Regional comparisons 2016

# Six questions about Swedish healthcare

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# Preface

This is the tenth recurrent year of publication in the series Quality and Efficiency in Swedish Health Care - Regional Comparisons. The comparisons have increased in scope from year to year. From having been published as a single written report, the reporting now takes the form of several different reports and online systems. This particular report focus on providing an overall image of healthcare results by using 54 indicators. The report is primarily directed towards the management and governing functions within healthcare.

Project Managers have been Kalle Brandstedt and Martin Lindblom. Birgitta Lindelius has been the responsible Head of Unit. Several employees of the National Board of Health and Welfare (NBHW) have contributed to the report. The NBHW would also like to thank the external participants who contributed material to this year's report.

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# Contents

# Summary

The purpose of this report is to provide an overview of healthcare results based on indicator-based comparisons longitudinally, between counties, education groups and internationally. In contrast to previous regional comparisons of healthcare, background factors are also described.

It is important that the structure of a report such as this can be discussed further by all stakeholders, but with the comparisons that have now been selected for the different areas we see that:

- Healthcare costs have increased continuously and, in comparison to other countries, Sweden is spending a relatively large proportion of the GDP on healthcare.
- Several of the indicators concerning health and results linked to medical quality demonstrate continuous improvement and good results in relation to other countries.
- Several of the indicators concerning access to healthcare do not demonstrate the same good development or results in comparison to other countries.
- Preventive working methods are being implemented to an increasing extent, but great potential remains, which is exemplified by the large differences between counties.
- Indicators that reflect preconditions for sustainable good healthcare needs to be developed further.

For individual indicators it can be seen, among other things, that:

- Premature death, resulting from a variety of causes that to a high degree are considered to be treatable within healthcare, has continued to decrease, as have deaths due to ischaemic heart disease.
- No reduction in the number of suicides can be seen over the past 15 years.
- Men younger than 80 years of age show a reduced mortality from COPD, while women show increased mortality, primarily for those with a lower education level.
- For people who have suffered myocardial infarction or stroke the case fatality rate has continued to decrease and for those who have attended hospital for treatment the survival rate is good in comparison to other countries.
- Cancer survival has improved and both men and women demonstrated good results in comparison to other Nordic countries.
- Patients at risk for stroke are to an increasing degree provided with preventive treatment and the differences between counties and women and men have decreased.
- There are major differences in how common it is to have a dental check-up within a two-year period. The differences are distinct between counties, women and men as well as groups with different education levels.

# Introduction

The National Board of Health and Welfare (NBHW) have annually published regional comparison since 2006. Over time the number of indicators has increased and the vast amount of information has led to the need to package the indicators into reports with different focuses.

Management and governance, as well as practical improvement efforts, are done at different levels. This means that different types of supporting material are needed, depending on the objective. The purpose of this particular report is to provide an overall view of healthcare results and is directed in the first instance towards decision-makers at national, regional, as well as the local level. The report is part of a comprehensive reporting of indicators concerning follow-up of healthcare quality and efficiency[1].

[1] At the beginning of 2017 the National Board of Health and Welfare published reports that included regional comparisons concerning *Safe Health Care* and *Health Care and Welfare for the Elderly*. A number of the indicators from the National Board of Health and Welfare National Patient Register, in addition to those presented in the various reports, are also updated in the National Board of Health and Welfare *comparative performance assessment tool,* which can currently be accessed at:
oppnajamforelser.socialstyrelsen.se

# Selection of indicators and categorisation

The primary target group for this report is decision-makers at different levels who have the responsibility of providing the general public with good health care. The categorisation of indicators is therefore based on questions asked from the public's perspective:

1. “How much are we paying for healthcare?”
2. “Are we getting healthier and living longer?”
3. “What is the quality of the healthcare we receive?”
4. “How well does healthcare contribute to keeping us healthy?”
5. “Do we have access to healthcare when we need it?”
6. “How does healthcare contribute to sustainable good health care?”

## Indicator set

The following qualities are aimed for in the indicator set as a whole:

- **Limited** concerning the number of indicators.
- **Coverage** in terms of healthcare areas, major disease groups and relevant dimensions.
- **Balance**, an indicator can only illuminate a more or less limited aspect of the system, and therefore they should be distributed equally and in parity with the magnitude of the different aspects and relevance of the different dimensions.

## Indicators

The following criteria have been used as a guide in the choice of individual indicators:

- **Broad scope and relevance.** The indicator should apply to major and preferably several aspects of the system, or alternatively large volumes or important aspects. Narrower indicators can be justified if important aspects or problems are not represented otherwise.
- **Outcomes.** Both outcome and process measures can be used, but the breadth of outcome measures is prioritised as these in themselves can be seen as an overall measure of several underlying processes and performance.
- **International reference.** Indicators that have international points of reference are prioritised, in particular direct comparisons with several countries.
- **Quantifiable and available.** The indicator must be measurable and well defined. The indicator should be able to be repeatedly reported at national level.

- **Accepted and valid.** The indicator should be generally accepted and preferably present in other established contexts. It is thereby assumed to be valid, or in other words a good measure of the aspect it is intended to measure.
- **Amenable to interpretation.** The indicator must support an evaluative interpretation; it must be known if a high or low value is good or bad.
- **Capable of being influenced.** It should be possible to influence the outcome within healthcare at the local, regional or national level.

# Methods

Regional comparison is intended as an indicator-based follow-up by comparisons, which primarily means that data is processed in order to report an outcome according to a defined indicator and at different reporting levels [1]. The comparisons are described in a way that the reader can easily interpret the outcome.

## About the comparisons

For outcome indicators, which comprise the major part of the report, the time to apparent change in outcome is often longer than for process indicators, as many concurrent factors normally affect the result. To follow-up actions for improvement, for example, the result indicators can be supplemented by performance and process indicators, which should be monitored continuously.

It is preferred to report data that is as current as possible, but if the amount of data is small then a longer duration should be used. Otherwise the data will be too little to be used for quality comparisons for the healthcare unit or system that is responsible for the outcome [2–4].

### Aspects to consider when comparing results

The following aspects are important to bear in mind when interpreting the comparisons and results:

- The indicators are selected to collectively provide an overall view, but despite this they highlight only limited areas and aspects of the system.
- The comparisons should function as a starting point for further discussion and analysis.
- Knowledge of local conditions is a prerequisite for being able to evaluate the local results and identify possibilities for improvement.
- A better score in relation to other values does not necessarily mean a good result. In certain cases all are good results, in other cases there are no good results.
- For certain indicators there are clear national target levels, but often it is rather unclear what is possible and desirable to achieve.
- For the indicators it must be possible to impact the outcome within the healthcare system, but other factors also play a part and variations are not seldom due to differences in preconditions.
- Outcome is an indication of quality but also includes a random factor, which in the charts is illustrated by confidence intervals [2-4].
- The comparisons have not been designed to support patient's choice of care provider.

## International statistics

Caution should be applied to interpretations in relation to the international data stated in the report, as several pitfalls can exist in terms of comparability, data quality and interpretation of the results. Often the information is based on different data sources that have been processed and reported by the respective countries, and if questionnaire data is reported there are always differences in how the questions and response alternatives are worded and interpreted in different languages. The interpretation of what a result or an indicator means with regard to quality and outcome can also be different depending on differences between countries in terms of preconditions and the structure and function of the healthcare systems [5].

The international comparisons are not all through indicators of quality and information have been included that, for example, reflects resources, healthcare consumption or prevalence of a disease but that nevertheless has been assessed to be relevant for the reported indicator.

## About the graphs

Graph that present indicator statistics for counties are sorted according to desired results. In normal instances this means that a placing to the left in the sorting order in a graph is a better result than a placing to the right.

Observe that the scales on the value axis may be different between different graphs and often does not start from 0 or go all the way to for example 100 per cent.

### Confidence intervals

In several graphs 95 per cent confidence intervals are indicated by a black line on the bars or points that mark the value. Confidence intervals are often used to describe uncertainties for an estimated value when based on a random sample. Several of the comparisons in this report are however not based on random samples but the total number of observations over a set time period. This is true, for example, for information from the National Board of Health and Welfare National health registers. Confidence intervals are also calculated in these instances, as the outcome must be seen as one of several potential results of a process that in addition to quality also contains random factors. It is therefore uncertainty due to such variation that is described using confidence intervals.

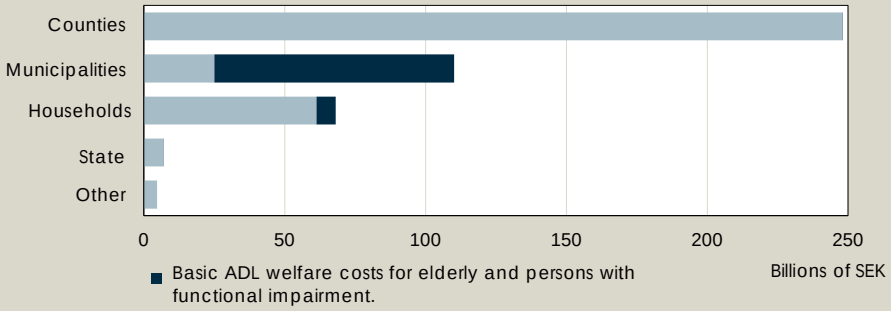
In conjunction with comparisons of results and outcomes as indicators of quality it is standard practice to state the statistical uncertainty [2-4].

# “How much are we paying for healthcare?”

Swedish healthcare costs were estimated in 2014 to be approximately SEK 45 000 per inhabitant [6]. Financing is provided primarily by the county councils[2] and municipalities, who are also responsible for providing healthcare. The county councils and municipalities are in turn funded primarily by the tax-payer. A proportion of healthcare is also directly paid for by those who consume it, for example through the payment of fees for a visit to the dentist and the purchase of pharmaceuticals.

**E.1. Total costs of health care in Sweden**

Total healthcare costs by funding body, billion SEK, 2014 (based on preliminary annual national accounts estimates).




Source: System of Health Accounts, Statistics Sweden.

Traditionally services concerning care of the individual[3] within geriatric care and care of the disabled in Sweden has been categorised as welfare and not as healthcare. The Swedish Health Accounts have been harmonised to an international standard for reporting, and these activities are therefore also included in healthcare, although these activities are not governed by the Swedish Health Care Act [7]. These are major health care areas in Sweden and the new reporting therefore also means major changes when the costs for healthcare are stated as proportion of GDP. These changes are also greater in Sweden than in the majority of other comparable countries.

[2] In this report county council also means region.

[3] In the System of Health Accounts these costs are stated as ADL-components. ADL is an acronym for *Activities of daily living*. The costs only include however basic ADL, such as care of the physical person and not aspects that for example concern shopping and cleaning activities, which are otherwise known as IADL (Instrumental Activities of Daily Living).

**E.2. Healthcare as a proportion of GDP**

Healthcare as a proportion of GDP - with and without the figures for "basic ADL costs" that concern care within geriatric care and care of the disabled.


* Based on preliminary annual estimates from the National System of Health Accounts.

Source: System of Health Accounts, Statistics Sweden.

Cost development within healthcare is important for the system to be able to be funded over the long-term and sustainable, and cost increases should be at the same level as the general economic development; otherwise tax increases may need to be imposed, or ambition levels reduced.

An overall objective for healthcare is that it should be efficient. This means that resources in the form of the competence of the personnel, medical equipment, medication etc., must be used in such a way as to provide the greatest possible contribution to achieving the objectives of good health, high accessibility, respect for the patient and care according to need.

The simplest, and often only available, measure of resource utilisation is costs, and by relating the achievement of objectives to care costs it is possible to derive a measure of efficiency. However, cost statistics are normally available on a more aggregate level than the outcome indicators. In addition, different types of outcomes need to be weighed together to provide a measure of achievement of objectives that can be related to costs. No such combined evaluation has been performed in this report. Instead an overall indicator that concerns county council costs per inhabitant is reported, as well as an international comparison of the total costs as a proportion of GDP. In the following section a number of indicators are reported that in different ways have importance for how well the healthcare system has achieved its multifaceted objective.

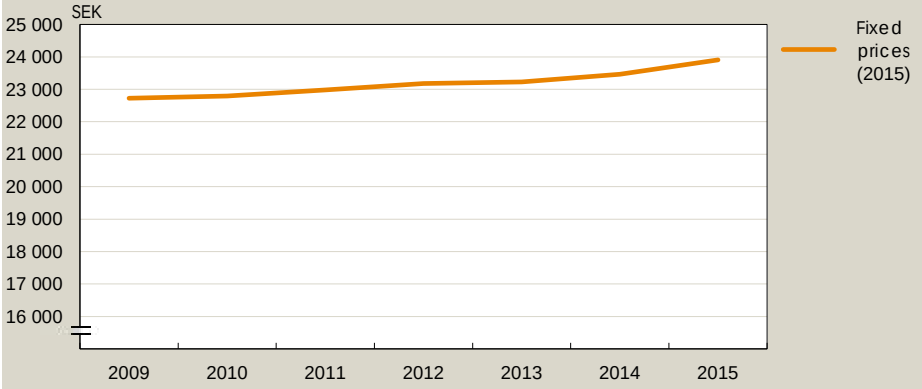
# 1. County healthcare costs (structurally adjusted)

Increases in costs in the regional healthcare funded portions of Swedish healthcare have been continuous since 2009. Over the period 2009 to 2015 the costs per inhabitant have increased by just over SEK 1000, calculated

using fixed price index costs. These reported costs do not include dental care and primary healthcare-associated home care.

**1.1. County healthcare costs**

County council healthcare costs per capita 2009-2015, excluding primary care, healthcare-associated home care and dental care. Fixed prices at 2015 level according to the regional healthcare price index (LPIK).



