they are between 25 and 29 years old. In Bulgaria, Romania and the Baltic States also relatively high percentages of women have their children when they are between 20 and 24 years old (Eurostat, 2008n). Furthermore, together with Italy, Denmark and Sweden, the Netherlands has the lowest percentage of teenage mothers (15-19 years) (see also *chapter 8* Children and young people). Several new EU Member States and the United Kingdom have considerably higher percentages of teenage mothers (Eurostat, 2008n).

Percentage of older mothers increasing relatively fast in the Netherlands

European women are postponing the moment they have children. In most EU countries the percentage of live births to mothers aged 20-24 and 25-29 has decreased since the beginning of the 1990s, while at the same time the percentage of live births to mothers aged 30-34 and 35-39 has increased and is still increasing. In the Netherlands and Spain the increase in percentage of live births to mothers aged 30-34 came to a halt, but the percentage of live births to mothers aged 34-39 is still rising (Eurostat, 2008n).

The percentage of older mothers in the Netherlands, i.e. mothers that are older than 35 at the birth of a child, has increased from about 7% around 1980 to over 22% in recent years and this increase has been faster than in most other EU countries. The Netherlands is currently among the EU countries with the highest percentage of older mothers (*figure 7.5*). The percentages of births to older mothers differs considerably within the EU-27 and has changed considerably over time. Ireland has been the country with the highest

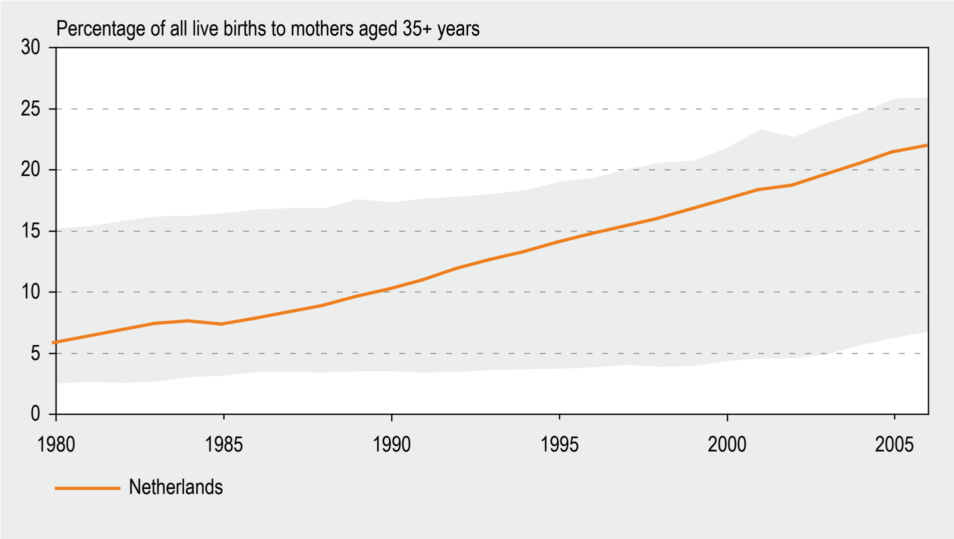


Figure 7.5: Percentage of live births to mother aged 35 years and older, for the Netherlands, 1980-2006. Range for EU-27 in grey (WHO-HFA, 2008).

percentages of older mothers and this has increased from about 15% in 1980 to more than 25% in recent years. Bulgaria is the country with the lowest share of older mothers, which has only recently passed 6% (WHO-HFA, 2008). Giving birth at an older age increases the medical risks of both mother and child, especially if it is a first child. The strongly increased share of older mothers in the Netherlands has been cited as one of several reasons for the recent lack of further decline in perinatal mortality in the Netherlands (Achterberg & Kramers, 2001) (see *paragraph 4.1.3*).

7.1.4 Total fertility rate

Mean number of children per woman at the end of childbearing age, based on one calendar year data. A total fertility rate can be used to indicate to what extent countries meet the replacement level fertility, or the level of fertility at which a population exactly replaces itself from one generation to the next. In more developed countries, a rate of 2.1 is considered to be the replacement level.

High fertility rate in the Netherlands

The fertility rate is relatively high in the Netherlands. In 2006, Dutch women have an average of 1.7 children during their lifetime, which gave the Netherlands a seventh position in the EU-27. Total fertility was highest in France and Ireland and lowest in some new EU Member States (Slovakia, Poland, Lithuania, Slovenia and Romania) (Eurostat, 2008n). Of the EU-15 Member States Germany and Italy have the lowest fertility rates.

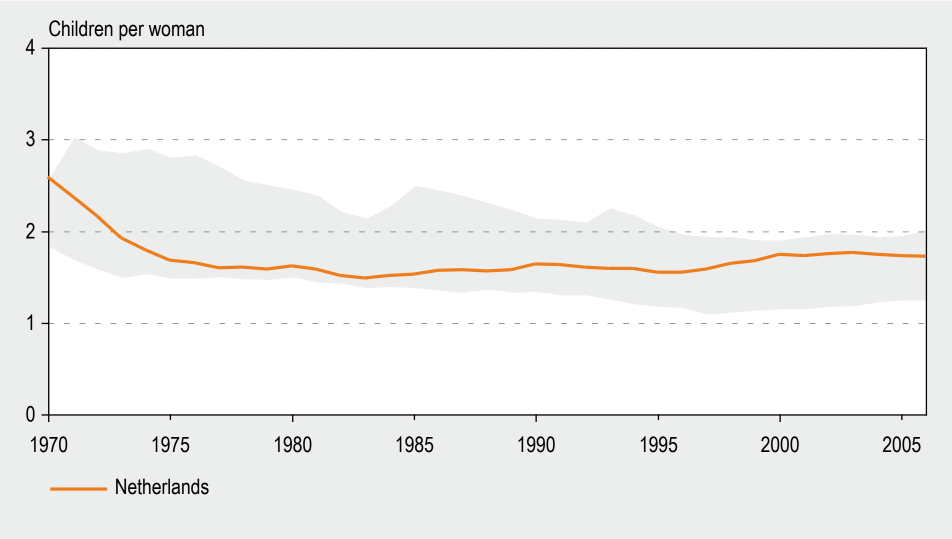


Figure 7.6: Trend in fertility rate for the Netherlands, 1970-2006. Range for EU-27 in grey (Eurostat, 2008n).

In most EU countries no further decrease in fertility rates, but rates started to decline again in the Netherlands

In all EU countries fertility rates have been decreasing since 1960. However, since about 1985 they have stabilized or risen again in Scandinavian and western European countries. A peak in Sweden around 1990 followed by an absolute low in 1999 is particularly remarkable. This peak coincided with a policy on parental leave that is reversed after a couple of years when it became too expensive (Beets, 2008). Around 2000 the decrease also came to a halt in new EU Member States. In the new millennium fertility rates are increasing again in most countries. In the Netherlands fertility rates reached a post war minimum in 1983 and afterwards alternately increased and decreased again. It was increasing from 1995 onwards, although in recent years it has started to decline again (*figure 7.6)* (Eurostat, 2008n).

7.1.5 Population projections

Population projections are what-if scenarios that give an estimate of the future size and structure of the population (see *appendix A7.1.5* for estimation method). They can for example be used to analyze the impact of ageing populations on public spending.

Increase in population size will come to an end in 2035

Like the total EU-27 population, the Dutch population is projected to grow until around 2035. The Dutch population will grow from 16.4 million in 2007 to a maximum of 17.3 million in 2036 and will decline again to 16.6 million in 2060. The EU-27 population will grow by more than 15 million persons from 495.1 million in 2007 to a maximum of 520.7 million in 2035. It will then gradually decline to 505.7 million in 2060, which is about 10 million (or 2.1%) more compared to 2007. Not all countries will have a larger population in 2060. About half of EU-27 Member States will have a smaller population compared to 2007 (*table 7.2*) (Eurostat, 2008n).

Table 7.2: Total population in 2007 and projected population in 2060 (in millions) in EU-27 countries (Eurostat, 2008n).

Country	2007	2060	Country	2007	2060
EU-27	495.1	505.7	Austria	8.3	9.0
United Kingdom	60.9	76.7	Hungary	10.1	8.7
France	63.4	71.8	Ireland	4.3	6.8
Germany	82.3	70.8	Denmark	5.4	5.9
Italy	59.1	59.4	Bulgaria	7.7	5.5
Spain	44.5	51.9	Finland	5.3	5.4
Poland	38.1	31.1	Slovakia	5.4	4.5
Romania	21.6	16.9	Lithuania	3.4	2.5
Netherlands	**16.4**	**16.6**	Slovenia	2.0	1.8
Belgium	10.6	12.3	Latvia	2.3	1.7
Portugal	10.6	11.3	Cyprus	0.8	1.3
Greece	11.2	11.1	Estonia	1.3	1.1
Sweden	9.1	10.9	Luxembourg	0.5	0.7
Czech Republic	10.3	9.5	Malta	0.4	0.4

Difference in population size between 2007 and 2060 is small in the Netherlands
With an expected population growth of 1.5% between 2007 and 2060, the Netherlands belongs to the countries with the smallest difference in population size between these years. The countries with the largest relative growth between 2007 and 2060 are Cyprus, Ireland, Luxembourg, United Kingdom and Sweden. Declines are expected to be largest in Bulgaria, Latvia, Lithuania, Romania and Poland (*figure 7.7*). The changes between 2007 and 2060 will have a moderate impact on the Member States' shares in the EU-27 population. In 2007 Germany has the largest population, but in 2060 the United Kingdom will be the country with the largest population in the EU. This is because its population will still be increasing in 2060, whereas in Germany the decrease in population that started in 2003, will continue (Eurostat, 2008n).

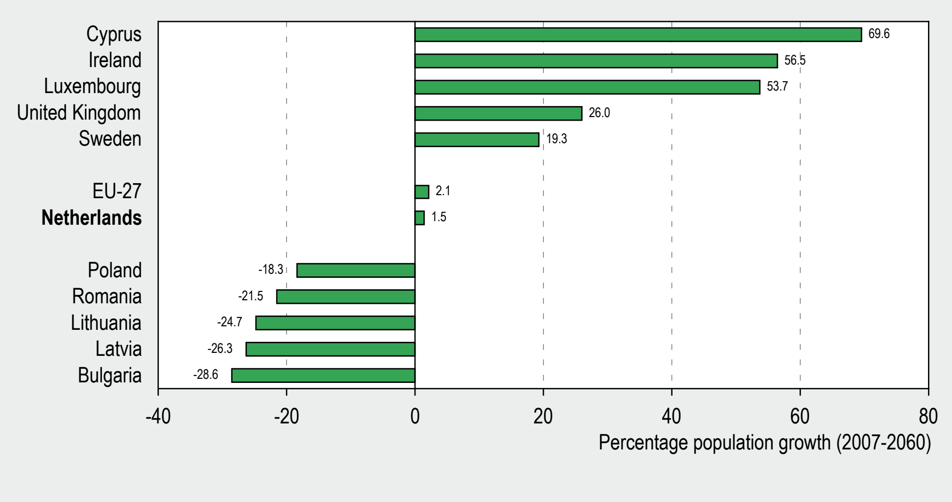


Figure 7.7: EU-27 countries with the highest percentage population growth and the highest percentage population decline between 2007 and 2060 (Eurostat, 2008n).

7.2 Socio-economic factors

7.2.1 Population by education

Total number and proportion of population divided in three classes by educational attainment (low, middle and high education, see *appendix A7.2.1* for classification of educational level), by sex and age. Educational attainment is an important socio-economic determinant of health. Differences between Member States in health inequality by education level are important information for health policy making.

Percentage of low educated people is average in the Netherlands

In the Netherlands 25% of men and 30% of women aged 25-64 have a low level of education. This is average compared with the percentages in other EU countries. The Czech Republic, Estonia and Slovakia have the lowest percentages of low educated people, while Portugal, Spain and Italy have the highest percentages (*figure 7.8*) (OECD, 2008b). Furthermore, Italy and Portugal also have the lowest percentages of people that completed tertiary education (higher education, e.g. higher professional education and university education). Finland and Denmark have the highest percentages of people that completed tertiary education. In the Netherlands 32% of men and 28% of women are higher educated which is also more than in the majority of EU countries (figure not shown). Among the Dutch population aged 25-64 years, women less often than men, have completed tertiary education. The same is true for Germany, Austria, Slovakia, the Czech Republic, Greece and Luxembourg but in the majority of EU countries women are higher educated. Younger Dutch women (25-34 years) are also more often highly educated compared to Dutch men, but the difference is small compared with other EU countries (OECD, 2008b).

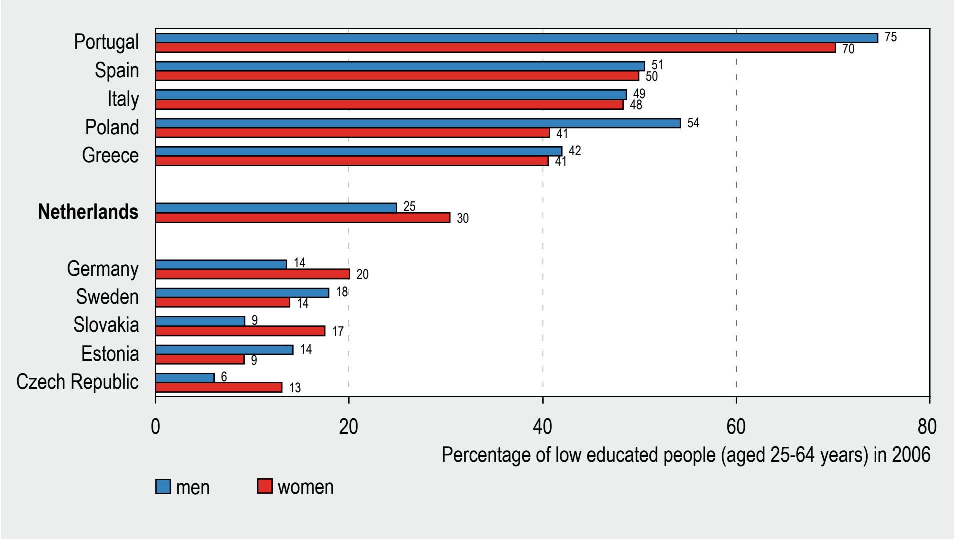


Figure 7.8: EU-27[12] countries with the highest and the lowest percentage of low educated people (aged 25-64 years) in 2006 (OECD, 2008b).

Increasing number of higher educated people in the Netherlands

In the Netherlands the percentage of people that completed tertiary education has increased from 24% in 1998 to 30% in 2006 (*figure 7.9*). At the same time the percentage of low educated people decreased from 36% in 1998 to 28% in 2006. The same trends are seen in other EU countries (OECD, 2008d; OECD, 2008b).

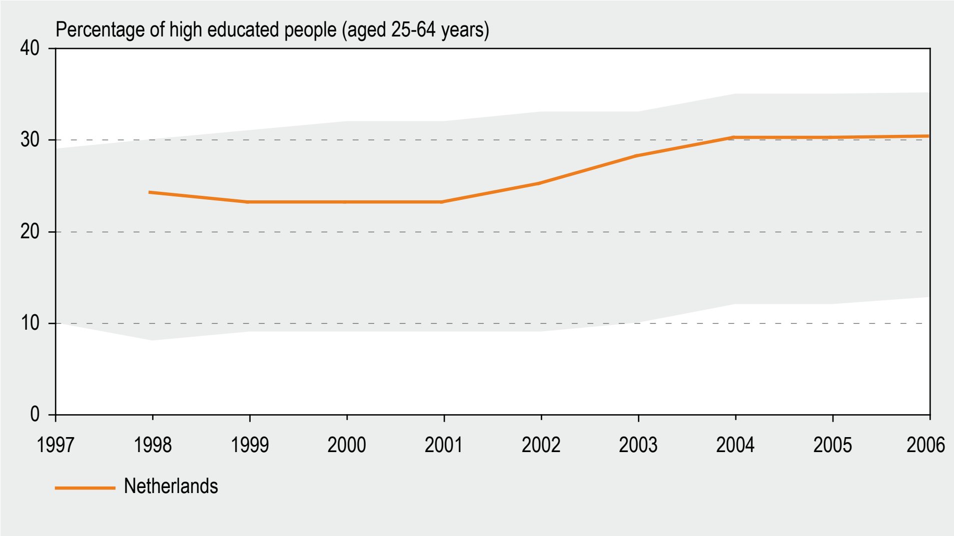


Figure 7.9: Trend in percentage of high educated people (25-64 years), for the Netherlands, 1997-2006. Range for EU-19 in grey (OECD, 2008d; OECD, 2008b).

[12] No data for Bulgaria, Cyprus, Latvia, Lithuania, Malta and Romania.

7.2.2 Population by occupation

Total number and proportion of population by occupational group. Occupation can be classified in different ways. Here a 3-group classification of skilled, semi-skilled and unskilled is presented. Occupation is an important socio-economic determinant of health. It is generally recognized that the type of work performed can have a great influence on the living conditions of the individual and household. Differences between Member States in health inequality by occupational class provide important information for health policy making.

The Netherlands has largest proportion of the population in skilled occupation

The Netherlands has the largest proportion of the population in skilled occupation (*figure 7.10*). Skilled occupations include managers, technicians and other professionals (*table A7.1* in *appendix A7.2.2*). Portugal and Spain have relatively low percentages of people in skilled occupation. Only in the Netherlands, Finland, Luxembourg and Belgium does the proportion of the population aged 25-64 years in skilled professions surpass the proportion in semi-skilled occupations (e.g. clerks, machine operators). Differences in the proportion of the population in unskilled occupations are small. Unskilled occupations constitute less than 10% of all jobs in most countries. Therefore, the main difference among countries is the proportion of the population in skilled and semi-skilled jobs. This also reflects differences in the job market for people with tertiary education (OECD, 2008b). See also *paragraph 7.2.1* on education.

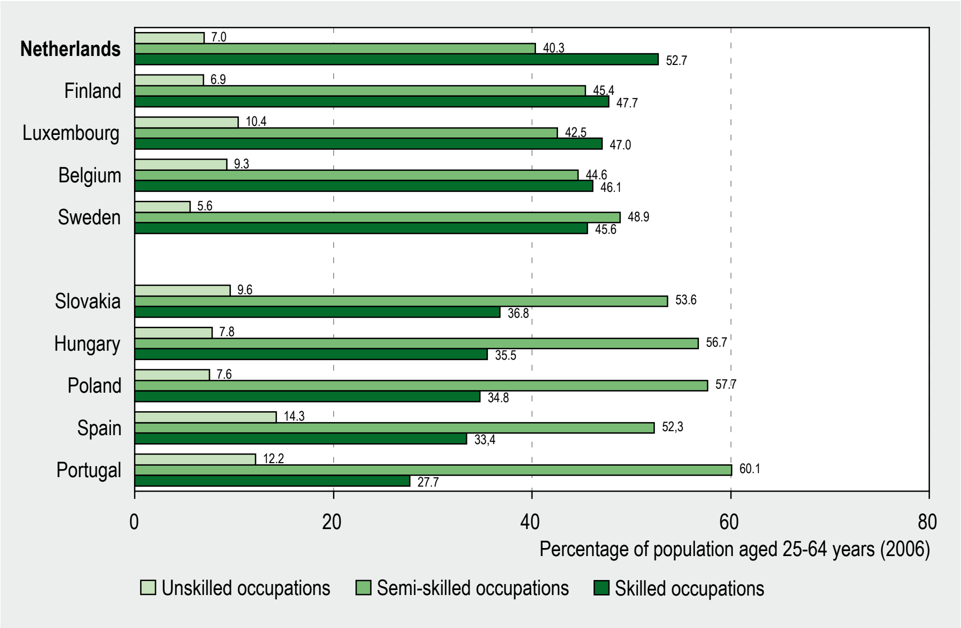


Figure 7.10: EU countries with the highest and lowest percentage of the population aged 25-64 years with skilled occupation in 2006. Data available for 19 EU countries. Countries are sorted in descending order by skilled occupations (OECD, 2008b).

Proportion of people with skilled jobs is not increasing in the Netherlands
In the Netherlands the proportion of the population in skilled occupations remained at a constant high level between 1998 and 2006. However, in the majority of the 19 countries compared, there was a marked shift from semi-skilled jobs to skilled jobs over the same period. The proportion of skilled jobs increased by 4% on average in all countries combined. At the same time, the proportion of semi-skilled jobs decreased by 4%. The proportion of the population working in unskilled occupations remained more or less the same. This is also the case in the Netherlands (OECD, 2008b).

7.2.3 Total unemployment

In line with the International Labour Office (ILO) definition, the unemployment rates presented below represent the number of unemployed persons as a percentage of the labour force or the total number of employed and unemployed persons aged 15 to 74. Unemployed persons here, comprise persons aged 15 to 74 who: 1) are without work; 2) are available to start work within the next two weeks; and 3) have been actively seeking work in the past four weeks or had already found a job to start within the next three months.

Unemployment rate is low in the Netherlands
Together with Denmark, Cyprus, Luxembourg, Lithuania, Austria and Ireland, the Netherlands belongs to the EU countries with the lowest unemployment rate for both men and women in 2007 (Eurostat, 2008n). In 2007, 3.2% of the total Dutch population between 15 and 75 years was unemployed. For men and women unemployment rates were 2.8% and 3.6% respectively. This compares with an unemployment rate of 7.1% for the EU-27 (6.6% for men and 7.8% for women). Unemployment rates are high in Slovakia (11.1%), Poland (9.6%), Germany (8.4%) and France and Spain (both 8.3%). In the majority of countries unemployment is higher among women, and in Spain, Greece and Portugal unemployment is particularly high among women. Exceptions are Germany, the United Kingdom, Ireland, Romania, Estonia and Latvia. In these countries unemployment is higher among men (Eurostat, 2008n). See also *appendix A7.2.3*.

After a short period of increase, unemployment rates are falling again
In the Netherlands the unemployment rate has been rising since 2001, but has reversed into a downward trend again since 2005 (*figure 7.11)*. The same trend can be observed in most EU-15 countries. However, the trend is different in some new EU countries, most notably in the Baltic States and Bulgaria. These countries have seen a strong and continuous decline since 2001 (Eurostat, 2008n).

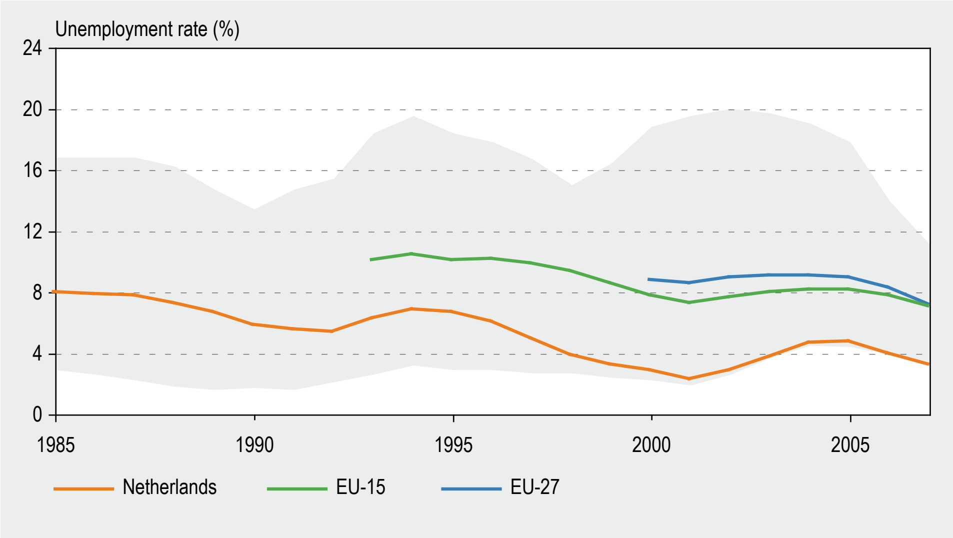


Figure 7.11: Trend in unemployment rate (% of persons aged 15-74 years) for the Netherlands and EU averages, 1985-2007. Range for EU-27 in grey (Eurostat, 2008n).

7.2.4 Population below poverty line and income inequality

The at-risk-of-poverty rate is the proportion of persons with an equivalized disposable income below the at-risk-of-poverty threshold, which is set at 60% of the national median equivalized disposable income (after social transfers). An equivalized disposable income is defined as the household's total disposable income divided by equivalized household size. This means that it takes into account the size and composition of the household, and each person in the same household (including children) is attributed the same equivalized disposable income.
Income inequality is defined as the income quintile share ratio S80/S20, which is the ratio of total income received by the 20% of the country's population with the highest income (top quintile) to that received by the 20% of the country's population with the lowest income (lowest quintile).
The at-risk-of-poverty rate and the income quintile share ratio are important indicators for socio-economic differences in health.

Percentage of population at risk of poverty is low in the Netherlands
Together with Slovenia, Denmark and the Czech Republic, the Netherlands belongs to the EU countries in which the share of persons living below the at-risk-of-poverty threshold is lowest compared with other EU countries. In most countries more women than men are at risk of poverty. In the Netherlands the percentage is the same for men and women (Eurostat, 2008n) (*figure 7.12*).

The Netherlands also has a lower than average inequality of income distribution. In general, countries with a lower at-risk-of-poverty rate also have a lower inequality of income distribution and countries with a higher at-risk-of-poverty rate have a higher

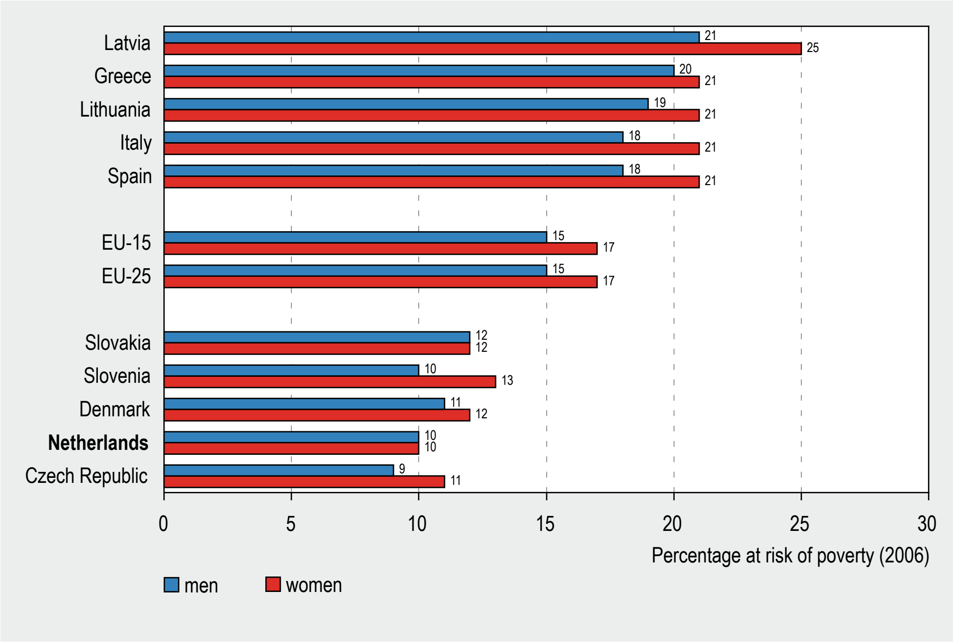


Figure 7.12: EU-27 countries with the highest and lowest percentage of population at risk of poverty in 2006 (Eurostat, 2008n). EU-27 average is not available.

inequality of income distribution. Inequality of income distribution is similar for men and women (data not shown in figure) (Eurostat, 2008n).

Between 1995-2001 the percentage of population at risk of poverty remained constant in the Netherlands

Between 1995 and 2001 in most EU-15 countries the percentage of population at risk of poverty decreased or remained constant. In the Netherlands the percentage also remained constant. It is difficult to discuss more recent trends because there has been a break in series due to changes in data collection between 2001 and 2005 (see *appendix A7.2.4*) (Eurostat, 2008n).

7.3 Summary

The Netherlands represents 3.3% of the total EU-27 population. Although the birth and fertility rates in the Netherlands are still higher than the EU average, they have both been recently decreasing. In some other countries the decreases in birth rate and fertility rates have halted. The percentage of older mothers has also been increasing relatively fast in the Netherlands. The population growth rate is below the EU average in the Netherlands and it is projected that the population increase will come to an end in 2036. Thereafter the population will probably decrease again. Because of this decrease, the Dutch population will probably increase by only 1.5% between 2007 and 2060. This difference in population size is very small compared with other EU countries.

The percentage of people with a low level of education is average in the Netherlands, but the proportion of Dutch people with a high level of education is higher than in the majority of EU countries. The proportion of more highly educated people increased between 1998 and 2006 in the Netherlands and other EU countries. At the same time the percentage of low educated people decreased. The Netherlands also has the largest proportion of the population in skilled occupation, but in contrast to other countries this proportion is no longer increasing. The Dutch unemployment rate is low compared to other countries and the percentage of the population at risk of poverty is also low.

An overview of demographic and socio-economic indicators is given in *table 7.3*. The column ‘NL compared to EU’ shows how the Dutch situation compares to the situation in the EU. The column ‘NL trend’ shows the direction of the Dutch trend and the column ‘NL trend compared to EU trend’ shows how the Dutch trend compares with the trend in the EU. For several demographic and socio-economic indicators, it cannot be said which direction is better or worse. Therefore, numerical differences, increases or decreases have been indicated as follows:

- NL < EU: Netherlands lower than EU.
- NL > EU: Netherlands higher than EU.
- ↑ NL trend: increase.
  for comparison with EU trend: NL trend increasing in comparison with EU trend.
- ↓ NL trend: decrease.
  for comparison with EU trend: NL trend decreasing in comparison with EU trend.
- ≈ for comparisons with EU: around EU average; for absolute NL trend: about stable.
- Blank cell: an assessment is not applicable.

This table presents a very concise summary of the data given in this report. For more information, please consult the corresponding text sections.

Table 7.3: Summary of demographic and socio-economic situation.

			NL compared to EU	NL trend	NL trend compared to EU trend
7.1	**Population**				
7.1.1	Population by gender and age			↑	↓
7.1.2	Crude birth rate		≈	↓	↓
7.1.3	Mother’s age distribution, older mothers		NL > EU	↑	↑
7.1.4	Total fertility rate		NL > EU	↓	↓
7.1.5	Population projections to 2060			↑	≈
7.2	**Socio-economic factors**				
7.2.1	Population by education	% high educated	NL > EU	↑	≈
		% low educated	≈	↓	≈
7.2.2	Population by occupation: % in skilled occupation		NL > EU	≈	↓
7.2.3	Total unemployment		NL < EU	↓	≈
7.2.4	Population below poverty line		NL < EU	≈	≈

PART II HEALTH AT DIFFERENT STAGES OF LIFE

8 CHILDREN AND YOUNG PEOPLE

In this chapter a selection of ECHI indicators that are relevant for youth and children will be discussed with a specific focus on the youngest age groups. For several indicators such a focus is recommended by ECHIM, but some indicators that are not included in the ECHI shortlist have been added, because of their special relevance for youth (e.g. dental health, sexual health). Young people are defined as people between 0-19 years of age. However, depending on the availability of data the focus may be on a slightly different age group or on parts of this age group.

Most young people are healthy and only few have health problems. The few cases of child mortality that occur are usually due to complications at birth, congenital disorders, accidents and childhood cancers. Asthma and other respiratory diseases constitute a large part of ill health among the young. Injuries and mental health disorders constitute another major part (Schrijvers & Schoemaker, 2008). Therefore, mortality will be discussed briefly here, with a focus on accidents and childhood cancers. Asthma and mental health will also be discussed in this chapter. The ECHI indicators for infant mortality and perinatal mortality are discussed in *chapter 4* Health Status.

The focus of this chapter will be on health determinants (risk factors) because these are the basis of ill health in later stages of life. Promotion of a healthy lifestyle among young people is a key part of public health in most EU countries. Healthy food, undertaking physical activities, not starting to smoke and drink alcohol can prevent many diseases later in life. However, patterns of unhealthy behaviour among youth are widespread in the Netherlands (Schrijvers & Schoemaker, 2008). We share this problem with many other EU countries, which makes it even more worthwhile to exchange good practices on the prevention of unhealthy lifestyles (Van der Wilk et al., 2008).

Of the Prevention and Care indicators, childhood vaccinations are discussed in relation to the incidence of specific childhood infectious diseases. Childhood vaccinations are a classical prevention strategy, but practice and policy around this type of intervention varies within the EU.

The chapter starts with a short description of the percentage of young people in EU countries and the demographic and socio-economic indicators important to children and young people: education (early school-leavers) children at risk of poverty and mother's age distribution (teenage pregnancies).

8.1 Demographic and socio-economic situation

The Dutch population is relatively young

In 2007, there were about 2.0 million Dutch boys and 1.9 million Dutch girls between 0 and 19 years old. With 24.2% of the population in this age group the Dutch population is relatively young when compared to other EU-27 countries. After three decades of

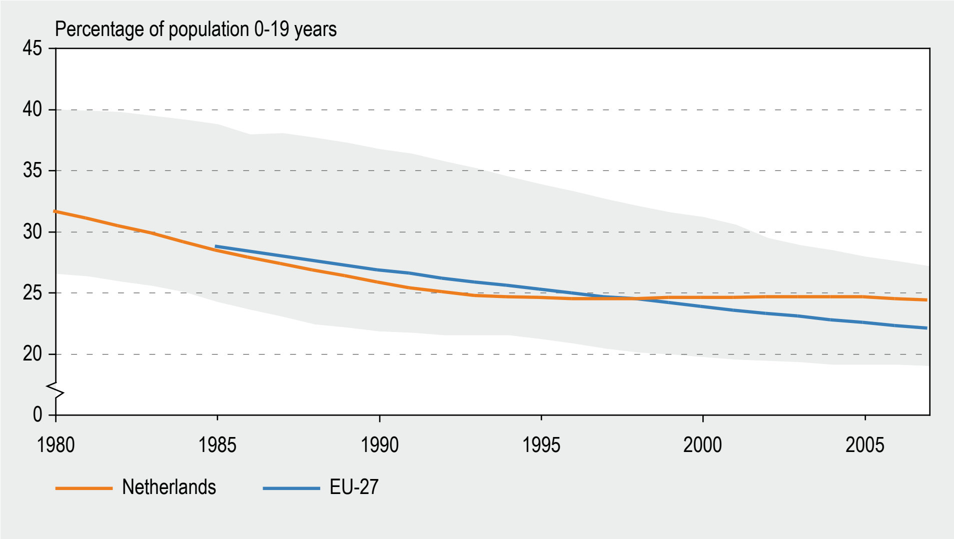


Figure 8.1: Trend in percentage of the population aged 0-19 years, for the Netherlands and EU-27 average, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

decrease since the mid-1960s, the percentage of 0-19 year-olds in the Netherlands has been stable at around 24-25% since the second half of the 1990s. However the percentage of young people in the EU-27 is on average decreasing and is now about 2% less than in the Netherlands (*figure 8.1*). In 2007, Ireland had the largest share of young people (27.1%) and Italy the smallest (19.1%) (Eurostat, 2008n).

Few teenage mothers in the Netherlands

In 2005, 6 per 1,000 girls aged 15-19 years gave birth in the Netherlands. This is a low number compared with other EU-27 countries. Other countries with a low number of teenage mothers are Denmark, Italy, Slovenia and Sweden (5 to 6 per 1,000). In eastern Europe there are more young mothers than in western Europe. Bulgaria, Romania and the United Kingdom have the highest rates of teenage mothers. In the United Kingdom the rate of teenage girls giving birth was four times higher than in the Netherlands and in Bulgaria the rate was almost seven times higher (Eurostat, 2008n). In most EU countries the number of live births per 1,000 girls aged 15-19 years has decreased between 1980 and 2005 (*figure 8.2*).

The number of pregnancies among teenagers is far greater than the number of live births. In the Netherlands about 60% of all teenage pregnancies are terminated by an abortion. This is comparable to the abortion rates in the other old EU-15 countries. In the new EU Member States abortion rates are somewhat lower according to official statistics. Abortion rate is highest in Sweden (80%) (WHO-HFA, 2008). Girls with an ethnic minority background are more likely to give birth than autochthonous Dutch girls. However, the number of births has, in recent years, decreased faster among the first than among the latter (Garssen, 2005; Garssen et al., 2005).

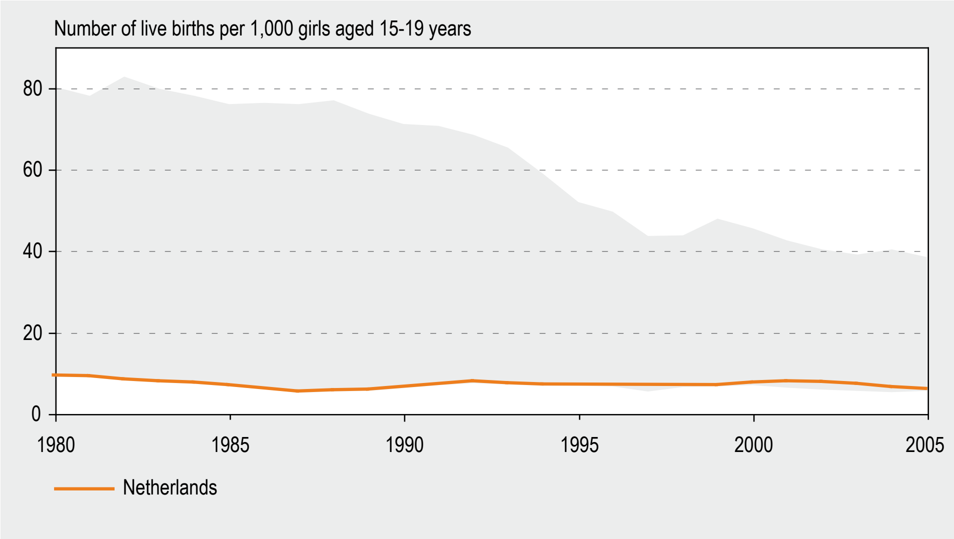


Figure 8.2: Trend in number of live births per 1,000 girls aged 15-19 years, for the Netherlands, 1980-2005. Range for EU-27 in grey (Eurostat, 2008n).

Percentage of early school-leavers is decreasing in the Netherlands and the EU

The EU has set the target of an EU average rate of no more than 10% early school-leavers in 2010 (Council, 2003). Early school-leavers are people aged 18-24 years with only lower secondary education and who are not currently in education. In order to achieve the EU target, all Member States should have at least halved the rate of early school-leavers in 2010 compared with the rate in 2000 (EC, 2002). In the Netherlands the number of early school-leavers decreased from 15.5% in 2000 to 12% in 2007 (*figure 8.3*). The average of

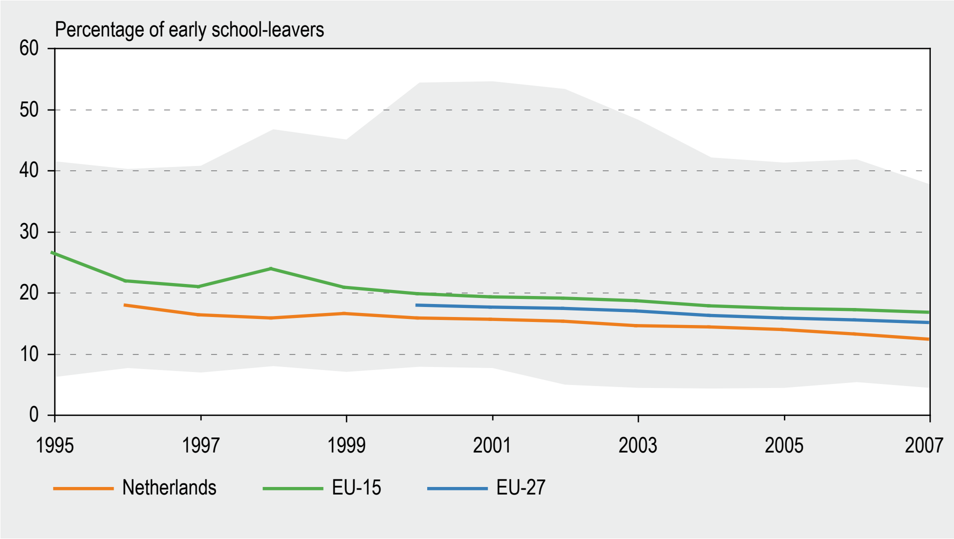


Figure 8.3: Trend in percentage of people aged 18-24 with only lower secondary education or less and not in education (early school-leavers), for the Netherlands and EU averages, 1995-2007. Range for EU-27 in grey (Eurostat, 2008n).

the EU has also decreased since 2000. In 2007, on average 16.4% of people aged 18-24 in the EU-15 left school with only lower secondary education or less compared with 19.5% in 2000. For the EU-27, percentages decreased from 17.6% to 14.8% (Eurostat, 2008n). Therefore, the Netherlands seems to do well compared to both the EU-15 and the EU-27. However, the EU average is influenced strongly by the high percentages in three southern European countries: Portugal (36.3%), Spain (31%) and Italy (19.3%). The lowest percentages are observed in the new Member States of Slovenia, Poland and the Czech Republic (around 5%) (Eurostat, 2008n). Considering these percentages the Dutch score is average. In the United Kingdom the percentage of early school-leavers decreased considerably (from 18.4% to 13% in 2006), while some countries with good results in the past showed little progress (Denmark, Austria, Finland) or experienced an increase (Sweden). Due to the overall slow progress being achieved, it is questionable whether the EU target will be met in 2010 (Herweijer, 2008).