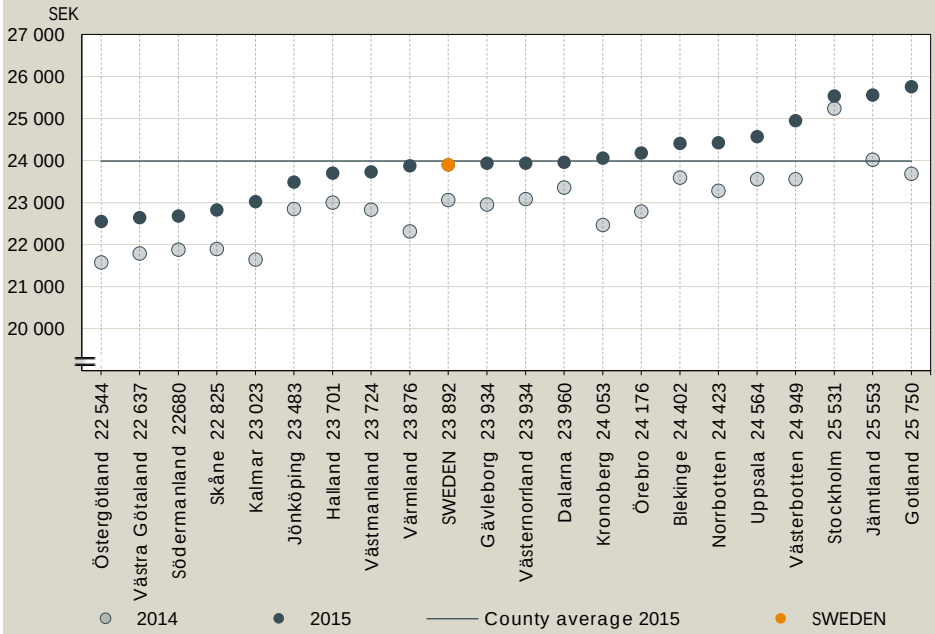

Source: Swedish Association of Local Authorities and Regions and Statistics Sweden.

For greater equity in cost difference comparisons between counties a structurally adjusted cost has been calculated, where the different preconditions of the counties to provide healthcare have been taken into consideration. There are however structural factors that are not possible to influence, such as the age composition of the population and the socioeconomic structure. Restructuring costs are also excluded from the comparisons.

The costs measured using fixed price rates have increased for every county council between 2014 and 2015, but there are great variations in both cost increases and cost levels between the counties. The fact that structurally adjusted costs per inhabitant differ between counties can reflect different ambition levels or variations in efficiency in health care, but may also be explained by factors that affect costs but for which the counties have difficulty in regulating and have nonetheless not been included in the local government equalisation system. In addition the cost outcomes are affected by the healthcare results and organisational structure.

**1.2. Structurally adjusted county healthcare costs**

Structurally-adjusted county council healthcare costs per capita, excluding primary healthcare-associated home care, dental care and restructuring costs.




Source: Swedish Association of Local Authorities and Regions and Statistics Sweden.

## Calculation of structurally adjusted costs

An annual standard cost is calculated for healthcare for the respective healthcare county, based on estimated average care costs for the population according to gender, age and socioeconomic status. The cost information is derived from Statistics Sweden's financial statistics. Differences in standard costs between regions reflect the cost differences that can be explained by different population structures etc.

The standard costs then form the basis for the county healthcare cost equalisation in the local government equalisation system. A similar model forms the basis of the distribution between counties of the state funding of medication, which must reflect the structural differences in medication costs.

The ratio between standard costs and the respective state funded medication subsidy per inhabitant for each respective healthcare county, as well as the corresponding national average, becomes a measure of how much importance the structural factors have. A structurally adjusted cost level is obtained by dividing the actual costs by this ratio.

The different aspects of the system for cost equalisation that forms the basis for the adjustment can change from year to year. Comparisons with previous years can therefore be problematic.

## Related measurements and statistics

A number of different cost measurements exist that concern healthcare and are continuously updated. SCB provides a financial summary for the municipalities and counties, which is also subdivided according to health care activity area.

In the *Kolada*[4] database there are many key figures where the costs in the financial summary are for example presented in relation to number of inhabitants or different activities and outcomes, as well as key figures for the counties.

The majority of the counties have systems for calculating the costs of individual care contacts, known as the *CPP system* (costs per patient). Use of costs per patient enables the costs per health care area to be monitored and broken down or aggregated on several different levels. The cost per patient data is also collated in a national database and the costs for a selection of different interventions have been published through open reporting for several years. In the healthcare statistics database *Healthcare in Numbers*, the comparisons of such measurements can be made between hospitals.

*Cost per DRG-point in specialised somatic care* is a broad productivity indicator worth a mention. DRG is an acronym for diagnosis-related group. This measurement combines information from the NBHW National Patient Register with the Swedish Association of Local Authorities and Regions (SALAR) Cost Per Patient database and healthcare statistics to derive a combined measure of production within specialised somatic care. The combined production value is then compared to the financial summary costs for the same activity area. Specialised somatic care represents around half of the county council healthcare costs.

# Proportion of resources devoted to healthcare in different countries

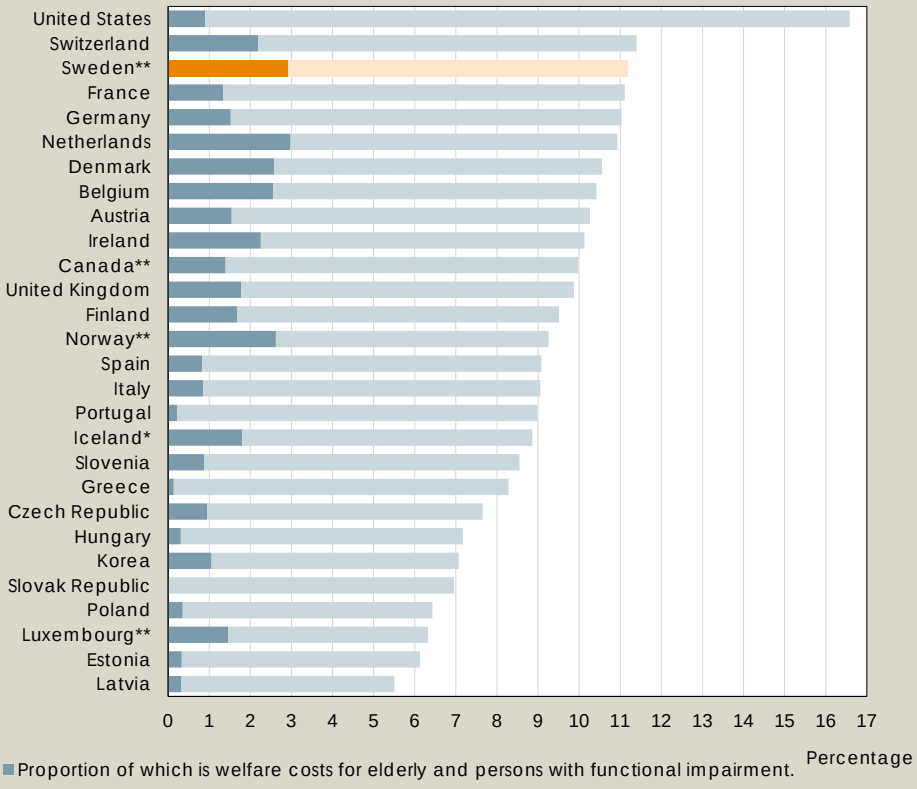
In an international context the costs for healthcare are reported as the proportion of GDP for the area. Figure A.1 shows that the proportion of GDP for healthcare in Sweden amounts to 11 per cent (preliminary statistics for 2014). This is one of the highest proportions in comparison to other OECD member countries. In previous comparisons Sweden's ranking has been closer to the middle. The difference in ranking is not however due to Sweden currently devoting much more resources to healthcare, but is instead a result of the introduction of the new reporting method the countries shall adopt. This new method means that a significantly larger proportion of the activities concerning care of the elderly and people with disabilities are counted as healthcare [7]. This area is large and is greater in Sweden than in the majority of other comparable countries. Figure A.1 reports the separate areas that comprise care of the elderly and people with disabilities, and of these costs care of the physical person represents 80 per cent of the care costs. The differences in public sector commitments can impact this proportion. Other countries with a high proportion of healthcare costs within the area of care of

[4] The municipal and regional database, Kolada, is run by the Council for the Promotion of Municipal Analyses (RKA).

the elderly and people with disabilities are for example the Netherlands, Norway, Denmark and Belgium.

**A.1 Countries. Healthcare as a proportion of GDP**

Healthcare portion of GDP for countries with reported statistics for 2014.




* Different calculation method. ** Preliminary data.

Source: Health Statistics, OECD.

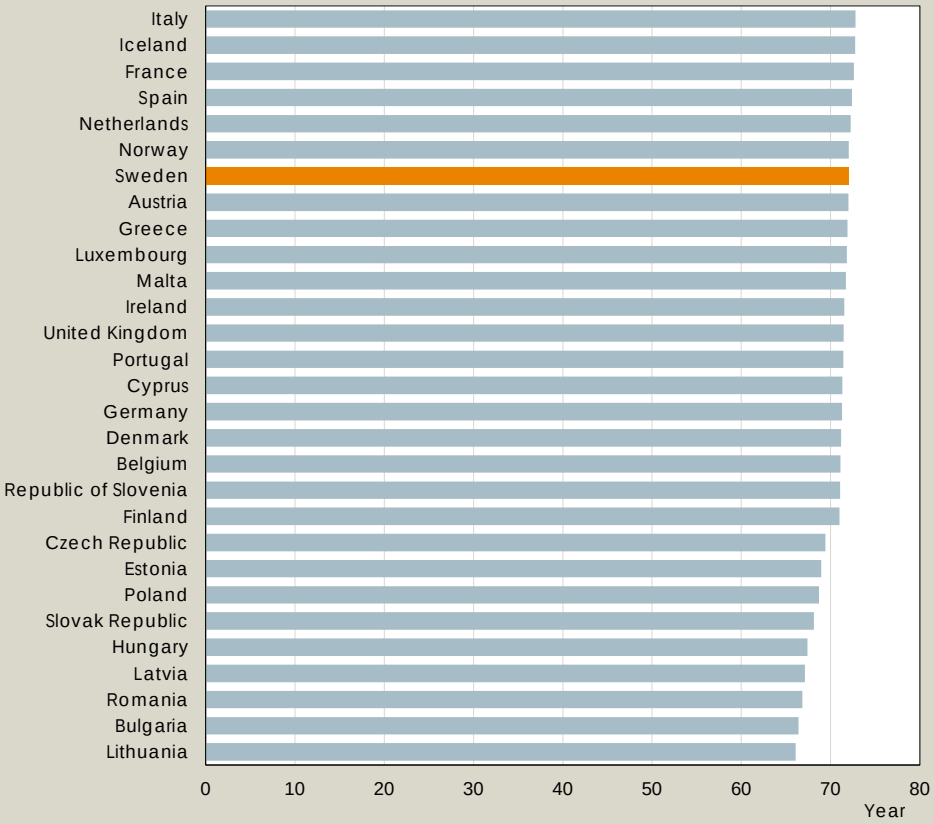
# “Are we getting healthier and living longer?”

This section reports broad measurements for health outcomes where quality in healthcare plays a part, but where the outcome is also affected to a high degree by exogenous factors such as standard of living, living conditions and living habits.

In the scientific literature there are different views on the extent to which healthcare contributes to health at the general population level in relation to other explanatory factors. The role of healthcare for health is despite everything more obvious than comparative roles are for other political areas, for example housing, the labour market or education. The majority of the activities of healthcare are aimed directly at improving the quality of life of people by reducing and preventing ill health, not least for people with chronic diseases. Although the focus is on individuals many researchers believe that the aggregate effects of healthcare on the health of the population are significant and that great potential still remains. For different medical treatments estimates of their impacts on the health of the general population have also been made, for example in the form of years with less discomfort and improved function per 100 000 inhabitants [8–10].

**E.3. Countries. Healthy life expectancy (HALE) at birth**

Average number of years that a person can expect to live in "full health" by taking into account years lived in less than full health due to disease and/or injury. Reported for EU countries and Norway and Iceland, but excluding Croatia, 2015.




Source: Health statistics, WHO.

Sweden is one of the countries within the EU where inhabitants can expect to have the highest number of years of good health. In Sweden inhabitants can expect just over 72 years of good health from birth onwards. In Italy, where the inhabitants can expect the highest number of years of good health, the number of years of good health from birth onwards is 73.

Over recent decades the health of the population as a whole has significantly improved. Reduced mortality rates for a number of diseases, together with improved lifestyle habits, has contributed to an increase in the average life expectancy.

The health development of the population has fundamental importance for social development in general and also affects the healthcare needs. The average life expectancy and self-assessments of general health status are two measurements that are often used to describe health in general and these measurements also provide an image of general health development. Dental health in the population is one example of an indicator that also describes the general health status, not least because of a strong association with lifestyle habits and consumption of care.

# 2. Self-assessment of general health status

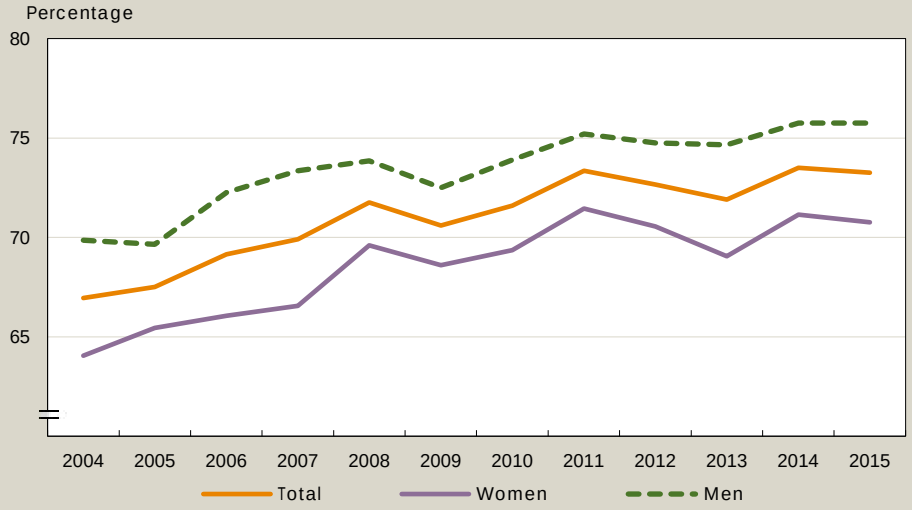
Health is not distributed equally among the population. Self-assessment surveys of population health have been monitored since 1980 in SCB surveys of living conditions (ULF). These surveys have shown that self-assessment of health has previously worsened for women with a low level of education [11]. Neither can any distinct improvement be seen in recent years for people with a low level of education in the national population health survey, *Health on Equal Terms*.