Percentage of young people at risk of poverty is low in the Netherlands

The percentage of young people at risk of poverty is low in the Netherlands compared to other EU countries (*figure 8.4*). In 2006, 12% of Dutch boys and 15% of Dutch girls under the age of 18 were at risk of poverty. Within the EU there is large variation in the percentage of young people at risk of poverty. In Poland, Latvia, Hungary and Italy around 25% of young people are at risk of poverty. Finland and Denmark have the lowest percentages of young people at risk of poverty (around 10%). The percentages for Dutch people younger than 18 are a bit higher than those for the total Dutch population (10% for both men and

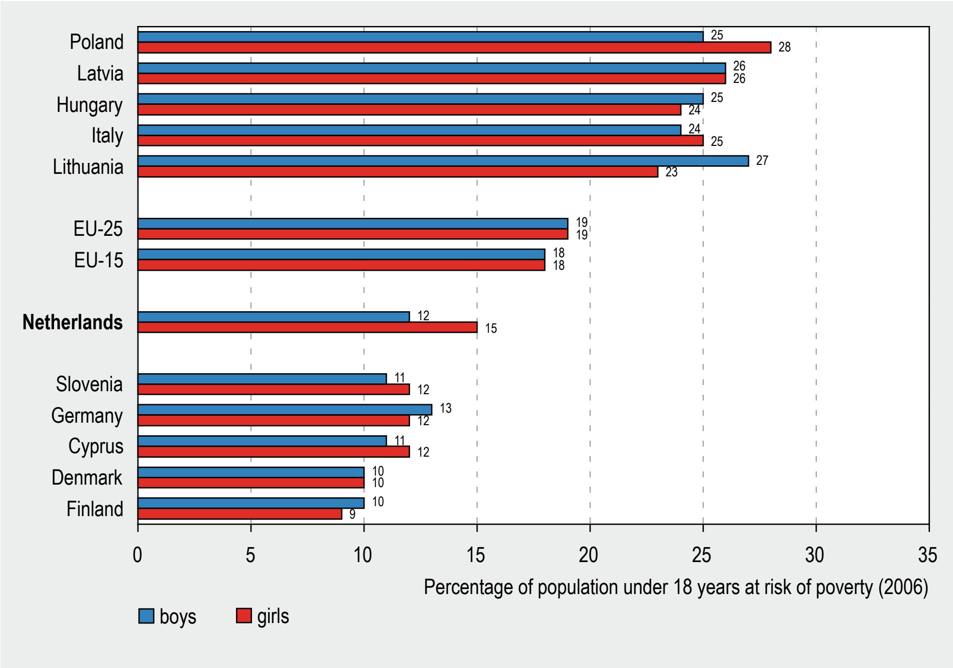


Figure 8.4: EU-27 countries with the highest and lowest percentage of population under 18 years at risk of poverty in 2006. EU-27 average is not available (Eurostat, 2008n).

women, see *paragraph 7.2.4*). In most countries, including the Netherlands, young people are more at risk of poverty than the total population (Eurostat, 2008n).

8.2 Health status

The majority of Dutch children is healthy and satisfied with their life

The majority of Dutch children reports feeling healthy and being satisfied with their life. In the Health Behaviour in School-aged Children (HBSC) study of 2005 the percentage of 15-year-olds who report high life satisfaction is highest in the Netherlands, with 86% of girls and 94% of boys being satisfied with their life. Dutch 11 and 13-year-olds are also more satisfied with their life compared with their European peers. Furthermore, Dutch pupils report few multiple subjective health complaints (headache or stomach ache, feeling low, irritable or bad tempered, feeling nervous, difficulties getting to sleep and feeling dizzy). The majority of Dutch children rates their health as good. However, the percentage of Dutch 15-year-olds who rate their health as fair or poor (26% of girls, 12% of boys) is comparable to the average of the countries participating in the HBSC study.

Mortality among children is dominated by perinatal and congenital conditions

In the Netherlands mortality among children and young people is very low compared to older age groups. Each year approximately 135,000 persons die in the Netherlands, about 1,500 of them being 0-19 year-old. Mortality in the age group 0-19 years is dominated by congenital malformations (21.6%) and conditions originating in the perinatal period (29.5%). After these, the main causes of mortality in this age group are injuries and poisoning (15.7%), followed by cancer (9.3%) (Schrijvers & Schoemaker, 2008).

Decline in infant and perinatal mortality is moderate compared to other EU countries

Since the beginning of the 1990s the Netherlands has lost its position among the five EU countries that had the lowest infant mortality rates, because the decrease in infant mortality has been moderate compared to other EU countries. Currently the infant mortality rate in the Netherlands is slightly higher than the EU-25 average. The Dutch perinatal mortality rate is similar to that of the EU-27 average, but high compared to the most affluent EU countries. As is the case with infant mortality, the decrease in perinatal mortality has only been moderate in the Netherlands. Infant mortality (during the first year of life) and perinatal mortality (foetal death and mortality in the first week) have been described in more detail in *paragraph 4.1.2* and *paragraph 4.1.3*. The focus in this chapter is therefore on mortality between 1 and 19 years of age.

Mortality among Dutch children is low and still decreasing

With an SDR (standardized death rate) of 16.5 per 100,000, mortality for Dutch children aged 1-19 years is considerably lower than the EU-27 average (22.7 per 100,000) and the EU-15 average (20.0 per 100,000) in 2006 (*figure 8.5*). In fact, together with Luxembourg, Sweden and Germany, the Netherlands belongs to the countries with the lowest mortality among 1-19 year-olds. Mortality is highest in Romania, Bulgaria and the Baltic States, who all have a mortality of around 40 per 100,000. Mortality has decreased in all EU-27

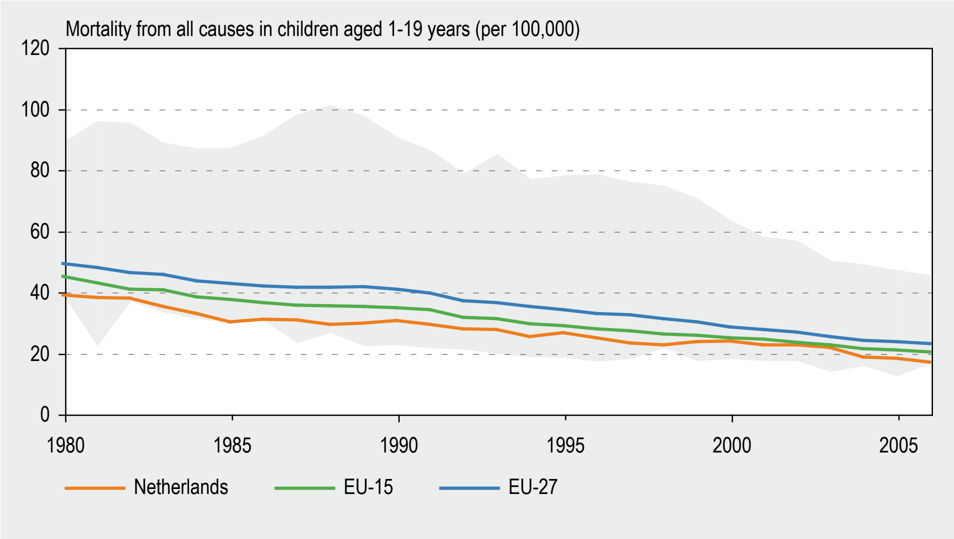


Figure 8.5: Trend in mortality (SDR per 100,000) from all causes in children aged 1-19 years, for the Netherlands and EU averages, 1980-2006. Range for EU-27 average in grey (WHO-MDB, 2008).

countries since 1980. Furthermore, mortality is slightly higher in boys than in girls in all EU-27 countries (WHO-DMDB, 2008; WHO-MDB, 2008).

Compared with other countries few Dutch children die of injury and poisoning

Compared to other EU-27 countries mortality due to external causes of injury and poisoning has been low in the Netherlands since 1980 (*figure 8.6*). Between 1980 and 2006, childhood mortality from injury and poisoning has more than halved in almost all countries. In 2006, 5.6 per 100,000 Dutch children (aged 1-19) died because of an injury or poisoning, which is the lowest number in the EU-27. Other countries with few fatal accidents among children are Sweden, Germany and the United Kingdom. In most EU-27 countries, less than 15 children per 100,000 die each year because of an injury or poisoning. Exceptions are the Baltic States and Romania. In these countries mortality ranges between 20 and 30 per 100,000. In almost all countries more boys than girls die as a result of an injury or poisoning, although the differences between the sexes are quite small in the Netherlands (WHO-MDB, 2008).

In most countries 30% to 70% of mortality from external causes of injury and poisoning among children aged 1-19 is caused by transport accidents (WHO-MDB, 2008). It is therefore not surprising that the countries with the lowest mortality from external causes (the Netherlands, Germany, the United Kingdom and Sweden) also have the lowest mortality due transport accidents. Furthermore, in the majority of countries 40% to 60% of mortality from all causes is caused by mortality from injury and poisoning. Again, the Netherlands, Germany, Sweden, and to a lesser degree the United Kingdom, belong to the countries with the lowest mortality from all causes. Thus, a low mortality from injury and poisoning, and from transport accidents in particular, contributes largely to the low mortality from all causes among 1-19 year-old children in these countries.

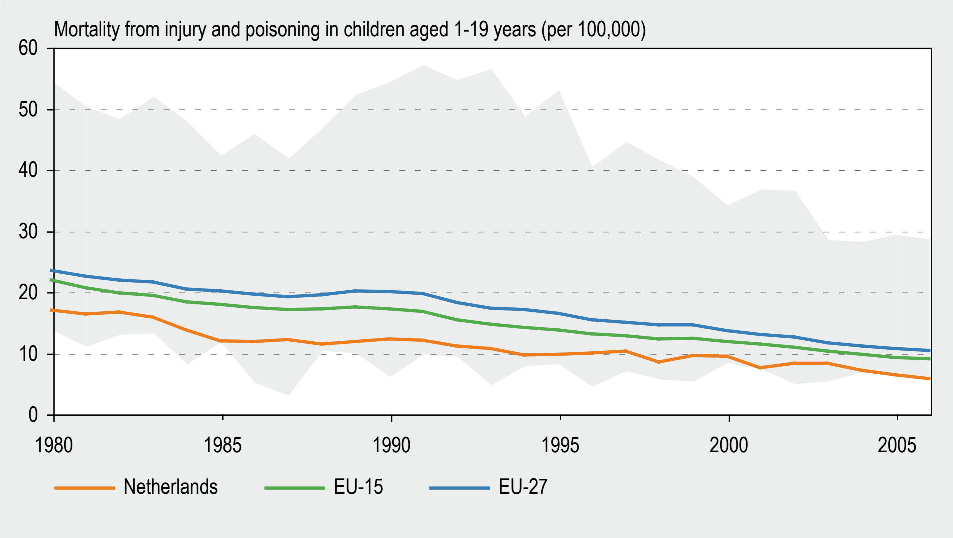


Figure 8.6: Trend in mortality (SDR per 100,000) due to external causes of injury and poisoning in children aged 1-19 years, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-MDB, 2008).

For 1-4 year-olds the picture is slightly different. In this age group also a substantial part of fatal accidents is caused by drowning, on average around 20% in the EU-27 and around 30% in the Netherlands.

Children's cancer mortality is decreasing across the EU

Similar to mortality for all causes and mortality due to injuries/poisoning, cancer mortality in European children has also been decreasing since 1980. In the Netherlands cancer mortality in children aged 1-19 years used to be lower than the average for the EU-27 as well as the EU-15 (*figure 8.7*) (WHO-MDB, 2008). However, recently the Dutch mortality level has come closer to the EU averages. Leukaemia and malignant tumours of the central nervous system (CNS) are the most common childhood cancers, and are jointly responsible for around half of all cancers. Mortality due to leukaemia as well as CNS tumours is not particularly high or low in the Netherlands for the age groups 1-19 years (WHO-DMDB, 2008). Furthermore, somewhat older data indicate that in the Netherlands the incidence of leukaemia and CNS tumours in children is average (ACCIS, 2003). Also survival for childhood cancers is average (Gatta et al., 2003) (see *paragraph 6.5.1* on survival rates for cancer).

Average proportion of Dutch youth has emotional problems and conduct disorders

The percentage of Dutch children with internalising problems (emotional problems) or externalising problems (conduct disorders) is average compared with other EU countries (Rescorla et al., 2007; Schrijvers & Schoemaker, 2008). Examples of internalising problems are anxiety and mood disorders. Aggressive behaviours, such as bullying and fighting, are examples of externalizing problems. Dutch 15-year-olds fight and bully others on average just as often as their European peers, but Dutch girls from less affluent families are significantly more often a victim of bullying. The proportion of Dutch children

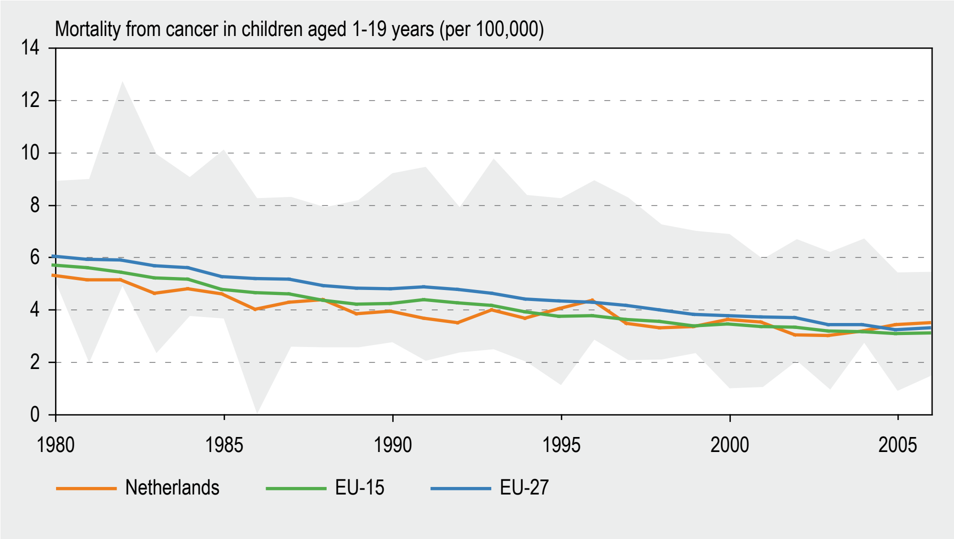


Figure 8.7: Trend in cancer mortality (SDR per 100,000) in children aged 1-19 years, for the Netherlands and EU averages, 1980-2006. Range for EU-27 in grey (WHO-MDB, 2008).

engaging in weight reduction behaviour (14% of 15-year-old girls, 5% of boys) is very small compared with other countries. However, the low number does not correspond to the relatively high percentage of Dutch 15-year-olds who think they are too fat. Dutch girls in particular, belong to the upper range with 53%. Body image has an important role in mental health and psychological wellbeing. High levels of body dissatisfaction are associated with depressive mood and eating disorders (Currie et al., 2008).

Prevalence of asthmatic symptoms is comparable with other western European countries

The 12-month prevalence of asthmatic symptoms (wheeze, severe wheeze limiting speech and four or more asthmatic attacks) in the Netherlands is comparable to the prevalence in Germany, France, Sweden and Italy. This prevalence is considerably higher, however, in the United Kingdom (Weinmayr et al., 2007). According to the second phase of the International Study of Asthma and Allergies in Childhood (ISAAC) in 1997-1998, approximately 8.7% of Dutch 8-12 year-olds had experienced wheezing in the past 12 months, 2.7% suffered from four or more asthmatic attacks and 1.6% experienced severe wheeze limiting speech. A comparison of data from the third phase with the first phase of the ISAAC study indicates that asthma symptoms are decreasing in some of the countries with the highest prevalences, especially among 13-14 year-olds but less so in 6-7 year-olds (Asher et al., 2006; Pearce et al., 2007). The Netherlands was not included in this comparison, but in the Netherlands the prevalence of asthma among young people is also slightly decreasing (Smit et al., 2006).

Dutch youth has healthy teeth
Dutch 5 and 12-year-olds have relatively few dental caries compared to youth in other EU countries. Dental caries is measured with the DMFS index score, the sum of Decayed, Missing, or Filled Surface of the teeth. The DMFS score for permanent as well as deciduous (milk) teeth is fairly low in the Netherlands (CECDO, 2007; Downer et al., 2005). Dutch 12-year-olds have a DMFS of about 1. In some central and eastern European countries DMFS index scores are about four to five times higher. In most western European countries caries has decreased during the last decades (Downer et al., 2005).

8.3 Determinants of health

Internationally comparable data on several lifestyle factors are available from the Health Behaviour in School-aged Children (HBSC) survey. This is a cross-national study coordinated by WHO-Europe (see *appendix 8*). Data are available for 11, 13 and 15-year-old children. In this paragraph the focus is on the 15-year-olds.

Compared with southern European countries few Dutch children are overweight
In comparison with other countries in the HBSC study few Dutch 15-year-old boys (10%) are overweight. The prevalence for Dutch 15-year-old girls, also 10%, is average (*figure 8.8*). Prevalence data from the HBSC study are based on self-reported (by the children) height and weight (Currie et al., 2008). In Dutch studies based on measured height and weight the prevalence of overweight for boys lies, depending on age, between 9.2% and 17.3% and the prevalence of obesity between 2.5% and 4.3%. For girls the prevalence varies between 14.6% and 24.6% for overweight and between 2.3% and 6.5% for obesity (Schokker et al., 2007; Van den Hurk et al., 2006).

The prevalence of overweight in youth communities is especially high in southern European countries. The Mediterranean islands of Malta, Sicily, Gibraltar and Crete as well as Spain, Portugal and Italy report overweight levels exceeding 30% among children aged 7-11 years. In the United Kingdom as well, the problem of overweight children (almost 30%) is a far more pressing issue than in the Netherlands (IOTF, 2005). In the majority of countries in the HBSC study overweight is more prevalent among boys while no difference between age groups was found. In the Netherlands, however, the prevalence for boys and girls was the same and both increased with age (Currie et al., 2008). In around half of the HBSC countries lower family affluence [13] is significantly associated with more overweight and obesity. This pattern is strongest in western Europe and is also observed in the Netherlands (Currie et al., 2008).

[13] In the international HBSC report (Currie et al., 2008) family affluence has been selected to classify young people's socio-economic status. Family affluence was measured using four questions on the material conditions of the households in which young people live. These questions cover car ownership, bedroom occupancy, holidays and home computers. The Dutch national HBSC report gives comparisons for children with different educational level. These two measures of socio-economic status are not directly related (Van Dorsselaer et al., 2007).

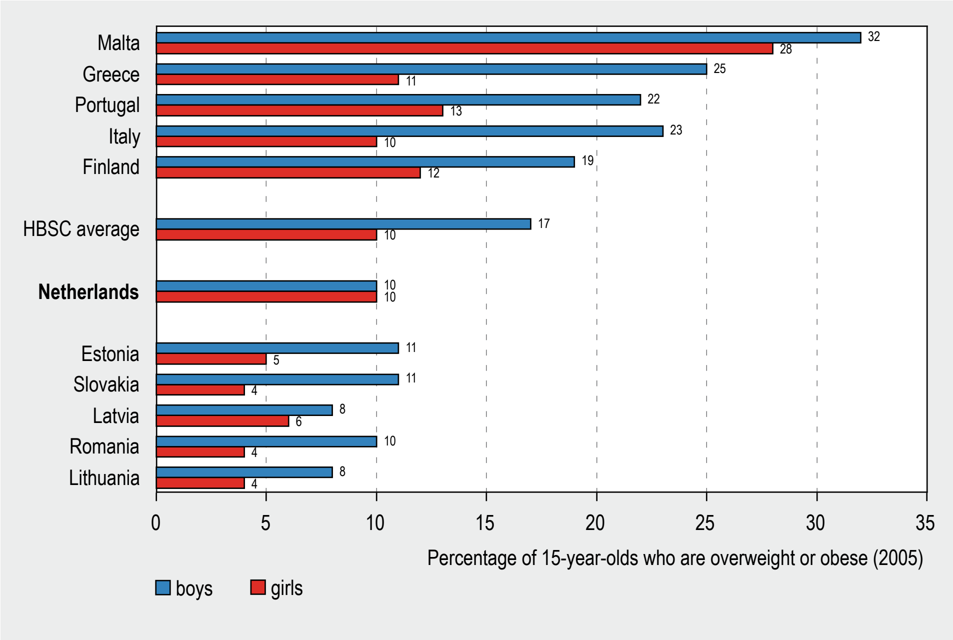


Figure 8.8: EU-27 countries with the highest and the lowest percentages of 15-year-olds being overweight or obese. Data from the 2005 HBSC study (Currie et al., 2008).

Childhood obesity is a European epidemic

Childhood obesity is occasionally called a new European epidemic. Although the prevalence of overweight in the Netherlands is quite low compared to other countries, the increase in obesity is worrying. In Dutch boys and girls the obesity prevalence doubled or even tripled from 1980 to 1997 and again from 1997 to 2002-2004 for almost all ages (Schokker et al., 2007). Rates of increase vary across the EU, with England and Poland showing the steepest increases. The epidemic of childhood obesity and overweight is accelerating in the EU. The IOTF estimated, based on 26 European population surveys, that the annual increases in overweight prevalence of around 0.2% during the 1970s rose to up to 0.6% during the 1980s, and up to 0.8% in the early 1990s, reaching as high as 2.0% in some cases by the 2000s (IOTF, 2005).

Average proportion of Dutch youth is physically active on a daily basis

The proportion of Dutch 15-year-olds who report at least one hour of physical activity daily is average compared to the other EU-27 countries (*figure 8.9*). Although Dutch boys (18%) are more physically active than girls (15%), in international comparisons Dutch girls rank higher among their peers than Dutch boys. In the Netherlands girls are almost as physically active as boys, whereas in other countries boys are a lot more active. Furthermore, the Netherlands belongs to the less than half of countries where higher levels of physical activity are associated with higher levels of family affluence for both boys and girls. In the other countries such an association was not found (Currie et al., 2008).

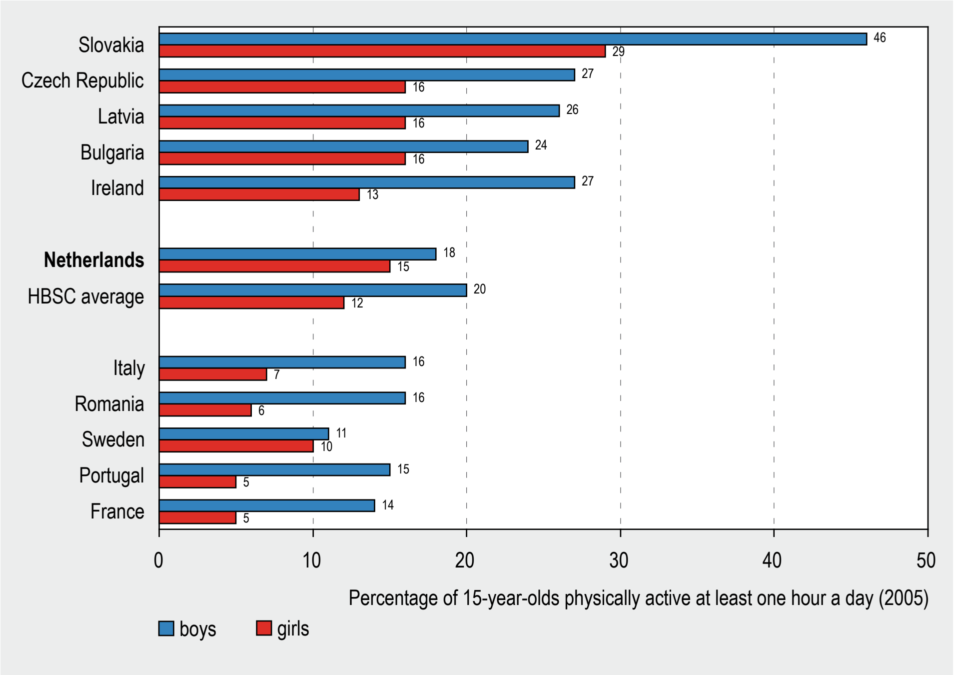


Figure 8.9: EU-27 countries with the highest and the lowest percentage of 15-year-olds who report at least one hour of moderate-to-vigorous activity daily. Data from the 2005 HBSC study (Currie et al., 2008).

Dutch boys and girls do not eat fruit frequently

Rates of daily fruit consumption are low in the Netherlands, for both boys and girls. Children from Italy, Portugal and Great Britain most often eat fruit on a daily basis. Children in the Baltic States, Finland and Greece eat fruit less often (*figure 8.10*). Daily fruit consumption is higher among girls in almost all countries. This is also the case in the Netherlands. Furthermore, rates of daily fruit consumption decrease with age in the Netherlands and almost all other countries. Low levels are significantly associated with low family affluence among boys and girls in the majority of countries. However, in the Netherlands, this association was not found for girls. The situation is less unfavourable with regard to vegetable consumption. On average, Dutch 15-year-olds more often eat vegetables on a daily basis than their European peers. Again Great Britain ranks highly, as well as Belgium and Ireland (*figure 8.10*) (Currie et al., 2008). Fruit and vegetable intake is a proxy for a healthy diet. The WHO recommends the intake of at least 400 grams of fruit and vegetables per day. This translates into around 5-6 portions daily. One portion is equivalent to one piece of fruit or one serving of vegetables (WHO-Europe, 2000).

Smoking among young people is average in the Netherlands

The percentage of smokers among 15-year-old pupils is average in the Netherlands compared to other EU-27 countries in the HBSC study (*figure 8.11*). In 2005, 21% of girls and 16% of boys smoked at least once a week. Percentages are highest in Austria and Bulgaria and lowest in Sweden and Portugal (Currie et al., 2008). Compared with the 2001/2002 HBSC study, in the majority of countries the percentage of weekly smokers

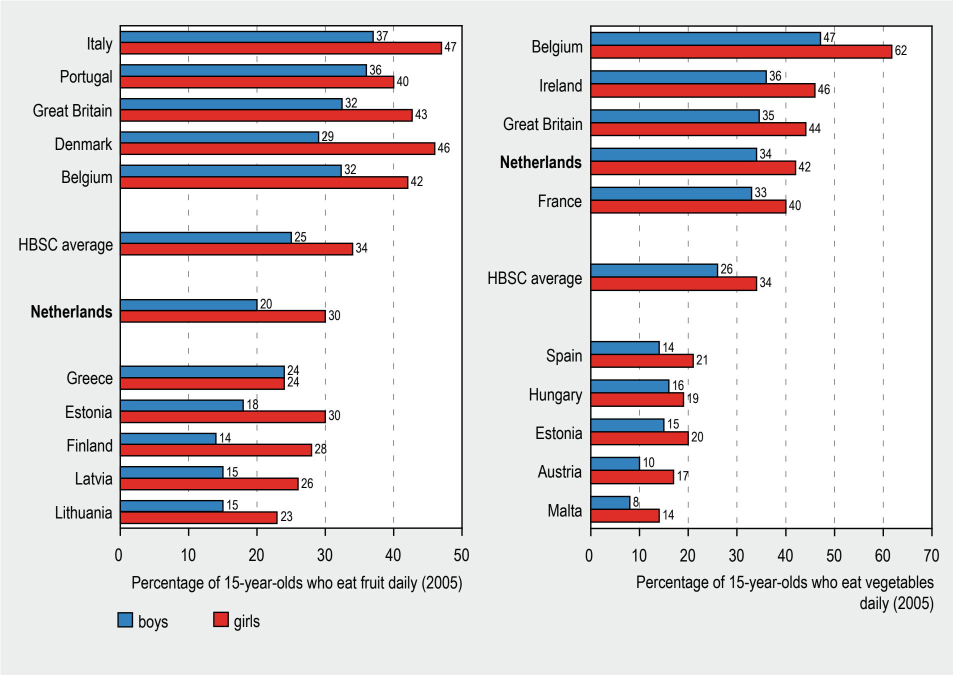


Figure 8.10: EU-27 countries with the highest and the lowest percentage of 15-year-olds who eat fruit and vegetables daily. Data from the 2005 HBSC study (Currie et al., 2008).

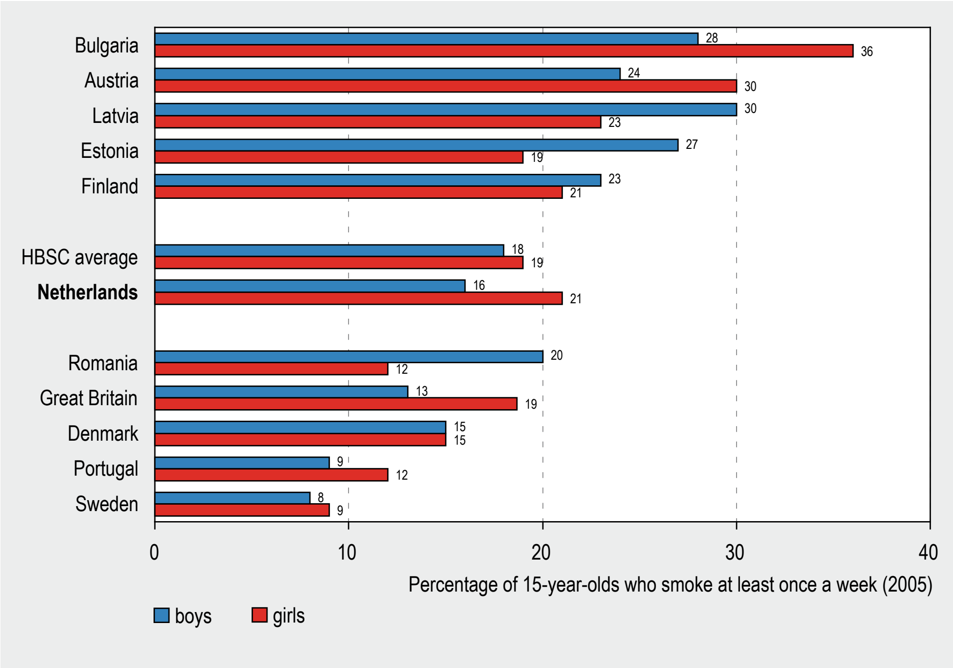


Figure 8.11: EU-27 countries with the highest and the lowest percentage of 15-year-olds who smoke at least once a week. Data from the 2005 HBSC study (Currie et al., 2008).

among 15-year-olds has decreased. That does not alter the fact that between 13 and 15 years of age the weekly smoking rates have increased greatly in all countries. In the Netherlands 15-year-old girls smoke more often than boys, but the difference is not statistically significant. In the majority of the 'old' EU-15 countries, girls more often report that they smoke, whereas in the majority of new EU countries boys report smoking more often. This pattern is different from that for alcohol and cannabis use. Alcohol and cannabis use are higher among boys in almost all countries.

Weekly smoking is not associated with family affluence in the Netherlands, whereas in most northern European countries higher rates of weekly smoking among girls are associated with lower family affluence (Currie et al., 2008). However, in the Dutch HBSC survey percentages of daily smoking decreased with increasing educational level (Van Dorsselaer et al., 2007).

Substantial proportion of European children is exposed to environmental tobacco smoke

Environmental tobacco smoke (ETS) has several health effects, both fatal (for example SIDS, see *paragraph 4.1.2* on infant mortality) and non-fatal, for example lower respiratory tract infections, cough, wheeze and asthma (see *paragraph 8.2* in this chapter). It is estimated that exposure to ETS increases the number of asthma episodes in children aged under 14 years from 6% to 10%, depending on the underlying smoking prevalence (dose-response effect). The average increase in the countries evaluated is 7.5% (Puklova et al., 2008). Exposure to ETS among children is strongly associated with patterns of smoking among parents. Data for western European countries show that a lot of children are exposed to ETS in their homes (Puklova et al., 2008). Rates of exposure to ETS ranged from 20% in the Netherlands to 35% in the United Kingdom (England) for children aged up to 4 years, who are at particular risk of illness related to ETS (ECEH, 2003). In France, 47% of the children aged 4-10 years were exposed to ETS in their homes, while a similar proportion was found among 13-14 year-olds in Ireland (ECEH, 2003). Other studies found that the proportion of children aged 6-12 years living with a current smoker in the household was around 50%: 46% in Germany, 48% in Switzerland and 58% in Italy and the Netherlands (Pattenden et al., 2006). The proportion of 13-15 year-olds exposed to ETS is especially high in several new Member States (80-90% in Slovakia, Estonia, Hungary, Poland and Romania) (Puklova et al., 2008). Children who smoke daily are also a potential source of exposure to ETS for their non-smoking peers. See also *paragraph 6.6.1* on policies on environmental tobacco smoke exposure.

Dutch youth consumes alcohol frequently and in large quantities

Although the percentage of Dutch 15-year-olds that drink alcohol at least once a week was a bit lower in the 2005 HBSC round compared with the 2001/2002 round, it is still relatively high (for both boys and girls) compared with their European peers (*figure 8.12*) (Currie et al., 2008). The HBSC study also confirms the trend of young people starting to drink at a younger age. After the Czech Republic, Dutch 15-year-olds reported the highest percentages of having had their first drink at age 13 or younger. The percentage of weekly drinkers increased between the age 11 and 15 in almost all countries, with the largest increase between the age 13 and 15. This pattern is the same for the Netherlands. It is

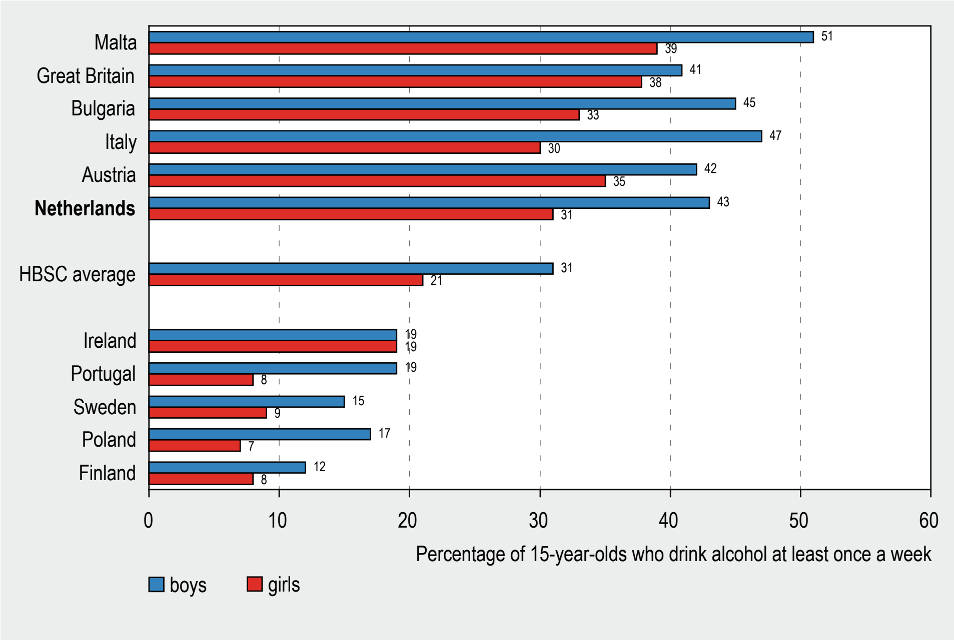


Figure 8.12: EU-27 countries with the highest and the lowest percentage of 15-year-olds who drink alcohol at least once a week. Data from the 2005 HBSC study (Currie et al., 2008).

remarkable though, that Dutch pupils report relatively little drunkenness compared with pupils in other EU countries (Currie et al., 2008). This might have something to do with differences in interpretation of the word 'drunkenness' (Anderson & Baumberg, 2006).

In the ESPAD survey (European School Survey Project on Alcohol and other Drugs) from 2003 the Dutch youth stands out with their frequency of drinking: 25% of 15 and 16-year-old pupils drink alcohol ten times or more in a month, which is the highest percentage in the EU. Furthermore, Dutch pupils reported the highest levels (28%) of binge drinking (drinking more than five alcoholic drinks in one session) together with Ireland (32%) and the United Kingdom (27%) (Hibell et al., 2004). Between 2003 and 2005 binge drinking increased further among Dutch pupils who drink (Van Dorsselaer et al., 2007). In the Dutch HBSC survey binge drinking and drinking alcohol on more than one day a week were significantly higher among pupils with a lower educational level (Van Dorsselaer et al., 2007). However, in the international HBSC study, higher levels of weekly drinking were associated with higher levels of family affluence [14] in just over a third of countries for boys, but in fewer for girls. This association was also observed in the Netherlands for both girls and boys (Currie et al., 2008).

[14] In the international HBSC report (Currie et al., 2008) family affluence has been selected to classify young people's socio-economic status. Family affluence was measured using four questions on the material conditions of the households in which young people live. These questions cover car ownership, bedroom occupancy, holidays and home computers. The Dutch national HBSC report gives comparisons for children with different educational level. These two measures of socio-economic status are not directly related (Van Dorsselaer et al., 2007).

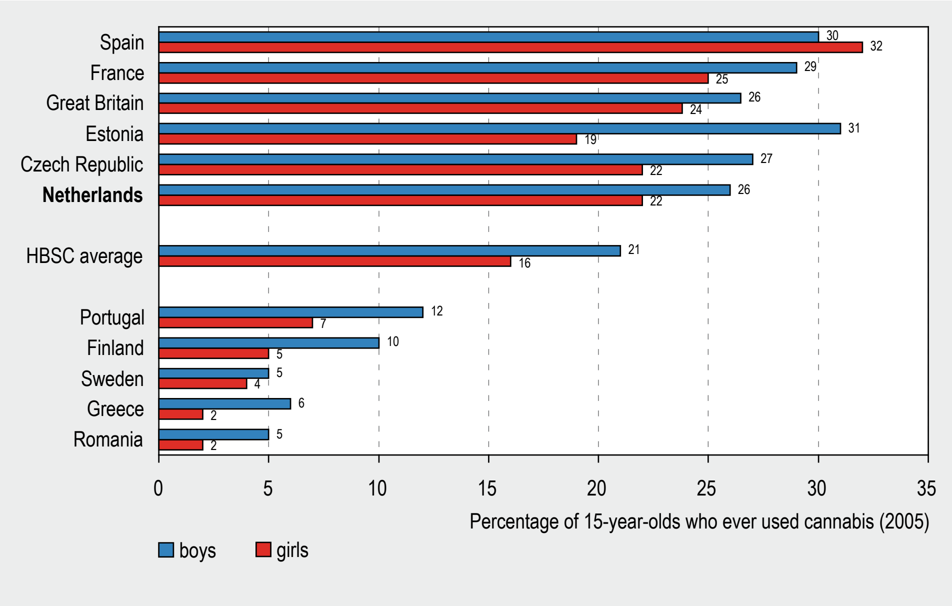


Figure 8.13: EU-27 countries with the highest and lowest percentage of 15-year-olds who ever used cannabis. Data from the 2005 HBSC study (Currie et al., 2008).

Relatively high percentage of Dutch youth has tried cannabis

A relatively high percentage of Dutch youth has used cannabis at some time in their life. Of Dutch 15-year-old boys 26% have tried cannabis at least once. For 15-year-old girls this percentage is lower: 22%. Both percentages are well above the HBSC average of 21% and 16% respectively. Among EU countries there are large differences in lifetime cannabis use, ranging from 2% in Romanian girls to 32% in Spanish girls and from 5% in Romanian boys to 31% in Estonian boys (*figure 8.13*). In general, rates are highest in several northern and western European countries (Currie et al., 2008).

Focusing on current use, the picture is similar: 15% of 15-year-old boys and 10% of 15-year-old girls in the Netherlands have used cannabis during the last 30 days (current use). This is high compared to the HBSC average of 8% for boys and 6% for girls. The prevalence of cannabis use in the last 30 days also shows wide variations among countries, ranging from around 1% for boys and girls in Romania to 15% for both boys and girls in Spain (Currie et al., 2008). In the ESPAD study (2003), the Netherlands ranked 8th out of 25 EU countries with 13% of Dutch 15 and 16-year-olds having used cannabis during the last 30 days. Data from the next round of the ESPAD study is expected at the end of 2008 (Hibell et al., 2004).

In general cannabis use is more prevalent among boys than among girls, and there is a significant gender difference in around half of the countries. This gender difference is also present in the Netherlands for recent cannabis use but not for lifetime use (Currie et al., 2008). Furthermore, in the Netherlands, as well as in most other HBSC countries family affluence is not strongly associated with lifetime cannabis use. However in some eastern European countries, having tried cannabis is associated with higher family affluence.

Use of cannabis is decreasing among European pupils

Compared with the 2001/2002 round of the HBSC study, in 2005, lifetime use decreased slightly in the Netherlands from 29% to 26% in boys and from 23% to 22% in girls. Such a decrease in lifetime prevalence occurred in almost all countries participating in HBSC, and was most apparent in some countries with a high lifetime prevalence of cannabis use (Currie et al., 2008). The decrease in the Netherlands (and some of the other countries) is not clearly significant, but the general picture of a decrease is supported by new data in five countries from national school surveys in 2005. These surveys also noted slight decreases (in Italy, Poland, the United Kingdom and Belgium (Flanders)) or a stabilization (in Sweden) in cannabis use, and also in lifetime use of amphetamines and ecstasy (EMCDDA, 2007a). Furthermore, analysis of data from the first three rounds of the ESPAD survey (1996-2003) also revealed that cannabis use has started to stabilize in some high prevalence countries, such as Ireland and the United Kingdom, and also in the Netherlands.