This report presents the proportion of people who have responded “very good” or “good” to the question “How do you assess your general health status?”.

The proportion of people with a good self-assessed health has increased for both men and women over the period 2004 to 2015. Men state more frequently than women that their own health is good or very good and people with a high level of education more often state that their health is good than those with a lower level of education do.

**2.1. Self-assessment of general health status**

Proportion who state that their general health is good or very good, 16–84 years.

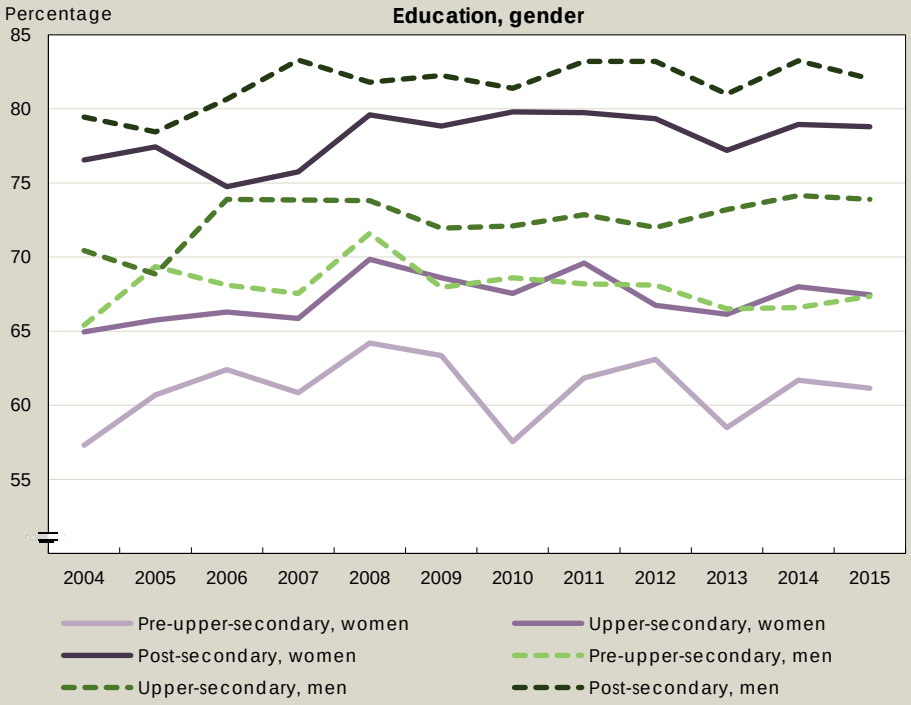



Source: Health on Equal Terms, Public Health Agency of Sweden.

Variation in education levels is greater for women than for men. There was a difference of 21 percentage points in 2015 between women with a pre-upper-secondary school education and men with a post-secondary school education.

**2.2. Education. Self-assessment of general health status**

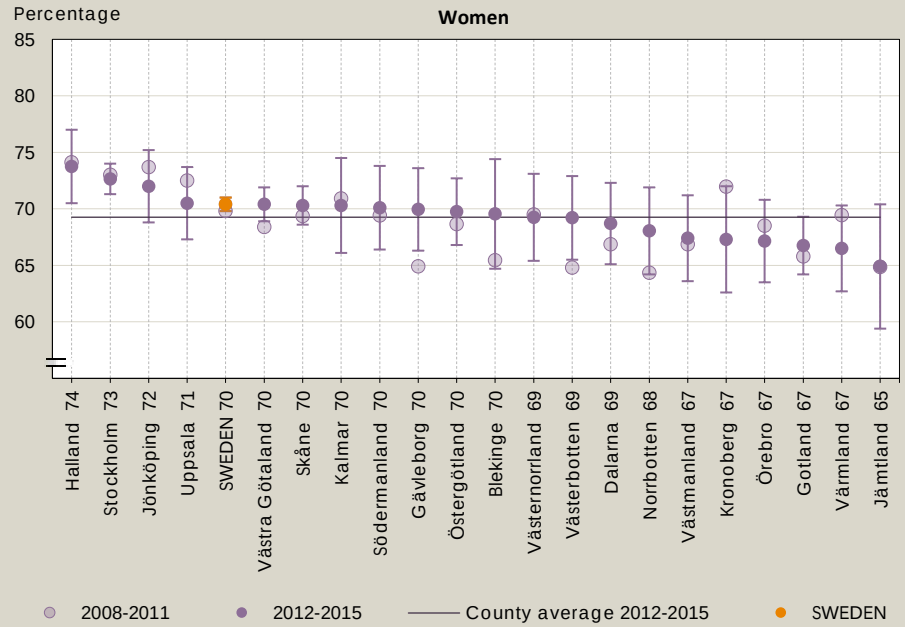
Proportion who report that their general health is good or very good, age 16–84 years.




Source: Health on Equal Terms, Public Health Agency of Sweden

Between counties the proportion of women who assess their general health to be good varies between 74 and 65 per cent. For men the corresponding variation is between 78 and 69 per cent.

**2.3. County. Self-assessment of general health status**
Proportion who report that their general health is good or very good, age 16–84 years.




Source: Health on Equal Terms, Public Health Agency of Sweden.

**2.4. County. Self-assessment of general health status**
Proportion who report that their general health is good or very good, age 16–84 years.


Source: Health on Equal Terms, Public Health Agency of Sweden.

The preconditions for health-promoting living environments are primarily shaped by regional and local actors, such as the county administration boards, county councils and counties, municipalities and non-profit organisations [12]. An important aspect of this is that the county councils and municipalities manage the healthcare needs of their inhabitants.

## Related measurements and statistics

### Mental ill health

The municipalities and counties also have a particular responsibility for the mental health of inhabitants, in part in activities where there is contact with the inhabitants and as an employer with regard to work environment and work-related stress. The mental ill health of the population is often measured using questionnaires and interview surveys. Impaired mental well-being is an extensive population health problem and several surveys during the 1990s demonstrated a strong increase in impaired mental well-being in the young. This increase now appears to have tapered off, but remains at a high level, in particular in young women when measured as experiencing anxiety, nervousness and unease [13].

In county healthcare there are several ongoing initiatives to improve mental health among the young, but NBHW has highlighted the deficiencies within this area when it comes to first line health care and that transparency is needed in the tasks of how primary care, child and adolescent psychiatry, school health services and other health services for children and adolescents should work with mental health [14].

# Sweden's inhabitants assess their own health as good

OECD reports a number of indicators of health status, including self-assessments of health [15]. Among the 36 countries that the OECD provides reports for, 28 countries have comparable methodologies and are presented in Figure A.2. The proportion who in 2014 responded that their health was good or very good varied between just under 33 per cent in South Korea to almost 83 per cent in Ireland. In Sweden the proportion was 80 per cent, which was second highest among the reporting countries. Part of the explanation for differences in health self-assessments between countries can be attributed to cultural, social and language factors with regard to how the questions and the different response options are interpreted [16–19].

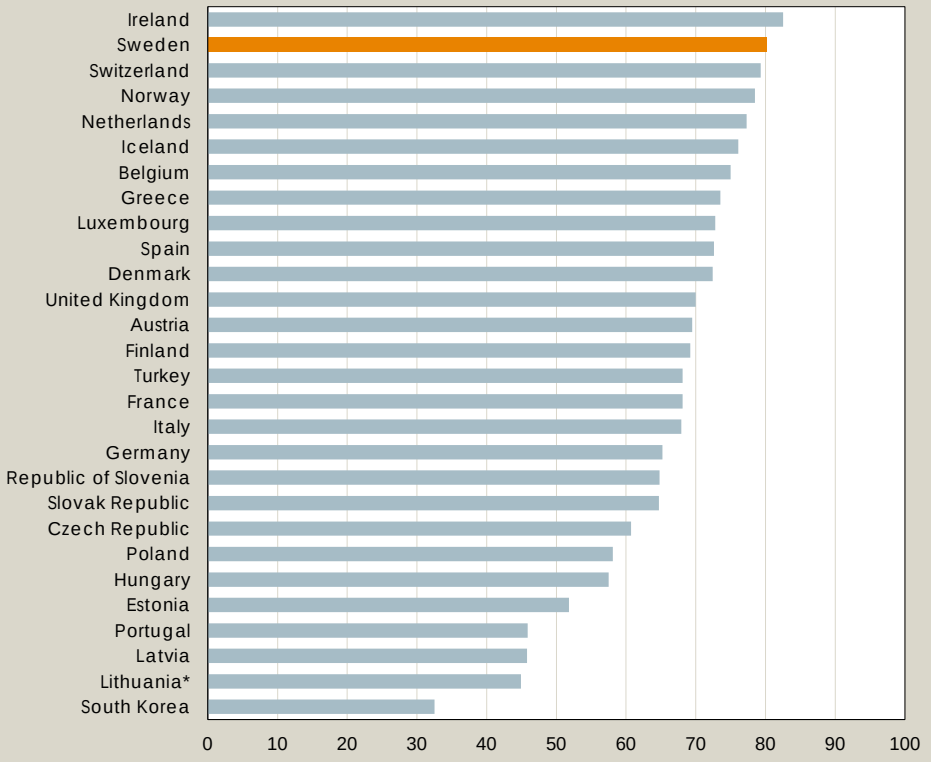
In the majority of the countries included in the comparisons women self-assess their health as good to a lesser extent than men do. A combination of social and biological factors contributes to the differences in health self-assessment responses between the genders.

A greater proportion of people with a higher education state that their health is good or very good in comparison to the proportion of poorly educated people, and the fifth of population comprising individuals with the highest income respond to a greater extent that their own health is good or

very good compared to the fifth of the population comprising the lowest income individuals [15]. The fact that people with a higher income and education assess their health as good to a greater extent, than people with a lower income and education level, has also been observed in other studies [20, 21].

**A.2. Countries. Self-assessment of general health status**

Proportion of people aged 16 years or older who answered "good" or "very good" in response to the question "How is your health generally?", 2014. OECD countries with statistics and comparable methodologies.




* Non-OECD economy

Source: Health statistics, OECD.

# 3. Average life expectancy

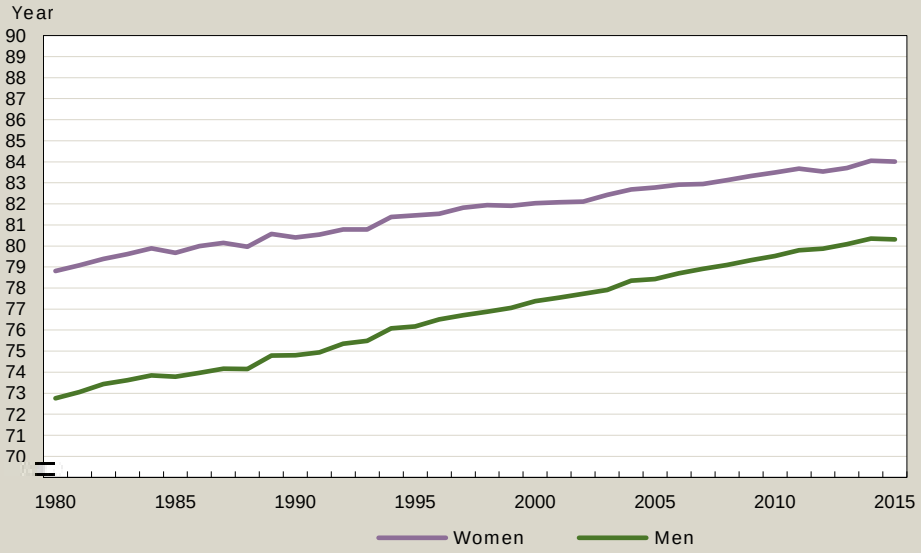
Average life expectancy is a general measure that is often used to describe health. This can be viewed as an important measurement of how welfare states have succeeded in creating the preconditions for better standards of living, living conditions, lifestyle habits and health. It also reflects how healthcare contributes to increased life expectancy for the population through preventive efforts and treatments. The average life expectancy reported here is calculated as average life span at birth. The estimates are based on risk of death for each year of life.

The average life expectancy in Sweden has risen continuously since 1980, although the last year in the observed period does not conform to this trend. Over recent decades reduced mortality from cardiovascular diseases (primarily myocardial infarction and stroke) has contributed most to this rise.

Improved lifestyle habits (a reduction in smoking, lower blood lipids and lower blood pressure), as well as improved treatment methods have led to fewer people contracting and dying of these diseases [22, 23]. The higher level of education of the population as a whole has also contributed in different ways to the increase in average life expectancy [24]. For people born in 2015 the average life expectancy is estimated to be 84.0 years for women and 80.3 years for men. The difference between the genders has dropped from around 6 years in 1980 to 5 years at the start of the millennium and is now down to just under 4 years in 2015.

**3.1. Average life expectancy**

Life expectancy calculated as average life span at birth, 1980–2015.