Unhealthy lifestyles correlate and are more common among lower educated pupils

In the Netherlands a number of unhealthy lifestyles correlate with each other or with psychological problems. Young people who drink, often also smoke, use cannabis and engage in risky sexual behaviour. For instance, young people who smoke have a 22 times greater chance of using cannabis, and those who drink alcohol have a 7 times greater chance of smoking and a 9 times greater chance of using cannabis. Use of these substances was also associated with having sexual intercourse before the age of 17 and with behavioural problems. Furthermore, a combination of at least three unhealthy lifestyles and psychological problems is more common among young people in the lower education levels (Schrijvers & Schoemaker, 2008).

In the 2005/2006 survey round of HBSC, countries reporting high levels of one unhealthy lifestyle do not necessarily report high levels of another. However, in general, countries with higher percentages of 15-year-old girls drinking alcohol at least once a week also have higher percentages of recent cannabis use and smoking at least once a week among girls (*figure 8.14* for smoking and alcohol, Spearman rank correlation r_s=0.51, p=0.007). Higher rates of weekly smoking among girls also seem to correlate with higher rates of recent cannabis use and less strongly with ever having used cannabis. Such a correlation is not seen among boys.

Dutch pupils are not sexually active at a younger age than their European peers

Dutch 15-year-olds are not sexually active at a younger age than 15-year-olds in other EU countries. At the age of 15, 27% of girls and 25% of boys have had sexual intercourse. This is comparable to the percentages in other EU countries. On average, girls in northern Europe are sexually active at a younger age than girls in southern and western Europe (*table 8.1*) (Currie et al., 2008).

Contraceptive pill use is highest in the Netherlands, but condom use has room for improvement

The Netherlands belongs to the European frontrunners in contraceptive pill use. 61% of girls and 42% of boys reported that they (or their partner) used the contraceptive pill

Figure 8.14: Percentage of 15-year-old girls who drink alcohol and smoke at least once a week in 26 EU-27 countries[15] in 2005 (Currie et al., 2008). Spearman rank r_s=0.51, p=0.007.

during the last time they had sexual intercourse (*table 8.1*). Rates of contraceptive pill use are higher in western Europe compared to eastern and southern Europe. Although the Netherlands stand out for contraceptive pill use, levels of condom use are average. The same picture is seen in Belgium, Germany and Denmark where contraceptive pills are also used frequently, but condoms seem to be less favoured compared with the frontrunners Spain, Portugal, Estonia and France. High levels of condom use are also reported among Greek boys, but less so among girls. It is remarkable that Spain not only has the highest level of condom use but also the lowest level of contraceptive pill use. Portugal, Estonia and France have average levels of contraceptive pill use (Currie et al., 2008).

Compared with the 2001 HBSC survey condom use increased slightly in the Netherlands. However, several countries achieved large increases in condom use. For instance, in Germany condom use increased from 76% in boys and 65% in girls to 83% and 73% respectively. In Spain, the country with the highest percentage of 15-year-olds reporting to use a condom in 2001 as well as in 2005, the use of condoms increased even further among girls. However, rates have fallen among Spanish boys.

[15] at Austria, be Belgium, bg Bulgaria, cz Czech Republic, dk Denmark, ee Estonia, fi Finland, fr France, de Germany, gb Great Britain, gr Greece, hu Hungary, ie Ireland, it Italy, lv Latvia, lt Lithuania, lu Luxembourg, mt Malta, nl Netherlands, pl Poland, pt Portugal, ro Romania, sk Slovakia, si Slovenia, es Spain, se Sweden.

Table 8.1: Percentage of 15-year-olds who have had sexual intercourse and percentage of 15-year-olds who used a condom or contraceptive pill at last sexual intercourse, in EU-27 countries[a]. Data from the 2005 HBSC study (Currie et al., 2008).

	Ever had sexual intercourse		Condom use at last sexual intercourse		Contraceptive pill use at last sexual intercourse	
	boys	girls	boys	girls	boys	girls
Austria	31	26	86	76	18	30
Belgium (only Flanders)	22	24	79	67	44	57
Bulgaria	47	31	86	76	9	7
Czech Republic	17	18	-	-	-	-
Denmark	37	40	74	63	42	47
Estonia	26	23	88	81	14	14
Finland	25	30	80	64	24	31
France	33	23	88	80	17	26
Germany	23	24	83	73	41	55
Great Britain	27	32	84	80	19	24
Greece	46	18	91	69	5	5
Hungary	25	21	79	76	11	13
Italy	27	22	-	-	-	-
Latvia	22	19	86	77	7	11
Lithuania	25	12	83	75	5	11
Luxembourg	32	28	-	-	-	-
Netherlands	**25**	**27**	**85**	**74**	**42**	**61**
Portugal	27	21	86	84	11	27
Romania	46	12	81	61	3	9
Slovakia	13	11	65	67	9	3
Slovenia	30	17	70	84	19	25
Spain	23	21	83	95	4	5
Sweden	25	32	69	63	24	27

[a] Ireland and Poland did not collect data on sexual health. Data for Malta are not presented due to differences in question format.

Countries with high levels of contraceptive pill use have lower levels of teenage mothers

Countries with high percentages of 15-year-old girls using the contraceptive pill, tend to report lower rates of teenage mothers (*figure 8.15*, Spearman rank correlation r_s=0.62, p=0.004). On the other hand, high levels of condom use do not result in a lower number of teenagers giving birth. Furthermore, countries where teenagers start being sexually active at a younger age (as measured by the percentage of 15-year-olds who ever had sex) do not report higher levels of teenage mothers (p=0.267). Girls in northern Europe are sexually active at a younger age than girls in western and southern Europe, but northern European countries do not have more teenage mothers (*figure 8.16*). However,

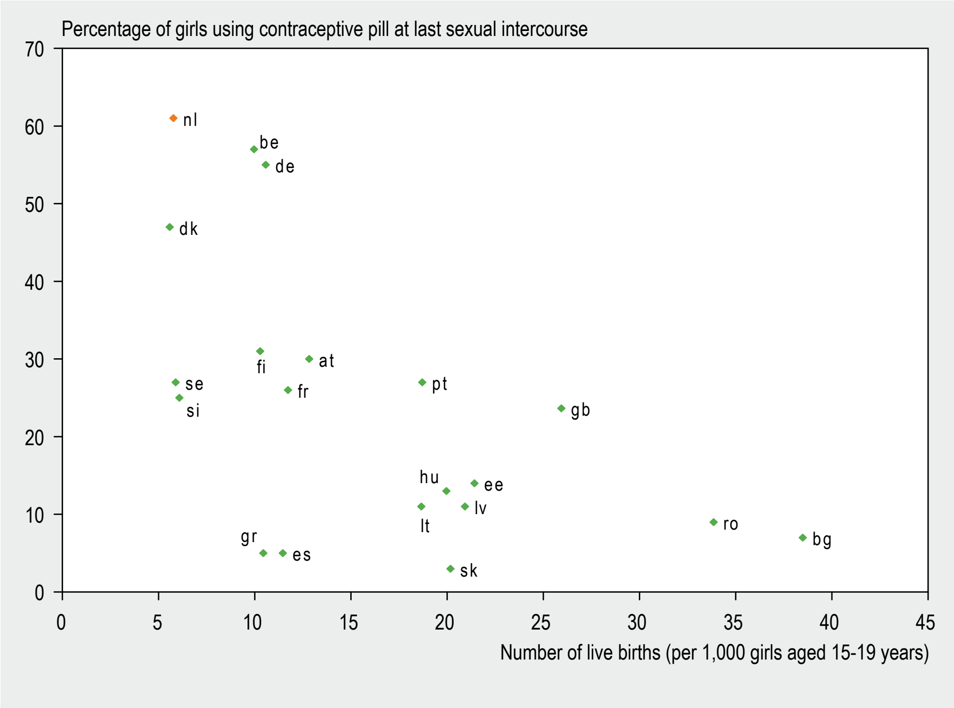


Figure 8.15: Number of live births per 1,000 girls 15-19 years old and percentage of girls who used the contraceptive pill during last sexual intercourse, in 20 EU-27[16,17], countries in 2005 (Currie et al., 2008; Eurostat, 2008n). Spearman rank r_s=0.62, p=0.004.

these figures do not take into account differences in abortion rates between EU countries (see *paragraph 8.1*).

High rates of toothbrushing in the Netherlands

The percentage of Dutch children that brushes their teeth more than once a day belongs to the highest in Europe, especially among 11 and 13-year-olds. Of Dutch 15-year-olds, 81% of girls and 69% of boys brush their teeth more than once a day. This is higher than the average of HBSC countries (girls 74%, boys 54%). High rates of toothbrushing are also reported in Sweden, Germany, Austria, Italy, Denmark and England, which, together with the Netherlands, are also the countries with the lowest DMFT index scores (see *paragraph 8.2*). In the countries in the HBSC study there is a general tendency towards an increase in toothbrushing more than once a day between the ages of 11 and 15, particularly among girls. However, in the Netherlands, rates are decreasing with age, particularly among boys. For Dutch girls rates remain more or less stable. Therefore, in international comparisons the Netherlands is doing relatively less well for 15-year-olds than for 11 and 13-year-olds, but the rates are still higher than those in the majority of EU countries. Furthermore,

[16] Belgium: excluding French speaking part in data on contraceptive pill use.
[17] at Austria, be Belgium, bg Bulgaria, dk Denmark, ee Estonia, fi Finland, fr France, de Germany, gb Great Britain, gr Greece, hu Hungary, lv Latvia, lt Lithuania, nl Netherlands, pt Portugal, ro Romania, sk Slovakia, si Slovenia, es Spain, se Sweden.

Figure 8.16: Number of live births per 1,000 girls 15-19 years old and percentage of 15-year-old girls who ever had sexual intercourse, in 23 EU-27 countries[18,19], in 2005 (Currie et al., 2008; Eurostat, 2008n). Spearman rank r_s=0.27, p=0.22.

children from less affluent families less often report toothbrushing more than once a day in almost all countries including the Netherlands (Currie et al., 2008).

Dutch children find it easy to communicate with their parents

Dutch children report relatively high rates for ease of communication with both their father and their mother. In general, young people in eastern Europe find it easiest to communicate with their father and mother. It is noteworthy that they are accompanied by Dutch children, because young people in western Europe are less likely to report ease of communication, especially with their mother. In most countries high family affluence is associated with more ease of communication, especially with the father. This is also the case in the Netherlands. Ease of communication is declining with age and in a minority of countries (including the Netherlands) 15-year-old boys can communicate better with their mother than girls (Currie et al., 2008).

[18] Belgium: excluding French speaking part in data on sexual intercourse.

[19] at Austria, be Belgium, bg Bulgaria, dk Denmark, ee Estonia, fi Finland, fr France, de Germany, gb Great Britain, gr Greece, hu Hungary, lv Latvia, lt Lithuania, nl Netherlands, pt Portugal, ro Romania, sk Slovakia, si Slovenia, es Spain, se Sweden.

8.4 Prevention and care

Vaccination against childhood infectious diseases is very cost-effective

Many disease prevention and health promotion programmes are focused on the health of children and young people because they can prevent both immediate problems (mortality and morbidity) and long-term problems. According to a review of disease prevention and health promotion programmes in children and adolescents by the Health Evidence Network (HEN) of the WHO, immunization programmes with high coverage offer one of the most cost-effective health interventions, compared to other methods of preventing illness (Macfarlane, 2005). In *paragraph 6.1.1* it is shown that a relatively large proportion of Dutch children is vaccinated against childhood infectious diseases. Although national vaccination programmes vary between countries, they are all developed to provide good protection. As a result of intensive vaccination programmes, Europe was declared polio free in 2002. WHO has the target of eliminating measles and rubella in Europe by 2010 as well (WHO-Europe, 2005).

Although vaccination coverage for pertussis is high in the Netherlands, the incidence of pertussis is also remarkably high and has increased since 1996 (see also *paragraph 4.3.1*). According to the Health Council this was due to the pertussis vaccine having become less effective. In 2001 a booster vaccine was introduced. This has lead to a decrease in pertussis incidence among 4-year-olds (Isken & Burgmeijer, 2005).

The coverage of the basic childhood immunization programmes is generally good in the EU. The main problem is in achieving better coverage, also in the hard-to-reach groups with low vaccine uptake as these have frequently been implicated in outbreaks, for example of measles (Amato-Gauci & Ammon, 2007). The Netherlands shares this problem with other western European countries. For example, in the United Kingdom lower rates of immunization coverage were found in inner cities, which also tend to show high levels of deprivation. However, it may also be justified to target vaccination promotion materials at the better educated population because of concerns about vaccine safety (Wright & Polack, 2006).

Increasing cigarette price and smoking bans are effective in decreasing smoking prevalence

Another type of intervention found to be effective in the HEN review is related to smoking cessation (Macfarlane, 2005). One of the most effective interventions to encourage cessation of smoking in adults and adolescents is increasing the price of cigarettes. Smoking restrictions (banning smoking in public places), cigarette advertising bans, legislation prohibiting the sale of tobacco products to young people and more accessible nicotine replacement therapies are also recommended by the HEN review (see also ‘Learning from our neighbours’ (Van der Wilk et al., 2008)). In *paragraph 6.6.1* it was noted that the Netherlands is in the upper range of EU-27 countries that have implemented policies on ETS exposure. However, tobacco control policies have improved in the period 2005-2007 in the EU-27, while at the same time Dutch policies hardly changed until the smoking ban in horeca establishments in 2008.

Other disease prevention and health promotion interventions found to be effective in the HEN review are (Macfarlane, 2005):

- Folic acid supplementation during pregnancy: Folic acid supplementation taken by women in the period around conception has a strong protective effect against foetal neural tube defects.
- Promotion of breastfeeding: More support enhances the number of mothers breastfeeding and the length of time for which they do so. The benefits for the children are a reduction in the risk of gastro-intestinal infections and atopic eczema.
- Prevention of sudden infant death syndrome: Since the general recommendation to let newborns sleep on their back instead of their stomach, the number of sudden infant deaths has dropped significantly (see *paragraph 4.1.2* on infant mortality).
- Promotion of the use of cycle helmets, child restraints, etc. to reduce injury: Effective interventions include compulsory cycle helmet use, area-wide traffic calming methods and window bars to prevent falls (see also 'Let op letsels' (Lanting & Hoeymans, 2008).
- Psychosocial interventions for those at high risk of mental health problems: Understanding the prevalence of mental health problems in different groups can help target interventions to those at high risk. Early assessment and treatment of the more serious mental health problems can reduce the incidence of later problems (see also 'Common sense. Evidence-based prevention of mental disorders' (Meijer et al., 2006)).

The HEN review concludes that that the most effective programmes for children and young people are carried out at the government level, supported by society in general, and promote national policies to decrease poverty and increase social equality (Macfarlane, 2005). In the Netherlands as well, lower educated young people more often drink, smoke and are overweight, and more often have emotional or conduct problems. They are, therefore, an important target group for prevention of an unhealthy lifestyle and psychological problems (Schrijvers & Schoemaker, 2008). Targeting social inequalities therefore not only benefits the health of the general population but also the health of these children in particular.

According to the HEN review, the second most effective interventions are coordinated government policies such as pricing, legislation and other policies. There is evidence that pricing and taxation policies may be more effective than educational policies for reducing both alcohol and tobacco use. Furthermore, simultaneous, multi-dimensional inputs at national, local and individual level increase the effectiveness of general health promotion campaigns. According to the review, health promotion interventions that deal with single issues, are 'negative in the message' and delivered at only one level of society, are least likely to work (Macfarlane, 2005). In the Netherlands, unhealthy lifestyles cluster in the same teenagers. It is often the same children who drink alcohol, smoke, use cannabis and have unsafe sex. This also calls for a combined approach in preventing different risk behaviours (Schrijvers & Schoemaker, 2008). Valuable examples of such intersectoral, combined approaches can be found in our neighbouring countries, for example the 'Health Promoting School' approach (Van der Wilk et al., 2008).

8.5 Summary and conclusions

The Dutch youth has a relatively suboptimal start. Currently the infant mortality rate in the Netherlands is slightly higher than the EU-25 average. The Dutch perinatal mortality rate is similar to that of the EU-27 average, but high compared to the most affluent EU countries. Good comparable data for low birth weight are not present in international databases for Dutch babies. Relatively few Dutch babies are breastfed for the recommended period of 6 months. However, after the first year of life, Dutch children compensate for this below average start in life with one of the lowest mortality rates among 1-19 year-olds in Europe and the mortality rate is still decreasing. Especially mortality due to injuries and other external causes is very low in the Netherlands. The majority of Dutch 15-year-olds feels healthy and is very satisfied with their life. When they have problems, the majority finds it easy to communicate about them with their parents. Relatively few Dutch children are at risk of poverty and the percentage leaving school early is decreasing.

However, when Dutch children get older they unwittingly start investing in future bad health by adopting an increasingly unhealthy lifestyle (Schrijvers & Schoemaker, 2008). Although decreasing trends are observed, cannabis use and particularly alcohol use are relatively high among Dutch children compared with their European peers. For smoking the picture is a bit better: the smoking prevalence among Dutch 15-year-olds is average and is still decreasing. The situation for positive health behaviours varies. Ease of communication with parents and frequent toothbrushing is high in the Netherlands, physical activity average and consumption of fruit low. Contraceptive pill use is high, resulting in a low number of teenage mothers, but with regard to condom use the Dutch youth can learn from the teenagers in Spain.

The picture for determinants in youth is remarkably different from that in adults for a number of indicators. In international comparisons for alcohol and cannabis use, physical activity and fruit consumption, the Dutch youth is doing average or even bad, while Dutch adults have a rather favourable position compared to other EU citizens. On the other hand, in international comparisons for smoking the Dutch youth is doing better than Dutch adults (average versus high rates).

Health and health behaviours get worse during adolescence

Not only in the Netherlands do health behaviours of young people get worse during the adolescent years. Positive health behaviours (physical activity, consuming fruit and vegetables, ease of communication with parents) are more common among younger children, and decrease when children get older in almost all countries in the HBSC study. On the other hand, substance use (alcohol, cannabis and smoking) is more common among older adolescents. This is not surprising, as experimentation with so-called ‘adult’ behaviour is considered normal for adolescents in most countries and cultures. However, fighting and bullying decrease with age. This is accompanied by a decline in the ease of communication with parents and increased experiences of multiple subjective health complaints in almost all countries, especially among girls. Furthermore, compared with girls, boys are more likely to engage in risk behaviours like use of alcohol, cannabis and to a lesser extent smoking. These gender differences might be explained by the fact that risk behaviours have been characterized as externalizing behaviours (e.g. bullying and fighting), which are also more common among boys (Currie et al., 2008).

Positive health behaviours associated with higher family affluence

Although compared with other EU countries relatively few Dutch children are at risk of poverty, several health and risk behaviours appear to be associated with family affluence and educational status. Social inequalities in health among young people vary for different health outcomes, gender and countries. Higher levels of family affluence are associated with positive health outcomes in both genders in almost all countries in the HBSC study. Positive health behaviours (e.g. physical activity, fruit consumption, toothbrushing) are significantly associated with higher family affluence in almost all countries, while risk behaviours show inconsistent associations with family affluence. In general, smoking appears to be associated with lower affluence, especially among girls, while alcohol use is associated with higher levels of affluence (Currie et al., 2008). In the Netherlands a combination of at least three unhealthy lifestyles and psychological problems is more common among young people in the lower education levels (Schrijvers & Schoemaker, 2008).

The difference between positive health behaviours and risk behaviours might have something to do with the fact that parental influence on the development of health behaviours during childhood is much stronger than on the development of risk behaviours during adolescence. Other social influences arising from the family, peers and school might have a greater impact during adolescence (Currie et al., 2008). From the international comparisons in the HBSC study it is clear that EU countries share the problem of unhealthy lifestyles being more common in children from less affluent families. This provides ample opportunity to learn from interventions focussing on these groups in other countries.

The majority of indicators described in this chapter does not allow for a comparison of the quality of care for children or the effectivity of health promotion and prevention. However, in general, childhood vaccination is very effective and the uptake is high in the Netherlands. The smoking ban in horeca establishments is a step in the right direction to prevent exposure to environmental tobacco smoke, also among children and adolescents.

9 ELDERLY PEOPLE

In this chapter a selection of ECHI indicators will be discussed with a specific focus on older age groups. Some indicators that are not included in the ECHI shortlist have been added, because of their special relevance for elderly people. Here, the elderly are defined as people older than 65 years of age. However, depending on the availability of data and other relevant argumentation the focus may be on a slightly different age group or on parts of this age group.

The ratio of older people to the total population is higher in Europe than on any other continent. A substantial number of elderly people suffer from a variety of diseases, disabilities and handicaps, and mortality is also increasing exponentially with age from 60 onwards. A large part of the burden of disease is therefore carried by elderly Europeans and this is accompanied by frequent health care utilization by this group. Their health care use therefore takes up a major part of national health care expenditures.

In the years to come, the European elderly population will grow, with a particularly significant increase in the number of people aged 80 and over. This will have a large impact on European societies, on the availability of savings, pensions or other forms of financial support and on the availability of specialized health care for the elderly. It will be a major health policy challenge in the decades to come to provide access to sufficient levels of hospital care, social support, long-term care and home care for the elderly.

In this chapter, after explaining some demographics that are relevant to the oldest age groups, we focus on indicators that are important in assessing the health issues surrounding older people in the European Union. These indicators will in part relate to diseases of old age, such as diseases of the circulatory system, lung and other cancers, respiratory diseases, diabetes and dementia (De Hollander et al., 2007). Since injuries are the second most prominent cause of loss of life years among people over 65 years (Eurosafe, 2007), injuries and their prevention also deserve attention in this chapter. Besides mortality among the elderly, we will discuss remaining life expectancy and healthy life expectancy at age 65 as indicators of health in the elderly. Although mental health problems span all age groups, there are some that are of greater relevance at this stage in people's lives. In the 65-80 year group, retirement means a positive release from the 'daily slog' and other responsibilities, while for others it may mean the loss of important social networks and their professional role. Other factors include deterioration in physical capability and health, changing environments, (i.e. moving house) and the sense of loss of social, physical or psychological abilities (Cattan & Tilford, 2006).

Since quality of life and the ability to function independently are major topics in elderly health, we will discuss indicators related to: limitations in daily activities, self-perceived health, self-reported chronic morbidity, and the prevalence of physical and sensory functional limitations.

As for other age categories, lifestyle interventions directed at older people may be useful in preventing certain diseases or in ensuring that conditions do not deteriorate. Older people are, for instance, at risk of developing complications of obesity, which include coronary heart disease, diabetes and cancer. Interventions in the field of physical activity and healthy nutrition can be effective in increasing strength, flexibility and keeping healthy levels of blood pressure and blood cholesterol. We therefore present information about the prevalence of risk factors in the elderly, where possible. Finally, we address some issues related to health care and prevention for the elderly.

9.1 Demographic and socio-economic situation

Demographic (and socio-economic) indicators can be used to give an indication of the total number and share of elderly people in relation to possible socio-economic factors. We have selected the following indicators to be discussed in this paragraph: percentage population over 65 years of age, projected future percentage population over 80 years of age, age dependency ratio, people still working at older ages, population below poverty line.

The Netherlands is one of the 'younger' countries of the EU-27
In 2007, 14.5% of the Dutch population was 65 years and older. In the EU this percentage was on average 17% (*figure 9.1*) (Eurostat, 2008n). The Netherlands therefore belongs to the group of 'younger' countries of the EU-27, together with Ireland and some eastern European countries. Italy, Greece, Germany and Sweden have the highest share of older people in their populations. The trend in the percentage of people over 65 in the EU-27 has been rising and this rise has been slightly faster than the trend in the Netherlands. Women make up the majority of the population in this age group in all EU-27 countries. In the Netherlands, 58% of this population group is female, which is very close to the EU-27 average (59%). The proportion varies from 55% in Greece and Cyprus to just over 66% in the three Baltic States.

Future percentage of Dutch people over 80 years old reaches maximum in 2053
The number of persons 80 years and over has been projected to increase further between 2008 and 2060 in most EU countries, although in some countries, including the Netherlands, a maximum is predicted to be reached in 2053 (*figure 9.2*). The number of people 80 years and over in the Netherlands will increase from 615,000 in 2008 until 1.9 million in 2053. For the EU-27 as a whole the number of people 80 years and over will rise from 21.8 million in 2008 to 61.4 million in 2060 and will continue to rise in 2060. In 2060 the percentage of population 80 years and over is projected to be highest in Italy and lowest in Cyprus. The percentage of these very old Dutch people is 1% below the EU average (Eurostat, 2008n).

Old-age dependency ratio in the Netherlands is lower than EU average
The old-age dependency ratio for the Netherlands is lower than the EU averages (*figure 9.3*). The old-age or old dependency ratio is a measure of the relation between the number of persons of an age when they are generally considered 'dependent' or economically

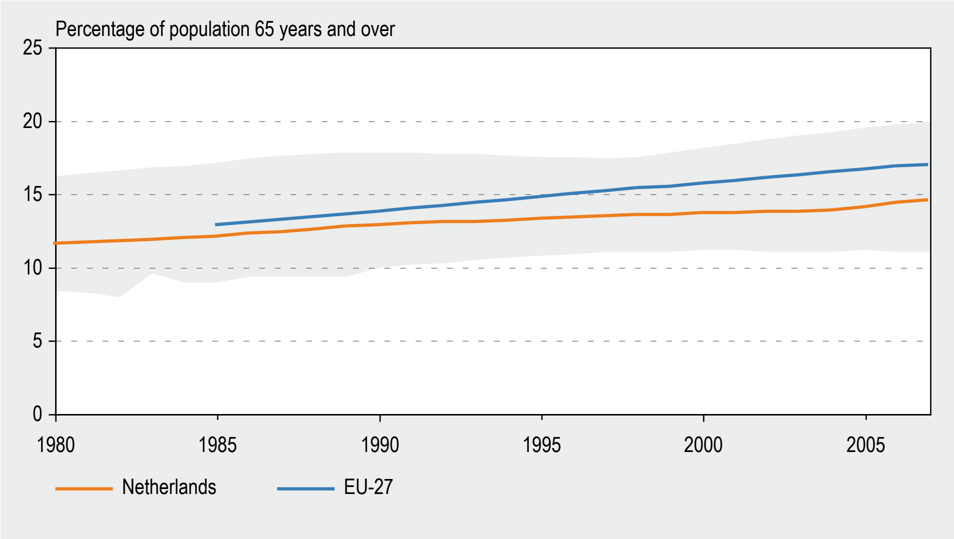


Figure 9.1: Trend in percentage of population 65 years and over, for the Netherlands and EU-27 average, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

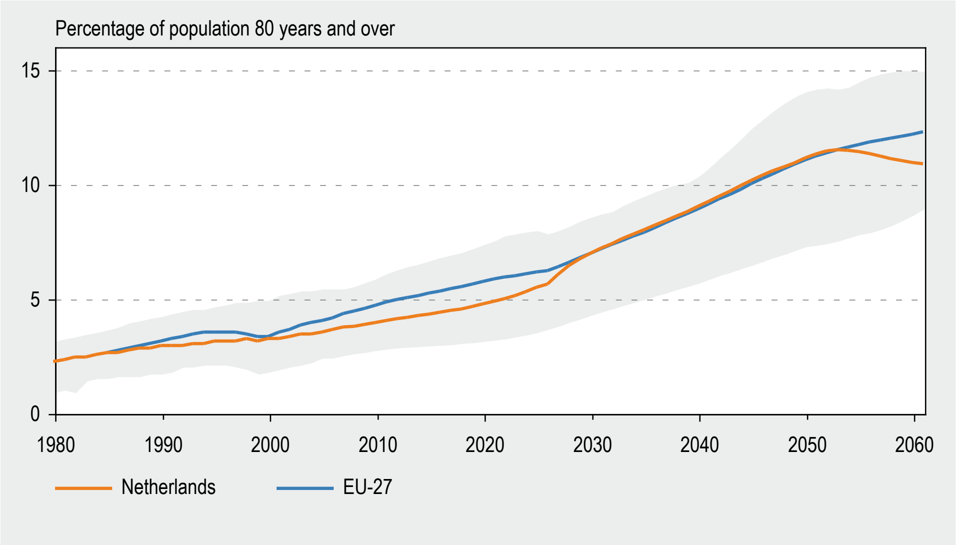


Figure 9.2: Projections for percentage of population 80 years and over, for the Netherlands and EU averages, 1980-2060. Range for EU-27 in grey (Eurostat, 2008n).

inactive (aged 65 and over) and those of working age (from 15 to 64 years). In 2007 this indicator was highest for Germany, Greece, Italy and Sweden and lowest for Slovakia, Cyprus and Ireland. The predictions suggest that this ratio will increase further in the EU and the Netherlands until about 2040, when this ratio will have reached a value of around 40% for the Netherlands and an average of 50% for the EU-27, implying a doubling of the current values in that period.

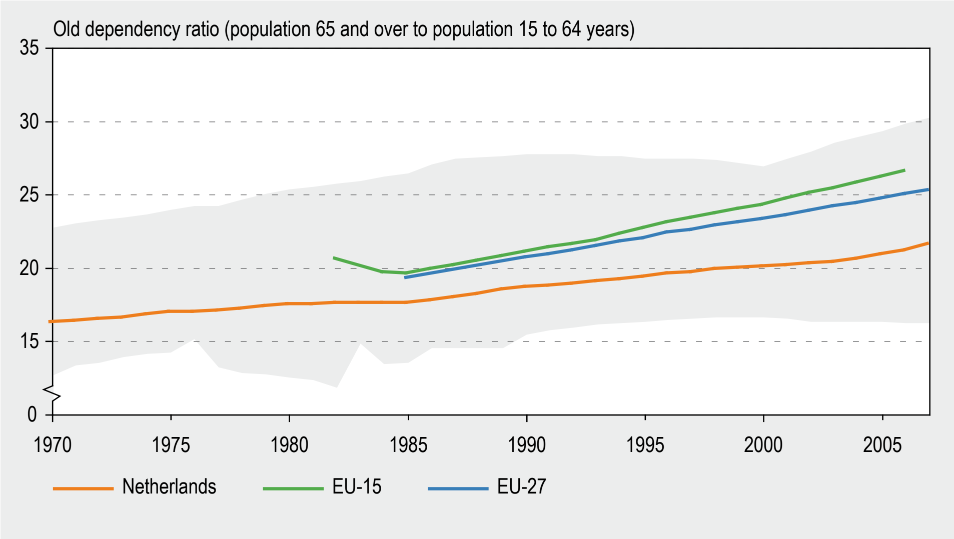


Figure 9.3: Trend in old dependency ratio (population aged 65 years and over to population aged 15 to 64 years), for the Netherlands and EU averages, 1980-2007. Range for EU-27 in grey (Eurostat, 2008n).

Many people in the EU stop working before they reach retirement age

For the majority of the EU countries, the official age of retirement is from 60 upwards, and in most countries including the Netherlands, it is from 65. Nevertheless, a substantial proportion of people in the EU-27 are not in employment at the age of 55 (Eurostat, 2008n). In 2006, the average exit age from the labour force was 61.2 in the EU-27. This is slightly younger than the Dutch average of 62.1 (Eurostat, 2008n). The highest average ages of retirement are found in Romania (64.3), Bulgaria (64.1) and Sweden (63.9) and the lowest in Malta (58.5), France (58.9) and Slovenia (59.8) (Eurostat, 2008n).

The employment rate of older workers, which is calculated by dividing the number of persons aged 55 to 64 in employment by the total population of the same age group, is quite high in the Netherlands, 50.9% compared with 44.7% in the EU-27 in 2007 (Eurostat, 2008n). The difference between men and women regarding the employment rate is also large in the Netherlands, 61.5% for men and 40.1% for women, as is the case in most other EU-27 countries. The employment rate of older workers in the EU-27 is 53.9% for men and 36% for women. Sweden has by far the highest rate of employment among older people and also by far the smallest difference between men and women. The employment rate of older workers is 72% for Swedish men and 67% for Swedish women.

Many EU countries are debating how to finance their pension systems. This is because the early-retirement systems of the past twenty years were intended to create jobs for younger workers. Given the ageing of the working-age population and the future shrinking of the latter, the current policy issue is generally formulated as a need to increase the participation and employment rates of older workers (SNIPH, 2007). Increasing the total employment rate of people aged 55 and over is included as a specific target in the EU employment strategy, and is part of the Lisbon Agenda. The target is to raise the proportion of those aged 55-64 who are employed to 50% or more by the year 2010 (Eurostat, 2008k).

The higher educated elderly are more likely to stay in employment than the lower educated

The likelihood of those aged 55 and over being in employment is closely related to their level of educational attainment. This is particularly true for women and to a lesser extent also for men. In 2005 in the Netherlands, the difference in employment rates between women with tertiary education and those with only basic schooling was approximately 30 percentage points, which is similar to the EU-25 average. The differences were especially wide in Ireland, Spain, Italy, Luxembourg, the Czech Republic, Hungary and Slovakia. The difference was over 40 percentage points in all of these countries. For men, the difference was equally wide in most of these countries (Eurostat, 2008k).

In the Netherlands the percentage of elderly at risk of poverty is low

The percentage of the population aged 65 and over at risk of poverty is low in the Netherlands (*figure 9.4*). In most countries this share of people at risk of poverty is higher among people 65 years and over compared with the total population. However, in countries with the lowest at risk of poverty among elderly (the Netherlands, Czech Republic, Slovakia, Luxembourg, Poland and Hungary) the people aged 65 years and over have a lower at-risk-of-poverty rate than the total population (Eurostat, 2008n) (*figure 9.4*). Surprisingly, some relatively poor countries thus have the lowest percentage of elderly at risk of poverty.

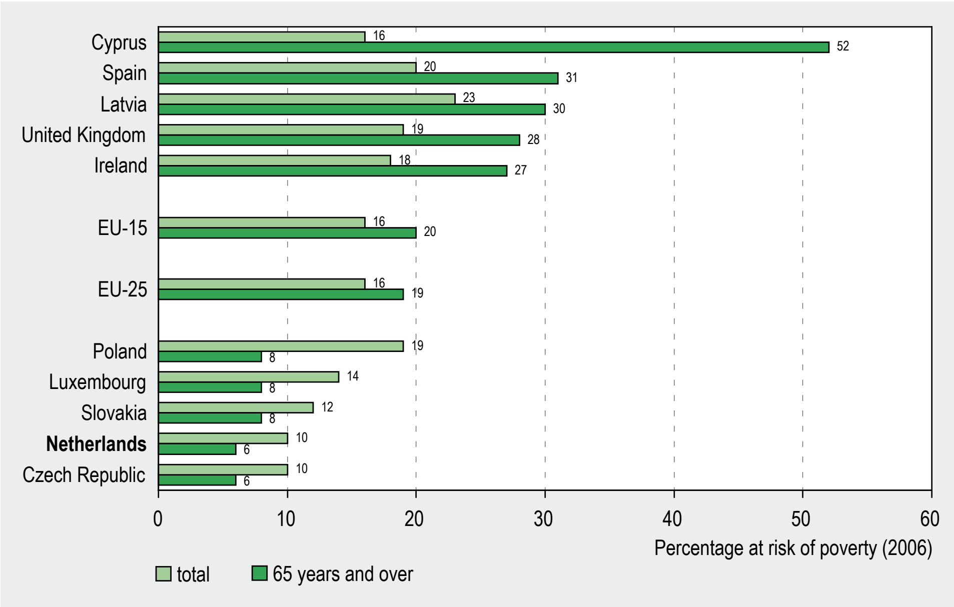


Figure 9.4: EU-27 countries with the highest and lowest percentage of population 65 years and over at risk of poverty in 2006. Also percentage given for total population, EU-27 average not available (Eurostat, 2008n).

Between 1995-2001 the share of elderly at risk of poverty remained constant in the Netherlands

It is difficult to interpret recent trends in poverty risk because there has been a breach in the trend data due to changes in data collection between 2001 and 2005 (see *appendix A7.2.4*). However, between 1995 and 2001 in most EU-15 countries the percentage of elderly at risk of poverty decreased or remained constant. In the Netherlands, the percentage remained constant, while it increased in Spain, Austria and Ireland (Eurostat, 2008n).

9.2 Health status

Large share of women in the elderly population partly caused by their higher life expectancy

The large proportion of women in the population over the age of 65, in comparison to men, is in part caused by differences in their life expectancy at age 65, which is several years higher for women than for men in all EU Member States (WHO-HFA, 2008). According to the most recent estimates (2006), a woman aged 65 in the EU-27 can expect to live, on average, another 20 years or slightly more, while a man can expect to live 16.6 years longer (*figure 9.5*). In 2006 for Dutch men, the remaining life expectancy at age 65 was 16.9 years. For Dutch women it was 20.4 years. Life expectancy at age 65 varies considerably across EU countries. For women, the remaining life expectancy ranges from 21 years or more in France, Spain and Finland to just over 16 years in Bulgaria and Romania. Life expectancy for men at age 65 is estimated to be the longest in France, a little less than 18 years, and shortest in Latvia, at just over 12 years.

Dutch life expectancy at 65 for women has recently been rising again

Some good news can be reported for the trend in life expectancy at age 65 of Dutch women as there had hardly been any increase in this indicator from around 1985 to the year 2002. This same stagnation in increase in female life expectancy had also been observed for life expectancy at birth. Since 2002, however, a slow increase in life expectancy at age 65 has become apparent for Dutch women (*figure 9.5*). For Dutch men, no stagnation of life expectancy at 65 was apparent and this indicator still shows a rather constant increase. In most other EU Member States, life expectancy at 65 also continues to increase. Between 1990 and 2005, the largest increases of around three years or more for both women and men have occurred in Ireland and Finland (WHO-HFA, 2008). Since the bigger increases have mostly occurred in countries where the life expectancy was below the EU average in 1990, some convergence has taken place in this indicator over the recent years.

Older Dutch men have a worse than average mortality rate

Despite the earlier reported continuing increase in the life expectancy of elderly Dutch men, the mortality rates of Dutch men aged 65 years and over have been slightly worse than the average of the EU-15 for the last twenty years. For men, both the EU averages and the Dutch elderly mortality rates are still declining, however. For Dutch women aged 65 years and over the mortality trend has been quite stable and the mortality rate of these women is similar to that of the EU-27 average over the last twenty five years (*figure 9.6*) (WHO-HFA, 2008).

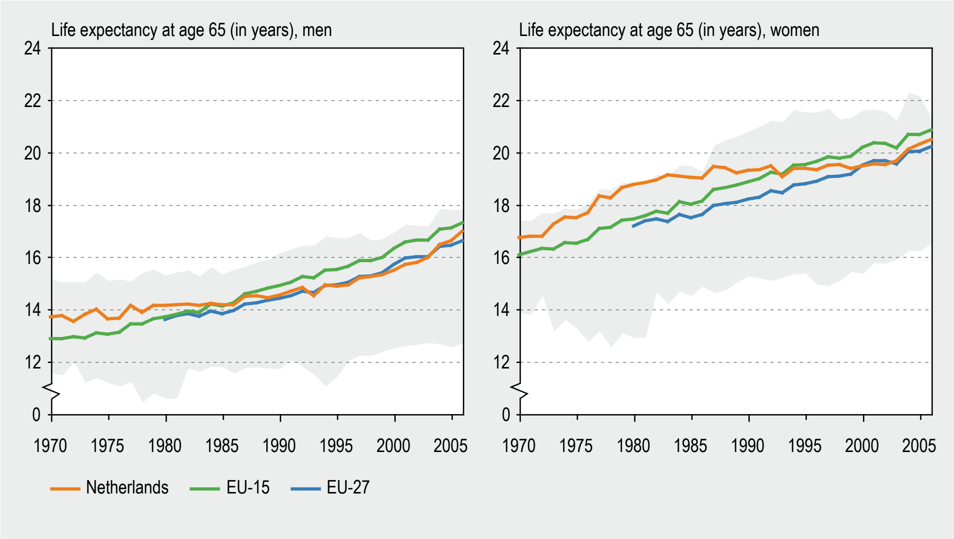


Figure 9.5: Trend in life expectancy for men and women at the age of 65, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

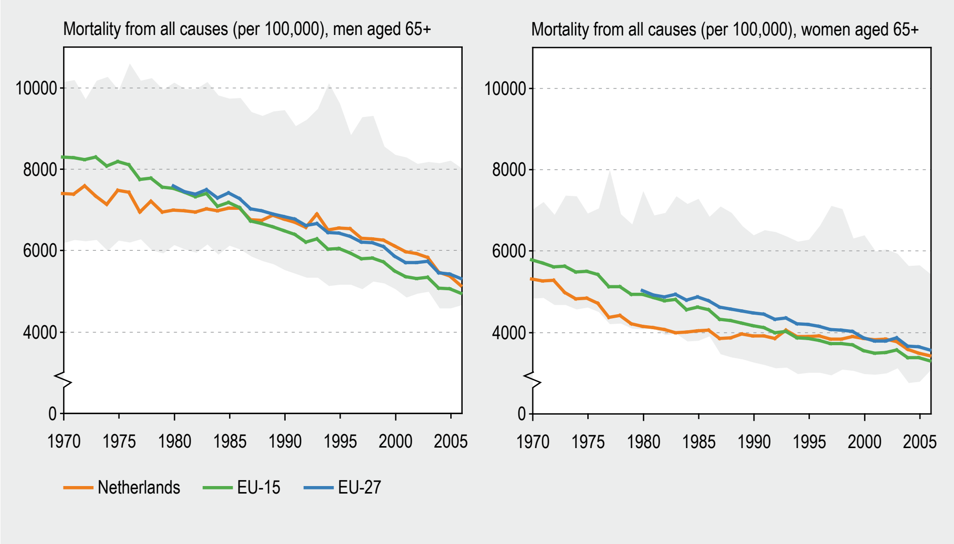


Figure 9.6: Trend in mortality (SDR per 100,000) from all causes, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27[20] in grey (WHO-HFA, 2008).

[20] Data for Malta in 1970-1981 not included in range for EU-27.

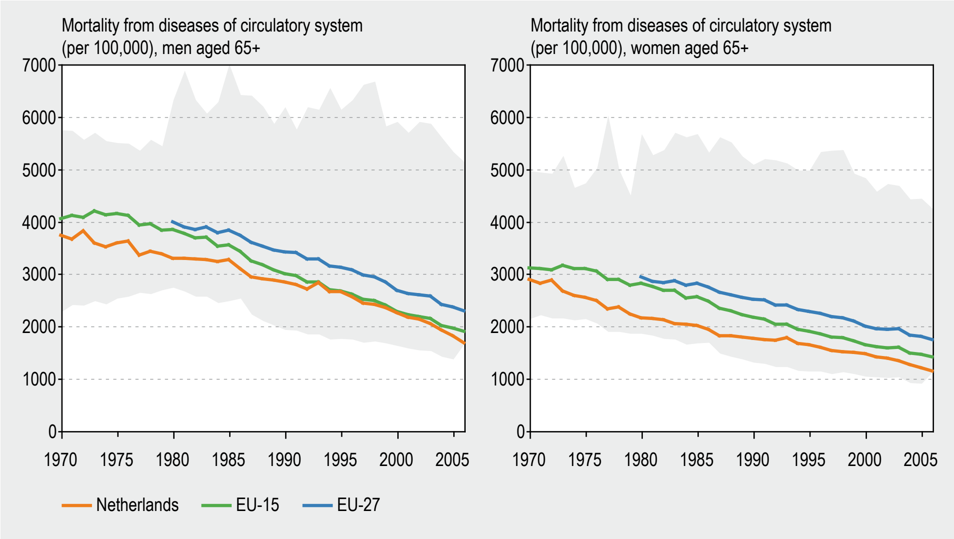


Figure 9.7: Trend in mortality (SDR per 100,000) from diseases of the circulatory system, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27[21] in grey (WHO-HFA, 2008).

Circulatory disease mortality in Dutch elderly lower than EU average and declining

Dutch elderly men and women have lower mortality rates from circulatory diseases than the averages of either EU-27 or EU-15. Over the past decades there has been a continuous decline in the Netherlands in circulatory disease mortality in both men and women. For elderly Dutch men this downward trend has recently become rather steep, especially when compared to the EU-27 average (*figure 9.7*). Circulatory disease mortality includes, among others, mortality from ischaemic heart disease, coronary heart disease and from stroke, which share major risk factors, such as high blood pressure, smoking, consumption of saturated fat, low physical activity and obesity. Mortality from these causes of death increases strongly with age and is higher in men than in women. The new EU Member States, and especially Romania, have very high mortality rates from circulatory diseases for their elderly aged 65 years and over and France traditionally had low rates both for men and for women (WHO-HFA, 2008).

Cancer mortality is high in Dutch elderly men and trends for women are worse than the EU average

Cancer mortality rates increase steeply with age, especially in men. Men also have higher cancer mortality rates than women from the age of 60 years onwards. Since the early 1990s a declining trend in cancer mortality can be observed in the EU averages for men and women. By the end of the 1980s Dutch cancer mortality rates for elderly men were among the highest in the EU. At this moment male cancer mortality in this older age group is still much higher than the EU average, but it shows a declining trend and the difference with the average EU rate is decreasing. Still, only a few EU countries, including Hungary,

[21] Data for Malta in 1970-1981 not included in range for EU-27.

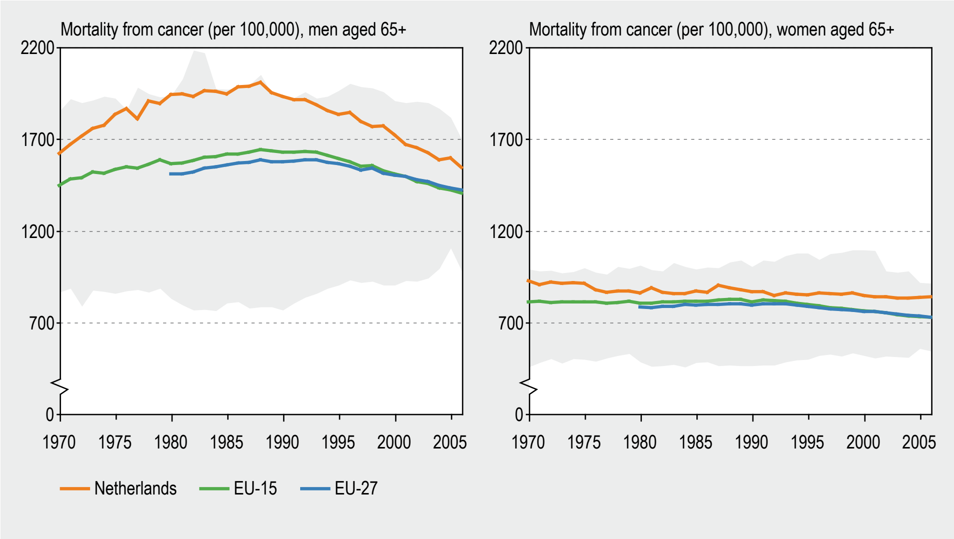


Figure 9.8: Trend in mortality (SDR per 100,000) from cancer, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Czech Republic, Slovenia and Poland, currently have higher male cancer mortality rates in their elderly than the Netherlands (*figure 9.8*, men) (WHO-HFA, 2008).

For elderly Dutch women the situation is slightly better, but again they have been doing worse than the EU-27 average for the last 25 years. The cancer mortality trend for elderly Dutch women is less favourable than for the EU averages (*figure 9.8*, women). Yet, Denmark is doing a lot worse and Danish female cancer mortality even shows an increase. Elderly women in the United Kingdom also die more often of cancers than elderly Dutch women (WHO-HFA, 2008). The mortality patterns for all cancers in the elderly are heavily dominated by the underlying pattern of lung cancer mortality. Dutch elderly appear to be facing the full force of the tobacco epidemic in their cancer mortality figures.

Lung cancer mortality for elderly Dutch men is on the decline, but not for women

Dutch elderly men are characterized by high lung cancer mortality rates. Within the EU, for the age group over 75 years, lung cancer mortality rates are the highest for Dutch men. For the younger generation of Dutch men (aged 65 and over), lung cancer rates are clearly falling and the Dutch are now accompanied by Polish and Baltic men and probably also by their Belgian colleagues, for whom there are no up-to-date figures present in the international databases. Although there has been a twenty year decline in Dutch mortality rates, it will still take quite some years to reach the EU average. This points to the huge historical toll that the tobacco epidemic has taken on the health status of the Dutch population. Lung cancer mortality rates are much lower among women, but *figure 9.9* shows that the rates of Dutch women are climbing faster than the EU averages. The dominance of the causal factor smoking as a determinant of elderly mortality is further accentuated by the figures on respiratory disease mortality (below).

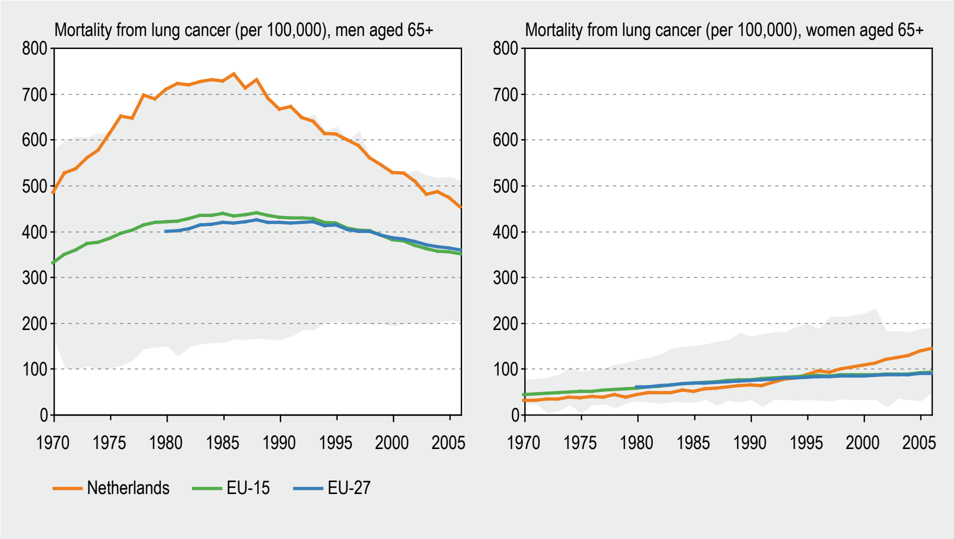


Figure 9.9: Trend in mortality (SDR per 100,000) from lung cancer, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Respiratory disease mortality in Dutch elderly is recently worse than the average for the EU-27

Respiratory diseases include, among others, Chronic Obstructive Pulmonary Disease (COPD), which is another disease mainly caused by smoking. These mortality rates increase steeply with age and are higher in men than women. The mortality rates for respiratory disease in elderly Dutch men and women have become higher or even much higher than the average for the EU-27 since the early 1990s and the steady or slowly declining trends for Dutch elderly are similar to the trends for the EU averages (*figure 9.10*) (WHO-HFA, 2008).

Lower than average mortality from external causes in Dutch elderly with a stabilizing trend for women but an increasing trend for men

Mortality from injuries, i.e. from 'external causes of injury and poisoning' is declining in the elderly in both the EU-15 and the EU-27. Dutch elderly men die less often than the EU average from these causes, although in 2006, the Dutch mortality level was close to the EU-15 average. Dutch female mortality from injuries is also fairly average. Mortality from external causes is higher among men than among women and the trends recently suggest stabilization for Dutch elderly women but an increase for elderly Dutch men (*figure 9.11*). Greece and the United Kingdom (for men), have the best rates for injuries among elderly people (WHO-HFA, 2008).

The relative position of Dutch elderly on mortality from external causes is much worse than the position of the Netherlands when comparing the total populations or when comparing among children in this respect. After all, compared to other countries, the total Dutch population as well as the youngest age groups score very favourably on this indicator (see also *paragraph 4.2.1* and *8.2*).

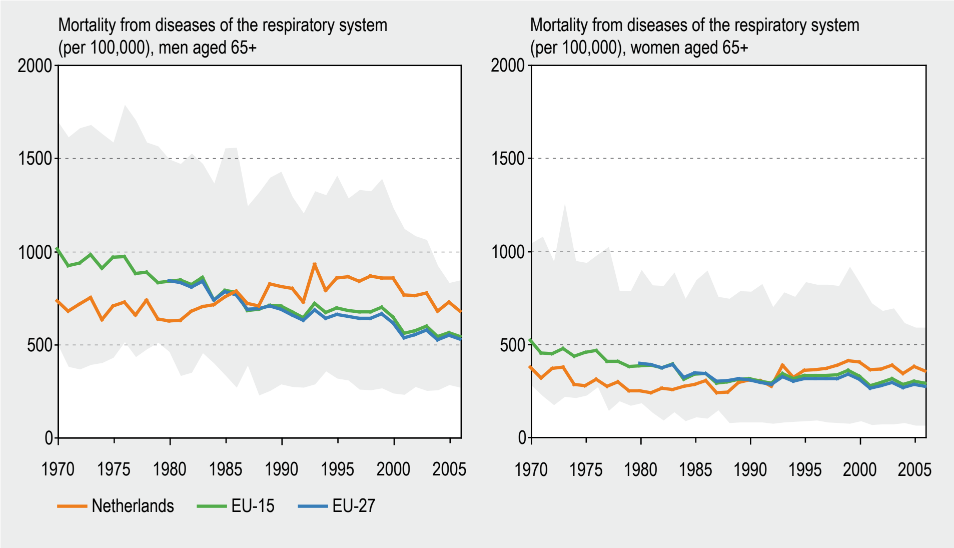


Figure 9.10: Trend in mortality (SDR per 100,000) from diseases of the respiratory system, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

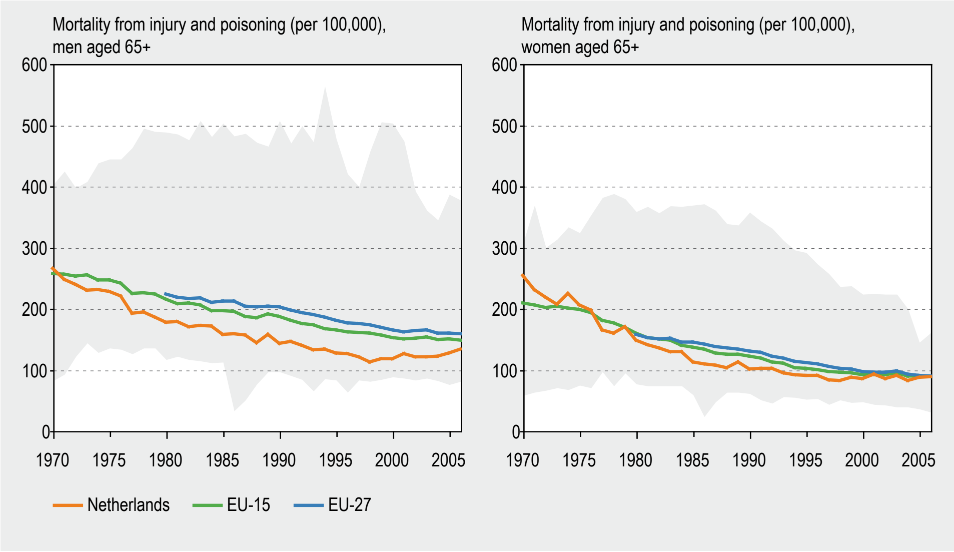


Figure 9.11: Trend in mortality (SDR per 100,000) from external causes of injury and poisoning, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

Mortality by accidental falls difficult to assess, but possibly rising in Dutch elderly

Within this group of causes of death, 'accidental falls' are an important subgroup from a public health perspective as these may be partly preventable. However, when studying the trend pattern, a 'saw tooth' pattern can be seen for the Netherlands (*figure 9.12*). This suggests coding changes that may have influenced or are still influencing the compara-

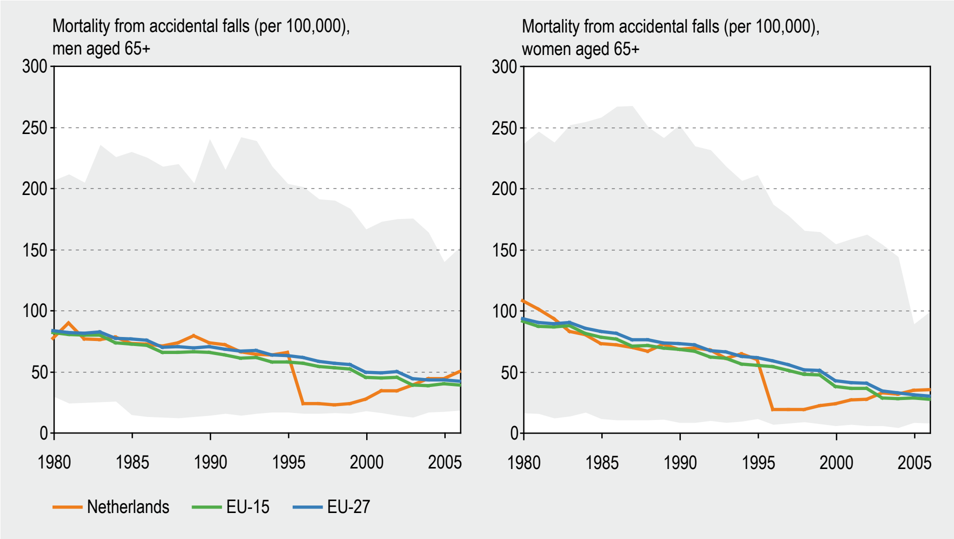


Figure 9.12: Trend in mortality (SDR per 100,000) from accidental falls, for men and women aged 65 and over, for the Netherlands and EU averages, 1970-2006. Range for EU-27 in grey (WHO-HFA, 2008).

bility of the mortality data for accidental falls over time in the Netherlands and between the Netherlands and other countries. WHO data suggest that the Dutch figure on mortality from accidental falls is around the EU average, but this needs further investigation in view of the problematic comparability (WHO-HFA, 2008).

The prevalence of diabetes rises sharply with age

The prevalence of diabetes has been increasing in the Netherlands since the second half of the 1990s (see *paragraph 4.3.4*). This is a problem which is particularly affecting the elderly, as the prevalence of diabetes increases considerably with age. EUCID data show that in the Netherlands in 2005 the prevalence differed from about 20 diagnosed diabetes patients per 1,000 individuals for people aged 35-44, to roughly 125 per 1,000 individuals for people aged 75-84. A comparable pattern is visible in the other European countries that were involved in EUCID, with the exception of Cyprus, which has much higher prevalence figures (EUCID, 2008).

Depressive symptoms are common among the elderly

Major depression may be relatively rare among the elderly, but depressive symptoms are very common, with the majority of studies giving prevalence estimates between 9% and 15%. There are several factors though which may have caused an underestimation of the prevalence of depression in older people. These include, among others, the exclusion of the institutionalized population in many studies, and the exclusion of atypical depression, which may be more common in the elderly (according to the criteria used in most epidemiological studies this will not be diagnosed as depression). The ESEMeD study looked at the risk of mood disorders in people aged 65 years and over compared to the adult population in a number of EU Member States. In the Netherlands and France the people aged 65 years and over showed a significantly lower risk. In Germany, Belgium and Spain a similar pattern was found, though not significant. In Italy the people aged 65 years and over had a higher risk, but this difference was also not significant (EC, 2004).

The prevalence of dementia rises sharply with age

Dementia is the most important age-related disorder. Dementia syndromes are among the most devastating of all illnesses. A meta-analysis, published in 2000, showed that the prevalence of dementia increased continuously with age and was 0.8% in the group age 65 to 69 years and 28.5% at age 90 years and older (Lobo et al., 2000). This age pattern seems to be stable over time as there is a general similarity between the findings of this study and the results based on studies conducted in the previous decade. For the Netherlands this means that with the forthcoming ageing of the population (see *paragraph 9.1*) the number of people with Alzheimer is expected to increase drastically. See also *paragraph 4.3.5*.

A high percentage of Dutch people aged 50 years and over assess their own health as good

The Netherlands belongs to the group of EU countries with the highest percentage of people assessing their own health as good or very good; in 2005, 79.5% of Dutch men and 73.5% of Dutch women did so (see *paragraph 4.4.1*). Based on the SHARE 2004 data (Survey of Health, Ageing and Retirement in Europe), for the elderly population in the Netherlands the same conclusion can be drawn; 66,8% of the Dutch population aged 50 and over assessed their own health as either good or very good. This is the highest percentage of the EU Member States involved in the SHARE study (*figure 9.13*).

The Eurostat report 'The life of women and men in Europe' (2008 edition) shows a comparable picture (Eurostat, 2008k). This report uses data from national HIS from the period 1996-2003, and contains information on self-rated health in three categories; good, fair

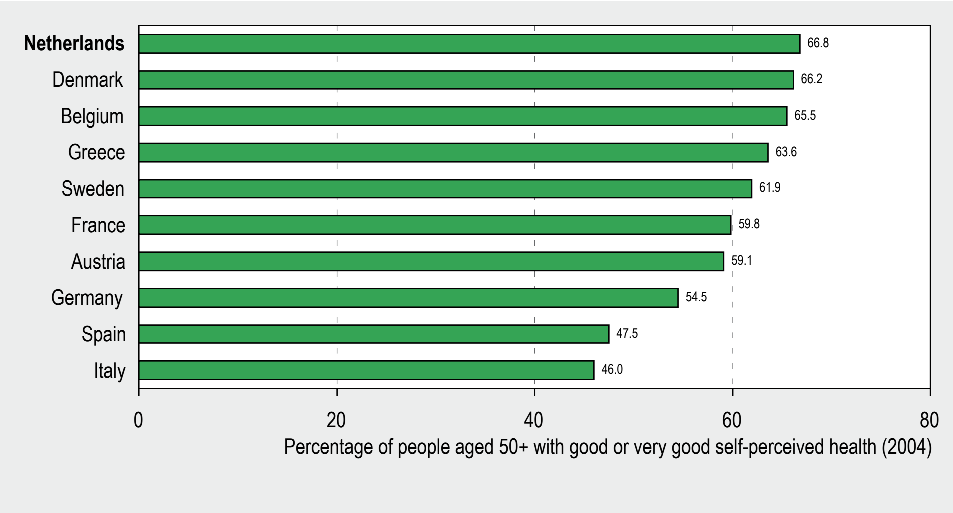


Figure 9.13: Percentage of people aged 50 years and over with good or very good self-perceived health in 10 EU Member States (SHARE, 2004).

or bad. Based on these data, in the Netherlands 65% of men and 60% of women in the age group 65-74 assess their health as good. Compared to the other EU Member States, this percentage is among the highest scores. As can be expected, with increasing age the proportion of people with good health decreases; in the age group 75-84, 54% of Dutch men and 49% of Dutch women rate their health as good, in the age group 85 year and over this is 49% and 52% respectively.

With the exception of this oldest age group, the Netherlands shows the same pattern related to sex differences as is found in most EU Member States: fewer women than men aged 65 and over consider themselves to be in good health. It is remarkable though that when looking at the proportion of men and women who consider themselves to be in bad health, the Netherlands deviates from the general picture; for all three age categories more Dutch men than women assess their health as bad (Eurostat, 2008k).

The majority of elderly people report having one or more chronic conditions

Self-reported chronic diseases and symptoms are very common among the elderly population. In the SHARE study more than two thirds reported to have had at least one chronic disease diagnosed during their lifetime, and around 40% have had two or more chronic conditions diagnosed. The same numbers apply for reported current symptoms. Most commonly reported conditions were arthritis, diabetes and heart disease. Nearly half of the respondents reported to experience pain. Other frequently mentioned current symptoms were sleeping problems and swollen legs (Börsch-Supan et al., 2005). In the Netherlands, it was found that care providers currently have insufficient knowledge to enable them to effectively provide the help that elderly patients need, particularly if their problems are complex, such as the case with multimorbidity (Bussemaker, 2007). Around two thirds of all Dutch elderly aged 65 years and over have two or more chronic diseases, a percentage that increases with age. Amongst people over 85 years of age, at least 85% have more than two chronic conditions. The Dutch Secretary of State has commissioned the Netherlands Organisation for Health Research and Development (ZonMw) to set up a Care for the Elderly programme and to implement it in conjunction with the relevant parties in the field over the next four years (2008-2012) (Bussemaker, 2007). However, a uniform way of defining and measuring the concept of multimorbidity is absent (Fortin et al., 2004), and therefore an international comparison is not possible.

The Eurostat report ‘The life of women and men in Europe’ (2008 edition) contains information on the percentage of elderly people who state that they suffer from a long-standing illness or health problem. Of the Dutch men and women aged 65-74 years old, 49% and 54% respectively reported to have a chronic condition (*figure 9.14*). The Netherlands is among the EU Member States with the lowest percentages. It has to be noted though that comparable information is only available for 16 Member States. For those aged 75-84, the proportion reporting chronic health problems is slightly larger, but the relative numbers across Member States are similar. As for the majority of countries, in the Netherlands there are more elderly women reporting chronic health problems than men (Eurostat, 2008k).

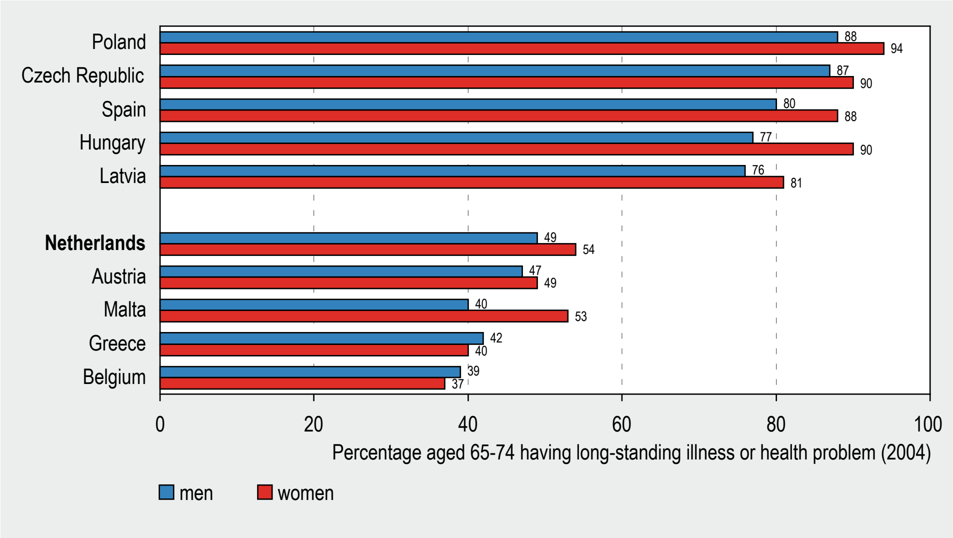


Figure 9.14: EU-27 countries with the highest and lowest percentage of men and women aged 65-74 reporting a long-standing illness or health problem in 2004 (Eurostat, 2008k).

Disability levels are declining but severe disability is relatively high compared to other countries

Within the frame of the SHARE baseline study in 2004, people aged 50 and over were asked whether they had experienced any limitations in their normal activities during the past 6 months. They could choose from three answer categories; 'severely limited', 'limited but not severely', and 'not limited'. When comparing the European countries involved in the SHARE study, the Netherlands has an average score with respect to the percentage of people aged 50 year and over reporting no activity limitations during the past 6 months. The Netherlands has the highest percentage of respondents reporting severe activity limitations, however (*figure 9.15*). Enquiries on activity limitations are also made in the EU-SILC survey. These data are used for the computation of the Healthy Life Years indicator (see below).

OECD recently found a decline in disabilities that cause limitations in activities of daily life (ADL) among elderly people (65 years and over) in five countries including the Netherlands. Dutch studies are indecisive on whether or not Dutch elderly are getting healthier (Van Gool et al., 2008). According to OECD, other countries where a decline in disabilities was found were Denmark, Finland, Italy, and the United States. An increase, however, was reported in three countries: Belgium, Japan and Sweden. In France and the United Kingdom different surveys show different trends in disability. Therefore, a decline in ADL disability is less universal than would be expected (Lafortune & Balestat, 2007).

High healthy life expectancy at age 65 for men and women in the Netherlands

With 10.4 years for men and 10.9 for women the healthy life expectancy (expressed as Healthy Life Years, HLY) at age 65 is high in the Netherlands compared with other EU countries. HLY at birth is strongly influenced by mortality in early life. To monitor healthy ageing, health expectancies at age 65 years (or even older) are more appropriate (Jagger,

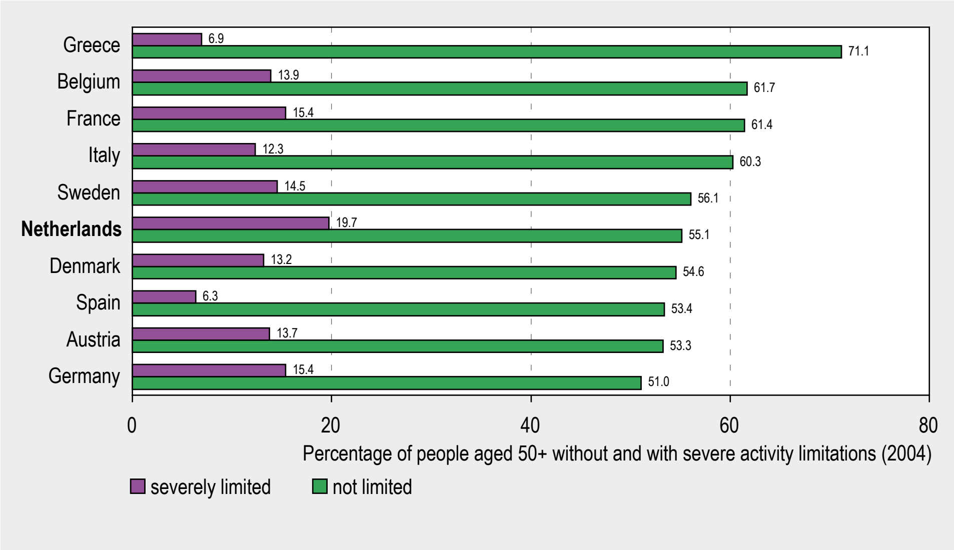


Figure 9.15: Percentage of people aged 50 years and over reporting no or severe activity limitations during the past 6 months in 10 EU Member States (SHARE, 2004).

2005). Within the EU-27, HLY at age 65 ranges from 3.4 for Estonian men to 10.5 for Maltese men and from 3.4 for Estonian women to 11.1 for Maltese women (*figure 9.16)* (Eurostat, 2008n). Similar to life expectancy at birth, life expectancy at age 65 is also higher for women than for men, and HLY is about the same for both sexes (Eurostat, 2008n). Due to differences in the wording of the relevant questions in the Danish health survey, data for Denmark are not comparable and left out of the figure (see also *appendix A4.4.1*).

Healthy Life Years at age 65 is increasing in most EU countries
Over the period 1995-2001, HLY at age 65 increased slightly for both men and women in the EU, suggesting that the ageing population is maintaining their good health for an increasingly longer period. However, over the same period, HLY at age 65 decreased for Dutch women and remained almost stable for Dutch men (EHEMU, 2008a; EHEMU, 2005; Jagger, 2005). Between 1995 and 1999, HLY at age 65 in the Netherlands was above the EU-15 average and it approached the EU-15 average in 2001. The Dutch 2005 figures are higher than previously and are also higher than the EU average, being 1.0 year and 1.6 years above the EU-25 average (and above the EU-15 average) for women and men respectively (EHEMU, 2008a). However, it should be noted that data for the period 1995-2001 come from the ECHP survey and the 2005 data from the EU-SILC survey (see *appendix A4.4.1*). Compared to earlier trends, the question used in the EU-SILC survey may result in people reporting limitations of a different severity than previously and Dutch people may be less likely to report minor problems than before (EHEMU, 2008a). This limits the comparability of these data.

When the HLY increases faster than life expectancy, then HLY as a percentage of life expectancy is rising and a larger proportion of life expectancy is spent in good health. This is called compression of morbidity because the number of years spent in an unhealthy state (morbidity) decreases (compression) (Fries, 1980). Dutch HLY as a percentage of

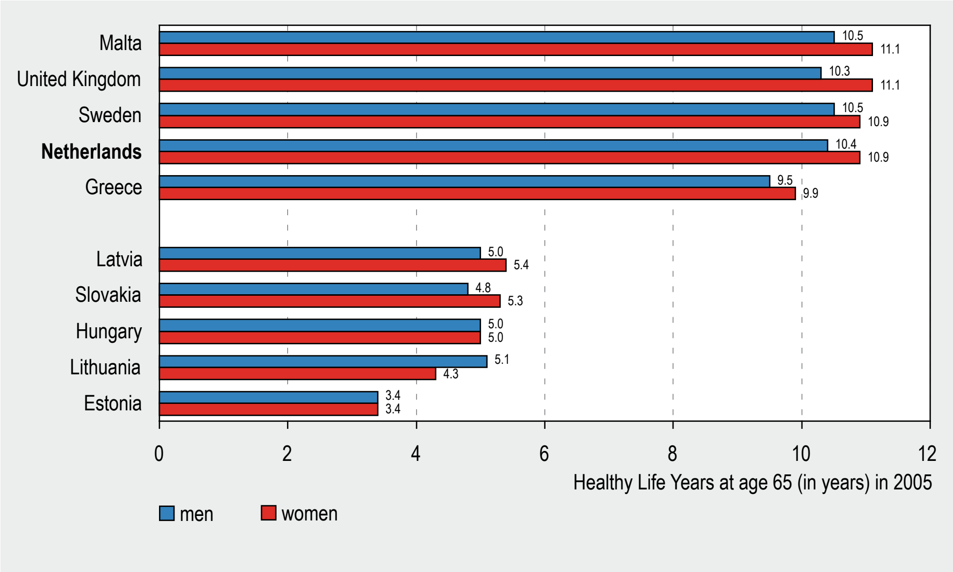


Figure 9.16: EU-25 countries with the highest and lowest Healthy Life Years at age 65 for men and women in 2005. Average for EU-25 not available (Eurostat, 2008n).

life expectancy has decreased for both sexes, being close to 50% for women and 60% for men in 2001. However, the proportion increased again to 54% and 63% in 2005 (Eurostat, 2008n). International trend data for the period 1995-2003 are equivocal with regard to the existence of compression of morbidity. Some countries show an increase in HLY as a percentage of life expectancy, suggesting compression of disability, and other countries show no change or a decrease, suggesting expansion of disability (Eurostat, 2008n; EHEMU, 2005; Jagger, 2005).

9.3 Determinants of health

Internationally comparable data on important determinants of health in the elderly are scarce. One of these scarce sources is SHARE, the Survey of Health, Ageing and Retirement in Europe, to which eleven European countries have contributed (not all EU Member States) (see also *appendix 9*). In the following paragraphs, most data presented are based on this survey.

Overweight is a common problem among older Europeans
The prevalence of overweight and obesity in older Europeans is high (see also *paragraph 5.5.1*). On average, only 33.4% of men and 44.4% of women have a normal weight (BMI 18.5-24.9). Equal proportions of men and women, about 13.5%, are moderately obese (BMI 30-34.9). Slightly more elderly women than men are severely obese with a BMI of more than 35 (4.3% versus 2.9%). These conclusions were drawn by the SHARE study (2004 data wave). It appeared that there are substantial differences in prevalence of overweight and obesity between the SHARE countries. Relatively many Dutch men aged 50 years and over have a normal weight (38.1%). The percentage of Dutch men with overweight

(48.5%) is not significantly different from the total male sample mean. The percentages of men who are either moderately or severely obese (11.1% and 1.9% respectively) are low again compared to the sample mean. Dutch women aged 50 years and over have overweight and obesity rates that are not significantly different from the female sample mean: 46.1% have a normal weight, 36% are overweight, 12.1% is moderately obese and 4.4% is severely obese (Andreyeva et al., 2007).

Overweight is associated with adverse health outcomes, but only moderately with increased usage of health care services

In the same study as described above, the correlation between weight and health outcomes was analyzed. Associations were found between overweight and diabetes, high cholesterol, hypertension, arthritis and heart disease. Especially obese women report poor health. For this group a strong association with depression was also detected (Andreyeva et al., 2007). In another study using the SHARE data the association between overweight and obesity and health care utilization was assessed. It was found that overweight and obese men and women aged 50 years and over, more often use ambulatory care, visit their GP and take medications. They do however not use more specialists, surgery, home health care or domestic help than normal weight persons. Similar trends were found for the different countries. This seems to suggest that despite the rising prevalence of obesity and ageing of the population, impact of overweight and obesity on health care resources may be only moderate (Peytremann-Bridevaux & Santos-Eggimann, 2007).

No comparable data on food consumption and physical activity among EU elderly

As important as it may be for elderly people to have sufficient exercise and a healthy diet, there is no regular monitoring of physical activity and food consumption of the elderly population in the EU. Therefore, up-to-date internationally comparable data for either food consumption or for physical activity levels in the EU are lacking.

Situation European elderly concerning high blood pressure unknown

In *paragraph 5.1.2* it is described that there are currently no comparable data in the EU on blood pressure. Obviously, this also applies to the elderly European population. In the SHARE baseline database (2004), however, there is some information on high blood pressure. Respondents have indicated whether they had ever been told by a physician that they suffer from high blood pressure. Of the EU Member States involved in the study, the Dutch people aged 50 years and over, report the least being diagnosed with hypertension (*figure 9.17*). People were also asked whether they take antihypertensive medication (data not reported here). It has to be noted though that the method applied in the SHARE study, self-reporting, does have disadvantages when estimating the prevalence of high blood pressure. People might not remember correctly what the doctor has told them (recall bias). Moreover, through this methodology one will only detect the people with diagnosed hypertension; people with undetected hypertension will be missed. So, the low percentage of Dutch elderly in the SHARE study indicating that they have been diagnosed with high blood pressure, might be the consequence of inadequate screening for risk factors rather than of a low prevalence per se. Health Examination Surveys therefore would be the preferred method for collecting blood pressure data, enabling the detection of both diagnosed and undiagnosed hypertension cases.

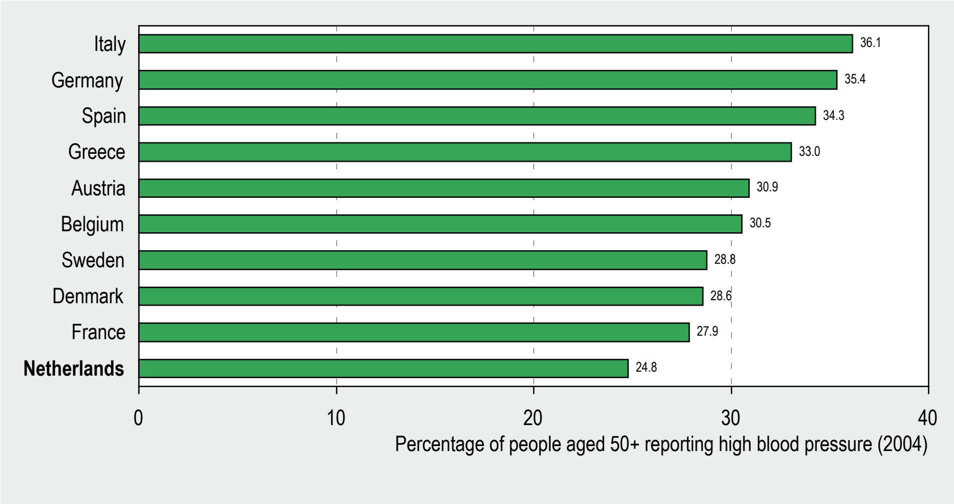


Figure 9.17: Percentage of people aged 50 years and over reporting that a physician has ever told them that they suffer from high blood pressure in 10 EU Member States (SHARE, 2004).

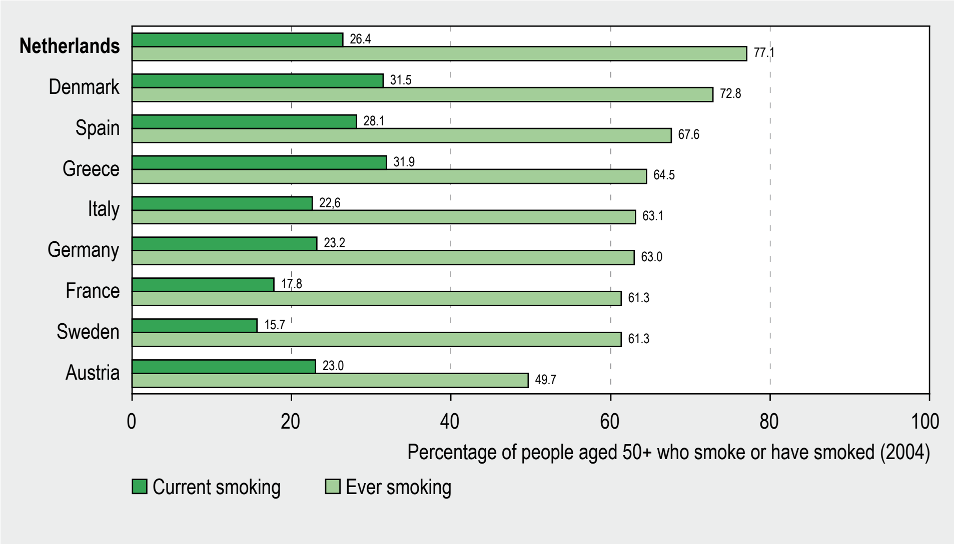


Figure 9.18: Percentage of people aged 50 years and over who have ever smoked and who smoke currently in 9 EU Member States (SHARE, 2004).

Compared to their European contemporaries, Dutch elderly people are often smokers
The percentage of smokers in the elderly population is high in the Netherlands compared to other EU countries (*figure 9.18)*. This is especially true for the percentage of 'ever smokers' (77.1%), and to a lesser extent for the percentage of current smokers (26.4%). The percentage of current elderly smokers is slightly lower than the percentage of smokers in the Dutch adult population, which is around 30% (see *paragraph 5.2.1*). A declining age-gradient in current smoking for both sexes was also found in the SHARE baseline study. This can probably be partly explained by selective mortality, meaning that the smokers die younger than the non-smokers (SHARE, 2004).

Frequent alcohol consumption is a problem among Dutch elderly people
For elderly people drinking alcohol frequently, a diverging pattern can be seen when comparing different countries in the EU. In France, Spain and Italy, between 30% and 40% of men aged 50 years and over report drinking more than two drinks of alcoholic beverages daily or 5-6 times a week in the past 6 months. The Netherlands is the next in line to follow this top three with well over 20% of men aged 50 years and over drinking such amounts of alcohol. This kind of frequent drinking among women is rather rare. Nevertheless, with about 10% of Dutch women aged 50 years and over, drinking alcohol (almost) daily, the Netherlands is at the top together with France, Italy and Denmark (Börsch-Supan et al., 2005). On the other hand, total alcohol consumption in the Netherlands (7.8 litres per capita in 2003) is below the EU-27 average of 9.1 litres (see *paragraph 5.2.3*).