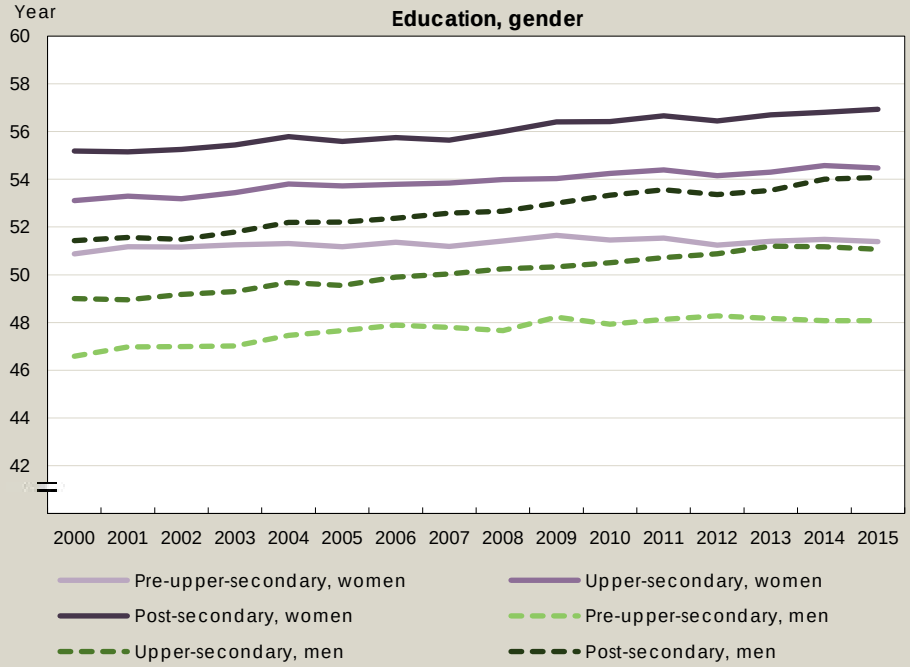



Source: Sweden Population Statistics, Statistics Sweden.

While the differences between men and women have decreased, the differences between groups with different education levels have increased. In the comparison that is stratified according to education in Figure 3.2, the average life expectancy is shown for people of 30-years of age who have been born in Sweden. Life expectancy differs between them with shorter versus them with longer education, for 2015 the difference is around 6 years for both women and men in comparison to the year 2000 when the differences were just over 4 years. Men with a post-secondary school education demonstrate the most positive development, where the average life expectancy at 30-years of age has increased by 2.5 years between the year 2000 and 2015. For women with only a pre-upper-secondary school education hardly any improvement can be seen at all over the same period.

### 3.2. Education. Average life expectancy (at 30-years of age)

Average life expectancy at 30-years of age (only people born in Sweden).

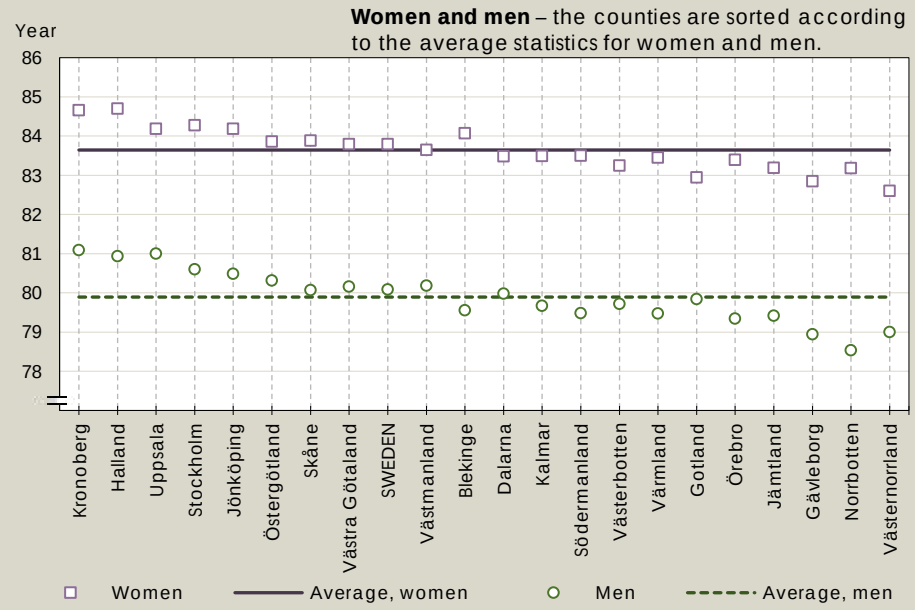



Source: Sweden Population Statistics, Statistics Sweden.

There are also nationwide differences. For women the differences in average life expectancy between the counties is at most 2.1 years and for men the figure is 2.6 years.

### 3.3. County. Average life expectancy

Life expectancy calculated as average life span at birth, 2011–2015.




Source: Sweden Population Statistics, Statistics Sweden.

# 4. Self-reported dental health

Dental health constitutes an important part of human quality of life and well-being. The quality of teeth can be said to be doubly associated with eating habits, as the diet affects dental health and the quality of the teeth affects food intake. The Swedish national public health policy highlights the importance of good dental health for people to benefit from their food intake. There are also diseases where a direct correlation with dental health is suspected, such as cardiovascular disease, respiratory tract diseases, cancer and diabetes. Studies have also shown that periodontitis in pregnant women can increase the risk of babies being born with low birthweight [25].

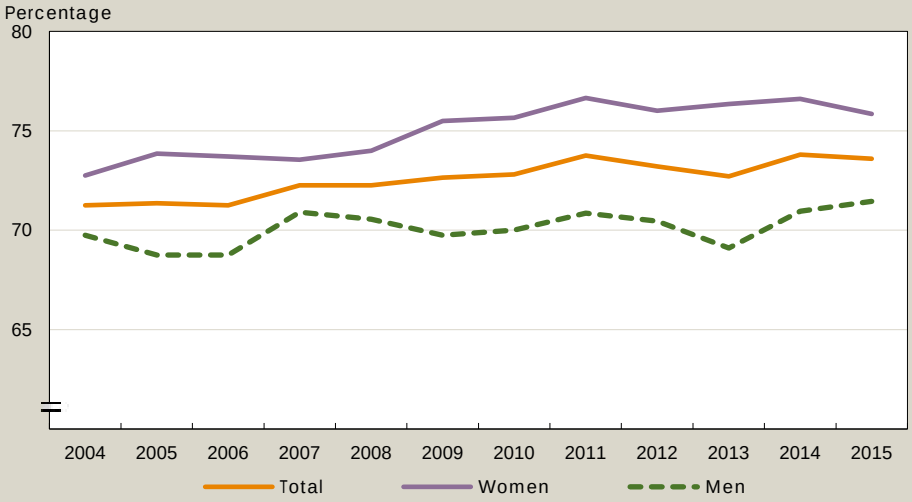
Although the dental health of the population as a whole has improved substantially, there are still large socioeconomic differences. In the national public health survey *Health on equal terms* blue-collar workers state that they have poorer dental health than white-collar workers and blue-collar workers more often do not seek dental care when they need it in comparison to white-collar workers in the same situation [11].

Dental health is normally a good indicator of the general health of children and adolescents, as the health of teeth has a strong correlation with lifestyle habits, care consumption, economic preconditions and knowledge of how to maintain good health [26].

A larger proportion of women than men state that their personal dental health is reasonably good or very good, and the differences between the genders was just over 4 percentage points in 2015.

**4.1. Good dental health**

Proportion stating their dental health to be reasonably good or very good, 16–84 years.

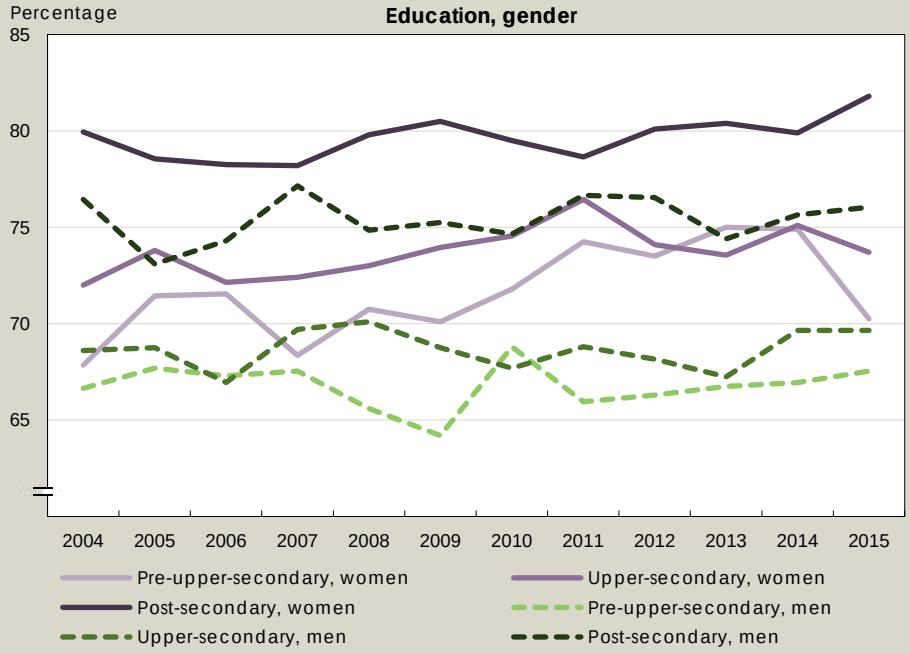



Source: Health on Equal Terms, Public Health Agency of Sweden.

Regardless of gender, the group who had a post-secondary school education more often stated that their dental health was good or very good in 2015. Women consistently had a higher score than men within each respective education group for the entire period 2004 to 2015.

**4.2. Education. Good dental health**

Proportion stating their dental health to be reasonably good or very good, 16–84 years.



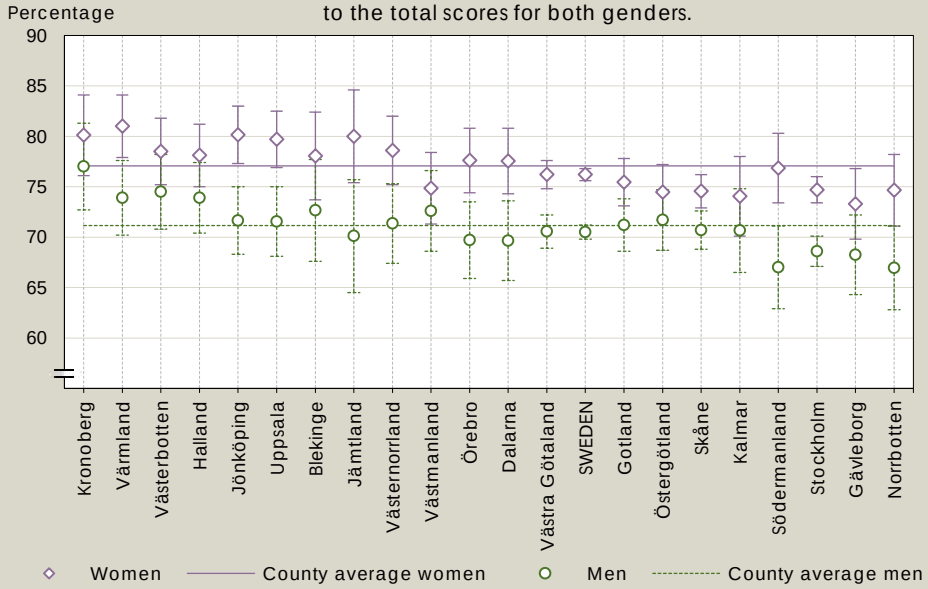

Source: Health on Equal Terms, Public Health Agency of Sweden.

In all counties a greater proportion of women stated their dental health to be good in comparison to men. Viewed overall the greatest proportion of respondents in Kronoberg stated that their personal dental health was good for the period 2012–2015. In Norrbotten the lowest proportion of respondents stated that they had good dental health.

**4.3. County. Good dental health**

Proportion stating their dental health to be reasonably good or very good, 16–84 years, 2012-2015.

**Women and men** – the counties are sorted according to the total scores for both genders.




Source: Health on Equal Terms, Public Health Agency of Sweden.

Everyone in Sweden should receive good dental healthcare. This means, among other things, that the county health care services have a particular responsibility when it comes to preventive efforts to achieve good oral and dental health, not least for children and adolescents, as approximately 84 per cent of all children and adolescents up to the age of 19 years are patients of the Swedish Public Dental Service [27].

## Related measurements and statistics

The reported indicator contains information for adult males in order to be able to work preventively, but for improvements it is important to also monitor information for children and adolescents. NBHW also report, for example, information about caries-free children at 6 and 12-years of age.

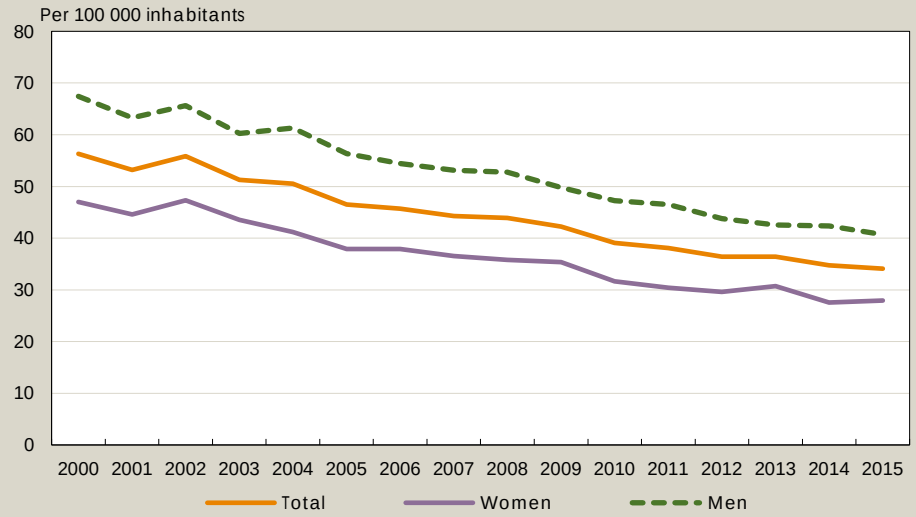
# 5. Healthcare-related avoidable mortality

This indicator reflects the lethal outcomes for a number of diagnoses that have been selected as they are assessed to be possible to affect, in particular by various medical interventions, early identification and treatment. Examples of diagnoses included in this category are diabetes, appendicitis, stroke, gall stones and cervical cancer. The age group included is 1–79 years and the comparisons are age-standardised.