Giving and receiving social support is beneficial for the well-being of elderly people
In 'Healthy Ageing, a Challenge for Europe', an overview of available evidence on ageing related topics is presented (SNIPH, 2007). Regarding the effects of volunteer work by elderly people, the evidence suggests that interventions providing opportunities for older people to do voluntary work improve the quality of life of those who volunteer. Such interventions also reduce depression in older people who receive services including visits and peer counselling from an older volunteer. Face-to-face volunteer approaches have greater effect than indirect approaches (Wheeler et al., 1998; SNIPH, 2007). Another study reviewed observational studies examining the relationship between social support and coronary heart-disease mortality in elderly people. Here the evidence suggests that a lack of social support increases coronary heart disease mortality by up to four times when compared to that of the average population. It has to be noted, however, that there is great inconsistency in the measures used in the different studies to define psychological factors, which means that the studies are not fully comparable (Greenwood et al., 1996; SNIPH, 2007). A systematic review of the evidence of the effectiveness of health-promotion interventions in preventing social isolation and loneliness among older people revealed that educational and social activity group interventions that target specific groups can be effective (Cattan & Tilford, 2006; SNIPH, 2007).

9.4 Prevention and care

The largest group of health care consumers consists of older people. This part of the European population is growing rapidly, partly as a result of the baby-boom cohort reaching older age, but also because of continued increases in life expectancy and reduced fertility rates (Eurostat, 2008b). The increasing numbers of elderly persons will probably drive the demand for more health care provision in the future, including long-term care such as nursing homes. At the same time, new medical technologies will result in life saving treatments being available, which again leads to increasing life-spans.

Elderly Dutch persons have access to a relatively large informal network
Elderly people in the Netherlands, Greece and Italy have access to a relatively large informal network. France, Austria and Denmark have the lowest scores in this respect. Not all potential informal help is actually available in practice, for example because potential

carers may have a full-time job. When taking this into account, availability of the informal network for disabled persons decreases from an average of 75% to just under 60%. The Netherlands occupies a relatively favourable position here, partly because of the high proportion of part-time workers. These conclusions were drawn in a study that compared demand and supply of care for disabled elderly persons in nine EU Member States, based on the SHARE 2004 database (Pommer et al., 2007).

Roughly 80% of the people aged 50 years and over in a selection of EU countries have, in potential, access to an informal network (i.e. nuclear and extended family members). Elderly people with disabilities, have less access to such a network (75%). This is mainly because these people are older, and are therefore less likely to still have a partner (Pommer et al., 2007).

Despite access to a large network, Dutch elderly use little informal and a lot of formal care

Even though the availability of informal care is greatest in the Netherlands and lowest in France, the up-take of informal care is not strongly correlated as it is highest in Austria and lowest in the Netherlands. The intensity of informal care also varies considerably. In the southern countries, partners or children often provide daily or weekly care to needy relatives, whereas in the northern countries and the Netherlands this is much less frequently the case. In France, the Netherlands and Denmark a relatively high proportion of older persons with disabilities receive formal care, while this is limited in Greece, Italy and Spain. The Netherlands and Denmark have high levels of both home care and institutional care. In France, a large number of older persons receive home care. In all three countries, older persons receive large amounts of both domestic care and personal and nursing care compared with the other countries (Pommer et al., 2007).

The percentage of people not receiving the care they need ranges from 39% in Spain to 22% in Austria. The Netherlands is not in a favourable position here, partly because of the relatively limited use of informal care, as described above. The chances of receiving any care at all are lowest in the Mediterranean countries and highest in Denmark, and the chance of receiving formal care is highest in the Netherlands. Of the total number of people with moderate and severe disabilities, a third receives no help at all. The Netherlands occupies an average position here. This may be explained by the fact that older people rely increasingly on friends and neighbours and less on family. Older persons in the Netherlands contribute to this trend themselves because of their preference for a greater degree of independence (Pommer et al., 2007).

The number of elderly disabled persons is expected to grow in the Netherlands

The OECD has made projections of elderly persons with disability. Two scenarios were applied to predict the number of disabled elderly persons in several OECD countries in the year 2030; a static scenario, assuming that prevalence rates of severe disability would not change compared with the latest rates available in a country; and a dynamic scenario, assuming that past trends in the prevalence rates of severe disability would continue at the same rate in the future. As described in *paragraph 9.2*, in the Netherlands there is a downward trend in this respect. The results of these projections show that, even when taking downward trends in disability into account, the ageing of the population and the greater longevity of persons will still result in an increase of the number of severely disabled persons (Lafortune & Balestat, 2007).

Public spending on long-term care will rise in the OECD countries

Projections of spending on long-term care were also made. Different assumptions were applied:

1) The assumption that the age-specific disability rates would decrease over time at a rate that would be equal to half of the expected gains in life expectancy (a dynamic equilibrium between gains in life expectancy and improvements in functional autonomy).
2) The assumption that all of the gains in life expectancy would be accompanied by an equivalent reduction in severe disability (compression-of-disability).
3) The assumption that the age-specific rates of severe disability would remain constant over time (expansion-of-disability).

Taking all the OECD countries together, projections based on the first scenario result in a rise of the share of the Gross Domestic Product (GDP) allocated to public spending for long-term care from 1.1% in 2005 to 2.3% in 2050. By comparison, under the 'compression-of-disability' scenario, public spending for long-term care would only rise to 1.9% of the GDP by 2050, while under the 'expansion-of-disability' scenario, public spending would increase to 2.8% of GDP on average across OECD countries (Lafortune & Balestat, 2007).

Home based support for the elderly can be effective

The above presented population and cost projections emphasize the importance of prevention and postponing as much as possible the age of onset of chronic disease and disability, and the effective use of public resources. Though still limited, there is growing evidence of the (cost-)effectiveness of preventive interventions aimed at elderly persons. In the Healthy Ageing project, an assessment of available evidence on the effectiveness of home-care interventions/home visits was carried out. Conclusions suggest that home-care interventions for older people, extending beyond home visits, are effective in reducing the number of days spent in hospital re-admissions. Further, home visits can have modest effects in reducing mortality. Finally, home visits are effective in reducing admission to long-term institutional care/nursing homes for older people, and the evidence is stronger when older people are followed up with more than nine visits (SNIPH, 2007). The WHO Health Evidence Network (HEN) came to similar conclusions. They also indicate that home visiting programmes have the potential to be cost-effective due to their low cost compared to long-term institutional care (Elkan & Kendrick, 2004). Summarizing the available evidence suggests that multidimensional assessments, many follow-up visits and targeting people at lower risk of death are characteristics of effective home-visiting programmes.

There is evidence to suggest that health promotion for the elderly is cost-effective

The Healthy Ageing project described best practice examples of public health interventions in the elderly. It may be effective to include younger people in the interventions to motivate elderly people to change lifestyle habits, and involving people from the target group in the planning and implementation phases may activate the less motivated.

Most of the 'good practice' interventions focused on social capital and physical activity and may lead to improvement of physical health and alleviation of loneliness. When evaluating projects targeting physical activity, it therefore is important to look outside the direct goals and measure how people interact and make friends, thus contributing to social capital (SNIPH, 2007).

Some studies have investigated physical activity among older people. Individual home-based exercise interventions in particular, have proven cost-effective. In a randomized controlled trial in New Zealand with people aged 75 years and older, individual home-based exercise was prescribed and five home visits were made by a nurse over 6 months. For people older than 80 years, the savings in health care were higher than the costs. Swedish studies found a decreased use of health care among healthy pensioners receiving preventive home visits and also a hip-fracture prevention programme involving a comprehensive information package turned out to be cost-effective (SNIPH, 2007).

Evidence on effectiveness of mental health services for the elderly insufficient

The population in the Netherlands is ageing, and, as described in *paragraph 9.2*, this will be accompanied by an increase of elderly people with dementia and depression. Evidence on the effectiveness of mental health services therefore is of high importance. The main conclusions of a WHO Health Evidence Network (HEN) report on the effectiveness of old-age mental health services were that some aspects of old-age mental health services have been demonstrated to be effective, especially in community settings, but there are significant gaps in knowledge in acute hospital, day hospital and long-term residential care (Draper & Low, 2004). To address the gaps in knowledge, the routine collection of cost and outcome data should be encouraged and governments should facilitate and support the funding of studies to address questions involving models of care and best practice (Draper & Low, 2004).

Older people are less 'health literate'; this should be taken into account when designing public health interventions

It is important to take the concept of health literacy into account when designing preventive interventions aimed at the elderly. Health literacy can be described as: 'the capacity to obtain, interpret and understand basic health information and services and the competence to use such information and services to enhance health' (Nasnewsletter, 2000). Health literacy is lower among older age groups; older people with inadequate health literacy know less about their chronic condition than their health literate peers (SNIPH, 2007). Older people with inadequate health literacy are more likely to report failure to receive vaccinations and cancer screening (Scott et al., 2002).

Screening for risk factors in elderly diabetes patients seems adequate in the Netherlands, although treatment can be improved

Diabetes is a risk factor for developing cardiovascular disease, such as stroke or myocardial infarction. Other known risk factors for cardiovascular disease, such as high blood pressure and high cholesterol level, pose an even greater risk in diabetes patients. Detection and treatment of additional risk factors therefore should be a basic component of diabetes care, and the EUCID project included some indicators measuring these aspects of care. When looking at the percentage of the diabetic population with blood pressure measured in the last 12 months, and the percentage of the diabetic population with cholesterol tested in the last 12 months, it appears that in several countries these percentages are low in the older age groups. This does not apply to the Netherlands; besides the percentage of the diabetic population with blood pressure measured in the last 12 months in the age group 85 years and over, these indicators are close to 100% for the Netherlands. However, despite the regular checks, the percentages of diabetes patients with adequately treated blood pressure and cholesterol levels (below 140/90 mmHg and 5 mmol/l respectively) are still suboptimal, also in the Netherlands. Inadequate treatment of high blood pressure, in particular, is a problem in the older age groups (TFMCD, 2008). As pointed out in *paragraph 6.5.7*, retinal examination is on the ECHI shortlist as an indicator for the quality of diabetes care. Given the relation between age and diabetes prevalence, screening for retinal damage is of particular importance among the elderly.

9.5 Summary and conclusions

The Netherlands is one of the 'younger' countries of the EU-27, but will face a significant increase in the share of older people over the next decades, as will all EU countries. The percentage of elderly at risk of poverty is low in the Netherlands. As in all EU countries, Dutch women have lower mortality rates than men, which results in a higher female life expectancy and a larger share of elderly women.

Dutch elderly have comparatively high mortality rates for a number of causes of death, such as respiratory diseases, including COPD, and for cancers, especially lung cancer; both these diseases are strongly influenced by smoking. It appears therefore that Dutch elderly are currently facing one of the strongest effects of the tobacco epidemic among the EU countries as Dutch elderly men have relatively high lung cancer mortality rates, as well as very high mortality rates from other cancers and from respiratory diseases, which are all strongly influenced by past smoking. At least these rates are falling in men, whereas in Dutch women aged 65 and over a worrying increase in lung cancer mortality is observed. For other causes of death, such as circulatory diseases, Dutch elderly are among the best in the EU-27. These different scores add up to rather average scores for Dutch elderly men and women on all cause mortality and life expectancy at age 65.

Chronic diseases are very common in the European elderly, but the percentage of Dutch elderly reporting to have a chronic condition is relatively low. Life expectancy in good health, expressed as the number of Healthy Life Years, is increasing throughout the EU and is now relatively high for Dutch people of 65 years and older.

Relatively many Dutch elderly persons are still smoking and they also drink alcohol relatively frequently, but they have comparatively low rates of overweight and obesity compared with other EU countries. There is some reason for concern, however, as the trends in overweight are on the increase and overweight and obesity are associated with an increased incidence of chronic disease, such as diabetes and musculoskeletal problems. Insufficient data are available to enable good European comparisons to be made for blood pressure, but also for chronic disease prevalence and other relevant public health issues, such as quality of care, in the elderly. This is especially important as the elderly are the major users of health care. Depressive symptons are very common in European and Dutch elderly and dementia, including Alzheimer's disease, increases exponentially with age, as do most chronic diseases. This causes an exponential increase of health care expenditure with age, as well. As disabilities also determine health care needs, it is important to know whether the Netherlands can expect an increase in the burden of disability in the elderly and, if so, at what rate. It appears that there is a downward trend in the age-specific prevalence of severe disabilities in the Netherlands, which is now relatively high, Furthermore, the Dutch elderly have average scores regarding self-reported activity limitations.

Relatively little data are available in the EU for indicators focusing on prevention for the elderly or on quality of care. It appears that screening for cardiovascular risk factors in elderly diabetes patients is quite adequate in the Netherlands. Treatment of these risk factors appears to be suboptimal in many EU countries, however, including the Netherlands. Increasing health literacy, especially among the elderly, could be a shared approach to increase the effects of preventive efforts for the elderly in the EU.

Elderly Dutch people report having relatively good access to informal care, but use it relatively little. Instead, they seem to prefer using formal care. As the percentage of older people is growing, the burden of disability will increase further and consequently the need for health care and health care expenditure will also increase. This is a problem all EU countries will face in the coming decades. Postponing ill-health and disability in the elderly must therefore become a major health policy goal in all EU countries.

PART III DATA

Part of the data collection of Pieter Kramers, chair of the ECHI-1 and ECHI-2 project (1998-2004).

10 DATA: A LOOK BEHIND THE SCENES

International comparisons require good and comparable data

Part I of this report presents a series of comparisons between EU Member States, based on 82 indicators contained in the ECHI indicator shortlist. Evidently, such comparisons can only be made in a meaningful manner if data are not only actually available, but also comparable and of sufficient quality.

In practice, the data situation is often not ideal. Right from the beginning of Part I it becomes obvious that quite often data are not available for all EU countries, or that available data are derived from different types of sources. To further explore these issues, *appendices 4 to 7* systematically present details about actual data collection methods for each of the ECHI shortlist indicators. Knowledge of these 'metadata' is essential for the proper interpretation of the data, including the meaning of differences between countries or of observed trends.

This chapter highlights some main issues arising from these detailed data discussions, dealing separately with *availability* and *comparability/quality*, and with a focus on the data situation in the Netherlands.

Dutch data availability is generally good, but comparability problems remain

Based on the details given in *appendices 4 to 7*, an attempt has been made to provide a quantitative assessment of availability and comparability/quality for each of the 82 indicators studied. The results are given in *table 10.1*, below.

Availability indicates whether any data are available on the specific topic, irrespective of its precise conformity to the ECHIM indicator definition available at that moment. In a number of cases the precise ECHIM definition has not yet been finally agreed upon.

The table shows that for 95% of the indicators data are available for the Netherlands, but also that data are available on a regular basis (mostly annually) for about 65% of the indicators, for the Netherlands as well as for most other EU countries. To our knowledge, there are only four indicators for which no representative data are available for the Netherlands. These indicators are musculoskeletal pain, pregnant women smoking, cancer treatment quality and diabetes control.

In our assessment on *comparability/quality*, we see that in only 25% of the indicators the comparability is considered as good. There are comparability problems for 65%, which may be for various reasons, as discussed below. For some 10% of cases we consider the comparability problems to be serious.

The table gives separate figures for each of the four chapters of the indicator list: Health status, Determinants of health, Prevention and care, and Demographic and socio-economic situation. The differences between the chapters are not really connected to these content areas, instead they relate to the characteristics of the underlying types of data sources.

Table 10.1: Summary of assessment of availability and comparability/quality for 82 ECHI short-list indicators.

	Availability				Comparability/quality		
	Data in NL[a] and most other MS[b]	Data in NL and few other MS, or not on a regular basis	No NL data, some in other MS	No data	Good	Some problems	Serious problems
Health status	19	12		1	11	16	4
Determinants of health	6	6		1	2	10	
Prevention and care	20	6	1	1	2	19	5
Demographic and socio-economic situation	9				5	4	
Totals	54	24	1	3	20	49	9

[a] NL: the Netherlands

[b] MS: Member States of the European Union

For instance, most mortality and population data are regularly available in all countries as well as adequately comparable, whereas it is more difficult to obtain internationally comparable data from surveys. Further examples are given below.

Also compared to other countries, data availability in the Netherlands is quite good

Data availability in other countries was not systematically assembled from the presentations in this report, but this has been studied in some detail by the ECHIM project. As shown by this project's final report (Kilpeläinen & Aromaa, 2008), the availability of ECHI shortlist indicators varies between 60% and 100%, for a set of 18 countries. Among these the Netherlands is one of the best with 95% availability. It is remarkable that for quite a few countries, including the Netherlands, the actual availability turns out to be better when consulting national experts, than is apparent from the international databases of WHO, OECD and Eurostat. Presumably, for several topics, countries do have data available, which have not yet been sent or incorporated into the international databases. It is unclear whether this is due to the inability to match the format of the desired indicator, incomplete communication, or data being considered as not comparable.

Comparability problems are specific for data sources

Data from different countries on the same indicator may have comparability problems for a variety of reasons. In many cases these problems are specific for a certain data source type. They are discussed by typical data source below:

- *Causes of death:* Although the International Classification of Disease (ICD) is very precise, regional differences in medical practice and training may lead to differences in coding, especially in cases of multi-morbidity. This source of bias is decreasing and ICD-based data on causes of death are nowadays considered among the best comparable within the EU. Changes from one ICD release to another, i.e. from ICD-9 tot ICD-10, are not taking place simultaneously in all countries and this may cause temporary differences (sometimes shown as trend breaks) or differences between specific countries.

- *Infant and perinatal mortality:* Issues include differences in criteria for a minimum birth weight or gestation time, and the in- or exclusion of very pre-term births. The PERISTAT project (Lack et al., 2003) has recommended a number of improvements in this politically sensitive area.
- *Disease-specific morbidity:* This is a notoriously difficult area. For example, the indicator 'prevalence of diabetes' can theoretically be derived from hospital discharge statistics, from primary care contacts, from population surveys (question 'do you have diabetes?'), or from Health Examination Surveys in which blood glucose is measured and thus also previously unknown diabetes is recorded. These four data sources will produce different figures, as they basically measure different things. This type of indicator is a clear example showing that in order to produce comparable data, the mechanism of data collection has to be included in the indicator definition. Another 'difficult' group of indicators is in the area of mental health and related conditions (e.g. depression, Alzheimer). Here, the sampling frame of a survey and the response behaviour (how to get mentally ill persons to respond to a questionnaire?), are crucial for the outcome. The ideal instrument for this area is a full-coverage disease register, as is used in many countries for certain cancers and for some communicable diseases.
- *Items derived from Health Interview Surveys:* These normally include perceived and functional health, a range of health determinants, and issues of health services utilization. Problems may include difficulties in translating the same meaning into different languages, as well as cultural differences in interpreting linguistically similar expressions. Apart from that, a major issue is to arrange for representative and similar sampling frames, e.g. in terms of age groups and inclusion of institutionalized persons and minorities.
- *Data derived from medical registers:* Hospital-based data, but especially data from primary care or outpatient registries, may lack precise comparability due to national differences in the organization of the health delivery system. Other sources of bias include different classification systems and coding rules, differences in admission and discharge practices, and different patient populations.
- *General:* Comparability may be hampered by differences in the age composition of populations. For mortality, it is common practice to solve this problem by direct standardization. This is possible because the basic data for mortality are always age-structured. For many other health issues the exact age is either unavailable, or the sample sizes are too small to make meaningful calculations.

Issues of data quality: do the data measure what they intend to measure?

Aspects of data quality include questions on 'validity' (is the data reflecting what we intend to measure?) and 'reliability' (do the trends and differences shown reflect real differences, are they reproducible?). Obviously, these quality aspects play a role in the comparability. Validity refers to the question of whether the instrument we use is adequate to measure the phenomenon we want to monitor. For instance, the 'burden of disability' can be assessed by measuring the number of people receiving disability benefits, but this tells us nothing about the burden of the disability in terms of functional capacity. Reliability may relate to issues like sampling frame and size, statistical significance, representativeness, population background of the measurement, sensitivity to seasonal fluctuations, etc.

The best available data are not always the best for international comparisons
A phenomenon not seldom encountered is that the preferred data for national trends are not the best data for comparisons with other countries. For example, for the Dutch situation the incidence and prevalence of a range of diseases is preferably derived from primary care registries, which do not exist in most other countries. Instead, most countries have data on self-reported diseases, from population surveys. Another example is the consumption of certain food items: a comprehensive food consumption survey is the preferred instrument, but this is very expensive and not available for most countries. The next best choice is the household budget survey questionnaire, which is much more common throughout the EU, and produces reasonably comparable 'proxy' data on the consumption of a range of food items as measured by the money spent on these items by households.

Improving comparable data is stimulated by the ECHI(M) projects
The ECHI(M) projects (see *chapter 3*) funded by the European Commission, have been outstanding tools in promoting the regular availability of comparable data and indicators from all EU Member States. A number of steps are necessary to reach this goal:
1) Selecting the topics on which we need information, from the policy maker's perspective (example: smoking behaviour in the population). This has resulted in the ECHI indicator shortlist.
2) Defining the indicator(s) to be calculated (example: percentage of regular cigarette smokers, by 5-year age band, by sex, by educational level). This step was implemented in the so-called 'documentation sheets', i.e. precise prescriptions for indicator calculation and underlying data collection (see www.healthindicators.org).
3) Arranging for an appropriate and harmonized data collection system in each country (example: implementing the same survey questionnaire asking the precise question from which the indicator can be calculated, using an adequate sampling frame). This step is currently being undertaken by several countries, in collaboration with the ECHIM project.

In the third stage in particular, Eurostat plays an increasingly central role, as this organization maintains the liaisons with the largest part of data collections which are generally maintained by national statistical offices in the respective Member States.

At present, quite a few of the ECHI shortlist items have been moved forward to step 3, but the majority is still in step 2.

The EU is making progress in organizing data availability, comparability and quality
In a wider context than ECHIM, but often closely linked, considerable progress is being made by activities within the EU Health Programme and Eurostat. This includes the development of the EHIS (European Health Interview Survey) harmonized questionnaire, which contains almost all items from the ECHI shortlist. Other examples are the System of Health Accounts, for comparable health expenditure data, and the System of Hospital

Data. New initiatives are being undertaken by Eurostat for a more comparable measurement of disease-specific morbidity. A European HES (Health Examination Survey) is being started by DG SANCO, and the ECHIM Joint Action is taking the development of comparable data one step further by promoting the implementation of harmonized indicator definitions and data collection procedures within the Member States.

EU countries heading for improvement along the ECHIM lines

Quite a few EU Member States are following up on the EU initiatives to improve on the availability and comparability of data, especially in relation to the ECHI shortlist. The final report of the ECHIM project (Kilpeläinen & Aromaa, 2008) mentions a few of these improvements:

- The EHIS is being implemented (sometimes in phases) in, for example, Belgium, the Czech Republic, Hungary, Latvia, Luxembourg, the Netherlands, Portugal and Slovenia.
- Health Examination Surveys are planned for in a number of countries, including the Czech Republic, Norway and Portugal, in addition to the abovementioned EU initiative.
- Registers for cancer and other diseases (e.g. cardiovascular disease) are being improved or newly established in several countries.
- The use of data from health insurance companies is being explored in a number of countries, including Austria, Belgium, France and Slovenia. Several countries have also started to use personal identification numbers and improved record linkage to generate improved population-based data.

The ECHIM final report also notes that the best implementation of comparable data collection is taking place in countries where one national organization is in charge.

Opportunities for the Dutch system of health data collection

The availability and international comparability of Dutch public health data is generally rather good in terms of meeting the requirements of the ECHI indicator shortlist. However, on several issues the Dutch data collection system can be improved. There is also concern about the sustainability of certain parts of the system.

One of those concerns is the continued availability of hospital-based data, especially the data linked to specific diagnoses. Due to changes in the Dutch system of health care delivery and accounting, the system that has been operating for several decades (LMR) is now under severe pressure and a reliable alternative is not yet available. Perhaps the experiences in several countries (see above) on using health insurance data and new linking techniques can help in finding new approaches.

Another issue is EHIS. The Netherlands is among the countries that have a long tradition of Health Interview Surveys and is therefore somewhat cautious in adopting and integrating EHIS into its running survey programme, as opposed to countries that have not yet run Health Interview Surveys and are now readily implementing EHIS. However, the first steps in this integration are currently being taken.

Other areas of possible improvement include a registry for widespread conditions such as cardiovascular events and diabetes, and the adequate regular monitoring of mental health issues. Also, the possibilities of stratifying health data to socio-economic variables should be improved. Finally, monitoring of the health of children and the elderly could be better coordinated. For international comparisons of specific age groups (e.g. children, young or elderly people) the data collection methods have to meet different requirements as opposed to comparisons of the general population. There are several reasons for this. First, these groups are dealing with specific age-related problems, for example teenage pregnancies or lack of social support for the elderly. Furthermore, people under 15 and elderly people living in nursing homes are often excluded from general Health Interview Surveys. Finally, because the target groups are small, it is more difficult to recruit sample groups that are large enough to be representative for the country. Nonetheless, it is crucial to target these groups, as is done by the HBSC and ESPAD (children) and by the SHARE study for the elderly.

The generation and dissemination of public health data and indicators in the Netherlands need a central coordinating ownership

Apart from the possible technical improvements in the Dutch data collection, as indicated above, there is an organizational issue. At present, the responsibility for regular data collection in the various areas of (public) health is scattered among a range of public and private parties. This applies to the logistics as well as to the financing of the activities. Now and in the future, we increasingly need to meet both national and international demands for accurate and timely data. At the national level, these demands have become apparent through the Public Health Status and Forecasting (VTV) reporting function. At the international level, the first data deliveries were to WHO-Europe, followed by the OECD and Eurostat. At the EU level in particular, there is a movement in progress towards the mandatory delivery of data, e.g. by the future European regulation on community statistics on public health and health and safety at work (that takes the ECHI shortlist as one of the starting points) and the work in the Social Protection Committee by its Open Method of Coordination.

All of this underlines the need for a change from the present decentralized model to a strong national coordination and ownership for the regular collection of primary data in the area of public health and health care. There is a role for several partners in this coordinating function, one of them being the Ministry of Health, Welfare and Sport.

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Appendix 2: List of abbreviations

ABCD	Amsterdam Born Children and their Development
ABS	affect balance scale
ACCIS	Automated Childhood Cancer Information System
ACS	acute coronary syndrome
AIDS	Acquired Immuno-Deficiency Syndrome
AirBase	The European air quality database
AIRE	Asthma Insights & Reality in Europe
ALOS	average length of stay
AMI	acute myocardial infarction
ATC	Anatomic Therapeutic Classification
AWBZ	Algemene Wet Bijzondere Ziektekosten (Exceptional Medical Expenses Act)
BHR	bronchial hyperresponsiveness
BIG	Beroepen in de Individuele Gezondheidszorg (Individual Healthcare Professions)
BKZ	Budgettair Kader Zorg (Healthcare Budget Framework)
BMI	Body Mass Index
BRCA1	Breast Cancer 1 Gen
BRCA2	Breast Cancer 2 Gen
BSSQ	Brief Social Support Questionnaire
CBS	Centraal Bureau voor de Statistiek (Statistics Netherlands)
CDAM France	Catalogue des Actes Médicaux
CDC	Centers for Disease Control and Prevention
CHD	coronary heart disease
CHOICE	CHOosing Interventions that are Cost Effective
CIb	Centrum Infectieziektebestrijding (Centre for Infectious Disease Control Netherlands)
CIDI-SF	Composite International Diagnostic Interview - Short Form
CISID	Centralized Information System for Infectious Diseases
CMR-Nijmegen	Continue Morbiditeits Registratie Nijmegen (Continuous Morbidity Registration Nijmegen)
COPD	Chronic Obstructive Pulmonary Disease
CT	computer tomography
CVD	cardiovascular disease
CVZ	College voor zorgverzekeringen (Health Care Insurance Board)
DAFNE	DAta Food NEtworking
DALY	Disability Adjusted Life Years
DDD	Daily Defined Doses
DG SANCO	Directorate-General Health and Consumers
DMFS	Decayed, Missing or Filled Surface
DSM-IV	Diagnostic and Statistical Manual of Mental Disorders, 4th edition
DTP	diphtheria, tetanus and pertussis
ECDC	European Centre for Disease Prevention and Control
ECHIM	European Community Health Indicators Monitoring
ECHP	European Community Household Panel
ECRHS	European Community Respiratory Health Survey
EEA	European Environmental Agency
EFCOSUM	European Food Consumption Survey Method
EHEMU	European Health Expectancy Monitoring Unit
EHIDS	European HIV Infection Data Set

EHIS	European Health Interview Survey
EHRM	European Health Risk Monitoring
EMCDDA	European Monitoring Centre for Drugs and Drug Addiction
ENHIS	European Environmental and Health Information System
ESeC	European Socio-Economic Classification
ESEMeD	European Study of the Epidemiology of Mental Disorders
ESPAD	European School Survey Project on Alcohol and other Drugs
ETS	Environmental Tobacco Smoke
EU	European Union
EU-15	The 15 countries making up the European Union before 1 May 2004: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and the United Kingdom
EU-19	The nineteen EU-27 Member States that are also member of the OECD. These countries are Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden and the United Kingdom
EU-25	The 25 Member States of the European Union since 1 May 2004: these are the EU-15 countries plus Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia
EU-27	The 27 Member States of the European Union since 1 January 2007: these are the EU-15 countries plus Bulgaria, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovakia and Slovenia
EUCID	European Core Indicators in Diabetes
EUDIP	European Diabetes Indicators Project
Eurochip-II	European Cancer Health Indicator Project-II
EUROCISS project	EUROpean Cardiovascular Indicators Surveillance Set
EuroCoDe	European Collaboration on Dementia
EURODEM	The European Community Concerted Action on the Epidemiology and Prevention of Dementia
Eurofund	European Foundation for the Improvement of Living and Working Conditions
EuroHIV	European Centre for the Epidemiological Monitoring of AIDS
Eurostat	Statistical Database of the European Union
EuroTB	Surveillance of Tuberculosis in Europe
EU-SILC	European Statistics on Income and Living Conditions
EVI	Energy and Vitality Index
FAO	Food and Agricultural Organization of the United Nations
FIC	Family of International Classifications
FOBT	faecal occult blood testing
GDP	gross domestic product
GIP	Genees- en Hulpmiddelen Informatie Project (Drug Information System)
GP	General Practitioner
GR	Gezondheidsraad (Health Council of the Netherlands)
HAART	highly active antiretroviral therapy
HALE	Health-Adjusted Life Expectancy
HBSC	Health Behaviour in School-aged Children
HCQI	Health Care Quality Indicators
HDP	Hospital Data Project
HES	Health Examination Survey
Hib	*Haemophilius influenzae* type b
HIS	Health Interview Survey
HIV	Human Immunodeficiency Virus
HLY	Healthy Life Years
HMP	Health Monitoring Programme

HPV	human papillomavirus
IARC	International Agency on Research on Cancer
ICD	International Classification of Diseases
ICPM	International Classification of Procedures in Medicine
IDB	European Injury Database
IDF	International Diabetes Federation
IHD	ischaemic heart disease
IKA	Integraal Kankercentrum Amsterdam
IKN	Integraal Kankercentrum Noord Nederland
IKNO	Integraal Kankercentrum Noord Oost
IKZ	Integraal Kankercentrum Zuid
ILO	International Labour Office/Organization
IMCA	Indicators for monitoring COPD and asthma in the EU
INES	International Indicators of Education Systems
IOTF	International Obesity Task Force
IPAQ	International Physical Activity Questionnaire
ISAAC	International Study of Asthma and Allergies in Childhood
ISCED-97	International Standard Classification of Education 1997
ISCO	International Standard Classification of Occupations
ISHMT	International Shortlist for Hospital Morbidity Tabulation
LFS	Labour Force Survey
LMR	Landelijke Medische Registratie (National Medical Registry)
MHI	Mental Health Index
MONICA	MONItoring trends and determinants in CArdiovascular disease
MORGEN-Project	Monitoring Project on Risk Factors for Chronic Diseases
MP-CVDRF	Monitoring Project on Cardiovascular Disease Risk Factors
MRI	magnetic resonance imaging
MSM	men having sex with men
NEMESIS	Netherlands Mental Health Survey and Incidence Study
NETB	National Evaluation Team for Breast Cancer Screening
NEA	Nationale Enquête Arbeidsomstandigheden (Netherlands Working Conditions Survey)
NHS	National Health Service
NOMESCO	Nordic Medico-Statistical Committee
NPK	Nationaal Programma Kankerbestrijding (National Cancer Control Programme)
OECD	Organisation of Economic Cooperation and Development
OPCS4-UK	Classification of Surgical Operations and Procedures
OSS-3	Oslo 3-item social support scale
PHSF	Public Health Status and Forecasts
PM	Particulate Matter
POLS	Permanent Onderzoek Leefsituatie (Permanent Survey on Living Conditions)
PREZIES	PREventie van ZIEkenhuisinfecties door Surveillance (national surveillance network of hospital infections)
PRN	Stichting Perinatale Registratie Nederland (The Netherlands Perinatal Registry)
PTCA	Percutaneous Transluminal Coronary Angioplasty
RIVM	Rijksinstituut voor Volksgezondheid en Milieu (National Insitute for Public Health and the Environment)
RNH	Registratienet Huisartsenpraktijken (Registration Network Family Practices)
SCP	Sociaal en Cultureel Planbureau (Social and Cultural Planning Office of the Netherlands)

SFK	Stichting Farmaceutische Kengetallen (Foundation for Pharmaceutical Statistics)
SHA	System of Health Accounts
SHARE	Survey of Health, Ageing and Retirement in Europe
SIDS	Sudden Infant Death Syndrome
SImPatIE	Safety Improvement for Patients in Europe
SQUASH	Short QUestionnaire to ASses Health enhancing physical activity
STI	Sexually Transmitted Infection
Stivoro	Dutch Foundation on Smoking and Health
TB	tuberculosis
TESSy	The European Surveillance System
VTV	Volksgezondheid Toekomst Verkenning (Public Health Status and Forecasts)
VCP	Voedselconsumptiepeiling (Food Consumption Survey)
VWS	Ministerie van Volksgezondheid, Welzijn en Sport (Ministry of Health, Welfare and Sport)
WHO	World Health Organization
WHO-Europe	World Health Organization Regional Office for Europe
WHO-HFA	World Health Organization Health for All database
WMH survey	World Mental Health Survey
ZonMw	Nederlandse Organisatie voor Gezondheidsonderzoek en Zorginnovatie (the Netherlands Organisation for Health Research and Development)
Zvw	Zorgverzekeringswet (Health Insurance Act)

Appendix 3: List of tables and figures

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5. Determinants of health

6. Prevention and care

9. Elderly people

Appendix 4: Underlying data chapter 4 Health status

A4.1 Mortality

A4.1.1 Life expectancy

Availability
Life expectancy data for all EU-27 countries are provided by Eurostat, OECD and WHO in their respective databases. The common Dutch source for life expectancy is Statistics Netherlands (Centraal Bureau voor de Statistiek, CBS), which provides (detailed mortality) data to the international databases. For OECD, Eurostat is the main data source for the 19 EU countries.

Comparability
Different organizations (e.g. WHO, OECD and Eurostat) use slightly different approaches when estimating life expectancy, which explains why indicators of life expectancy may differ between the databases. WHO and Eurostat base their calculations on the data submitted by the Member States (demographic and mortality data) using different methods (Wiesler's and Farr's-method respectively). Eurostat's methods are described by Calot & Sardon (Calot & Sardon, 2004). The same applies for the calculation of life expectancies by sex and age. The WHO also calculates 'estimated life expectancy', for which special techniques are used to produce life tables when routine vital statistics are not available or are incomplete (WHO-HFA, 2007) (details in World Health Reports).

Quality
Since life expectancy is based on straightforward mortality statistics, the quality of the data depends on death registration practices in the Member States.

A4.1.2 Infant mortality

Availability
Eurostat, WHO-HFA, and OECD have data which are regularly updated based on national data. Dutch data in these international databases are obtained from Statistics Netherlands.

Comparability and quality
There are variations among countries in registering practices of premature infants who die around birth and it may differ depending on whether they are reported as live births or not. In several countries, such as in the Nordic countries, very premature babies, with relatively low odds of survival, are registered as live births. This increases the perinatal mortality rates when compared with other countries that do not register them as live births (see *paragraph 4.1.3* on perinatal mortality). Thus differences in the registration of the

infants with very short gestation may cause variations in infant mortality rates between countries. Therefore, the PERISTAT project suggests that infant mortality rates are also presented by gestational age and birth weight. It also proposes to add to the definition of infant mortality: at or after 22 completed weeks of gestation (PERISTAT, 2008).

A4.1.3 Perinatal mortality

Availability
WHO, Eurostat, and OECD have data which are regularly updated based on national statistics. However, the Eurostat data do not use a common definition for perinatal mortality. OECD and WHO have their own definitions, which differ from each other in whether or not including the criteria of a minimum gestation period of 28 weeks in their definition. Dutch data in these international databases are obtained from Statistics Netherlands.
The PERISTAT project adjusted perinatal mortality by gestational age, which enabled better comparisons between the data from the different countries (Buitendijk et al., 2003). PERISTAT's successor, EURO-PERISTAT will publish new results on this indicator at the end of 2008 (EURO-PERISTAT, 2008). The Dutch Perinatal Registry (PRN) provides data to PERISTAT.

Comparability
The following factors should be taken into account when comparing perinatal mortality rates among countries (Buitendijk et al., 2003; Lack et al., 2003):

- Bias related to the construction of the indicator.
  For example, in 1994 reducing the lower limit of birth weight in Germany from 1000 to 500 gram led to a sudden increase of 20% in perinatal mortality rate. EU countries register foetal deaths after 22, 24 or 28 weeks of gestation, and sometimes the registration as a stillbirth or death is also dependent on a minimal weight of the foetus. To adjust for these differences in definitions, the PERISTAT project recommends presenting foetal mortality rates by gestational age, birth weight and plurality (e.g. twins, triplets). These parameters affect mortality rate and may be helpful in a better interpretation of the data. In addition to foetal mortality PERISTAT suggests to present a separate indicator, i.e. the neonatal mortality rate, in the same way.
- Factors known to influence the variability of pregnancy outcomes, such as:
  - Social and demographic characteristics of the childbearing population, e.g. age of mother at birth and certain social conditions, such as being a single parent. Percentage of twin births, percentage of first born children.
  - Percentage of pregnant women smoking or drinking too much alcohol or taking folic acid in time to prevent certain birth defects.
  - Medical and preventive practices. For example, screening for congenital anomalies can affect mortality rates. If screening is widely used within a country and induced abortions follow the detection of anomalies, that country may have a relatively high foetal mortality rate in pregnancies before 28 weeks of gestation, assuming that late terminations are registered as stillbirths. Conversely, countries where screening is

not common may have higher foetal mortality rates after week 28 or around term. Other factors that may influence pregnancy outcomes are percentage of caesarean sections, share of births after the application of Artificial Reproductive Techniques (e.g. In Vitro Fertilization).

– Differences in the medical approach towards resuscitation of very preterm babies. For example, the proportion of neonatologists who reported that they would withhold resuscitation in the delivery room from a 24 week and 560 gram neonate ranged from 2% in Germany to 63% in the Netherlands.

Quality

The data presented in *figure 4.3* are retrieved from the WHO-HFA database. For international comparisons the WHO defines perinatal mortality as the weight specific (1,000 gram or more) fetal deaths and early neonatal deaths per 1,000 births (live births plus stillbirths) in order to minimize the variation in registration criteria. If weight specific data are not available, any available data provided according to national criteria are used as proxies. The already mentioned European PERISTAT project aims to deliver a new set of comparable data in 2008.

A4.2 Cause-specific mortality

A4.2.1 Disease-specific mortality

Availability

Data on mortality by causes of death (COD) are available from Eurostat, OECD and WHO-HFA. OECD obtains its data from WHO. COD data refer to the underlying cause which - according to WHO - is ‘the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury’. COD data are derived from death certificates. The medical certification of death is an obligation in all Member States. Countries code the information of the death certificate according to ICD (International Classification of Diseases) codes (Eurostat, 2008a). Data for the Netherlands in both Eurostat and WHO-HFA are derived from the Dutch Causes of Death Statistics (Statistics Netherlands), which contains data on causes of deaths for all people registered in the Netherlands (Statistics Netherlands, 2008b). WHO-HFA data cover a longer time period and is therefore the preferred data source for comparing trends over time.

Comparability and quality

The data for mortality-related indicators are relatively complete and comparable (WHO-HFA, 2008). The WHO Regional Office for Europe (WHO-Europe) calculated mortality rates in a uniform way in order to improve the international comparability (WHO-HFA, 2008). Mortality data are age-standardized in order to be comparable between countries. The standardized death rate (SDR) is the age-standardized death rate calculated using the direct method and standard European population structure. They represent what the crude rate would have been if the population had the same age distribution as the European standard population.

Nevertheless, the availability and accuracy of data vary between countries. In general, all countries follow the standards and rules specified in the ICD, and the overall procedures for the collection of COD data are relatively homogenous between European countries (medical certification of cause of death, use of ICD). However, national differences in interpretation and use of ICD rules exist and as a result important quality and comparability issues remain (Eurostat, 2008a).

A4.2.2 Drug-related deaths

Availability

The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) recommends to estimate the number of drug-related deaths by extracting cases from existing General Mortality Registries according to ICD codes. The precise ICD codes to be selected are defined by the EMCDDA definition of drug-related deaths. In countries where this is not possible, the number of deaths is estimated by extracting cases from existing Special Registers (forensic or police registries). Data for the Netherlands are retrieved from the Causes of Death Statistics at Statistics Netherlands (EMCDDA, 2007b).

Dutch data on drug-related deaths are also available from the Dutch 'Nationale drugmonitor 2006' which uses the same EMCDDA definition. The number of drug-related deaths for the total population (including persons aged 65 and over) given in the Nationale drugmonitor is the same as the number given by EMCDDA.

Comparability and quality

At present national statistics are improving in most countries and their definitions are becoming the same, or relatively similar, to the common EMCDDA definition. However, there are still differences among countries in case definitions and quality of reporting may be different (EMCDDA, 2007b).

A4.2.3 Smoking-related deaths

Availability

Eurostat and OECD have no data available on smoking-related mortality. WHO does present data on 'selected smoking related causes' and presents the mortality from combined, selected causes of death which are known from literature to be related to smoking.

A more comprehensive method is 'smoking-attributable deaths' (www.deathsfromsmoking.net). In applying this method, it is assumed that relative risks from the US Cancer Prevention Study (II) can be applied to the EU. In 1992, Peto et al. (1992) described how to make indirect use of national disease-specific mortality rates to estimate smoking-attributable deaths (Peto et al., 1992). In 2005, calculations were made for all (then) 25 EU Member States (Peto et al., 2005).

Comparability
As mortality statistics are involved in calculating this indicator, comparability issues are discussed in the respective mortality paragraph (see *appendix A4.2.1*).

Quality
The WHO points out in its metadata that mortality from 'selected smoking-related causes' is a relatively rough indicator and that it is not the estimate of 'smoking-attributable deaths', which is more complex and difficult to calculate. The WHO states that 'This simple pooling of smoking-related deaths (irrespective of what is the actual proportion of deaths due to tobacco in each cause) can help to better rank countries by smoking-related mortality and can be used to better track trends in deaths associated with tobacco than would be possible by using separate causes' (WHO-HFA, 2008).

In applying WHO's approach, it is somewhat disregarded that differences and changes in the smoking-related deaths indicator may be distorted by lifestyle factors other than smoking, leading to misinterpretation. Thus, some argue that smoking-attributable deaths would yield a much more robust indicator (ECHIM, 2008). ECHIM has decided though, that although Peto's approach is certainly more appropriate, it is also more demanding, also requiring more specific information on tobacco frequency use by age groups. However, WHO's method is simpler and more practical and therefore the preferred source for this indicator (ECHIM, 2008).

A4.2.4 Alcohol-related deaths

Availability
For the WHO-HFA database, alcohol-related deaths are calculated by pooling those causes of death (as ICD codes, see also *appendix A4.2.1*) in which alcohol consumption is a risk factor, irrespective of the actual proportion of deaths due to alcohol for each specific cause. Thus the WHO-HFA figures represent deaths by very specific alcohol-related causes, like chronic liver disease, as well as non-specific alcohol-related causes of death, like accidents and injuries. This makes for a substantial overestimation of real 'alcohol-related deaths'. But the preferable figure, which is 'alcohol-attributable mortality', is much more difficult to assess. Alcohol-attributable mortality cannot be directly based on a list of ICD codes. Alternatives to the WHO-HFA method exist, but data on these are either not readily available or less relevant: for example the MINDFUL project (MINDFUL, 2008) proposed to use a more refined list of causes of death directly related to alcohol, such as alcohol poisoning or alcoholic cardiomyopathy (deterioration of heart muscle functioning). This limits the selection of causes of death, but at the same time disregards causes of death in which alcohol consumption is a major risk factor, like accidents. Also the data are hardly available and will be difficult to obtain in the future, because countries would have to report causes of death in ICD-10 4-digit code, whereas WHO-HFA reports on less specific categories of ICD-10. Another example is Eurostat, which reports on deaths caused by alcohol psychosis/chronic alcohol abuse. These data are readily available, but represent only a minor part of alcohol-related mortality.

Comparability
Since the registration of causes of death is done by ICD code, the data on alcohol-related deaths from the WHO-HFA database are in principle comparable. But there might be cultural factors at play in the diagnostics of alcohol-related deaths, which could cause differences between countries (Allamani et al., 2001). In the Netherlands alcohol-related deaths are estimated by Statistics Netherlands as deaths in which alcohol-related diagnosis are mentioned as the primary or secondary cause of death (Van Laar et al., 2008). These data are much more specific and not comparable to the WHO-HFA data. Like the MINDFUL method (see *availability*) they, for example, leave out a great part of the deaths caused by alcohol-related accidents.

Quality
The quality of these figures is low in the sense of validity, i.e. it does not accurately indicate the quantity of alcohol-related deaths. The indicator is mainly useful for a rough answer to the question whether alcohol-related mortality is going up or down in time. It is not suitable for comparing the quantity of alcohol-related deaths between countries. Alternative data currently do not exist (see *availability*). A better way of estimating alcohol-related deaths is to take the attributive fraction of alcohol in causes of death into account. This has been done for the WHO Burden of Disease studies, but it might not be practically possible to generate these data regularly for all countries.

A4.2.5 Excess mortality by heat waves

Availability
No statistics on this topic are collected and compared on a regular basis. Data for twelve European countries that had a possible excess mortality during the summer of 2003 are available from a report on excess mortality funded by the EU Community Action Programme for Public Health (Robine et al., 2007). The report also includes data from four surrounding countries that served as controls. Mortality data were obtained from national statistical or public health institutes. Statistics Netherlands provided the Dutch mortality data.

Comparability and quality
To be able to compare different years and European countries with very different population sizes, a death frequency was calculated by dividing the daily number of deaths for each year by the annual total.

A4.3 Disease-specific morbidity

A4.3.1 Selected communicable diseases

Availability
Data on the selected communicable diseases are available through the surveillance systems covered by the ECDC (the Joint DG SANCO / Eurostat Questionnaire for The First European

Communicable Disease Epidemiological Report produced by the ECDC). Tuberculosis (TB) is an exception. EuroTB (Surveillance of Tuberculosis in Europe), which has coordinated the collection of TB surveillance data in Europe since 1996, is the provider of TB data. For the description of the 2005 situation in the ECDC report, data reported directly from the country surveillance system (country reports) were used. For the trend analyses for 1995-2004, data were obtained from Eurostat. Data for the Netherlands were obtained from the ISIS-laboratory surveillance system, the electronic notification system OSIRIS, the virological weekly surveillance report and the Sexually Transmitted Infections (STI) sentinel surveillance network. Reporting to the Netherlands Health Care Inspectorate through the OSIRIS system has national coverage and is mandatory for pertussis, measles, tuberculosis, hepatitis B and C, but not for *Chlamydia*. Reporting to the other surveillance systems is voluntary and these systems do not have national coverage (Amato-Gauci & Ammon, 2007).

Comparability and quality

The wide variability in sources and in the effectiveness of the surveillance systems makes it meaningless to directly compare figures between countries. There are huge differences of accuracy of the reported data, both between diseases and between Member States. Countries with well developed or mandatory surveillance systems often appear to have higher incidences compared to countries where the surveillance of disease is a lower priority activity and given less effort (Amato-Gauci & Ammon, 2007). For instance in the Netherlands all pregnant women are offered a hepatitis B test during the first trimester of pregnancy (Van den Broek et al., 2008).

Furthermore, in the ECDC annual report it was not possible to identify when the country data were based on a sentinel system and therefore should be related to a specific population denominator (rather than the whole population) before estimating the incidence. ECDC is developing a new centralized European surveillance database (The European Surveillance System (TESSy)) with common reporting procedures in order to improve the comparability (Amato-Gauci & Ammon, 2007).

A4.3.2 HIV/AIDS

Availability

EuroHIV - the European Centre for the Epidemiological Monitoring of HIV/AIDS - is the primary data holder in Europe, gathering data from national surveillance systems in the 53 Member States of the WHO European Region. Results are published in reports 'HIV/AIDS Surveillance in Europe' and are presented on the EuroHIV website (www.EuroHIV.org) and in the CISID (Centralized Information System for Infectious Diseases) database (http://data.euro.who.int/CISID/). For Italy and Spain, national data are not available, only regional data. WHO-HFA and OECD also report on HIV/AIDS incidence. Eurostat does not provide data on infectious diseases any more as the ECDC is considered responsible for reporting on infectious diseases in Europe, but ECDC has not established its own database to date.

Dutch surveillance has been coordinated by the HIV Monitoring Foundation (Stichting HIV Monitoring) since 2002. All patient data are collected and analyzed in collaboration with HIV treatment centres, including hospitals throughout the country. Data collection on new HIV infections within the framework of the national HIV registration and surveillance programme is coordinated by the Centre for Infectious Disease Control (Clb), which is part of the RIVM.

Comparability

There are slight differences between the HIV/AIDS data provided in the different international databases that contain data on HIV/AIDS. All figures in these databases are based on EuroHIV data. Reporting of cases of newly diagnosed HIV infections started at different times in European countries and is now implemented in all of them, except Austria where HIV surveillance was operated through a cohort survey. Anonymous, individual data on all reported cases are sent annually to EuroHIV, according to a standard data file specification, by countries able to provide individual data. After validation, these data are merged into the European HIV Infection Data Set (EHIDS), hosted by EuroHIV. In the Netherlands, standard HIV screening is offered to all pregnant women since 2004 (Van den Broek et al., 2008).

Quality

Data on HIV and AIDS cases are reported to EuroHIV in a standard format. As individual data are reported without personal identifiers, elimination of duplicate reports between countries is not possible.

A4.3.3 Cancer incidence

Availability

National data on breast, lung and other cancers are collected by the European Network of Cancer Registries and the International Agency on Research on Cancer (IARC) with the support of past and present EU action programmes on cancer and public health (DG SANCO). In Europe, 29 national centres have reported information on the incidence of cancer for 1997 and 1998. The data recorded are usually checked for internal coherence by expert Cancer Registry staff at the point of registration. In the past, aggregated data for EU countries were made available through a series of user-friendly cancer databases, such as EUCAN (1998) and GLOBOCAN (most recent 2002). At present, IARC presents updates of incidence figures in the Cancer Incidence in Five Continents series (Curado et al., 2007), which provides detailed (regional) data on cancer sites worldwide. For the purpose of this report however, national European data are preferred and therefore, data from WHO-HFA are presented.

Comparability and quality

WHO-Europe collects cancer incidence data directly from the national Cancer Registries. The quality and comparability therefore varies. In the Netherlands data are delivered by the Dutch Cancer Registry (Netherlands National Cancer Centre). Background material in WHO-HFA reveals some caveats in terms of quality and comparability. In Denmark, for example, data for 2002-2003 include an estimate of cancer cases. This estimate represents a fraction of the cases that are identified through the National Causes of Death Registry. In Italy data have been estimated on the basis of 21 registries that cover 25.5% of the total population. A remark provided by the United Kingdom explains this probably quite well: 'Note that cancer registration is a dynamic process with databases being amended and updated on an ongoing basis, making use of additional data received. The data presented here may differ from other published data relating to the same time period.' For the United Kingdom it is also mentioned that figures for 1992 and before are likely to be underestimates (data collection methods for Northern Ireland data were improved in 1993).

A4.3.4 Diabetes

Availability
Fifteen out of twenty countries participating in the EUCID (European Core Indicators in Diabetes) project were able to provide data on diabetes prevalence for 2005 (+/- 1 year). It was only possible to calculate age-standardized prevalences for eleven countries. Most countries are able to provide diabetes prevalence data on a continuous basis (EUCID, 2008). Dutch diabetes prevalence in the EUCID project (30 per 1,000) is derived from the annual national HIS (POLS). The Dutch National Health Compass, however, estimates diabetes prevalence based on General Practitioner (GP) registrations. According to these GP registrations, 36.4 per 1,000 men and 38.6 per 1,000 women had diabetes in 2003. Compared with GP registrations, POLS underestimates diabetes prevalence (Baan & Poos, 2005).

The WHO-HFA database contains data on diabetes prevalence for about half of the EU countries, based on national diabetes registers, whenever available, or from the routine reporting systems, hospital discharge data and surveys (WHO-HFA, 2008). However, in the future, data on diabetes prevalence in all EU-27 countries will be available from the European Health Interview Survey (EHIS) (implemented in 2007/2009). The EHIS will include some questions on diagnosed diabetes during the past 12 months.

According to the EUDIP (European Diabetes Indicators Project) project, the best comparable data set on the prevalence of diabetes per 1,000 population (including previously unknown diabetes) will be obtained through a HES (EUDIP, 2002). The DECODE study compares diabetes prevalence based on HES for a total of thirteen studies from nine European countries and also provides data for previously undiagnosed diabetes (DECODE, 2003). However, data are somewhat older with the most recent study from 1997. For instance, for the Netherlands, prevalence data are derived from the Hoorn study from 1989-1991. Given the current diabetes trends in the Netherlands, data from the Hoorn study should not be used any more for comparing diabetes prevalence. Data from the International Diabetes Federation (IDF) Diabetes Atlas have the same drawbacks.

Comparability
Comparability of prevalence data from the EUCID project is limited because countries use three different sources:

1) Health Interview Survey: self-reported data.
2) Medical registers (including GP registrations): including all diagnosed diabetes patients, who have either been pharmacologically treated or have received dietary advice.
3) Administrative databases: based on antidiabetic drug use.
   Furthermore some countries derive their information from national databases, while others have more or less representative regional data. Also, data in WHO-HFA come from a great variety of sources (national diabetes register, routine reporting system, hospital discharges, surveys) and are considered not comparable.

Quality
Prevalence of diabetes based on self-reported data and administrative databases do not give complete figures for the diagnosed diabetic population. Although medical registers do provide complete figures, a drawback is that undiagnosed diabetes is not included in any of the three options (EUCID, 2008). Through HES it is possible to detect and include previously unknown diabetes. Therefore, a HES could provide the most complete and reliable data, including 1) previously diagnosed persons treated with medication (either insulin or oral hypoglycemic medication) or with diet/exercise only, and 2) including previously undiagnosed diabetes (EUDIP, 2002).

A4.3.5 Dementia/Alzheimer

Availability
Prevalence of dementia in the EU-27 countries can only be estimated. Alzheimer Europe provides estimates of the number and the proportion of persons with dementia in all EU-27 countries, but there is no regularly updated database. Alzheimer Europe bases its country-specific estimates on population statistics provided by Eurostat and on prevalence rates from the EURODEM-group (The European Community Concerted Action on the Epidemiology and Prevention of Dementia) and from a study by Ferri et al. (2005). The EURODEM-group pooled data on prevalence of moderate to severe dementia in several European countries to provide prevalence rates for nine different age groups. Only population-based studies in which dementia was defined by DSM-III (Diagnostic and Statistical Manual of Mental Disorders, third edition) or equivalent criteria and in which all subjects were examined personally, were included. The study included people living at home as well as the institutionalized population (Alzheimer Europe, 2006). In the study of Ferri et al. the prevalence rates were developed through a DELPHI approach, based on a consensus statement by dementia experts and not directly from epidemiological studies. Estimates are available for five year age groups from 60 to 84 years and for people 85 and over (Ferri et al., 2005). In the EuroCoDe project (European Collaboration on Dementia project), the project partners of Alzheimer Europe are currently developing new consensual prevalence rates and a database of all European epidemiological studies on dementia (Alzheimer Europe, 2006).

Prevalence estimates of diagnosed dementia (including the institutionalized population) available from Dutch GP registrations are considerably lower than the estimates for the Netherlands provided by Alzheimer Europe. Based on a somewhat older population study (ERGO-onderzoek, 1990-1993), the prevalence of dementia in the Netherlands is 190,000. This is about twice as high as the prevalence based on GP registrations and it is also higher than the Alzheimer Europe estimates. The reasons for this difference are differences in diagnostic criteria and underdiagnosis of dementia by GP's (De Lange & Poos, 2007).

Comparability

Calculations based on EURODEM and Ferri et al. provide different estimates of the number of people with dementia in European countries, because their prevalence rates differ slightly for each age group. Furthermore, for some countries, population statistics were missing for the oldest age groups (95-99). This results in significant underestimation of the number of people with dementia in these countries, because the prevalence of dementia is relatively higher in the older age groups. This was the case for Austria, Germany, Hungary, Ireland, Luxembourg, Malta, Portugal and the United Kingdom. The review of Berr et al. (2005) focusing on population-based studies overcomes this problem by providing prevalence of dementia for different age groups: 65-74 years, 75-84 years and 85 years and over. However, it is not clear whether the variation in age-specific prevalences found in this review is due to real geographical variations or due to differences in study design, population sampling methods and limits and variations in detection and diagnosis. Furthermore, a higher survival can also result in higher prevalence (Berr et al., 2005).

Quality

EURODEM only included population-based studies in which dementia was diagnosed by DSM-III or equivalent criteria and in which all subjects were examined personally. This might underestimate the number of people with dementia, as many people with dementia never receive a diagnosis and it excludes those in the early stages of dementia who have not yet been diagnosed. Furthermore, this differs from country to country, depending on the rate of diagnosis in each country (Alzheimer Europe, 2006).

A4.3.6 Depression

Availability and comparability

International comparable data are scarce. A review by Paykel et al. (2005) concluded that methodological differences in survey method, diagnostic instruments, nuances in language and translation limit comparability of prevalence studies (Paykel et al., 2005). The Working Party Mental Health recommends to use the age and sex adjusted prevalence of cases fulfilling the criteria of major depression for at least two weeks during past 12 months. The instrument to be used is the CIDI-SF (Composite International Diagnostic Interview - Short Form). CIDI is a comprehensive psychiatric diagnostic interview designed to be used by trained non-clinical interviewers to diagnose more than 40 mental disorders according to the definitions and criteria of both ICD-10 and the Diagnostic and Statistical Manual of Mental Disorders, 4th edition (DSM-IV).

However the use of CIDI is not widespread. In the MINDFUL database, data for 12-month prevalence of major depression based on CIDI-SF are available for only five of the EU-25 countries (Netherlands, Finland, Germany, France and Greece) and mostly only for a single year. Data for the Netherlands in the MINDFUL databases are derived from NEMESIS (Netherlands Mental Health Survey and Incidence Study) carried out between 1996 to1999 (Kruijshaar et al., 2003; Bijl et al., 1998). The ESEMeD study (European Study of the Epidemiology of Mental Disorders, part of the WHO World Mental Health Survey) provides data on the 12-month prevalence of mood disorders, including depression, in six European countries (Belgium, France, Germany, Italy, the Netherlands and Spain). In the ESEMeD study the same structured diagnostic interview, the WHO World Mental Health Survey version of the CIDI, was used in all participating countries (Demyttenaere et al., 2004).

In the future, data on the proportion of individuals reporting to have been diagnosed with chronic depression, which occurred during the past 12 months, can be derived from EHIS questions. However EHIS is not the preferred data source, because it measures point prevalence of psychological distress and well-being and thus is not interchangeable with 12-month major depression (ECHIM, 2008).

Quality
Figures in the MINDFUL database represent different age groups and different years. The response rate and sample size in the NEMESIS study were considerably higher than in the ESEMeD study (Demyttenaere et al., 2004; Bijl et al., 1998). An important feature of the ESEMeD study is the wide variation in response rates, which are below normally accepted standards in some of the countries. These differences can easily cause a bias, because people with mental illness are less likely to participate in surveys and are therefore often under-represented. Variation in magnitude of under-representation could distort international comparisons. The response rate in the ESEMeD study was also low for the Netherlands (56.4%) (Kessler et al., 2007; Demyttenaere et al., 2004).

A4.3.7 Acute myocardial infarction - ischaemic heart disease

Availability
Comprehensive figures on the exact indicators, as formulated by the ECHIM project, are not available. At the European level, the WHO, OECD and Eurostat collect simple CVD indicators (mortality, hospital discharge rates) and process them into tables available on their websites. Therefore, the ECHI indicators are not available on the desired level. The preferred indicators are as follows:

1) Age-standardized incidence/attack rate of acute myocardial infarction (AMI) or coronary death by sex in the population aged 35-74, based on hospital discharge and mortality data.
2) Age-standardized mortality from ischaemic heart disease (IHD) by sex in the population aged 35-74.
3) Prevalence of past AMI in the population, measured as the number of persons with past AMI, per 100,000 population, based on a Health Interview Survey.

The WHO does not specify where national data on CVD come from, but it is most likely that Dutch hospital data come from Prismant and mortality data from Statistics Netherlands (Causes of Death Statistics). For the Netherlands, morbidity figures (not presented in this report) are available in the Continuous Morbidity Registration Nijmegen (CMR-Nijmegen). The RIVM combined the data from this GP register with those of three other regional GP registers to obtain an estimate of the national incidence of CVD. HIS/HES surveys in the Netherlands, such as POLS, the Regenboog project, ERGO, and the Doetinchem Cohort Study, also examine the prevalence of IHD, AMI, and stroke. With the exception of POLS (self-reported information), these sources are not used to provide national estimates. Population-based registers on AMI and stroke do not exist in the Netherlands.
The WHO MONICA (MONItoring trends and determinants in CAardiovascular disease) project examined the incidence of coronary events (a definite or likely myocardial infarction - heart attack) in different populations throughout Europe, but not for countries as a whole. Although the latest MONICA data are now more than ten years old, it still represents the most recent Europe-wide comparable data set on CVD morbidity.

Comparability
At present, there is no routinely updated source of Europe-wide CVD morbidity data (Giampaoli et al., 2008). Comparable data on morbidity from CVD are more difficult to collect than mortality data, since there are many different measures of morbidity (e.g. prevalence, incidence, DALYs, years of healthy life lost).
Coding changes in international disease classification have posed new challenges for the comparability of disease indicators such as for IHD and stroke (*table 4.4* in *paragraph 4.3.7*). These changes may produce curious trends in disease frequency, which should be properly controlled by adopting updated and valid epidemiological methods (Madsen et al., 2007).

Quality
As mentioned previously, several problems affect the quality of this indicator. In order to improve comparability and the quality of the data, the EUROCISS Project (European Cardiovascular Indicators Surveillance Set) was set up in 2000 by a partnership of European Union countries to develop health indicators and recommendations for monitoring the burden and distribution of CVD (www.cuore.iss.it/eng/default.asp). The Project was financed by the European Commission within the Health Monitoring Programme.

A4.3.8 Stroke

Availability
Mortality statistics for stroke are readily available in the databases from the WHO, OECD and Eurostat. EHIS, implemented from 2007-2009, also has questions on stroke. Data will be available in the coming years and will be pooled by Eurostat. Stroke population-based registers are available in Denmark, Finland, France, Germany, Italy, Norway and Sweden (ECHIM, 2008).

Incidence refers to a person's first stroke event. Ideally, the denominator should be those who have not had a stroke before, but in practice this is not possible. The total population in the denominator gives a good approximation. Attack rate counts the first and recurrent events, if there is at least 28 days between the onset of the events. Incidence is more interesting than attack rate, although both bring very similar information. Data for the attack rate are more widely available. Distinction between a first stroke event and a recurrent one is practically impossible in many countries. Only local registers with active follow-up can capture the part of the stroke attacks that never reach the hospital (estimated between 5% and 10% by the US Burden of Disease Study).
For Dutch data see *appendix A4.3.7* on acute myocardial infarction - ischaemic heart disease.

Comparability and quality
The size of the burden that stroke constitutes in the EU contrasts with the shortage, poor quality, and comparability of data available in most EU countries (Giampaoli et al., 2007). A stepwise surveillance procedure based on standardized data collection, appropriate record linkage, and validation methods was set up by the EUROCISS project (EUROpean Cardiovascular Indicators Surveillance Set), to build up comparable and reliable indicators for the surveillance of stroke at the population level (Giampaoli et al., 2007).
Co-morbidity in old people could complicate the interpretation of the results. Ad hoc studies for the validation of the estimates of deaths due to stroke from routinely collected mortality data have shown that this source of information is of varying quality (70% to 90% are confirmed by registers) (ECHIM, 2008).
Self-reported information about a past stroke in a Health Interview Survey such as in EHIS (question HS.5), is sometimes considered an inaccurate source of information, because there may be a substantial amount of mis-reporting (ECHIM, 2008).

A4.3.9 Asthma

Availability
Comparable data on asthma prevalence at national level are not routinely available. Few countries have prevalence data from national HIS/HES surveys and comparable indicators can only be estimated from specific research surveys with standardized methods of data collection (ECRHS for adults, ISAAC for children or AIRE) in some countries. It is, however, important that specific surveys on asthma are implemented and carried out periodically (Duran-Tauleria, 2005).

Prevalence of asthma can be measured in different ways (ECHIM, 2008):

1) The proportion of individuals reporting to have been diagnosed with asthma during the past 12 months, per 100,000 survey population, derived from EHIS questions. EHIS is implemented in 2007 to 2009. Data will thus be available in the coming years.
2) The number of hospital discharges for asthma in a year (in-patients) per 100,000 population (see also *appendix A6.3.1* on hospital discharges).
3) The number of asthma-diagnosed patients in primary care, in a given year, per 100,000 survey population.

4) The number of persons complying with specified asthma symptoms, per 100,000 survey population, in special surveys.
5) The number of children with asthma, per 100,000 of the respective age group.

Special surveys give the best estimate of population prevalence, followed by primary care data. General Practice (GP) registrations are the source for the number of asthma-diagnosed patients in primary care (ECHIM, 2008). Although GP registrations are a good source of Dutch national data, this kind of information is not widely available in European countries. In practice, HIS and hospital discharge data are the only sources available in most countries. Data on the number of hospital discharges for asthma are available from Eurostat.

Comparability and quality
The number of hospital discharges due to asthma give an underestimate of the population prevalence since many asthma patients will never be hospitalized (ECHIM, 2008). Most epidemiological studies have used symptom questionnaires to obtain prevalence estimates because of their advantages in terms of cost, convenience, and the resulting optimization of sample sizes and response rates. Symptom questionnaires have, however, potential problems arising from subjective symptom recognition and recall bias. It is also very important to use standardized questionnaires in order to be able to compare data internationally. In order to obtain more objective measures of asthma it has been suggested that, in epidemiological studies, asthma should be defined based on the presence of asthma symptoms together with bronchial hyper-responsiveness (BHR) (Duran-Tauleria, 2005).

A4.3.10 Chronic Obstructive Pulmonary Disease

Availability
Prevalence of COPD is calculated in different ways (ECHIM, 2008):
1) The proportion of individuals reporting to have been diagnosed with COPD, which occurred during the past 12 months, per 100,000 survey population, derived from EHIS questions or national HIS.
2) The number of hospital discharges for COPD in a year, per 100,000 population (see also *appendix A6.3.1* on hospital discharges).
3) The number of COPD-diagnosed patients in primary care, in a given year, per 100,000 survey population.
4) The number of persons complying to specified COPD symptoms, per 100,000 survey population, based on special surveys.

General Practice (GP) registrations are the source for the number of COPD-diagnosed patients in primary care. Although GP registrations are a good source of Dutch national data, this kind of database is not widely available in European countries. The sources (3) and (4) will probably give the best estimates of population prevalence, however, in reality (1) and (2) are the only sources available in most countries. A question on COPD prevalence will be included in the future EHIS, and data on number of hospital discharges for COPD are available from Eurostat.

The IMCA project (Indicators for monitoring COPD and asthma in the EU) recommends using four indicators to describe COPD prevalence: a) prevalence of chronic symptoms, b) prevalence of chronic bronchitis, c) prevalence of airway obstruction and d) prevalence of diagnosed COPD. Of these, prevalence of diagnosed COPD is given the highest priority. Data should be presented by age group, gender, socio-economic status and different geographical levels (Duran-Tauleria, 2005).

Comparability
The questions used in general Health Interview Surveys in European countries are very different and estimates are therefore difficult to compare. In addition, the results are not presented in standardized age groups by sex and severity at national and sub-national geographical levels.

Furthermore, COPD is often under-diagnosed, so that the true prevalence rates and the burden of disease may be much higher than the currently available data suggest (Pauwels, 2000; Wouters, 2003; Halbert et al., 2003). The variability among published COPD prevalence rates may be due to variations in the definition of COPD that was used, age of the population included, and differences in the methods by which the prevalence is estimated (i.e. spirometry with or without clinical examination, the presence of respiratory symptoms, patient-reported disease or expert opinion). Differences in the definition may produce a more than two-fold variation in the estimates (Duran-Tauleria, 2005). Variability in coding practices between countries (Cooreman et al., 1990) and between succeeding ICD versions (Fuhrman et al., 2006) introduced some uncertainty in assessing the reliability of the COPD mortality data.

Quality
Assessment of COPD prevalence from hospital discharge data is an underestimation. Only the most severe cases of COPD are recognized during hospitalization. Furthermore, a large proportion of patients with severe COPD are admitted to the hospital for other co-morbidities, and therefore COPD may be registered as a secondary diagnosis. In addition, outpatient treatment may reduce the incidence of COPD exacerbations requiring hospitalization (Holguin et al., 2005).

A4.3.11 Low birth weight

Availability
WHO and OECD collect data routinely, based on national birth or perinatal registries, or health surveys that ask the parents about the birth weight of their children, as reported for the Netherlands (POLS, Statistics Netherlands). These organizations use different definitions (i.e. OECD: the number of live births weighing less than 2500 grams as a percentage of total number of live births; WHO: percentage of live births weighing 2500 grams or more). Data for the Netherlands are not available from the WHO database (except for

the year 1982). The collection of data by different weight groups (500 gram intervals), by gestational age, by plurality and by vital status at birth is proposed for the future by the PERISTAT project (Buitendijk et al., 2003). PERISTAT's successor, EURO-PERISTAT will publish new results at the end of 2008 (EURO-PERISTAT, 2008). It is recommended that the Dutch data in the OECD and WHO databases be replaced by registry-based data. These are available from the Netherlands Perinatal Registry (PRN-foundation) which also reports to PERISTAT (SPRN, 2006).

Comparability and quality
Babies have a low birth weight because they are preterm, growth restricted, or both. Information on gestational age is essential for distinguishing between these groups. In addition, maternal height and weight influence birth weight. For example, in countries where the average height is shorter, the proportion of babies with a birth weight below 2500 grams is expected to be higher (Lack et al., 2003). Customized growth curves are being developed in order to increase detection rate of true growth restriction and reduce false-positive diagnoses (Gardosi, 1997). The Netherlands Perinatal Registry made specific birth weight centiles for infants of the Dutch Hindustan population (SPRN, 2008).

Some countries require a minimum weight of e.g. 500 grams in order to consider the infant a live birth (see *appendix A4.1.3* perinatal mortality). This difference affects the low birth weight distribution less than it does mortality rates, because these births account for a very small number of live births (less than 0.05% of live births after 22 weeks of gestation) (Buitendijk et al., 2003).

A4.3.12 Injuries: home/leisure

Availability
According to Eurosafe, injury surveillance in the home and leisure area is neglected in most EU Member States (Eurosafe, 2007). The EU Injury Database (IDB) aims to close this gap by providing information about the external causes of home and leisure accidents. The core survey of the EU Injury Database is based on accident and emergency department data from selected EU Member State hospitals. These data are aggregated at the EU level in a standardized way and made accessible via the IDB database (https://webgate.ec.europa.eu/idb/).
In the future, home and leisure accidents will also be measured by EHIS by means of the questions whether one had any accidents (of the types described) resulting in injury (external or internal). And if so, whether he or she visited a doctor, a nurse or an emergency department of a hospital as a result of this accident.

Comparability and quality
By the end of 2007, twelve countries (Austria, Cyprus, Denmark, France, Ireland, Italy, Latvia, Netherlands, Malta, Portugal and Sweden and United Kingdom/Wales) had implemented the core survey of the IDB. All countries except Italy and Portugal cover all types of injuries, unintentional injuries as well as injuries due to self-harm and interpersonal violence. Information on the detailed external causes, e.g. activity, type of sports, place

of occurrence and involved products, is provided and is comparable across all injury sectors.

A4.3.13 Injuries: road traffic

Availability

A lot of data are available for road traffic accidents in the EU. However, there are large differences between the numbers that are provided for the Netherlands by the different databases. For traffic injuries in particular, numbers for the Netherlands vary from 150 per 100,000 (IRTAD, 2008) to 209 per 100,000 (Eurosafe, 2007). Also, the original sources are not always clear.

Comparability and quality

The national numbers that are provided for the Netherlands are not comparable with the Dutch data that appear in international projects and databases. For mortality, this is mainly due to standardization procedures. Data on injuries are collected in different ways, such as via police records or hospital records. The Dutch National Compass reports both the number of victims treated in an emergency unit as well as hospitalized patients (data from the National Medical Registry, LMR). The international databases hosted by OECD, WHO and Eurostat report aggregate figures on traffic injuries for each country. The databases of IRTAD (International Road Traffic and Accident Database), CARE (Community Road Accident Database) and IDB (the European Injury Database) provide very detailed figures, but aggregate trend figures are not easily available. It is difficult to assess the overall quality of the data, taking into account the differences between the sources.

A4.3.14 Injuries: workplace

Availability

European statistics on accidents at work and occupational diseases are provided by Eurostat, which reports the results of the ESAW project (European Statistics on Accidents at Work). ESAW covers fatal accidents and all serious accidents that resulted in an absence of more than three calendar days. ESAW responds to the requirements of the Community Strategy on Health and Safety at Work 2002-2006, as well as the new Strategy for the period 2007-2012. Data are only available for all old EU Member States (EU-15) and Norway. The methodology is being implemented in the new Member States (and in the candidate countries). Some trend data for all EU-27 are given, but only as an index (reference year 1998).
National ESAW sources of data on accidents at the workplace are typically declarations of accidents at work, either to the insurance systems, or to other relevant national authorities. According to Eurostat's metadata, Dutch data on non-fatal accidents at work are based on a population survey (Eurostat, 2008c). However recently, TNO Work and Employment started to make an inventory and detailed descriptions of injuries at the workplace in 2001. This was at the request of the Dutch Ministry of Social Affairs, in order to harmonize Dutch data with European definitions and agreements (Venema et al., 2007). All

accidents now have to be reported to the Labour Inspectorate. From there, the data are disseminated to the different registries. For example fatal accidents in the Netherlands have to be reported to the Dutch Labour Inspectorate. The inspection reports them to Statistics Netherlands, who in turn send the data to Eurostat.

Comparability
The number of fatal accidents (accidents that lead to death) is very low in the Netherlands compared to other countries, but the data for the Netherlands comprise significant underestimations. A fatal accident at work is defined as an accident which leads to the death of a victim within one year of the accident. In practice, the notification of an accident as fatal differs between countries. In the Netherlands, the accident is registered as fatal when the victim died the same day. In Germany, for example, a fatality is registered when the victim dies within 30 days after the accident. In other countries, such as Belgium and Greece, no time limits are laid down. For the other Member States, the time limit is within one year after the date of the accident. In a typical fatal accident at work, the death occurs within a few days after the day of the accident, so the limitation to the 'same day as the accident' implies a significant underestimation for the Netherlands (Eurostat, 2008c).

There is a major difference between the EU Member States in the reporting of accidents at work. In some countries there is a legal obligation to notify accidents, whereas in other countries reporting accidents to the insurer is a prerequisite to receive payment of benefits, (Eurostat, 2008c). However, despite the differences in national reporting procedures, all Member States extract their national data in accordance with the ESAW methodology.

Quality
Accidents in the ESAW project are broadly defined to include mishaps which may have little to do with the working environment as such, but which occur in the course of performing working activities, such as road accidents. On the other hand, they exclude accidents which happen when travelling to and from work as well as accidents caused by illnesses - such as a heart attack, for example - which occur when a person is working but which are not directly related to employment as such.

A4.3.15 Suicide attempt
See *paragraph 4.3.15*.

A4.4 Perceived and functional health

A4.4.1 Self-perceived health (including self-reported chronic morbidity, long-term activity limitations, HLY and other health expectancies)

Availability
For the Netherlands data on self-perceived health (*paragraph 4.4.1*), self-reported chronic morbidity (*paragraph 4.4.2*) and limitation in activities due to health problems (*paragraph*

4.4.3) are available from two sources: the Minimum European Health Module (MEHM), included in the European Statistics of Income and Living Conditions (EU-SILC) survey, and the Dutch Permanent Survey on Living Conditions (POLS). For self-perceived health, the question used in both surveys is exactly the same, but this is not the case for chronic morbidity and activity limitations. The three health status questions in the EU-SILC are also used for calculating:

- the HLY (Health Life Years) indicator (*paragraph 4.5.1*)
- health expectancy in good self-perceived health (*paragraph 4.5.2*)
- health expectancy without self-reported chronic morbidity (*paragraph 4.5.2*)

These health expectancies are computed using the Sullivan's method which combines information on mortality (from life tables) and the prevalence of the health state in question.

Data from EU-SILC are available for thirteen EU countries in 2004 and for all EU-25 countries in 2005 (Eurostat, 2008j). In the Netherlands the EU-SILC is implemented by Statistics Netherlands in a sample of 9,000 persons aged 15-64 years who participated in the EBB (Enquête beroepsbevolking, Labour Force Survey) earlier. In order to get full covering of the target population, an additional sample of addresses with all residents aged 65 and over is drawn for the EU-SILC sample. The institutionalized population is excluded from the study sample (Eurostat, 2008j). POLS is also implemented by Statistics Netherlands, but in a different sample of approximately 10,000 (in 2005 and 2006) persons aged 0 years and older in private households, also excluding the institutionalized population. Because the EU-SILC survey does not include respondents younger than 15, Eurostat had to make an assumption to calculate HLY at birth. They assumed the prevalence of activity limitations for people before the age of 15 to be half of the prevalence of the next age interval (16-19 years) (Eurostat, 2008j). The European Health Expectancy Monitoring Unit (EHEMU) database contains data on health expectancy in good self-perceived health and without self-reported chronic morbidity at age 16. These health expectancies are not available in Eurostat.
The three health questions in the MEHM will also be used in other EU health surveys, in the first place in the European Health Interview Survey (EHIS) and probably also in the future annual European Household Survey (EHS).

Comparability
For Dutch reporting, POLS data are mostly used, but for international comparisons the EU-SILC survey is the preferred data source. This is because in theory EU-SILC provides harmonized data collection and calculation methods. In practice, however, the implementation of the health questions in EU-SILC is not yet fully harmonized (e.g. differences in response categories and question wording), limiting comparability between countries. Therefore, in October 2007, Eurostat provided new guidelines to the Member States, in order to improve the data comparability for the coming years. An example of problems related to the question on limitation in activities from the Danish SILC is that only persons who declare having a longstanding illness or health problem give an answer to this question, instead of all respondents. Another example (also in the Danish SILC) is the use of two response categories instead of three (Eurostat, 2008l).

Because different population samples and different questionnaires are used, data from EU-SILC and POLS are not directly comparable. In the POLS, the question on perceived health is the same as in EU-SILC, but the questions on chronic illness and activity limitations are different. To assess the level of activity limitations, the Netherlands uses more detailed questions in the module 'Health and Work' of the HIS questionnaire POLS, asking whether the respondent was limited in specific activities of daily life (ADL).

Quality

It is difficult to compare recent trends because of a shift of data source in 2004. For 2004, data are available from EU-SILC for thirteen of the EU-15 Member States. From 2005 onwards, data are available for all EU-25 Member States, including the Netherlands. Bulgaria and Romania launched EU-SILC in 2006. Trend data for the years 1995-2001 are obtained from the ECHP (European Community Household Panel) for the 'old' EU-15 Member States (excl. Luxembourg) and data for HLY are also extrapolated for 2002-2003. Data from the ECHP would theoretically provide harmonized data, but because of changes over time and cross-country differences in survey design and question wording, data should be interpreted with caution (Jagger, 2005; EHEMU, 2005). Furthermore, the wording of the questions for activity limitations and chronic illness differ between ECHP and EU-SILC.

A4.4.2 Self-reported chronic morbidity

See *appendix A4.4.1* on self-perceived health.

A4.4.3 Long-term activity limitations

See *appendix A4.4.1* on self-perceived health.

A4.4.4 Physical and sensory functional limitations

See *paragraph 4.4.4*.

A4.4.5 General musculoskeletal pain

Availability and comparability

In the Netherlands data on musculoskeletal complaints are mainly derived from registration databases based on GP records. Different types of diagnosis are combined for this; for example arthritis of the neck, back-pain, hernia nucleus pulposi (Poos & Van Gool, 2006). A national survey study has also been published (Picavet et al., 2000). Comparable national and international data are lacking, since general musculoskeletal pain is not commonly researched and measurements are not harmonized (Huisstede et al., 2006). The ECHIM project recommends national Health Interview Surveys to fill this gap, by using questions advised by the Indicators for Monitoring Musculoskeletal Problems and Conditions project (ECHIM, 2008; IMMPC, 2003). There is no question on this issue in EHIS.

A4.4.6 Psychological distress (including psychological well-being)

Availability

Data on psychological distress and psychological well-being are not monitored systematically within EU countries. The proposed composite measure for psychological distress is the MHI-5 (Mental Health Index). The proposed composite measure for psychological well-being is the EVI (Energy and Vitality Index). Both are part of SF-36 (RAND Short Form 36), a comprehensive international standard questionnaire for measuring health (ECHIM, 2008). The 2005/2006 Eurobarometer study used similar questions to measure psychological distress and well-being, but did not study the composite scores, only reported the percentages (TNS Opinion & Social, 2006). The MHI-5 questions as well as the EVI questions are part of EHIS (ECHIM, 2008).