Per 100 000 inhabitants, 34 people with these diagnoses died in 2015. The statistics for men are higher than for women. The age-standardised mortality for men was almost 41 per 100 000 inhabitants, compared to just under 28 for women. Since the year 2000 there has been a continuous reduction in the number of deaths from the diagnoses measured by this indicator.

**5.1 Healthcare-related avoidable mortality**

Healthcare-related avoidable mortality – number of deaths per 100 000 inhabitants aged 1–79 years. Age-standardised.

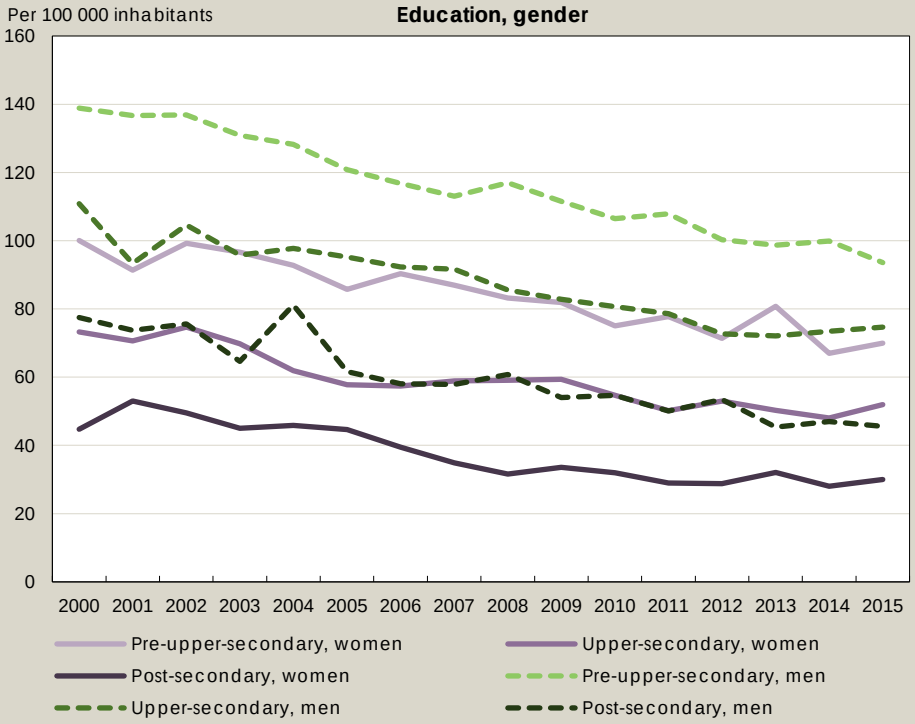



Source: Cause of Death Register, National Board of Health and Welfare.

For the respective genders there is a distinct pattern of the number of deaths measured by this indicator being higher among those with fewer years of education. The group with the less good results are men with only pre-upper-secondary school education. During the period 2000–2015, however, this group has demonstrated the greatest improvement.

**5.2. Healthcare-related avoidable mortality**

Healthcare-related avoidable mortality – number of deaths per 100 000 inhabitants aged 35-79 years. Age-standardised statistics.

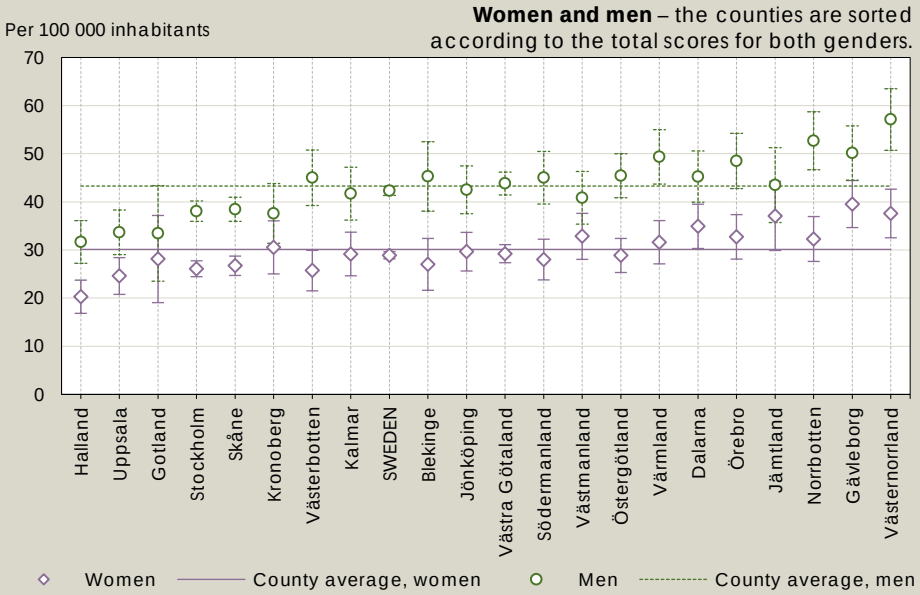



Source: Cause of Death Register, National Board of Health and Welfare.

There are large differences between the counties. The county with the lowest total numbers is Halland. In Halland the results for men are almost at the same level as for women nationwide.

**5.3. County. Healthcare-related avoidable mortality**

Healthcare-related avoidable mortality per 100 000 inhabitants age 1–79. Age-standardised, 2012–2015.




Source: Cause of Death Register, National Board of Health and Welfare.

It is possible to analyse the number of deaths for each individual diagnosis included in the indicator in order to gain knowledge of which diagnoses are more relatively prevalent regionally and locally. Healthcare can also analyse the measures adopted for the individuals with these diagnoses and increase preventive efforts to reduce the numbers affected, for example by diabetes complications.

## Related measurements and statistics

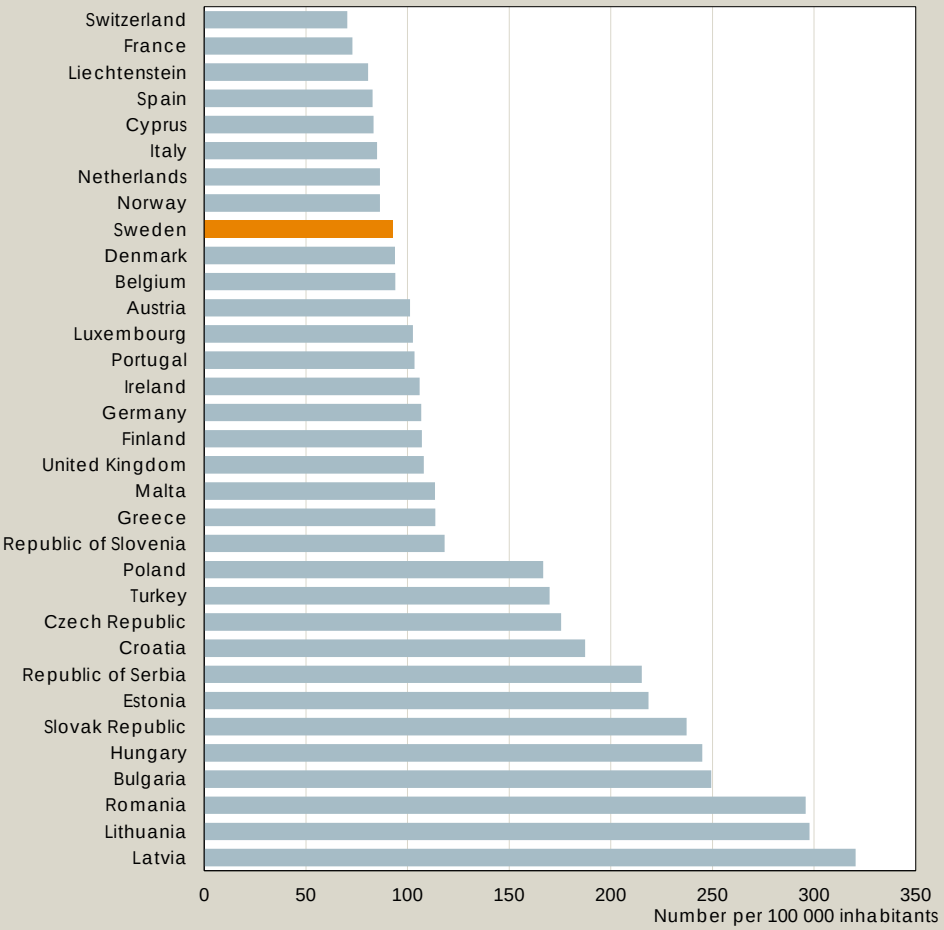
The majority of the deaths included in the indicator are stroke or diabetes related. Important related indicators are therefore those that illuminate these diagnosis groups. Results for the indicator *Preventable deaths from stroke* can be found at the NBHW website.

# Low healthcare-related mortality in Sweden according to Eurostat statistics

Eurostat carries out comparisons of preventable deaths between different EU countries in the first instance, but also includes countries such as Turkey and Switzerland. Sweden is one of the countries with the lowest mortality rates of the countries compared for the type of avoidable deaths related to quality of healthcare (*Amenable mortality*); in Sweden the age-standardised figure was 96 per 100 000 inhabitants. The Eurostat statistics also include ischaemic heart disease.

**A.3. Countries. Healthcare-related avoidable mortality**

Healthcare-related avoidable mortality – number of deaths per 100 000 inhabitants, reported for countries reporting to Eurostat, 2013 . (Other diagnosis criteria compared to the indicator used for comparison over time and counties in Sweden.)




Source: Eurostat.

# 6. Avoidable deaths from ischaemic heart disease

Cardiovascular disease is the most common cause of death and one of the most common causes of disabilities in Sweden [28]. Acute myocardial infarction is one of the most common causes of death for those with cardiovascular disease.

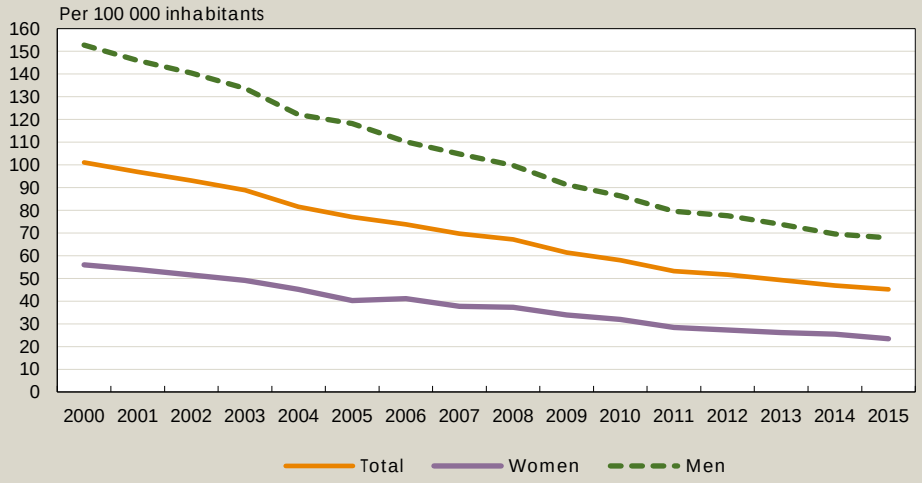
Over the past 30–35 years the mortality rate for different forms of heart disease has steadily diminished in Sweden. During the 1980s there were major breakthroughs in the treatment of myocardial infarction, and since then the differences in survival and those suffering myocardial infarction have diminished between different parts of the country [29].

Ischaemic heart disease is a disease caused by an impaired supply of oxygen to the heart; with acute myocardial infarction the predominant cause of death in this category. This indicator shows all deaths from ischaemic heart disease, regardless of whether the person has died within healthcare or not.

The age-standardised mortality from ischaemic heart disease has steadily reduced over the past 15 years. It is more common for men to die from ischaemic heart disease than women up to the age of 80-years of age, and the result for this indicator for 2015 were almost three times higher for men than for women.

**6.1. Avoidable deaths from ischaemic heart disease**

Number of avoidable deaths from ischaemic heart disease per 100 000 inhabitants aged 1–79 years. Age-standardised.

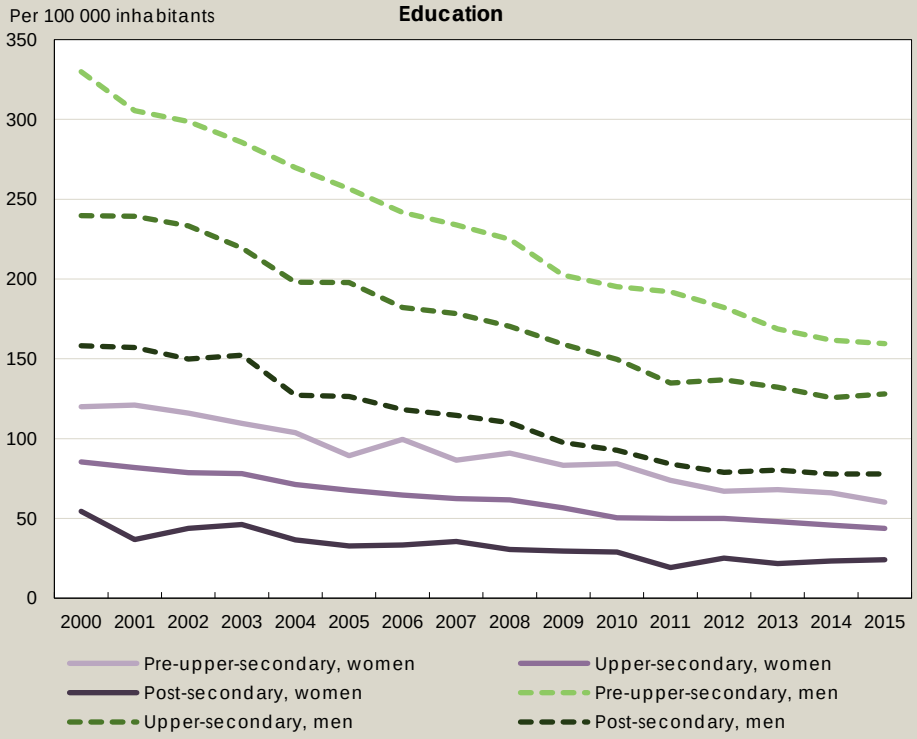



Source: Cause of Death Register, National Board of Health and Welfare.