Comparability

Data for all EU-27 countries come from the 2005/2006 Eurobarometer on Mental Health (TNS Opinion & Social, 2006). However data are only available for individual mental health questions and not for composite scales of psychological distress or psychological well-being. Only a small sample has been surveyed in each country, rendering the figures that are split up by gender or age not very reliable. Moreover, there might be culture-based differences in the responses. Because of this, the MINDFUL project proposed to define national cut-off points for each country (MINDFUL, 2008). In the Netherlands the MHI-5 score is determined based on the Dutch HIS questionnaire since 2001 (POLS) (Statistics Netherlands, 2008b). These data are not comparable to the Eurobarometer data, because of slightly different questioning, and because the data are not presented in the same way.

Quality

For the EHIS questionnaire, it has been suggested that better instruments to measure mental health should be developed. The issue of mental health is considered to be an important domain in the EHIS.

A4.4.7 Psychological well-being

See *appendix A4.4.6* on psychological distress.

A4.5 Composite health status measures

A4.5.1 Health expectancy: Healthy Life Years (HLY)

See *appendix A4.4.1* on self-perceived health.

A4.5.2 Other health expectancies

See *appendix A4.4.1* on self-perceived health.

Appendix 5: Underlying data chapter 5 Determinants of health

A5.1 Personal and biological factors

A5.1.1 Body mass index

Availability
BMI data for EU countries are available via different sources (Eurostat, WHO, IOTF), but their comparability is limited. The common Dutch source of data on overweight is self-reported data from POLS (Statistics Netherlands). Measured data are available from different sources such as the MORGEN-study (1993-1997) and the 'Local and National Health Monitor' (2005-2006). They are collected and recalculated by the RIVM. Generally, the prevalences reported by Statistics Netherlands are slightly lower than those measured by the RIVM, while the secular increase in overweight and obesity is similar. The WHO Nutrition Policy database reports the self-reported data from POLS.

Comparability
Prevalence rates of overweight and obesity in populations are often obtained in samples with different age distributions and in different time periods. Comparable prevalence rates are rare. Ideally, all countries use the same method for measuring overweight such as via the future EHIS (question BMI.1 and 2). Currently, Eurostat reports national self-reported HIS data from adults, broken down to activity status (active/ inactive population) and educational level (ISCED level). WHO and IOTF present prevalence data reporting age group, survey period and whether the data was measured or self-reported, such as in *table 5.1*.

Quality
The most reliable data on BMI come from measured height and weight, as carried out by a HES. Self-reported data could underestimate the extent of the problem, because people usually report a lower weight than they actually have.

A5.1.2 Blood pressure

Availability
Comparable, representative and recent data on blood pressure and on the occurrence of hypertension for all EU Member States are not available at present. Data on blood pressure are usually not collected in routine monitoring of health indicators, but rather in specific surveys which are often regional. The prevalence of hypertension is preferably assessed by measurement in a Health Examination Survey (HES). If data from a HES are not available, the use of antihypertensive drugs and awareness of elevated blood pressure can be determined by a questionnaire in a Health Interview Survey (HIS). The main source for the future is a European HES, and EHIS, implemented 2007-2009.

The figures presented in this report are a range based on percentages from two sources: the 'Lokale en Nationale Monitor Gezondheid' and the Doetinchem Cohort Study. The 'Lokale en Nationale Monitor Gezondheid' compiles data from the Dutch Municipal Health Services that are obtained in a uniform way as part of a regional or local HIS. The percentage of people whose blood pressure was actually measured was, however, relatively low. Within the Doetinchem Cohort Study a group of almost 6,400 people from the city Doetinchem (the cohort) has been examined regularly since 1987. Blood pressure data from this study should be interpreted with caution because of the relatively size of the sample that is not necessarily representative for the Dutch population as a whole (www.nationaalkompas.nl).

In the past, a series of studies in the Netherlands provided information on the prevalence, trends and distribution of cardiovascular disease risk factors (including blood pressure) in the general Dutch population (Verschuren & Van Leent-Loenen, 2008). In 1987, MP-CVDRF (Monitoring Project on Cardiovascular Disease Risk Factors) started in the Netherlands. The project was carried out in three Dutch towns (Amsterdam, Doetinchem and Maastricht). From 1987 to 1991, over 36,000 persons participated in the project. The MORGEN-Project (Monitoring Project on Risk Factors for Chronic Diseases) collected information in 1993-1997 on more than 23,000 people selected from the same three towns as in the MP-CVDRF project. The MP-CVDRF and MORGEN projects were conducted by the RIVM. The REGENBOOG project, which is the Dutch acronym for 'Risk Factors and Health in the Netherlands, a Survey by Municipal Health Services' took place from 1998 to 2001 The intention was to collect nationally representative health data by means of personal interviews, questionnaires and physical examinations carried out by almost all individual Municipal Health Services in the Netherlands, providing data on height, weight, blood pressure, blood lipids, etc. The project was coordinated by the RIVM in collaboration with Statistics Netherlands and the National Association of Municipal Health Services (Tolonen et al., 2002). The response was lower than expected however; which may affect the representativeness of the data.

Currently, preparations are being made for a new HES in the Netherlands. Blood pressure and other physical factors will be measured, financially supported by the Dutch Ministry of Health, Welfare and Sport. This will be a once-only effort. Structural financial support is necessary to repeat a HES periodically and map out trends in blood pressure for the Netherlands. The new HES has been developed in close collaboration with the members of the FEHES project (Feasibility of a European Health Examination Survey; www.ktl.fi/fehes). The objective of the project was to contribute to the development of the European Health Survey System by examining and analyzing the feasibility of carrying out a European HES or repeated HESs in EU Member States. It was funded by the EU Programme of Community Action in the Field of Public Health (2003-2008).

Comparability

Hypertension prevalence is difficult to determine in a standardized way in population surveys (Wolf-Maier et al., 2003). The measurement device used, training of survey personnel, sequence of examinations, definition of treatment status, and a variety of other factors can all vary among surveys. Published studies often do not even provide adequate information to make age standardization possible. Improved methods have made recent surveys more comparable, however, and a standardized approach to data analysis can reduce confounding from factors such as age (Wolf-Maier et al., 2003).

Quality
The European Health Risk Monitoring (EHRM) Project has devised a standardized quality assurance protocol for blood pressure measurements. If adopted by the respective countries, this will increase the quality of data in the future.

A5.2 Health behaviours

A5.2.1 Regular smokers

Availability
Eurostat, WHO-HFA and OECD have data on smoking prevalences in EU countries. Eurostat presents data based on national HIS (HIS 2004 round) with three categories: non-smoker / occasional smoker / daily smoker. OECD Health Data (Daily smokers, 15 years and older), are based on national HIS. Also the Tobacco and Health unit at WHO-Europe collects data from multiple sources (including HIS) (http://data.euro.who.int/tobacco). EHIS and EU-SILC will include questions on (daily) smoking as well.
Stivoro (The Dutch Foundation on Smoking and Health), which is the main national source of smoking statistics in the Netherlands, gives other data for smoking rates in the Netherlands than WHO-HFA does. For the years 2003 to 2006 Stivoro reports 28% Dutch smokers, versus 30.8% by WHO-HFA. WHO apparently presents data from Statistics Netherlands (CBS StatLine). Eurostat presents data from the Dutch foundation Stivoro.

Comparability and quality
The Eurostat data come from non-harmonized national Health Interview Surveys and the countries were asked to post-harmonize the data according to the guidelines which are described in 'Guidelines HIS 2004'. The HIS data are collected in different years depending on the country, ranging from 1996 to 2003. There is no fixed periodicity in these kinds of health surveys. Very few countries have a yearly survey on these topics. The national surveys are not all performed in the same period and results are not all available at the same time.
OECD warns in its Sources and Methods section that international comparability is limited due to the lack of standardization in the measurement of smoking habits in Health Interview Surveys across OECD countries (OECD, 2008d).

A5.2.2 Pregnant women smoking

Availability
Statistics on pregnant women who smoke stem from national (or regional) birth registers and perinatal health surveys. Currently, internationally comparable data are lacking and, with respect to data for the Netherlands, this will probably continue to be the case.

A national registry of smoking in pregnant women does not exist. Furthermore, the Netherlands Perinatal Registry (PRN-foundation) has released a set of questions that will soon be implemented by antenatal care providers. However, the care provider is not obliged to ask the three questions about smoking (during the three terms). For comparison: the question about use of alcohol is obligatory.
The Dutch data that are presented in *paragraph 5.2.2* are based on yearly surveys by questionnaires handed out during 2001-2003 to mothers visiting a Well Baby Clinic with infants aged 0-6 months (Lanting et al., 2007).
Six European countries (Belgium, Bulgaria, Germany, Greece, Ireland, and Portugal) were compared during a project named Euro-scip III (www.bips.uni-bremen.de/euro-scip). The Euro-scip-III-Survey took place from March 1, 2005 until April 30, 2006. The purpose of the survey within the project was to estimate smoking prevalence at different times during pregnancy. The Netherlands only took part in the first and the second phase of this study, in 2002/2003. In this phase, national status reports were compiled, but not internationally compared.

Comparability and quality
For comparability reasons it is important to measure smoking at a similar point in pregnancy, since many women stop smoking during pregnancy. In perinatal surveys in the different countries this is currently not the case. A measurement taken in the last trimester of pregnancy is a better measurement of exposure during pregnancy than smoking in the first trimester. The type of data source (birth registers based on medical records, surveys at birth, surveys after birth) used to collect this information could also affect prevalence estimates.

International data are collected via the EURO-PERISTAT, which aims to complete the development of a strategy for monitoring and evaluating perinatal health in the EU. According to its first interim report in 2005 (EURO-PERISTAT, 2005), there was no consensus within the group on whether or not maternal smoking should be measured separately for the first trimester or for all three trimesters (smoking at any time). The rationale, for separately asking the proportion of mothers who smoked during first trimester and who smoked at any time of pregnancy, is to get a clear picture of how many women quit smoking when they notice that they are pregnant. However, the quality of self-reported data is considered to be doubtful. Also the definition of trimesters (in weeks) and calculation of length of pregnancy may vary from country to country, which impedes international comparisons (EURO-PERISTAT, 2005).

A5.2.3 Total alcohol consumption

Availability
Data for all EU-27 countries are available in the WHO-HFA database but only Estonia, Finland, Ireland and Slovenia have data that are more recent than 2003. It is not clear from the metadata in the WHO-HFA database, whether this is because the World Drink Trends publications ceased to exist. They used to be one of the main sources of the WHO-HFA data.

Comparability
Since the data on alcohol consumption have been based on production and trade, data can be biased by cross-border traffic or illegal production (moonshining). Whenever possible this has been accounted for. The metadata in the WHO-HFA is not clear on specific countries for which the data might be less accurate. It does mention for Estonia that since 1996 onwards the data are based on legal sales statistics, thus excluding statistics on illegal trade or production. Since the information is calculated per capita for all ages, these figures will be different from those on consumption per capita for the population aged 15 years and over, which is also calculated for the WHO-HFA. The advantage of not taking into account people below 15 years old, is that it leaves out a substantial part of the non drinking population. Finally, the methodology to convert alcoholic drinks to pure alcohol may differ across countries. Typically beer is weighted as 4-5%, wine as 11-16% and spirits as 40% of pure alcohol equivalent.

Total alcohol consumption based on data on production and trade only give an overall picture. Health surveys are necessary in order to study distribution within the population and drinking patterns. These are addressed in the *appendix A5.2.4* on the indicator 'hazardous alcohol consumption'. In the Netherlands alcohol consumption is monitored with the national HIS (POLS) (Statistics Netherlands, 2008b).

Quality
Total alcohol consumption per capita can be determined only by taking into account all alcohol trade. Also illegal production and cross-border traffic needs to be taken into account, but in some cases these are hard to determine. Now, with the World Drink Trends publications out of production, even the figures on the legal alcohol market are not easy to come by.

A5.2.4 Hazardous alcohol consumption

Availability
Comparable international data are not collected regularly. EHIS is recommended for data collection in the future. WHO has estimated the levels of hazardous alcohol consumption for European WHO regions within several projects, for example WHO CHOICE (CHOosing Interventions that are Cost Effective). However, these were not calculated straight from HIS questionnaire information, instead they were calculated from total consumption data combined with data on abstinence, sex and age groups and information on drinking patterns (Chisholm et al., 2004).
In the Netherlands national HIS (POLS) is used for yearly monitoring of drinking patterns. Statistics Netherlands, responsible for the HIS, reports on the prevalence of weekly drinking six drinks or more on one day (heavy drinking) and on drinking three glasses or more each day on average (Statistics Netherlands, 2008b).

Comparability
Since the WHO project mentioned above provides data on hazardous alcohol use on a regional level, comparisons between countries are very difficult. HIS data from different countries are often not comparable.

Quality
The frequency of drinking large amounts of alcohol in one session is an important factor in alcohol-related harm. Therefore the prevalence of hazardous alcohol consumption adds to information on total alcohol consumption. For the future, the EHIS questionnaire is recommended for data collection on hazardous alcohol consumption. Questions proposed to be included cover drinking frequency during the last 12 months, drinking pattern (drinks per day) in a typical week, and drinking 6 drinks or more in one session (ECHIM, 2008).

A5.2.5 Use of illicit drugs

Availability
Data on the use of illicit drugs is available from the EMCDDA (European Monitoring Centre for Drugs and Drug Addiction). The EMCDDA data for adults are based on representative national population surveys. The original sources are national studies that are reported to EMCDDA. For the Netherlands the EMCDDA obtained the data for 2005 from the National Prevalence Survey on Substance use 2005 which is also used in the National Drug Monitor (Rodenburg et al., 2007). A question on drug use in the past 12 months will also be included in the future EHIS. For school students (15-16 years old) data on drug use reported by EMCDDA is collected from international school surveys (ESPAD, HBSC) and other national surveys (see also *appendix 8* on the HBSC study).

Comparability
Although the EMCDDA has developed guidelines with basic methodological recommendations to improve comparability of population surveys in the EU, there remain some differences between countries in data collection methods and sampling procedures. For example, some countries use face-to-face interviews, others telephone interviews or mailed questionnaires. To improve comparability, countries were asked to report results using EMCDDA standard age groups (all adults: 15-64, young adults: 15-34). In countries where age ranges are narrower (e.g. 18 to 49), prevalence estimates may tend to be slightly higher because drug use concentrates on young adults. Some countries have recalculated their prevalence figures using the EMCDDA standard age groups (EMCDDA, 2007b).

Quality
ECHIM recommends presenting lifetime use and use in the past 12 months. Use in the past 12 months gives a better insight into the present situation. Lifetime use gives a first rough estimation of the extent of drug experience in a country, which is also valuable for less popular drugs. Lifetime and 12-month use complement each other and together they give basic information on drug use patterns (EMCDDA, 2007b). Most EU countries have conducted representative national population surveys about drug use in recent

years, although in some cases sample sizes are limited. There is no uniform periodicity across Europe, but in most countries surveys are conducted every two to four years (ECHIM, 2008).

A5.2.6 Consumption/availability of fruit and vegetables

Availability

ECHIM (ECHIM, 2008) proposes the DAFNE database (DAta Food Networking; http://www.nut.uoa.gr/dafnesoftweb/), used by Eurostat, as the best current source for data on the consumption/availability of fruits and vegetables. Ideally, data would be derived from consumption surveys, but the availability of internationally comparable data from consumption surveys is limited. DAFNE uses household budget surveys in order to estimate food availability, taking into account family size to calculate availability per person. Availability of fruit and availability of vegetables are reported separately by DAFNE. Also the ECHIM project advises to monitor these indicators separately. But, the Netherlands is not represented in the DAFNE database, making it difficult to internationally compare Dutch consumption of fruit and consumption of vegetables. However, the Netherlands is represented in the WHO-HFA database, which uses information on the availability of fruit and vegetables combined. Therefore, in *paragraph 5.2.6* the two indicators for consumption/availability of fruit and vegetables are described jointly, based on WHO-HFA data instead of DAFNE. WHO-HFA uses data from the Food and Agricultural Organization (FAO), which are based on production and trade data (food balance sheets).
In the Netherlands, food consumption is monitored by means of the Dutch National Food Consumption Survey (Voedselconsumptiepeiling, VCP). This survey has been conducted since 1987. In 2003 the method was adapted and since 2007 it has been performed by RIVM (RIVM, 2007b). The VCP uses 24-hour recalls, as has been recommended by the EFCOSUM project (European Food Consumption Survey Method) (Biro et al., 2002).

Comparability and quality

The FAO food balance sheet shows the availability for human consumption for each food item. It is based on statistics on supply (production, imports and stock changes) and utilization (exports, feed and seed, food, and other use, including waste and losses during storage and transportation). The per capita supply is then obtained by dividing the total country supply by the population (FAO, 2008). These national production and trade data only give a rough estimate of the consumption and availability at household level and are therefore only suitable for trend monitoring. They do not give a very accurate picture of the volume of consumption and are therefore not the best way of comparing the levels of consumption. The ECHIM project advises to use household budget surveys (as used for DAFNE) instead, and also to report on consumption of fruits and consumption of vegetables separately (see *availability*). Moreover, the household budget survey data in DAFNE are broken down into four socio-demographic groups: degree of urbanization, household composition, education and occupation.

A5.2.7 Breastfeeding

Availability

Two major sources of data were used for this indicator, namely the WHO-HFA database and a TNO report (Lanting & Van Wouwe). The TNO report presents data obtained from questionnaires distributed among Dutch mothers visiting a child health centre. The Dutch data in the WHO-HFA database are obtained from a Health Interview Survey by Statistics Netherlands (POLS). Recent data (from 2000 onwards) are available in WHO-HFA for only 14 countries, of which only 9 provided data on a regular basis (WHO-HFA, 2008).

Comparability and quality

The WHO-HFA database is the preferred source for international comparisons, although limitations such as low availability of data and methodological differences are restraining accurate comparisons among countries. Methodological differences refer especially to possible variations between EU countries in 1) the precise definitions of breastfeeding (e.g. exclusive or partial breastfeeding); and 2) the methods through which data were gathered (e.g. surveys using the last 24 hours as recall period or interviews administered to mothers of older children asking them to recall the breastfeeding status at 3 or 6 months after a much longer period of time) (Cattaneo, 2008).
The data provided by Statistics Netherlands refer to infants who were at least partially breastfed, while data in the TNO report (Lanting & Van Wouwe, 2007) refer to the percentage of infants who are exclusively breastfed. Furthermore, the sample sizes are different, around 3000 in the TNO report and about 600 for the data provided by Statistics Netherlands.

A5.2.8 Physical activity

Availability

Internationally, no harmonized measurement of health enhancing physical activity has been established yet. Nevertheless, IPAQ (International Physical Activity Questionnaire) questions have been used in two Eurobarometer studies. Data from the first of these studies have been recalculated to compare rates of people being sufficiently active (Sjöström et al., 2006). These data are used in the international comparison in *paragraph 5.2.8*.
The ECHIM project advises national HIS and the future EHIS questionnaires to be used for monitoring. These questionnaires contain an instrument derived from the IPAQ (ECHIM, 2008).

Comparability and quality

For comparisons across the EU-15 of people with 'sufficient activity' IPAQ questions included in the Eurobarometer study were recalculated to fit cut-off points for sufficient activity. The cut-off points were chosen according to international guidelines: 5x30 (of moderate) or 3x20 (of vigorous) on top of a basal 60 minutes of moderate activity per day. These guidelines were recalculated into a measure of energy expenditure. The reported activities were also recalculated into energy expenditure. Walking, as well as moderate and vigorous activities were considered, while time spent sitting down was not (Sjöström et al., 2006).

The Dutch norm for healthy activity, ‘Nederlandse Norm Gezond Bewegen’ is not monitored by IPAQ. In the Netherlands, healthy activity is measured by the SQUASH-questionnaire (Short QUestionnaire to ASses Health enhancing physical activity) (Statistics Netherlands, 2008b). SQUASH is a short questionnaire, addressing activities for daily transport, household activities and free time. IPAQ has a longer version (not used in the Eurobarometer) that also explicitly addresses these issues, but the shorter version asks more generally about vigorous activity, moderate activity, walking and sitting (IPAQ, 2008; Wendel-Vos et al., 2003).

A5.3 Living and working conditions

A5.3.1 Work-related health risks / job quality

Availability
Data for EU-27 countries in 2005 are available from the Fourth European Working Conditions Survey report (EUROFOUND, 2007). This report covers data from the European Working Conditions Survey, which was conducted in 1990, 1995, 2000 and 2005 for EU countries, Norway and candidate countries. However, in most countries, the frequency of the data collection is too small to show trend data.
In the Netherlands TNO coordinates data collection for the European Working Conditions Survey, which surveys about 1000-1500 employees a year. Also, in partnership with Statistics Netherlands, they collect and analyze the work-related health data that are presented in the national database StatLine. This is covered by a much larger survey, the NEA (Nationale Enquête Arbeidsomstandigheden, Netherlands Working Conditions Survey), including data from 20,000-25,000 people.

Comparability
The Working Conditions Survey is conducted in participating countries within a representative random sample of the active population (either employees or self-employed), by means of a translated questionnaire. Therefore data are internationally comparable.

Quality
The Working Conditions Survey covers a broad range of aspects of work in combination with health. The questions used for this indicator (on work being a risk factor for health and on work influencing health) are very non-specific compared to the other questions in the questionnaire. These other questions ask for specific physical, psychological or work conditions (EUROFOUND, 2007). The collection of data on this indicator is harmonized, but data are not collected yearly.

A5.3.2 Social support

Availability

This report presents comparisons of social support between countries on the basis of the OSS-3 (Oslo-3 Social Support Scale, based on three question items) from a Eurobarometer study in the EU-15 countries in 2002. No regular monitoring of this indicator for international country comparisons has taken place since. Some national prevalence data exist, but of varying quality (ECHIM, 2008). As an alternative to the OSS-3, the 6-item Brief Social Support Questionnaire (BSSQ) has been proposed for measuring social support with more validity and reliability, but it is unclear whether data on BSSQ are available for comparison between countries (ECHIM, 2008). In the Netherlands data on social support are not collected systematically for the whole country. Some research has been carried out, but not on a regular basis and not using the OSS-3 or BSSQ (Dykstra et al., 2006; Van Gaalen & Dykstra, 2006).

Comparability and quality

Data from the Eurobarometer are comparable, but sample numbers often are too small to report age or gender specific data. In this case also translation bias could play a role. The OSS-3 is advised by ECHIM as the preferred way to measure social support for international comparisons.

A5.3.3 Particulate matter exposure

Availability

PM_{10} monitoring data are submitted by national authorities to AirBase (The European air quality database). Only data from urban or suburban background locations, available for at least 75% days of the year, are used. Data quality check and verification of the station's location classification are carried out by the European Topic Centre on Air and Climate Change at the European Environment Agency (EEA). For EU countries, PM_{10} monitoring is required by the Sixth Community Environment Action Programme (Council, 2002) and the strategy developed by the Clean Air for Europe programme, adopted in September 2005 (EC, 2005). This assures a continuation of monitoring and an increase in coverage of the European population.

Data on PM_{10} levels are available through the following sources:

- ENHIS project (The European Environment and Health Information System): population-weighted annual average ambient concentration of PM_{10} (presented in *figure 5.9*). Data are based on the AirBase database of the EEA.
- Eurostat (EEA, European Topic Center on Air and Climate Change): percent of urban population exposed to concentrations exceeding the limit value (50 µg/m^3 24h average) on 35 or more days, measured in urban background stations in agglomerations.
- WHO-HFA: annual average concentrations of particulate matter (PM_{10}) in the capital city, based on daily values monitored in the urban background stations of the capital city. Primary source: air quality monitoring networks and stations monitoring air

quality in the capital. Secondary source: AirBase database of the EEA. The average annual concentration of particulate matter (PM_{10}) in the capital city is presented in $\mu g/m^3$.

Comparability and quality

WHO-HFA states that 'The characteristics of location for urban background monitoring may vary, therefore the international comparability may be limited. Application of different PM_{10} correction factors in different sites and time should be taken into account when comparing the data between the countries and over years. With respect to the use of correction factors for PM_{10} measurement data, countries act in different ways' (WHO-HFA, 2008).

Appendix 6: Underlying data chapter 6 Prevention and care

A6.1 Prevention, health protection and health promotion

A6.1.1 Vaccination coverage in children

Availability

Data on vaccination coverage are available from OECD Health Data 2008 and WHO-HFA. OECD Health Data contains information on the percentage of infants vaccinated against diphtheria, tetanus and pertussis combined (DTP), measles and hepatitis B for the EU-19 countries. The ECHIM project recommends WHO-HFA as the preferred data source. WHO-HFA presents data on the percentage of infants fully vaccinated against diphtheria (3 doses of DTP or DT), tetanus, pertussis, measles (1 dose), poliomyelitis (3 doses), invasive disease due to *Haemophilius influenzae* type b, hepatitis B, mumps and rubella. Time series are available for all 27 Member States, but not for every country, disease and period combination. National data (registers) are reported annually by the Member States to the Communicable Disease unit at WHO-Europe. WHO-HFA does not contain data on vaccination against meningococcal C. In the CISID database, data on meningococcal C vaccination are available for a limited number of countries and for a limited number of years (including the Netherlands, in 2004: 95.5%) (CISID, 2008).

Comparability and quality

Immunization schemes are not harmonized in the EU. There is a wide variation among national childhood immunization schedules and vaccination recommendations in the EU (Amato-Gauci & Ammon, 2007). The age of complete immunization differs across countries due to different immunization schedules. Therefore, the vaccination coverage in children has to be calculated according to the national schemes (ECHIM, 2008). The WHO Vaccine Preventable Diseases Monitoring System provides country-specific vaccination schedules. For more information see http://www.who.int/vaccines/GlobalSummary/Immunization/ScheduleSelect.cfm

There are also some differences in the age distribution of the data presented in *paragraph 6.1.1* which are obtained from the WHO-HFA database. For example, the Dutch figure on diphtheria vaccination is given per January 1st of each year, but the figures cover babies born between one and two years before this date. The reason for this timespan is that immunization is sometimes delayed, e.g. after birth abroad (WHO-HFA, 2008).

The ECDC will work with Member States and the European Commission to develop a sound scientific basis for considering harmonizing vaccine strategies and schedules wherever possible. In addition, ECDC will support Member States in defining common standardized methodologies for the monitoring of vaccine coverage in order to improve data comparability. ECDC will also encourage the implementation of comprehensive computerized information systems that could link data on vaccination coverage with those on disease surveillance and vaccine safety (Amato-Gauci & Ammon, 2007).

A6.1.2 Influenza vaccination rate in the elderly

Availability

For the period 1997-2007 data on immunization of elderly against influenza are available for 14 EU-27 countries in the OECD database (OECD, 2008d). Kroneman et al (2003) report that monitoring of influenza vaccination uptake in Europe is underdeveloped. Monitoring of uptake among the elderly is relatively well documented with 14 out of 26 countries in the study being able to provide data on the elderly. However, the uptake rates are poorly documented for the other population groups (Kroneman et al., 2003). In most cases the OECD data come from national population-based surveys. For the Netherlands, this is the Statistics Netherlands Health Questionnaire (Gezondheidsenquête) for the period 1991-1996 and from 1997 onwards the POLS. The Dutch percentages provided by OECD are somewhat lower than those presented in the Dutch Monitoring Influenza Vaccination Campaign 2006, which is based on data from a national representative sample of general practices (LINH, Landelijk Informatie Netwerk Huisartsenzorg). The Dutch GP-based data distinguishes between immunization of people aged 65 years and over with and without a medical indication. The vaccination rate is higher among the elderly with a medical indication (Tacken et al., 2007). Elderly people living in nursing homes are excluded from POLS and LINH.

Comparability and quality

The way in which uptake rates are monitored varies considerably. Some countries use telephone or mail surveys among the general population, others use compulsory reports made to health authorities by providers of the vaccinations, and a few use the data available from sentinel networks. Each method has its own limitations. Surveys can miss certain groups, such as people who are too old to participate or elderly living in nursing homes, whereas sentinel networks miss vaccinations carried out by other providers such as company physicians or public health authorities. In order to improve comparability and quality, a uniform method to monitor influenza vaccination uptake within risk groups should be developed for Europe (Kroneman et al., 2003). A question on influenza vaccination will be included in the future EHIS.

A6.1.3 Breast cancer screening

Availability

WHO-HFA does not have data on breast cancer screening. OECD Health Data contains data from surveys and from authorities who evaluate national screening programmes. The Eurobarometer surveys carried out by Eurostat in 1996 and 2002 included a question on cancer tests: (Over the last twelve months, which, if any, of the following tests have you had? Breast examination by X-ray, that is mammography; Breast examination by hand).

EHIS, implemented in 2007-2009, contains the following questions on breast cancer screening:

- Have you ever had a mammography, which is an X-ray of one or both of your breasts? Yes / No / Don’t know / Refusal.

- When was the last time you had a mammography (breast X-ray)? Within the past 12 months / More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years / Don't know / Refusal.

Data will therefore be available in the coming years (and will be pooled by Eurostat).

Comparability
Only a few countries have included questions on breast cancer screening in their national Health Interview Surveys. For this report two indicators represented in OECD Health Data, are combined, namely attendance rates based on survey data and rates reported by authorities who evaluate national screening programmes. It is uncertain whether these two indicators are comparable. However, for the Netherlands, which has data for both indicators, attendance rates do not differ very much, as is the case for cervical cancer screening attendance rates (*paragraph 6.1.4*).

Quality
Eurobarometers are not the optimal source of information because of their small sample size. Breast cancer screening should be performed according to defined quality criteria (e.g. certified screening centers). This is not specified in national HIS, and neither will it be measured by an international survey, such as Eurobarometer or EHIS.

A6.1.4 Cervical cancer screening

Availability
A major effort to collect all sorts of data on cervical cancer screening practices in Europe is being carried out by Arbyn et al. (Arbyn et al., 2008).
There are no data available in the WHO-HFA database. Eurostat does present results from the Eurobarometer surveys carried out in 1996 and 2002, which included a question on cancer screening ('Over the last twelve months, which, if any, of the following tests have you had? Cervical smear test, that is pap smear?'). Eurostat provides information from the 2004 data collection from national Health Interview Surveys.
OECD Health Data presents the percentage of women aged 20-69 having undergone cervical cancer screening over the period 2000-2006, but not for all EU-19 countries and not for all years. The OECD indicator is divided into data derived from programmes and data coming from surveys. The Netherlands is the only country presenting recent figures for both. The Dutch survey data come from the national Health Interview Survey (POLS), for which the age group is 18-64. The programme data come from the Health Care Insurance Board ('preventie in cijfers'), with age group 30-60 (OECD, 2008d).

Comparability
Although OECD presents screening data for the age group 20-69, in its sources it is mentioned that periodicity (interval of screening) and age groups of women who are invited for screening, vary considerably between countries. Most countries screen for cervical cancer with a three year interval and invite women from the age of 20 or 25.

Quality
Eurobarometers are not the optimal source of information, because of their small sample size. Reliable data on the percentage of women aged 20-65 reporting to have had a cervical smear test (pap smear) within the last 3 years, will soon become available from EHIS, implemented in 2007-2009. By means of the following questions: 'Have you ever had a cervical smear test?' and 'When was the last time you had a cervical smear test? Within the past 12 months/ More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years.' These data will be pooled by Eurostat.

A6.1.5 Colon cancer screening

Availability
Data on colorectal cancer screening is not yet systematically collected. Colorectal cancer screening programmes are currently running or being established in 19 EU Member States, of which 12 Member States are aiming for implementation of population-based programmes (Von Karsa et al., 2008).

Data will become available with EHIS, implemented 2007-2009 and will be pooled by Eurostat. EHIS will measure the percentage of persons (aged 50-74) that have undergone a colorectal cancer screening test within the last 2 years, derived from the questions:
- Have you ever had a faecal occult blood test?
- When was the last time you had a faecal occult blood test? Within the past 12 months / More than 1 year, but not more than 2 years / More than 2 years, but not more than 3 years / Not within the past 3 years.

Comparability and quality
The screening test for colorectal cancer specified in the Council Recommendation is the FOBT, a non-invasive test taken either at home by the screening participant and generally returned by surface mail to a laboratory for processing, or taken by the GP or specialist. Some countries use endoscopic test (colonoscopy) or flexible sigmoidoscopy, i.e. invasive, endoscopic procedures performed by medical personnel.

Compared to the situation with breast and cervical cancer screening in 2007, colorectal cancer screening programmes were running or being established in a smaller number of the Member States, programme implementation was less advanced, and a smaller proportion of the population specified in the Council Recommendation was targeted (Von Karsa et al., 2008). This will have consequences for future quality and comparability of the indicator.

A6.1.6 Timing of first antenatal visits among pregnant women

Availability
No data on timing of first antenatal visits are available from Eurostat, WHO-HFA or the OECD databases. PERISTAT classifies first timing of antenatal visits as a recommended indicator, which is considered desirable for a more complete picture of perinatal health across the Member States. Data are preferably obtained from birth registers and perinatal surveys (PERISTAT, 2008). In the Netherlands the start date of antenatal care is registered in the Netherlands Perinatal Registry (PRN). The PRN provides data for European/international comparison in the EURO-PERISTAT II project (SPRN, 2008).

Comparability and quality
On its website PERISTAT notes: 'Recommendations on the appropriate time to begin antenatal care differ across Member States, and the definition of what this visit entails may range from the prescription of a pregnancy test to booking in a maternity unit, to first contact with an obstetrician, midwife, or general practitioner. There are additional variations within countries with respect to the definition of trimesters in terms of gestational age in days or weeks' (PERISTAT, 2008).

A6.2 Health care resources

A6.2.1 Hospital beds

Availability
Eurostat, OECD and WHO-HFA provide yearly data on hospital beds, based on national statistics. Eurostat and OECD collect data from national sources with a common questionnaire. The source for the Netherlands is Statistics Netherlands (Statistics of intramural health care).

Comparability
Eurostat and OECD have agreed to use the same definitions, wording and specifications in their respective data collections on health care statistics (non-expenditure data), including hospital beds. The WHO might use slightly different wording, but often covering the same meaning. Eurostat, OECD and WHO are planning to continue the effort to improve and harmonize definitions for items under non-expenditure health care statistics.

Factors that influence comparability of hospital beds data are:

1) Difficulties in following the established inclusion/exclusion criteria (for example inclusion of hospital beds in psychiatric and in specialized care such as asthma centres).
2) Difficulties and different criteria from one country to another, in distinguishing between hospitals and nursing and residential care facilities.
3) Difficulties in separating 'beds for in-patient care in hospital' from 'beds for in-patients care'.

4) Difficulties in distinguishing between available (installed, approved) and immediately available for the care of admitted patients.
5) Difficulties in obtaining information from the private sector, so that beds in it are not included.
6) Difficulties in including military hospital beds.

Quality
In a policy brief, Martin McKee points at some serious quality issues arising when comparing numbers of hospital beds internationally (McKee, 2004). He says international comparisons are fraught with problems, and reflect differences in how hospital care is organized in different countries. The problem already starts with the question about what a hospital bed is. There are many different types of hospital beds, reflecting differences in the kind of patient they are designed to accommodate (i.e. a bed for someone who requires dialysis versus a bed for a patient recovering from a stroke). To complicate the matter, there are many beds in hospitals that should not be included in the statistics, such as beds for patients' relatives (often parents accompanying a sick child). The number of beds needed in a country depends on many factors, including patterns of disease and the availability of alternative care settings (McKee, 2004).

A6.2.2 Physicians employed

Availability
Eurostat, OECD and WHO annually collect data on health professionals such as physicians (non-expenditure data). However, the timing, variables and indicators, as well as the countries covered by the different data collections, vary. The aim is to provide common definitions for a set of non-expenditure data regularly collected by Eurostat, OECD and WHO. As of 2005, Eurostat, OECD and WHO collect data on resources for health care services with a common questionnaire (ECHIM, 2008).
Dutch data on physicians who are legally certified to practise come from the BIG-register (Beroepen in de Individuele Gezondheidszorg, Individual Healthcare Professions). In this register it is noted whether the individual physician is a general practitioner (family doctor), or a specialist (including type of speciality) or a public health physician (including discipline of public health) or an 'other physician'.

Comparability and quality
EU Member States use different concepts for reporting the number of health care professionals, both for national purposes and for international comparison. In the context of comparing health care services across Member States, Eurostat prefers the concept 'immediately serving patients', as it best describes the availability of health care resources. Not all EU Member States are currently able to provide data based on this definition. For example, the Dutch data on physicians, presented by Eurostat, OECD and WHO, is provided by the BIG-register. In BIG, 'physicians' refers to the concept 'licensed to practise'. How many of them are actively practising, whether in private practice or as an employee in a health care institution, is not known. Therefore, Eurostat does not show reliable figures on 'practising physicians' in the Netherlands. Eurostat only presents reliable Dutch data

under 'licensed physicians'. WHO-HFA on the other hand, combined the different types of physicians, and does not distinguish the differing activities of a physician in the respective countries. WHO-HFA's number for the Netherlands, which is presented in this report, is therefore probably slightly overestimated. Apart from this, there are no comparable data available in the databases about full time equivalents (FTE).

A6.2.3 Nurses employed

Availability
As of 2005 Eurostat, OECD and WHO collect data on resources for health care services with a common questionnaire. However, the timing, variables and indicators, as well as countries covered by the different data collections, vary. The aim is to provide common definitions for a set of non-expenditure data regularly collected by Eurostat, OECD and WHO. The data collection is performed under a 'gentlemen's agreement' as there is no legal framework for the delivery of health care data to international institutions.
WHO-HFA presents data on midwives separately. Ideally, countries should be able to report according to the sub-categories of nursing care staff as in *table A6.1*. Not all Member States are currently able to provide data based on these definitions.

Comparability and quality
EU Member States use different concepts for reporting the number of health care professionals, including nurses. The comparability of data on nurses is therefore limited. The registration of nurses differs between countries. In some countries, such as the Netherlands (data from the BIG-register), non-practising nurses are included in the statistics. Non-practising means the person may work in administration, research, in another field, or be unemployed.
Some countries have difficulties in separating statistics on midwives from the total number of nursing personnel (WHO-HFA, 2008). In many countries the two occupations - nurses and midwives - are not easily distinguished as they often have similar training. Therefore, it is recommended that midwives should be included in the broader category of nurses, but whenever possible, statistics should also be provided separately for midwives.
Background information in the WHO-HFA database mentions that it is also proposed to include feldschers (physician's assistants, a category of health personnel present in some eastern European countries) under the broad category of nurses. The number of nurses in *figure 6.7* includes: qualified nurses; first- and second-level nurses; feldschers; midwives; and nurse specialists. It excludes nursing auxiliaries and other personnel without formal education in nursing. The data in *figure 6.7* are therefore approached best by category 1+2+3 in *table A6.1* (Groups of nursing care staff). This grouping builds on the recommendations of the 2004 Eurostat Task Force 'European data on nurses'; it includes modifications based on the results of the Eurostat 2006 data collection (EC, 2008).

Table A6.1: Groups of nursing staff.

Category	Name/Description
1	Midwives
2	Qualified nurses
1+2	Total number of qualified nurses and midwives
3	Associate nurses
2+3	All nurses (qualified and associate nurses)
1+2+3	Total number of nursing professionals
4	Caring personnel (e.g. nursing aids, assistants)
1+2+3+4	Total number of nursing and caring professionals

A6.2.4 Medical technologies: MRI units and CT scanners

Availability
OECD and Eurostat collect the data annually from national sources with a common questionnaire. In the past, Eurostat and OECD presented differences in high-technology data coverage because the OECD collected aggregated data in all health care facilities, while Eurostat only collected data from the hospital sector. However, as from 2006, Eurostat has expanded its data collection on high-technology equipment beyond the hospital sector, and is now also seeking data on equipment in all health care facilities, including a breakdown for those located in hospitals and those in the ambulatory sector. The quality and availability of the data from the first (2005) and second (2006) collection is currently being assessed by Eurostat and OECD.

The OECD uses two sources of data for the Netherlands. Between the years 1981 and 1995 data are available from the Health Council, but after 1995 there are no available data until 2005. From 2005 data are only available from the hospital sector (Prismant survey of hospitals). For this reason, trend presentation is not reliable.

Comparability and quality
The data reported by OECD have some comparability limitations, especially regarding the data coverage. In most countries the data provided include availability of medical equipment in all health care facilities, including both the hospital sector and the ambulatory sector. However, in some cases, data are available only from hospital records (e.g. Netherlands in 2005, Spain). Furthermore, the figures for the Netherlands represent the number of hospitals reporting to have a MRI unit or CT scanner. Only a maximum of one MRI unit or CT scanner is counted per hospital. Therefore, the low numbers recorded for the Netherlands are an underestimation.

A6.3 Health care utilization

A6.3.1 Hospital in-patient discharges (including hospital day cases and hospital day case/in-patient discharge ratio)

Availability

Data on hospital discharges for in-patients and day cases are available from the Eurostat database for 2000-2006. These data are also used for calculating the day case/in-patient discharge ratio. However, data are not available for all EU countries and not for the whole period. For the Netherlands data are only available through 2003-2005. In 2002 there was a change in definition. Data were requested by Eurostat for categories of the International Shortlist for Hospital Morbidity Tabulation (ISHMT; based on grouping of ICD categories), while before data were collected according to specific ICD-9 codes (see *appendix A6.3.4* on average length of stay). Due to capacity problems, Statistics Netherlands chose to only provide Eurostat with new data according to ISHMT, but did not recalculate the data from earlier years (Statistics Netherlands, 2008a). Dutch data are derived from the National Medical Registry (LMR, Landelijke Medische Registratie), which covered 99% of hospital admissions until 2004. In 2005 coverage was 97%. For the remaining 3% a number was estimated. This could cause some bias, but because of the low percentage of missing records bias is small. In the years after 2005, the coverage is deteriorating. Furthermore, there is an increase in the use of unspecified disease codes.

Comparability and quality

Comparability can be affected by differences between countries in the extent to which certain data or institutes are included. For example: Portugal only reports on public hospitals, while Slovenia includes data from public as well as private hospitals. The Netherlands does not provide data from mental health and substance abuse hospitals, causing a low number of psychiatric diagnoses in the data (Eurostat, 2008e). With regard to the comparisons presented in this report, this only has a small effect on Dutch discharge data for injuries, poisoning and external causes (suicide). Furthermore, for day cases only absolute numbers are available. For realistic country comparisons rates per 100,000 inhabitants are needed. Moreover demographic differences and changes over time need to be taken into account. In a more ageing population, hospitalization for certain diseases can be expected to be higher.

Eurostat and OECD have agreed to use the same definitions, wording and specifications in data collections on health care statistics. WHO might use slightly different wording, but often with the same meaning. The three organizations will continue to improve and harmonize definitions regarding health care statistics. Several countries (at least Cyprus, Austria, the United Kingdom and the Netherlands) include data on patients that have been discharged to be transferred to another hospital, while it is advised by ECHIM (ECHIM, 2008) to not include these patients. Figures are not standardized by age, which has to be taken into account in comparing hospitalization rates of age-specific conditions (Eurostat, 2008i).

A6.3.2 Hospital day cases

See *appendix A6.3.1* on hospital in-patient discharges.

A6.3.3 Hospital day case/in-patient discharge ratio

See *appendix A6.3.1* on hospital in-patient discharges.

A6.3.4 Average length of stay

Availability

Average length of stay data for specific diagnostic categories are available in the databases of Eurostat and OECD.

Comparability and quality

The different organizations are increasingly harmonizing hospital data, because at present a lot of registration differences exist. For example, occasionally countries include day cases in calculating ALOS and breaks in trends could occur when countries convert from ICD-9 to ICD-10. The International Shortlist for Hospital Morbidity Tabulation (ISHMT) was developed by the Hospital Data Project (HDP) of the European Union Health Monitoring Programme for statistical comparison of hospital activity. It was adopted in 2005 by Eurostat, the OECD and the WHO-FIC (Family of International Classifications) Network. For international comparisons, the simultaneous use of ICD-9 and ICD-10 has called for a comparable shortlist consisting of diagnostic groups, defined by both ICD-9 and ICD-10 codes for comparisons between countries using different ICD revisions and for developing time series statistics. The HDP aimed at maximizing the statistical comparability of hospital activity analysis.

Currently, Eurostat and OECD use the ISHMT list for disseminating information in their respective health databases. However, caution should still be exercised when making international comparisons, because countries may provide different types of data for different types of institutions.

A6.3.5 General practitioner utilization

Availability

The Eurostat data on general practitioner visits presented in *paragraph 6.3.5* are collected from the European Community Household Panel (ECHP) carried out during the period 1994-2001. Therefore, the data are somewhat old. They are self-reported and refer to the average number of patient contacts with general practitioners (GP) within a calendar year. The ECHP is no longer carried out, but in the future the EHIS questionnaire will provide data on the number of contacts with a general practitioner per capita per year.

OECD Health Data and WHO-HFA provide more recent data but they do not make it possible to distinguish between GP utilization and contacts with medical specialists. OECD Health Data provides data on ‘doctors’ consultations’. These are defined as the number of contacts with an ambulatory care physician divided by the population. Several countries record only consultations with general practitioners, others include specialists as well (OECD, 2008d). The data in WHO-HFA refer to the total number of primary health care or ambulatory care contacts divided by the population (WHO-HFA, 2008). For WHO-HFA as well as OECD, data from the Netherlands are obtained through a HIS (POLS) and refer to the number of contacts with a general practitioner and medical specialist per person in the population (OECD, 2008d; WHO-HFA, 2008).

Comparability and quality

A comparison of GP utilization between countries has some limitations, because in some countries the GP has much more of a gatekeeping function than in others. In 8 of the 15 European countries described by Kroneman et al. (2006) the GP has an explicit gatekeeping role: Spain, Portugal, Italy, Finland, Denmark, United Kingdom, Ireland and the Netherlands. In seven other countries (Luxembourg, Belgium, Germany, Austria, France, Sweden and Greece) direct access to most other services is possible (Kroneman et al., 2006). In France, the 'Preferred Doctor' scheme was implemented in January 2006 to regulate access to specialists care. Although not compulsory, it contains several financial incentives directed toward patients (IRDES, 2007).

A6.3.6 Other outpatient visits

Availability and comparability

OECD, WHO and Eurostat provide some data on the consultation of medical doctors or outpatient contacts. These data do not distinguish between GP consultations, medical specialists outside the hospital and other types of outpatient visits, and they are not always consistent between countries. For example, for the OECD indicator 'doctor's consultation' some countries report only consultations with a general practitioner, while others include medical specialists as well (OECD, 2008d) (see also *appendix A6.3.5* on GP utilization). Eurostat provides data for just one year from an incidental collection of national Health Interview Survey data (2004). For WHO-HFA as well as for the OECD, annual data from the Netherlands are obtained through the Health Interview Survey (POLS) and refer to the number of contacts per person with either a general practitioner or a medical specialist (OECD, 2008d; WHO-HFA, 2008).

In the future, data on the number of outpatient contacts per person per year will become available from the EHIS questions on outpatient visits (including visits to the dentist). The EHIS also contains questions about other types of visits and consultations (e.g. dietitians, physiotherapists and homeopaths). However, because the respondent is only asked whether or not he or she has visited these service providers in the past 12 months, the actual number of visits will remain unknown (EC, 2006).

Apart from HIS, Dutch data about numbers of outpatient visits are available in a number of registry-based sources. Examples are the Netherlands Perinatal Registry (PRN) for maternal/child care and the LIPZ (Landelijke Informatievoorziening Paramedische Zorg) which is a national representative registration network of paramedical care (e.g. physiotherapists and dietitians).

A6.3.7 Surgical interventions: coronary angioplasty, hip and cataract

Availability
In both Eurostat and OECD, selected surgical procedures are listed according to the classification ICD-9-CM (the International Classification of Diseases, Ninth Revision, Clinical Modification). ICD-9-CM is the official system of assigning codes to diagnoses and procedures associated with hospital utilization. The data collected are the number of day cases (where applicable) and in-patient procedures. The rates per 100,000 are calculated by the OECD Secretariat. Dutch data are from the National Medical Registry LMR (supplied by Prismant since 1999).

Comparability
At the national level, different classifications are used for coding operations and procedures, e.g. the ICPM (International Classification of Procedures in Medicine) or ICD-9-CSP (ICD-surgical procedures), and it is not always possible to convert the data directly into ICD-9-CM while preserving the original meaning of the diagnosis or procedure category. Moreover, the ICD-9-CM includes a series of additions, which are not available in the ICD or in some of the national classifications, like NOMESCO (Nordic Medico-Statistical Committee), OPCS4-UK (Classification of Surgical Operations and Procedures), CDAM France (Catalogue des Actes Médicaux) etc. (Eurostat, 2008i). In the Netherlands, the procedures in the National Medical Registry (LMR) are not coded in ICD-9 CM, but with 'Classificatie van verrichtingen'. This Dutch version is based on, but not identical to ICD-9-CM. Inclusion and exclusion of certain operations in the categories therefore differ (OECD, 2008d). Consequently, there may be comparability issues associated with mapping the country coding system across countries to the classification codes proposed in OECD Health Data 2008.
Another comparability limiting factor is that some countries report all procedures (as requested under this definition) while others report only the main procedure for a patient during a hospital stay. The main procedure is the (medical) procedure that at the moment of discharge is considered to be the most important procedure of that hospital stay. If a patient was transferred from one specialist to another, the main procedure is determined by the discharging specialist. In that case, other (surgical) operations on a patient during the hospital stay are not included in the figures.

Quality
The Dutch data on surgical procedures in the OECD database are partly estimated. Until 2005, the estimates were necessary to fill in non-response items, but all hospitals were participating in the LMR. From 2005 onwards, estimates are responsible for a growing share; as of 2005, hospitals are free to take part in the registry for procedures (which is part of the LMR), and the registry had some non response because some hospitals had not delivered data (see also *appendix A6.3.1*). Further, in some Dutch hospitals, only the most important of the procedures performed is recorded during the hospital admission (i.e. the main procedure). The data refer to the number of main surgical procedures.

A6.3.8 Medicine use

Availability

Data on medication use are available from the OECD and the MINDFUL database, but not from Eurostat and WHO-HFA. OECD Health Data 2008 provides data for fourteen of the EU-27 countries (including the Netherlands). Data availability is best for 2000-2006. The data are presented as the consumption of medicines of major ATC groups (Anatomic Therapeutic Chemical Classification), in Daily Defined Doses (DDDs) per day and per 1,000 population. DDD is defined as the assumed average maintenance dose per day for a drug, used for its main indication in adults. The ATC system divides drugs into different groups according to the organ system on which they act and/or therapeutical, pharmacological and chemical characteristics. The MINDFUL database contains data for four ATC subcategories of psychotropic drugs (also in DDD). Data are available for a varying number of countries and for different periods depending on the type of drug. However, for the Netherlands no data on psychotropic drugs are available in MINDFUL (MINDFUL, 2008). The EHIS questionnaire (implemented 2007-2009) includes questions on medicine use, specified for fifteen medicine groups, but data from EHIS are not yet available.

Dutch data in the OECD Health Data 2008 are obtained from the GIP (Genees- en Hulpmiddelen Informatie Project, the Drug Information System of the Health Care Insurance Board) (CVZ, 2008). The GIP has been in use since 1988 and contains information on (extramural) expenditure on drugs in the Netherlands and the degree to which they are prescribed. The register includes prescription-related data on drugs that are:

- prescribed by general practitioners and medical specialists
- dispensed by community pharmacists and dispensing general practitioners
- reimbursed under the Health Care Insurance Act

Medication dispensed in hospitals is not included in the GIP. Estimates of medicine use for the total insured population are based on data from eighteen health insurance organizations representing about 13 million insured persons (80% of the Dutch population) (CVZ, 2008). Another Dutch source on medicine use is the SFK (Stichting Farmaceutische Kengetallen), but their annual Facts and Figures (Data en Feiten) do not include data on DDD.

Comparability and quality

For some countries the data provided by OECD are based on sales statistics from wholesaler to retail pharmacy and hospitals, for others the data are based on medication reimbursed by health insurance. The data in the MINDFUL database are also based on sales statistics. However, the figures on the sale and actual use of drugs are not always the same. Furthermore, in some countries data do not cover drugs dispensed in hospitals, whereas in other countries hospital medication is included in the statistics. Expressing the indicator as ‘Utilization in DDD/1000 inhabitants/day’ makes it possible to compare areas with different population sizes. Because of the direct relationship between age and utilization of medicines, it could be useful to standardize for age classes or to present age-specific data in order to account for differences in the percentage of older people (EURO-MED-STAT, 2004).

A6.4 Health expenditures and financing

A6.4.1 Insurance coverage

Availability
Data on insurance coverage are available for nineteen EU-27 countries in the OECD Health Data 2008. Data for the Netherlands are derived from the Health Care Insurance Board (CVZ, in the past the Sickness Fund Council) (OECD, 2008d). The CVZ coordinates the implementation and funding of the Health Insurance Act (Zvw) and the Exceptional Medical Expenses Act (AWBZ).

Comparability and quality
OECD data are obtained from a variety of sources: national statistical offices, ministries of health, and insurance organizations. Also employment surveys are an important source of data, because most social security arrangements link entitlement to labour force participation. Countries differ in the organization of the health insurance system. Several countries provide universal coverage to all citizens through for instance a tax-financed system. In some countries it is mandatory to take out insurance, in others it is not.

A6.4.2 Expenditures on health

Availability
In the Netherlands different definitions of health expenditures are used, depending on the purpose of their use. For example the Healthcare Budget Framework (Budgettair Kader Zorg, BKZ), used by the government, and the Health and Social Care Accounts (Zorgrekeningen), used by Statistics Netherlands. However such national definitions are not meant to be used for international comparisons and are therefore unsuitable for this purpose. For international comparisons, data on the national health expenditure as a percentage of gross domestic product (GDP) are available from the OECD, from WHO-HFA and from Eurostat.
In 2004, OECD, Eurostat and WHO agreed on the need to develop a framework for a joint data collection in the area of health expenditure data in order to reduce the burden of data collection for the national authorities and to improve availability and comparability of health expenditure data (OECD, 2008a). As a result, the three organizations adopted a common Joint Questionnaire. This questionnaire is based on the OECD manual ‘A System of Health Accounts’ (SHA) with some minor amendments and additional dimensions (OECD, 2008a).
OECD Health Data 2008 presents data on total and current expenditures on health from the Joint SHA Collection for twelve EU-27 countries for the years 2003 to 2006. For the remaining seven EU-27 countries and past trends, data are based on SHA-consistent or locally produced national health accounts and national accounts estimates. Statistics Netherlands is the main Dutch data source for the Joint SHA Collection (OECD, 2008d). Data in the WHO-HFA database are taken from OECD for the OECD Member States. For non-OECD countries, the data are reported by the country to the WHO-HFA and may not necessarily correspond to the common WHO or OECD definitions. Eurostat provides

data on current expenditures for sixteen of the EU-27 Member States for 2003 onwards. These data are all based on the Joint SHA Collection. Data on total expenditures on health (current expenditures enlarged with investments) are not available in Eurostat (Eurostat, 2008n). There are small differences in the current expenditures presented by Eurostat and OECD. Furthermore, EU-27 and EU-15 averages are available from neither OECD nor Eurostat.

Comparability

In order to improve the quality of international comparisons of data on health expenditure and its financing, the OECD developed the manual 'A System of Health Accounts' (OECD, 2000). This manual contains guidelines for reporting health expenditure according to an international standard. Since its publication in 2000 the guidelines have become widely accepted and implemented as the standard accounting framework for statistics on health expenditure and financing. However, OECD member countries are at varying stages of implementing the SHA. Therefore, the data reported in OECD Health Data 2008 are at varying levels of comparability. In general, member countries fall into three groups (OECD, 2008d):

- The first group, which includes the Netherlands, comprises countries that provide data according to the SHA. They provide the most comparable and detailed data. However, there remain some comparability issues. For the Netherlands, figures for 2005 and 2006 are in current expenditure terms instead of total expenditures, and any capital formation (investments) is not included. In most countries the difference between the current and total expenditures is about 0.3-0.4%.
- The second group (Ireland and Finland) provides data based on 'locally produced health accounts' with boundaries that are yet to be mapped to the OECD/SHA boundary of health care. For example, the boundary between health and social care may differ from the OECD/SHA boundary.
- The third group of countries (Greece, Italy, and the United Kingdom) rely on national accounts data for estimating health expenditure. National accounts are not well suited for making detailed estimates of expenditure on health. This lack of focus on health creates various problems for international comparisons. For example, data based on national accounts tend to report important parts of health expenditure as part of 'social services' instead of 'health'. This can lead to an underestimation of health expenditure.

Quality

For most countries data for 2003-2006 from the joint data collection in 2008 are currently undergoing international validation. They should therefore be considered as preliminary estimates and may be subject to change. OECD Health Data 2008 presents health expenditure and financial data back to 1960 for some countries. However, changes in reporting systems and national accounts methodology, as well as the implementation of the SHA, caused frequent breaks in the time series. Furthermore, to make useful comparisons of real growth rates over time, it is necessary to correct for inflation and for differences in population size. Due to the limited availability of reliable health price indices, an economy-wide (GDP) price index is used (2000 GDP price levels) for this correction. It should, however, be kept in mind that the health sector usually has a higher inflation than the economy as a whole in most OECD countries (OECD, 2008d).

A6.5 Health care quality/performance

A6.5.1 Survival rates for cancer

Availability

For the Netherlands, national survival figures are not available. However, three regional Cancer Registries (IKA, IKZ en IKN (now IKNO)) have survival data. These three regional registries also provide Dutch survival data to EUROCARE-4. EUROCARE-4 is the largest population-based cooperative study on the survival of patients with cancer and includes 17 EU countries, including the Netherlands. In order to obtain survival data, Cancer Registries have to collect data on incident cases and follow-up them for a given period after diagnosis. In the future EUROCARE-4 will present survival data for 41 cancers diagnosed in adult (aged ≥15) Europeans in 1995-1999 and followed up until the end of 2003. At the moment country-specific data are only available for eight cancer types in 14 of the EU-27 countries (Berrino et al., 2007). In *paragraph 6.5.1*, England, Wales, Northern Ireland and Scotland are taken as one country and only data for England are presented in *figure 6.19*. The cancer types for which survival data are available from EUROCARE-4 are colorectal, lung, skin (melanoma), breast, prostate and all cancers combined. Therefore comparisons for cervical, stomach, childhood cancers and leukaemias/ lymphomas are based on cancers diagnosed in 1990-1994 and included in the EUROCARE-3 study (Sant et al., 2003).
The OECD Health Care Quality Indicators (HCQI) project also provides data on 5-year survival for breast cancer, cervical cancer and colorectal cancer for 13 EU countries. However survival rates for different countries in OECD HCQI project are from different years (range 1990-2003), which may influence the rates because cancer survival tends to improve over time.

Comparability

To account for differences in the age structure of the different populations, relative survival from EUROCARE was adjusted for age by the direct method by use of the international standard for cancer-survival analysis. Furthermore, only relative survival is compared to correct for background mortality. The rates provided by OECD are not always age-standardized.

Quality

EUROCARE is based on Cancer Registries. In some Member States the Cancer Registry covers the entire population, in others one or more Cancer Registries cover variable proportions of the population (Berrino et al., 2007). In 1998 the Cancer Registries providing data for the Netherlands covered 34% of the Dutch population. Difficulties in ascertaining the vital status of incident cases generally result in an overestimation of survival as deaths are missed. The relative survival data for poor prognosis cancers, such as lung cancer and acute myeloid leukaemia, are indirect indicators of follow-up quality. High survival rates for such cancers suggests (but does not prove) inadequate follow up procedures (Capocaccia et al., 2003).

A6.5.2 30-day in-hospital case-fatality of acute myocardial infarction and stroke

Availability
OECD has figures based on national discharge registers (OECD, 2007b). The data were collected in the Health Care Quality Indicators Project. Data for the Netherlands were obtained from the National Medical Registry, owned by Prismant. Dutch data include clinical admissions (with one overnight stay or more) and admissions without an overnight stay (= day care). Discharges from small specialized hospitals are excluded in the case of the Netherlands (Garcia Armesto et al., 2007).

Comparability
Data have not been adjusted for differences in patient risk or age structure across countries. Therefore, it is unclear to what degree differences in case fatality rates are caused by differences in care or are due to differences in disease severity or age of patients (OECD, 2007b).

Quality
Since the indicator is based on hospital admissions and mortality within the hospital, differences in discharging and transferring may be represented in the data. Early access to hospital both improves the success of treatment and tends to increase the case fatality because many of the subjects who will die early will reach the hospital before they die (ECHIM, 2008).

A6.5.3 Equity of access to health care services

Availability
In the Netherlands several surveys and registries provide data on different aspects of access to health care services (Westert et al., 2008). However, other countries do not necessarily assess accessibility in the same way. Therefore, for international comparisons ECHIM recommends using the percentage of the population perceiving an ‘unmet need’ for medical examination or treatment. This is measured by the ‘unmet needs of health care’ item from the EU-SILC (see also *appendix A4.4.1* on perceived and functional health indicators from the EU-SILC).
For 2004, EU-SILC data are available for thirteen EU Member States, and from 2005 onwards for the Netherlands and all other EU-25 Member States. Bulgaria and Romania launched EU-SILC in 2007. The study population of EU-SILC includes individuals aged 15 and over living in private households (Eurostat, 2008g; Eurostat, 2008h).

The questions on unmet needs refer to the respondent’s own assessment of whether he or she really needed a medical examination or treatment but did not have one, and to the main reason for this. The percentage of the population declaring unmet needs are specified for two subgroups of reasons: 1) reasons of access problems (could not afford to (too expensive), waiting list, too far to travel/no means of transportation) and 2) other reasons. For assessing equity of access, only the first subgroup is considered (Eurostat, 2008h).

Comparability and quality
The implementation of the questions regarding unmet needs in EU-SILC is not yet fully harmonized, which limits the comparability of the results. New guidelines for these questions were provided to the Member States by Eurostat in October 2007, in order to improve the data comparability for the coming years (Eurostat, 2008h). In order to be a valid indicator equal need has to be taken into account. Health status measures can be used to adjust for differences in morbidity or need across population groups.

A6.5.4 Waiting times for elective surgeries

Availability
No data are available from international databases such as WHO, OECD and Eurostat. However, some data are available from international surveys. Some years ago a specific study has been carried out by the OECD (Hurst & Siciliani, 2003; Siciliani & Hurst, 2004). This has resulted in the availability of data on waiting times between specialist assessment and admittance for the procedure for a selection of EU-27 countries. Waiting times for surgery can be calculated in other ways, but data for these types of 'waiting times' are even less readily available.

Comparability
Countries measure waiting times in very different ways. The currently used measure of waiting times between specialized assessment and the surgery is the one that is most comparable.

Quality
Waiting times for elective surgery are calculated as the time elapsed for a patient on the elective surgery (coronary angioplasty, hip replacement, cataract operation) waiting list from the date they were added to the waiting list for the procedure, after specialist assessment, to the date they were admitted to an in-patient or day case surgical unit for the procedure. Both mean and median are calculated, since they are generally not the same due to a small group of people having very long waits.

A6.5.5 Surgical wound infections

Availability
Data on surgical wound infection rate from 2000 and thereafter are available from WHO-HFA for only seven EU-27 countries. Data for the Netherlands are not included at all in WHO-HFA. In March 2007 the PREZIES network performed the first Dutch national

study on the prevalence of hospital infections, including postoperative wound infections (PREZIES, 2007). This study will be carried out annually.

Comparability and quality
According to the SImPatIE (Safety Improvement for Patients in Europe) project, data definitions, data quality and availability, vary across institutions and across Europe, which makes the indicator wound infections unsuitable for nationwide comparison or benchmarking under the current conditions. However, SImPatIE considered the patient safety indicator wound infections suitable for implementation in Europe and therefore recommend its implementation albeit with some restrictions on its use (Kristensen et al., 2007). Also, according to the OECD HCQI-project, it is unlikely that standardized comparable data to support the indicator wound infection will be available consistently across OECD countries (Millar & Mattke, 2004). WHO-HFA data are not very comparable either. Furthermore, comparability between Dutch data from PREZIES and WHO-HFA is limited, because PREZIES uses the definition of the US Centers for Disease Control and Prevention (CDC), whereas WHO-HFA uses the ICD-10 code T81.4 (Horan et al., 1992; WHO-HFA, 2008).

A6.5.6 Cancer treatment quality

See *paragraph 6.5.6*

A6.5.7 Diabetes control

Availability
The only indicator for monitoring diabetes control is retinal exam in diabetics, but there are no Dutch data on this apart from a few ‘best practice’ projects. Only seven countries have data (see *paragraph 6.5.7*). Nevertheless, within the OECD project for ‘Health Care Quality Indicators’ (HCQI), the indicator ‘rate for diabetics per 100 that receive retinal exam’ was positively reviewed for international comparison. Several other indicators have been proposed by OECD (diabetics tested for HbA1c; diabetics with poor glucose control; major amputations in diabetics), but have been rejected due to the limited number of countries with available data (Garcia Armesto et al., 2007).

A6.6 Health interventions

A6.6.1 Policies on environmental tobacco smoke exposure

Availability and comparability
Comparable data on policies on environmental tobacco smoke (ETS) exposure are not regularly available as a composite index at this point. A definite calculation has not yet been determined. Nevertheless, ETS policies have been compared for EU-27 countries by the ENHIS project (European Environment and Health Information System) using data from the WHO tobacco control database and some additional information (Vocaturo et

al., 2007). In order to implement this indicator, a definition and calculation needs to be decided on (ECHIM, 2008).

Quality

A composite index gives an indication for action on the ETS exposure problem, but needs to be used in combination with other information, such as on exposure to tobacco smoke. Furthermore, since the WHO tobacco control database only takes into account formal regulation, it disregards the impact of enforcement and does not show the results of the policies in practice.

Appendix 7: Underlying data chapter 7 Demographic and socio-economic situation

A7.1 Population

A7.1.1 Population by gender and age (including crude birth rate, mother's age distribution and total fertility rate)

Availability
Demographic data (population, crude birth rate, total fertility rate, live births by mother's age at last birthday) are collected by Eurostat from the National Statistical Offices. Dutch numbers for these indicators are the same as those presented by Statistics Netherlands. The age dependency ratio is calculated from the population by age groups on 1 January of the year in question (or in some cases on 31 December of the previous year). National annual estimates of the population are based either on the most recent census adjusted by the components of population change (birth, death, migration) produced since the last census, or based on population registers.

Comparability
There are no international recommendations for demographic statistics and data collection depends on the registration systems used in each country. The data that have been used lack uniform definitions for the events registered, which does not help comparability. For instance, two definitions of age may be used for classifying events in a given calendar year by age:

1) The age reached during the calendar year (i.e. the calendar year minus the year of birth).
2) The age at last birthday (i.e. the age in full years at the time of the event).

These different definitions can lead to significant differences, particularly in analysis by age (e.g. live births by mother's age). Most countries measure fertility both by age completed (age at last birthday) and age reached during the year. Cyprus, Liechtenstein, Malta and Poland measure fertility by age completed only. To cope with the problem of different definitions, Eurostat uses a conversion method which permits, for instance for fertility rates, comparability of data according to different definitions.

Quality
Almost all EU countries have good or excellent registration of births and deaths, but not all countries are able to produce reliable data on international migration (EC, 2003). Some problems may arise, for instance, when countries are not able to accurately determine the births and deaths within the merely resident population. Births and deaths of residents abroad are not always taken into account, while in a number of cases births and deaths of non-residents in the country itself are included in statistics.

A7.1.2 Crude birth rate

See *appendix A7.1.1* on population by gender and age.

A7.1.3 Mother's age distribution

See *appendix A7.1.1* on population by gender and age.

A7.1.4 Total fertility rage

See *appendix A7.1.1* on population by gender and age.

A7.1.5 Population projections

Availability

Population projections are produced by Eurostat every 3-4 years. The most recent are the EUROpean POpulation Projections base year 2008 (EUROPOP2008) convergence scenario. Projections are available for all EU-27 Member States for the population on the 1st of January of the year in question in the period 2008-2061. The convergence scenario is one of several possible population change scenarios based on assumptions for fertility, mortality (life expectancy at birth) and international migration. Eurostat's Migration and Demographic databases are used for this purpose (see *appendix A7.1.1* for demographic data) (Eurostat, 2008d; Giannakouris, 2008).

Comparability and quality

Eurostat projections may differ from national estimates due to different assumptions of fertility, mortality and migration. However, Eurostat projections are recommended for international comparisons, because Eurostat uses the same harmonized calculation methods for all countries.

The methodology has been developed based on the assumption of convergence of demographic values as a result of decreasing socio-economic and cultural differences between the EU Member States. The methodology consists of setting the values of the demographic indicators for the convergence year (2150), the year in which the theoretical convergence would be achieved. In 2150 fertility is assumed to converge to levels achieved by Member States that are considered as forerunners in the demographic transition. Life expectancy increases are assumed to be greater for countries with lower levels of life expectancy and smaller for those with higher levels, thus following convergent trajectories. Migration is assumed to converge to zero net migration in 2150. It is also assumed that migration increases if the working age population presents a deficit for the respective years. From the values for the total fertility rate, life expectancy at birth and net international migration in 2150, the values for the target year 2060 are derived (Eurostat, 2008d; Giannakouris, 2008).

A7.2 Socio-economic factors

A7.2.1 Population by education

Availability

Both Eurostat and OECD provide data on percentage of population by highest completed specified level of education. Eurostat provides data for three different age groups: people 18 years and over, people 18-64 years and people 65 years and over (Eurostat, 2008n). OECD presents data for the age group 25-64 years old. As many young people are still in education, the indicator is more relevant for persons aged 25 and over (after the end of tertiary studies). OECD data are obtained from the Eurostat databases, which is compiled from the European Labour Force Survey (LFS) in eight countries or national LFSs. Data for the Netherlands are obtained from the European Labour Force Survey as well (OECD, 2008b).

Comparability and quality

For comparisons between countries with different educational systems, the revised International Standard Classification of Education (ISCED-97) is used to define the levels of education (OECD, 2008d; UNESCO, 1997):

- Low: attainment below upper secondary level (ISCED 0-1-2-3C short).
- Middle: attainment at upper secondary level (ISCED 3A-3B-3C, long-4).
- High: attainment at tertiary level (ISCED 5A-5B-6).

Comparability across years should be treated with caution since use of the ISCED levels is not consistent across countries or over time. Mapping of national educational programmes into ISCED categories may vary and the way the Labour Force Surveys (LFS) are conducted evolves (transition to continuous quarterly surveys) and leads to discontinuities (OECD, 2008d).

A7.2.2 Population by occupation

Availability

Data on occupation for 2006 are available from OECD Education at a glance (2008). They are provided by the Supply of Skills working group of the INES (International Indicators of Education Systems) Network. The information is based on a data collection of ISCO (International Standard Classification of Occupations) from OECD countries. ISCO is the most widely used classification system for organizing occupations. The basis for the classification in the ISCO is the nature of the job itself and the level of skill required. Occupations are classified into one of nine major groups (*table A7.1*), and then further into subgroups. The ISCO system is maintained by the International Labour Organization (ILO) (OECD, 2008b). Eurostat provides data on occupation according to ISCO groups for 2001. These data are obtained from national census reports.

Comparability

The ISCO system makes international comparisons possible. It also serves as a model for the development of national occupation classification systems. The most commonly used grouping is a 2-group classification of non-manual and manual occupations or a 3-group classification of high-intermediate-low (*table A7.1*). The 3-group classification is used by OECD in Education at a glance (2008). Eurostat recognizes that it does not have complete information on the way ISCO data are collected or derived in each country and survey. Due to the numerous comparability issues for certain ISCO categories across countries, specific actions should be launched at the EU level to ensure comparable ISCO data (Eurostat, 2007b).

Quality

Like other international classification systems, ISCO only changes when major revisions are carried out. This means that ISCO does not fully capture changes in the labour market over time. Occupations evolve, as do their competency requirements. Some types of occupations disappear and others appear, and the nature of these new occupations is sometimes not fully described in ISCO. Accordingly, time series comparisons using the ISCO system should be interpreted with caution, considering the limitations of a static classification system (OECD, 2008b). The current version, ISCO-88, is being updated and will probably be implemented in 2010 at the EU level. A new European Socio-Economic Classification (ESeC) scheme is also in preparation (Eurostat project). For this scheme, information on occupation according to ISCO is needed with at least a two-digit level of detail (Eurostat, 2007b).

Table A7.1: Classification of occupations according to ISCO (main groups).

Classification	**ISCO groups**	
Skilled	ISCO 1-3	ISCO 1:Legislators, senior officials, managers
		ISCO 2: Professionals
		ISCO 3:Technicians, associate professionals
Semi-skilled	ISCO 4-8	ISCO 4:Clerks
		ISCO 5:Service workers
		ISCO 6:Skilled agricultural and fishery workers
		ISCO 7:Craft and related trades workers
		ISCO 8:Plant and machine operators, assemblers
Unskilled	ISCO 9	ISCO 9:Elementary occupations

A7.2.3 Total unemployment

Availability

Eurostat compiles harmonized unemployment for all European Union Member States. The data are calculated on a monthly level. However, there is no legal basis regulating the production and dissemination of the monthly unemployment data. Quarterly data on labour force are available from the European Union Labour Force Survey (LFS), a household survey carried out in all EU-27 countries on the basis of agreed definitions. Therefore,

Eurostat is complementing the quarterly data from this survey with the monthly indicator of the national unemployment or registered unemployment delivered from the Member States based on a gentlemen's agreement. The results of these complementary calculations yield the harmonized monthly unemployment data. Annual averages (Structural Indicator) are calculated from these harmonized time series (Eurostat, 2008f).
Unemployment data are also available from WHO-HFA. WHO uses the International Labour Organization (ILO) Yearbook of Labour Statistics as data source. If data from ILO are unavailable, estimates from national statistical offices are used (WHO-HFA, 2008). Eurostat, however, is the preferred source for international comparisons (ECHIM, 2008).

Comparability and quality
Eurostat aims at harmonizing the calculation process as much as possible. However, the way the figures for the individual months, as well as the provisional figures (for the period when LFS is not yet available), are calculated depends on the availability and specific characteristics of the sources available in individual Member States. The unemployment rates registered by Statistics Netherlands are about 1-2% higher than the numbers given by Eurostat. However, data are not directly comparable because Statistics Netherlands uses a different age group (15-65 years) than Eurostat (15-74).

A7.2.4 Population below poverty line and income inequality

Availability
Data on total income of each household in 2005 are available from EU-SILC for the EU-25 (see also *appendix A4.4.1* on self-perceived health). The reference population of EU-SILC is all private households and their current members. Persons living in collective households and in institutions are generally excluded from the target population. In the future, the indicator 'at persistent-risk-of poverty rate' can also be calculated from EU-SILC. This indicator is computed as the percentage of the population living in households where the equivalized disposable income was below the 60% threshold of national median equivalized disposable income for the current year and at least two out of the preceding three years (Eurostat, 2008m).
In the Dutch Poverty Monitor 2007 (Armoedemonitor 2007), Statistics Netherlands and the Social and Cultural Planning Office of the Netherlands (SCP) assess poverty with a low income threshold or a budget related threshold. However these measures are not suitable for international comparisons (Vrooman et al., 2007).

Comparability
The at-risk-of-poverty rate based on income figures from the EU-SILC survey used for international comparisons has the drawback that 60% of the median income in some countries is more than sufficient to meet basic needs, while in others it is not. Also, if all inhabitants profit from welfare growth to the same degree, a strong increase in welfare does not necessarily lead to a decrease in poverty (the share of the population at risk of poverty). The budget related threshold used in the Dutch Poverty Monitor takes into account whether income is enough to meet basic needs (Vrooman et al., 2007). However, as mentioned before, this measure is not suitable for international comparisons.

Quality

Furthermore, there are limitations to the interpretation of trends. From 2005 all EU-25 countries and from 2006 also Bulgaria and Romania provide income data from the EU-SILC survey. Until 2001 data for EU-15 were provided by the ECHP. Up to 2005 there was a transitional period, during which national data sources, which are not fully comparable to the ECHP or EU-SILC, were used. This caused a break in the series (Eurostat, 2008m).

Appendix 8: Underlying data chapter 8 Children and young people

Data from the Health Behaviour in School-aged Children study

Availability
For children aged 11, 13 and 15 years, data on smoking, alcohol use, drug use, sexual behaviour, physical activity, overweight, toothbrushing, ease of communication with parents and fruit and vegetable consumption were derived from the latest international report from the Health Behaviour in School-aged Children (HBSC) study (2005/2006 round). This cross-national study presents key statistics on young people's health (including health status, health-related behaviour and social contexts) among young people in 41 countries and regions across Europe and North America. All EU countries except Cyprus participated in the 2005/2006 round. The international HBSC report presents data for the Flemish and French speaking regions of Belgium, and for England, Scotland and Wales separately. For the international comparisons in *chapter 8* a population weighted mean is calculated for Belgium and Great Britain based on the population sizes provided by Eurostat (2006).

The first round of HBSC was in 1983/1984 with only five countries participating. During the 2005/2006 round the Netherlands participated for the second time, the first time being during the 2001/2002 round (Currie et al., 2008). The use of the HBSC study for comparing lifestyles among youth is also recommended by the ECHIM project for several indicators (ECHIM, 2008).

Some countries were not able to collect data on certain topics due to cultural sensitivities. For example Ireland, Norway, Poland, Turkey and the United States did not collect data on sexual health. Turkey did not collect data on substance use, and Norway did not collect data on cannabis use. In addition, data on sexual health are not presented for some countries (although these data were collected) due to differences in question format (Currie et al., 2008).

Comparability
The 2005/2006 report is based on findings from the mandatory section of the international questionnaire. In order to improve comparability, an international standard questionnaire was developed in English which was subsequently translated into national and some sub-national languages. These questionnaires were checked by translating them back into English, but some cross-national variations in the way students understand certain terms can't be excluded. In the vast majority of cases questionnaires were administered in schools between October 2005 and May 2006 (Currie et al., 2008).

Quality
The international data file from the 2005/2006 survey contains data from more than 200,000 children aged of 11, 13 and 15 years. In each age group sample sizes of approxi-

mately 1,500 are required to ensure a confidence interval of +/- 3% around a proportion of 50%, and an estimated deft value of 1.2. Small differences between countries might fall within the confidence intervals. Therefore, giving too much importance to small differences between countries should be avoided (Currie et al., 2008).

A drawback of the study could be that it is based on self-reporting. Overweight based on self-reported weight and height is known to be underestimated (Currie et al., 2008). It can be expected that all countries are subject to this to the same extent, so that it doesn't hamper international comparisons. HBSC has adopted the international BMI standards for young people that are recommended by the IOTF.

Obesity in children is different from obesity in adults in some important respects. Simple measures of obesity such as the body mass index (BMI) will underestimate the degree of overweight in short children and overestimate overweight in tall children (Asp et al., 2002). Therefore, BMI in children is compared to typical values for other children of the same age. Overweight is defined as BMI equal to or greater than the 95th percentile. The IOTF's international standard for analyzing childhood overweight and obesity data has now been widely adopted (IOTF, 2005; Cole et al., 2000).

Appendix 9: Underlying data chapter 9 Elderly people

Data situation regarding health determinants in the elderly in the EU

Availability

Currently there are hardly any comparable data on health determinants in the elderly population in Europe. The SHARE database[22] contains some (comparable) information on health behaviours and risk factors, but this only concerns a small number of EU countries. Moreover, this is a database on a project basis, so its sustainability is not certain.
The Survey of Health, Ageing and Retirement in Europe (SHARE) is a cross-national panel database of more than 30,000 individuals aged 50 or over. Eleven countries have contributed data to the 2004 SHARE baseline study. A second wave of data has been collected in 2006/2007. Publication of these data is expected for November 2008.

Data on health determinants are generally present in national HIS, e.g. on obesity and smoking. However, such data, depending on sampling methods, might not be (adequately) available for elderly people. At present, few countries have information about health determinants for the population aged 85 years and older. Experience from Sweden and elsewhere shows that it is possible to collect statistics about this age group (SNIPH, 2007).

Comparability and quality

One problem of statistical data concerning older people is that it is difficult to compare countries, data being applied differently in each. Older people are defined differently with different age categories, sample sizes etc. This makes comparisons difficult. Further, when the data originate from different countries and different EU-related research projects the knowledge becomes quite diverse and scattered. Drop-out frequency in questionnaires varies substantially amongst older people, which also makes statistical comparisons between European countries difficult (SNIPH, 2007).

[22] Chapter 9 uses data from release 2 of SHARE 2004. The SHARE data collection has been primarily funded by the European Commission through the 5th framework programme (project QLK6-CT-2001- 00360 in the thematic programme Quality of Life). Additional funding came from the U.S. National Institute on Ageing (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, Y1-AG-4553-01 and OGHA 04-064). Data collection for wave 1 was nationally funded in Austria (through the Austrian Science Foundation, FWF), Belgium (through the Belgian Science Policy Office), France (through CNAM, CNAV, COR, Drees, Dares, Caisse des Dépôts et Consignations et le Commissariat Général du Plan) and Switzerland (through BBW/OFES/UFES. The SHARE data collection in Israel was funded by the U.S. National Institute on Aging (R21 AG025169), by the German-Israeli Foundation for Scientific Research and Development (G.I.F.), and by the National Insurance Institute of Israel. Further support by the European Commission through the 6th framework program (projects SHARE-I3, RII-CT- 2006-062193, and COMPARE, CIT5-CT-2005-028857) is gratefully acknowledged. For methodological details see Börsch-Supan and Jürges (2005).

Dare to Compare! Benchmarking Dutch health with the European Community Health Indicators (ECHI)

How does public health in the Netherlands compare to public health in other European Union (EU) countries? Are we among the top five or lagging behind? Does the picture change when focusing on specific subjects? This report compares the Netherlands to EU countries along a set of more than eighty European health indicators on, for example, disease, lifestyle and prevention.

This is the first time that the indicators that make up the so-called ECHI (European Community Health Indicator) shortlist are used for benchmarking Dutch public health. This shortlist has been adopted by the EU to assist health policy makers in identifying common challenges, priorities and opportunities, and to learn from other countries' experiences.

The systematic benchmark approach also provides a detailed view on the actual availability, comparability and quality of data sets, both within the Netherlands and throughout the EU. It becomes apparent that EU-funded projects and Eurostat activities increasingly contribute to better data quality and more valid comparisons, but much work is still to be done.

Given the ambition of the Dutch Ministry of Health, Welfare and Sport to get the Netherlands back into the top five of the healthiest European countries, a benchmark is a good exercise to identify possibilities for improvement and issues that require policy attention.

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