Even regardless of education level, women have a lower value than men. For men aged 35 to 79 years who had only a pre-upper-secondary school level of education the age-standardised number of deaths per 100 000 was almost 160. For women the corresponding figure was 60. For each gender, however, the pattern of mortality was distinctly higher among those with fewer years of education.

**6.2. Education. Avoidable deaths from ischaemic heart disease**

Avoidable deaths from ischaemic heart disease per 100 000 inhabitants age 35–79, Age-standardised.



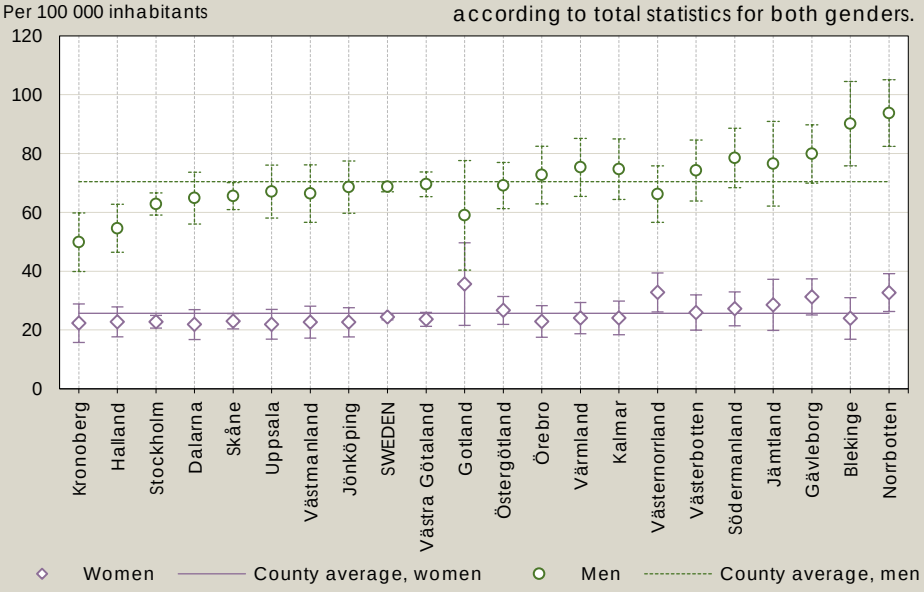

Source: Cause of Death Register, National Board of Health and Welfare.

The differences in ischaemic heart disease mortality rates for men in different counties are greater and more distinct than for women.

**6.3. County. Avoidable deaths from ischaemic heart disease**

Avoidable deaths from ischaemic heart disease per 100 000 inhabitants age 35–79, Age-standardised, 2014–2015.

**Women and men** – the counties are ranked according to total statistics for both genders.




Source: Cause of Death Register, National Board of Health and Welfare.

Despite improvements, cardiovascular disease, including ischaemic heart disease, is still the biggest contributing factor to the burden of disease in Sweden – a serious illness that to a great extent can be influenced by efficient prevention and treatment. It is therefore important that cardiovascular care continues to develop with the help of new, efficient treatment methods.

Further improvements can be achieved by greater prevention, diagnosis and treatment of cardiovascular disease in primary healthcare. To achieve equality of care it is also important that existing, effective and evidence-based methods are made accessible to everyone who can benefit from them. Both new and tried and tested interventions need to be prioritised and used according to the national guidelines, so that healthcare resources are used in the best way [29].

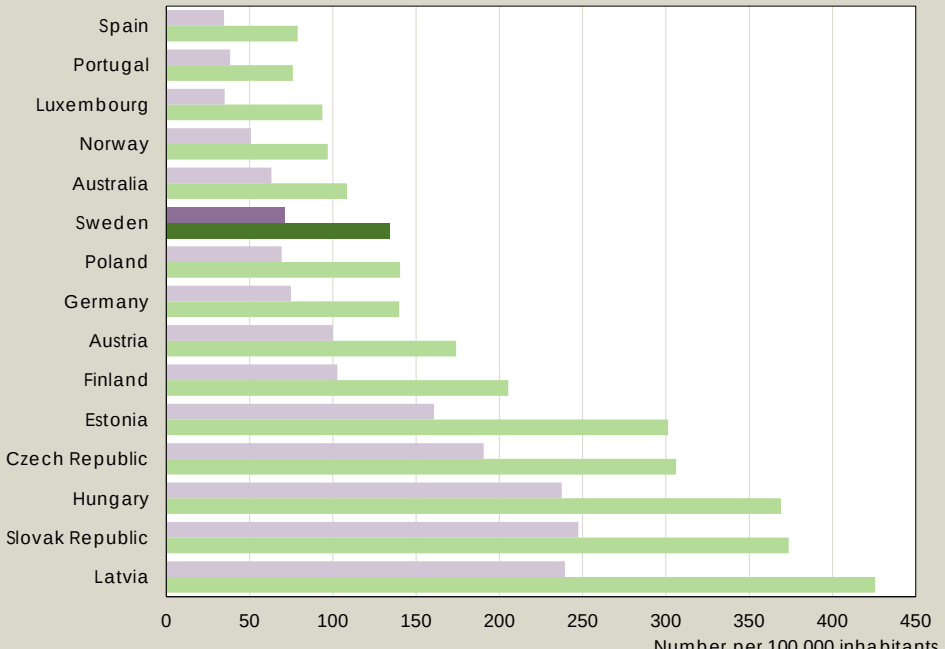
# Major differences in heart disease mortality between countries

For women Luxembourg had the lowest results for age-standardised ischaemic heart disease mortality among the countries included in the comparison, with 35 per 100 000 women. Slovakia had the highest number, with 248. The figure for Sweden was 71, which is around twice as high as Luxembourg, but at the same time around one third of the number for Slovakia. For men the figure for Sweden was 134, which is just over double the figure reported by Spain. However, it is only one third of the figure reported by Latvia.

Sweden's results in comparison to countries with lower mortality rates indicate that there is still the potential to reduce the number of deaths of both men and women in Sweden.

**A.4. Countries. Ischaemic heart disease mortality**

Number of deaths among women and men from ischaemic heart disease per 100 000 inhabitants, 2014. OECD countries providing statistics for 2014. Age-standardised statistics according to the OECD standard population data, 2014. Sorted according to total statistics for both sexes combined.



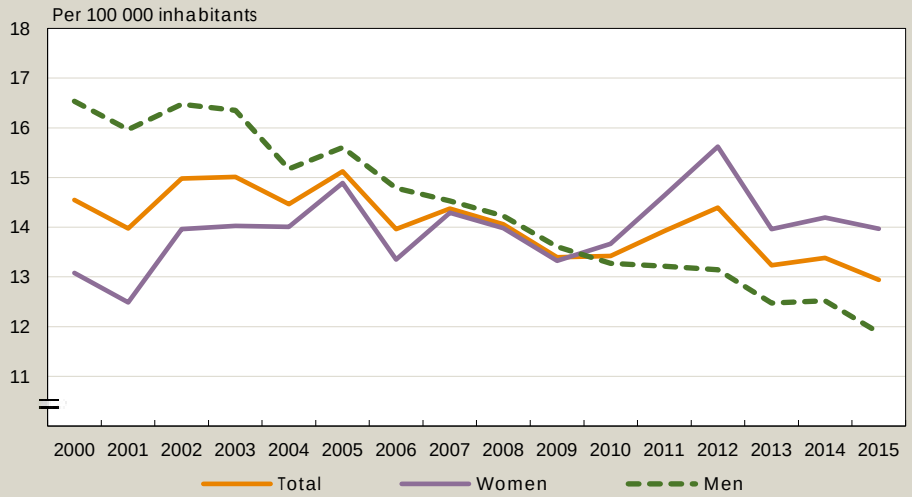

Source: Health Statistics, OECD.

# 7. Avoidable deaths from COPD

Deaths caused by chronic obstructive pulmonary disease (COPD) can be reduced by early diagnosis, good medical care and preventive action, such as stop smoking. This indicator shows COPD mortality rates per 100 000 inhabitants in the age group 1–79 years. COPD mortality has decreased somewhat in recent years. In Sweden the age-standardised COPD mortality was around 13 deaths per 100 000 inhabitants in 2015.

**7.1. Avoidable deaths from COPD**

Deaths resulting from COPD per 100 000 inhabitants aged 1–79 years.
Age-standardised statistics.

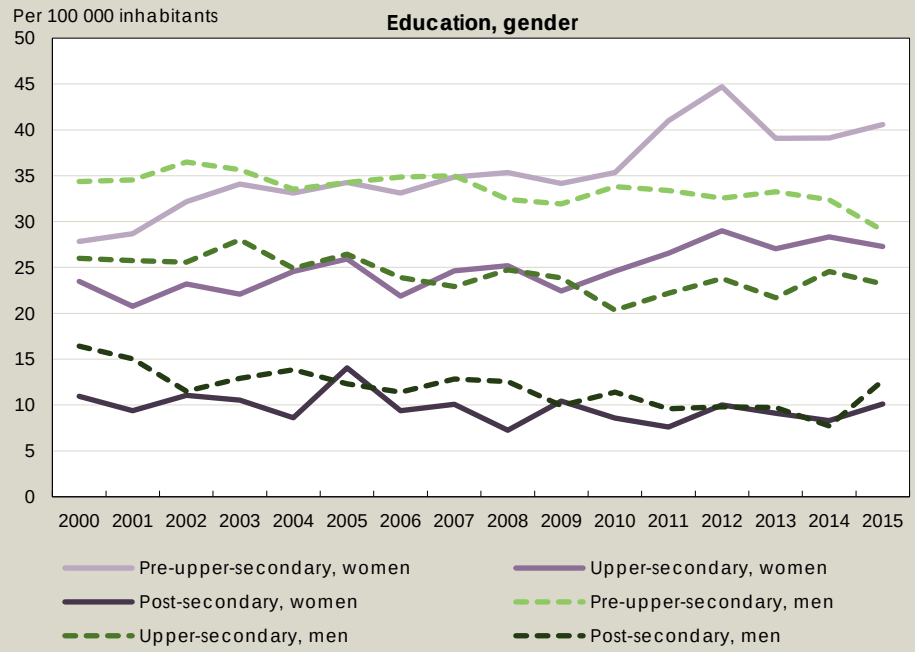



Source: Cause of Death Register, National Board of Health and Welfare.

From deaths from COPD prior to 80-years of age having been more prevalent among men, it is now women who to a higher extent die in this age group. Smoking habits have changed in a similar way and more women now smoke than men. The differences between education levels are obvious in Figure 7.2. Here it can be seen that the increased proportion for women in comparison to men is in the group with fewer years of education.

**7.2. Education. Avoidable deaths from COPD**

Deaths resulting from COPD per 100 000 inhabitants aged 35–79 years.
Age-standardised statistics.

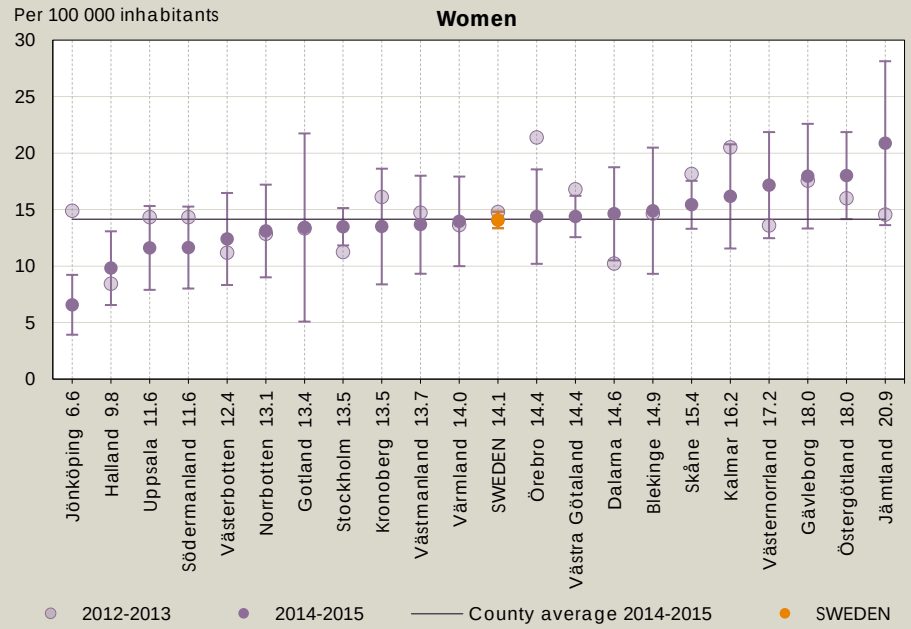



Source: Cause of Death Register, National Board of Health and Welfare.

The supporting data for several counties is relatively small for each respective gender, which means that the statistics can be more sensitive to temporary and random variations, and this is also illustrated by the fact that the confidence intervals often overlap each other and the national county average. A couple of counties however seem to have statistics that indicate a lower age-standardised mortality among women than the national county average.

## 7.3. County. Avoidable deaths from COPD

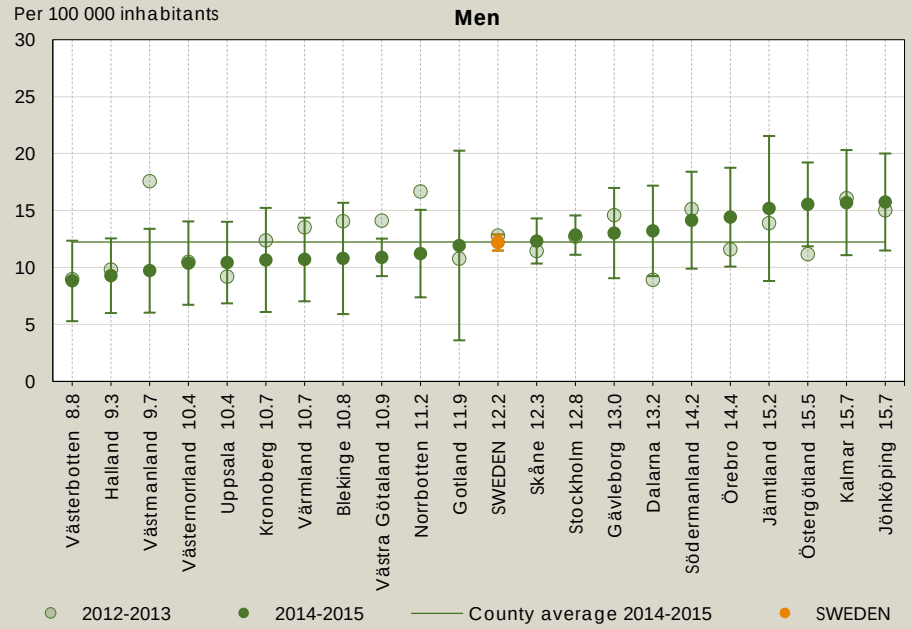
Deaths resulting from COPD per 100 000 inhabitants aged 1–79 years.
Age-standardised.




Source: Cause of Death Register, National Board of Health and Welfare.

## 7.4. County. Avoidable deaths from COPD

Deaths resulting from COPD per 100 000 inhabitants aged 1–79 years.
Age-standardised.



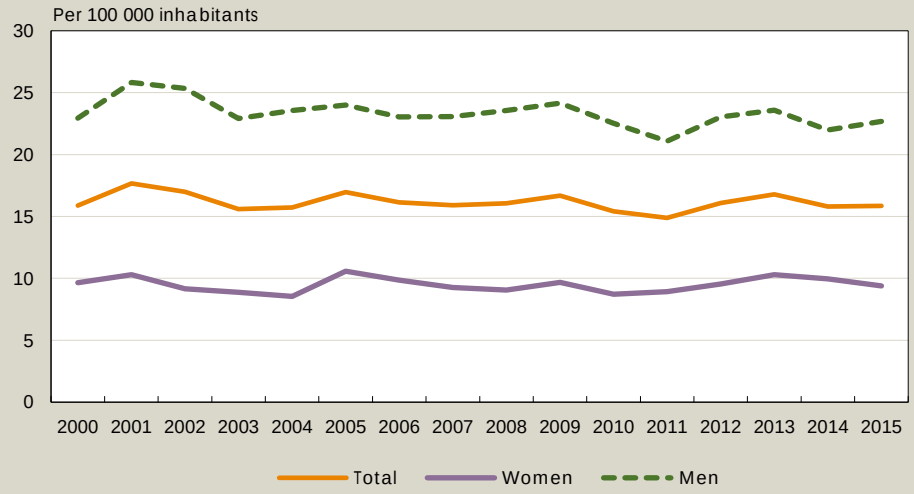

Source: Cause of Death Register, National Board of Health and Welfare.

# 8. Suicide among the general population

For the indicator *Suicide among the general population* the age-standardised statistics and the number of suicides are reported as number per 100 000 inhabitants. This indicator comprises both of confirmed suicides and deaths of uncertain intent. The statistics for this indicator were almost 16 per 100 000 inhabitants for 2013–2015. For men the figure per 100 000 inhabitants is almost 23, compared to women where the figure is just over 9 per 100 000 inhabitants. For the past 15 years no reduction in mortality has been seen, in contrast to many other population mortality indicators.

**8.1. Suicide among the general population**

Number of suicides and deaths with undetermined intent per 100 000 inhabitants. Age-standardised statistics.

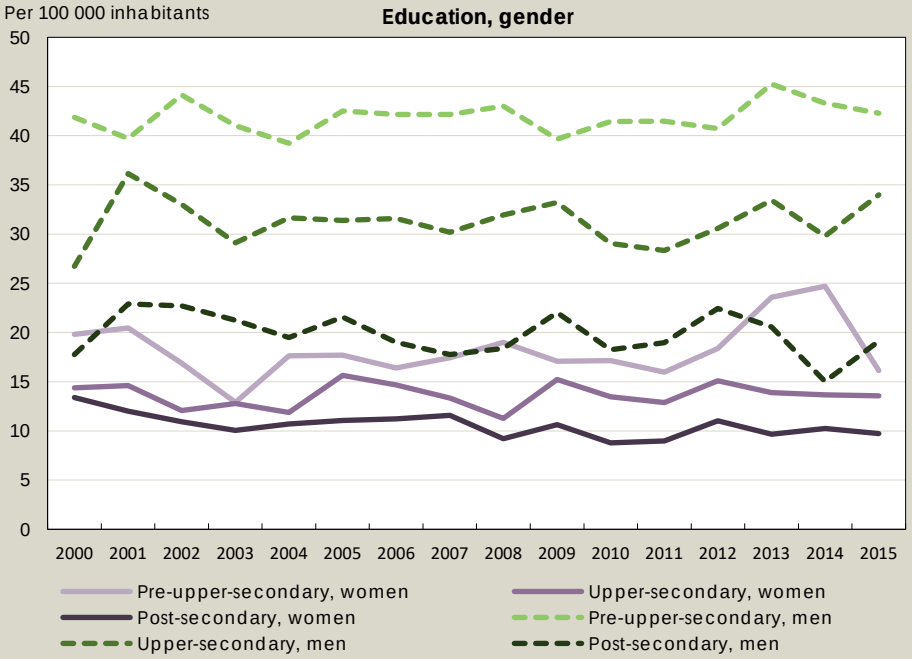



Source: Cause of Death Register, National Board of Health and Welfare.

For the respective genders there is a distinct pattern that shows that suicide is more common among those with fewer years of education. Among men with only a pre-upper-secondary school education suicide is almost twice as common as among men with a post-secondary school education.

**8.2. Education. Suicide among the general population**

Number of suicides and deaths with undetermined intent per 100 000 inhabitants aged 35-79 years. Age-standardised.

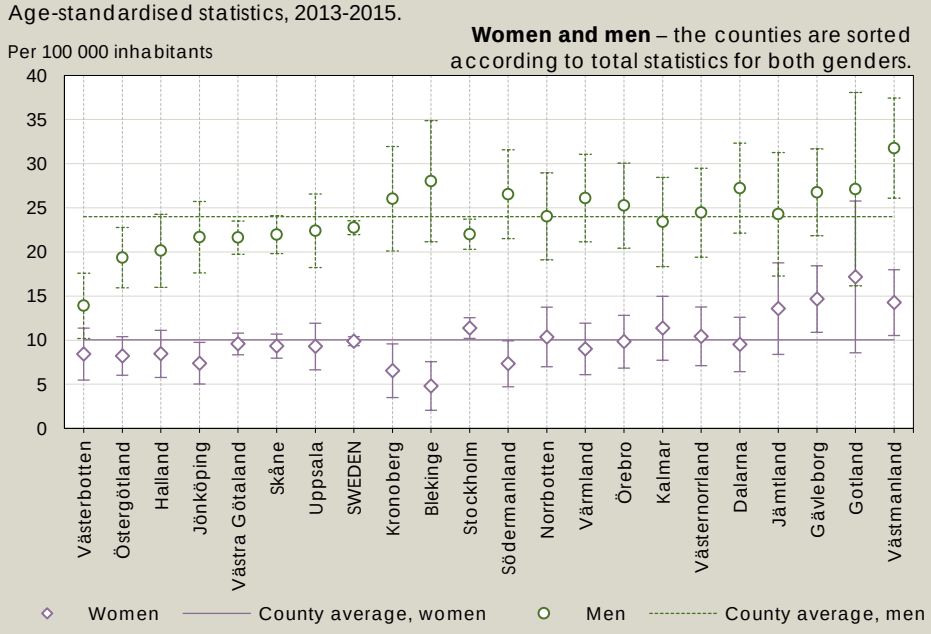



Source: Cause of Death Register, National Board of Health and Welfare.

Blekinge county has the lowest results among women. The county has a figure of just under 5 suicides per 100 000 women. Västerbotten has the lowest figure for men, with just under 14 suicides per 100 000 men. Västerbotten is also the county with the lowest total county result.

**8.3. County. Suicide among the general population**

Number of suicides and deaths with undetermined intent per 100 000 inhabitants. Age-standardised statistics, 2013-2015.




Source: Cause of Death Register, National Board of Health and Welfare.

The deficiencies that can be linked to suicide in the general population and that have been identified within healthcare include insufficient systematic suicide risk assessment, incomplete documentation and a failure of the care providers to comply with their own regional care programmes [30].

Underlying reasons for suicide are depression and anxiety, and for healthcare to be able to assess the risk of suicide in people with depression and anxiety a suicide risk assessment should be carried out, which among other things means that it should be documented whether or not the patient has suicidal thoughts and how often these thoughts occur.

Psychological treatment, psychosocial support, pharmaceutical treatment and other methods of intervention, such as electroconvulsive therapy (ECT treatment) and physical activity are recommended in the National Guidelines for the Care of Depression and Anxiety Syndromes issued by NBHW [30].

Care units can also disseminate knowledge about the voluntary organisations that work preventively, such as the Swedish national organisation for suicide prevention and support of relatives *(Riksförbundet för suicidprevention och efterlevandes stöd),* which operates a 24 h telephone helpline.

Nationally NBHW and The Public Health Agency of Sweden have developed a proposal for a national suicide prevention programme that consists of nine strategies that have the goal of reducing the number of suicides [31].

## Related measurements and statistics

There are a number of different indicators that can be related to the indicator *Suicide among the general population*. In the NBHW National Guidelines for the Care of Depression and Anxiety Syndromes there are 18 indicators in

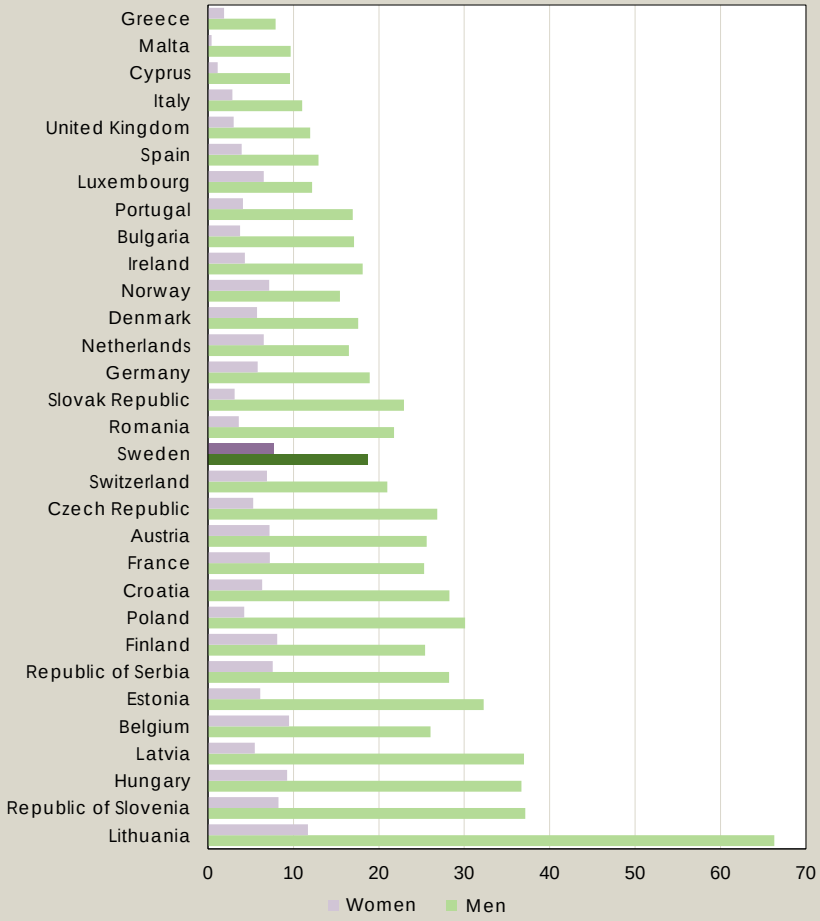
total. These guidelines are currently being revised and a consultation review version has been published.

## Differences in suicide numbers in Europe, Sweden is in the middle

Unlike the primary indicator, deaths with undetermined intent are not included in the statistics from Eurostat. Suicide among the general population is most common in Lithuania, both among women and men. Suicide is least common among men in Greece and among women in Malta. In Sweden 18.6 men per 100 000 inhabitants commit suicide and among women the figure is 7.7 per 100 000 inhabitants, which can be seen in Figure A.5. Some of the differences can probably be explained by how accurate the different countries are in establishing the cause of death to be suicide.

**A.5. Countries. Suicide among the general population (with undetermined intent not included)**

Number of suicides in the population per 100 000 inhabitants in 2013. Countries reporting data to Eurostat for the year 2013. Age-standardised statistics according to the European standard population data. Results are ranked according to total amount.




Source: Eurostat.

# “What is the quality of the healthcare we receive?”

Patient safety, individually adapted, knowledge-based and accessible healthcare are aspects of good quality. The majority of the indicators reported in this area are outcome measurements at a general level in relation to the more operative performance and process-related measurements that have contributed to the outcome. Quality in the system comprises the structures, processes and performance within healthcare that contributes to the quality of the overall results in the form of outcomes and achievement of objectives. The outcome indicators can be viewed as a combined measurement of all factors that have contributed to the outcome. The outcomes are influenced both by the quality in the system and by background factors that are difficult to control within healthcare. The outcomes also vary due to random factors.

## 9. Avoidable hospitalisation due to heart failure, diabetes, asthma or COPD

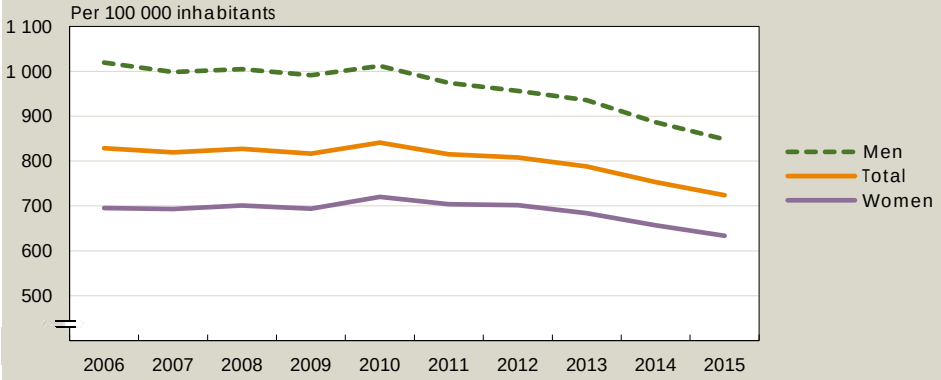
The degree of hospitalisation can be reduced if patients with certain disease conditions or diagnoses receive optimal care and support from outpatient care and home healthcare services. The chronic disease conditions that are included in this indicator can be treated effectively by primary healthcare or by specialised outpatient care. By preventive efforts, continuous follow-up of treatment, rehabilitation etc., it is possible to avoid a good deal, although not all, hospitalisations. For example, comorbidity conditions among the elderly can mean that hospitalisation is necessary and more difficult to prevent.

Primary care in this context does not solely refer to the parts the county councils are responsible for. For example, NBHW has noted that the municipalities can improve diabetes care by improving the level of education among its staff and by carrying out continuous risk assessments for individuals in the care of social services and municipal healthcare services.

This indicator shows the number of hospitalisation periods per 100 000 inhabitants, aged 20 years or older, with heart failure, diabetes, asthma or COPD. The numbers are age-standardised. The number of hospitalisation periods in 2015 was in total 724 per 100 000 inhabitants over the entire country, and the actual number of hospitalisation periods in 2015 was just over 55 000. In general, men are hospitalized to a greater degree than women for the diagnoses included in this measurement. Hospitalisation has however reduced for all of these diseases longitudinally, although not to such a large degree for heart failure as for the other diagnoses.

**9.1. Avoidable hospitalisation due to heart failure, diabetes, asthma or COPD**

Number of hospitalisation periods for diagnoses of heart failure, diabetes, asthma or COPD per 100 000 inhabitants aged 20 years or over. Age-standardised.



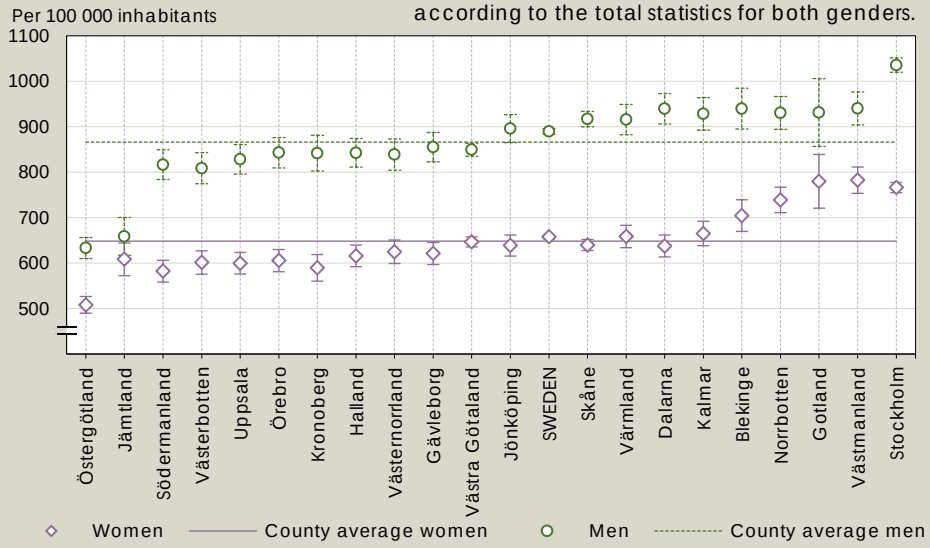

Source: National Patient Register, National Board of Health and Welfare

The variation between the counties is large for the measured period 2013–2015. For men the statistics vary from between 633 up to 1 036 hospitalisation periods per 100 000 men. For women the statistics vary from between just over 508 up to 782. The counties of Östergötland and Jämtland stand out for their low numbers, particularly for men, who in these counties are on a level equivalent to the county average statistics for women.

**9.2. County. Avoidable hospitalisation due to heart failure, diabetes, asthma or COPD**

Number of hospitalisation periods for diagnoses of heart failure, diabetes, asthma or COPD per 100 000 inhabitants aged 20 years or over. Age-standardised statistics, 2013-2015.

**Women and men** - counties are sorted according to the total statistics for both genders.




Source: National Patient Register, National Board of Health and Welfare

## Related measurements and statistics

In previous regional healthcare comparisons the indicator *Avoidable hospitalisation* has been reported. This has now been supplemented with several different measurements for this. The measurements included in this

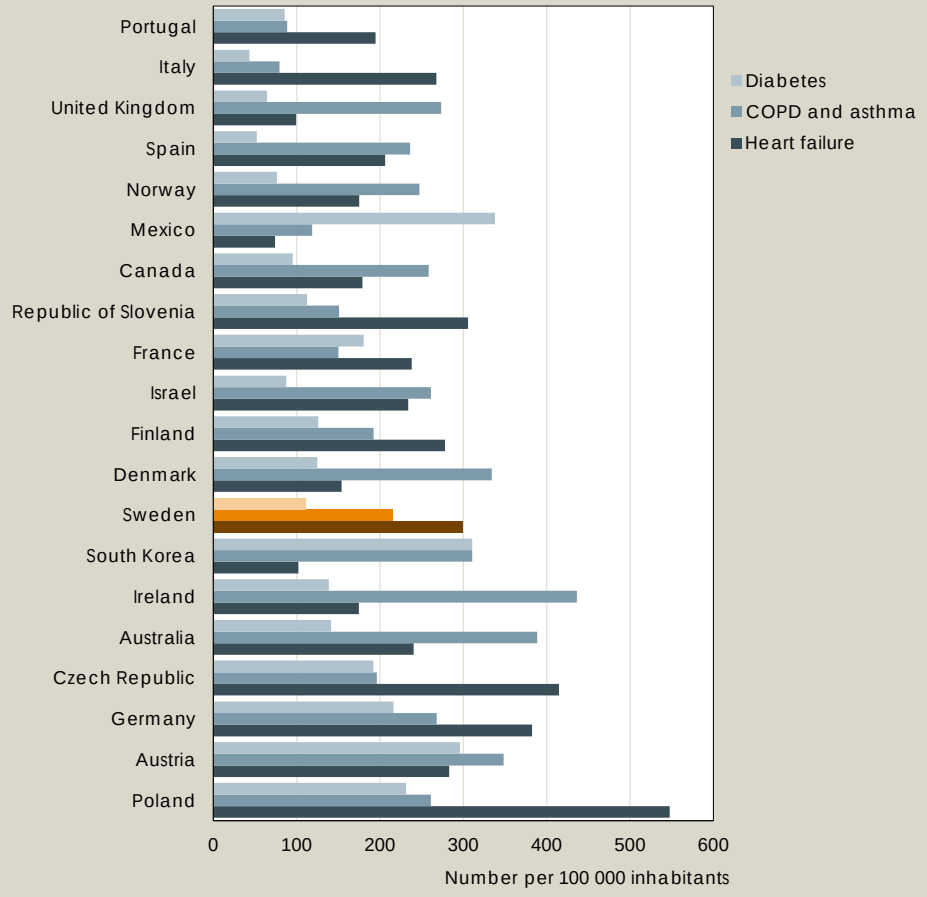
comparison are also stratified according to the individual diseases included. An indicator adapted for the elderly has also been developed and included in this report.

## Sweden shows good results in diabetes care, not as good in regards to heart failure

From an international perspective Sweden is one of the better OECD countries when it comes to the level of hospitalisation for diabetes, but is among the poorer performing countries when it comes to heart failure. Asthma and COPD are often reported together, and there Sweden has an average level ranking. The major differences between the countries, in addition to the differences in healthcare efforts, can be due to the prevalence of the disease or the overall accessibility to healthcare [32].

**A.6. Countries. Avoidable hospitalisation due to diabetes, COPD and asthma or heart failure**

Number of hospitalisation periods for diagnoses of diabetes, COPD and asthma or heart failure per 100 000 inhabitants aged 15 years or over, 2013. Age and gender-standardised statistics according to OECD standard population data. OECD countries with statistics reported for 2013, sorted according to the sum total of the three values.




Source: Health Statistics, OECD.

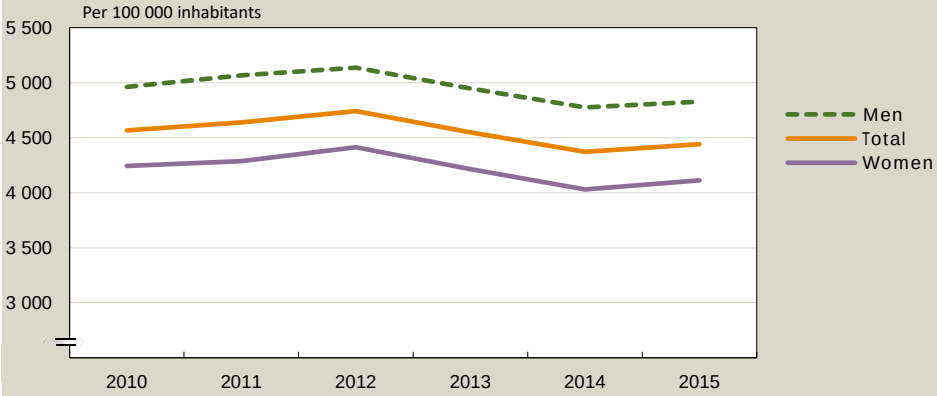
# 10. Avoidable hospitalisation among the elderly

The most ill elderly are defined as people aged 65 years or over with great need of healthcare or social services. Two-thirds of the most ill elderly belong to the group with comprehensive healthcare needs and one-third belong to the group with comprehensive welfare needs [33]. There are opportunities to impact the outcomes for both county councils and municipalities.

The number of patients requiring hospitalisation for diagnoses that are included in the indicator can be reduced if outpatient care and municipal healthcare function optimally. Healthcare, including municipal care, can work together with social services to prevent and reduce the number of patients requiring hospitalisation through preventive measures, adequate medical treatment and monitoring of care and preventive measures. Nationwide the figures decreased for both women and men in 2013 and 2014, but this reduction has not continued during 2015. There is a distinct difference between the sexes and for 2015 the result for men were 4 828 compared to 4 114 for women.

**10.1. Avoidable hospitalisation among the elderly**

Number of cases of avoidable hospitalisation per 100 000 inhabitants, aged 65 years or over.

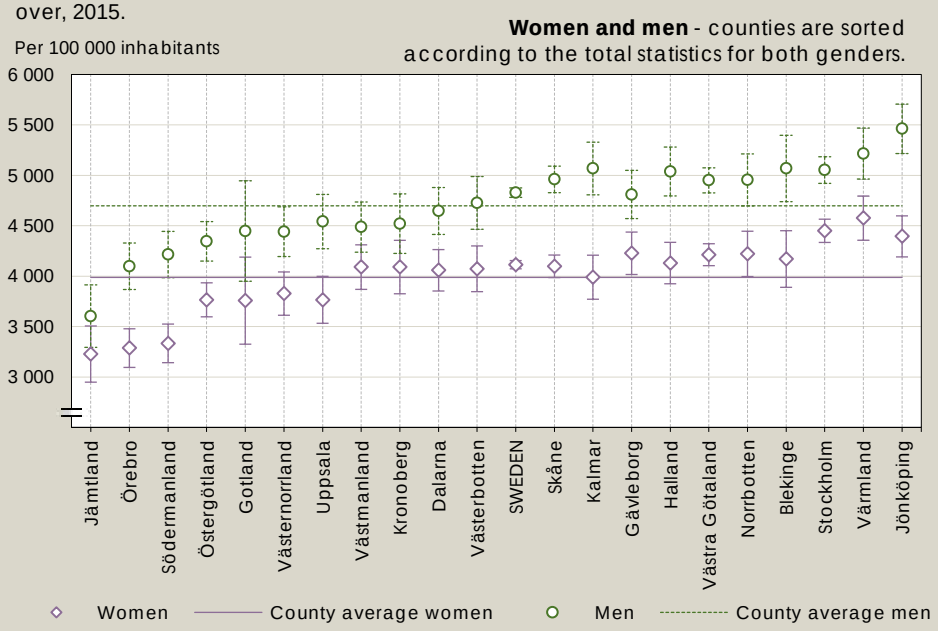



Source: National Patient Register, National Board of Health and Welfare

Figure 10.2 shows that there is great variation between the counties with regard to the number of avoidable hospitalisation cases per 100 000 inhabitants aged 65 years or over. The extent of the variation between counties was also greater than the variation between the sexes. For each respective county the pattern was consistent, with women demonstrating a lower value than men. However, in the county with the highest statistics women were also above the numbers for men in the county with the lowest statistics.

**10.2. County. Avoidable hospitalisation among the elderly**

Number of cases of avoidable hospitalisation per 100 000 inhabitants, aged 65 years or over, 2015.




Source: National Patient Register, National Board of Health and Welfare

## Related measurements and statistics

Hip and femur fractures are more common among the elderly and are therefore an important indicator of municipal preventive efforts. The indicator *Femur and hip fractures in the most ill elderly* is presented in the report series Regional Comparisons – *Healthcare and Welfare for the Elderly*.

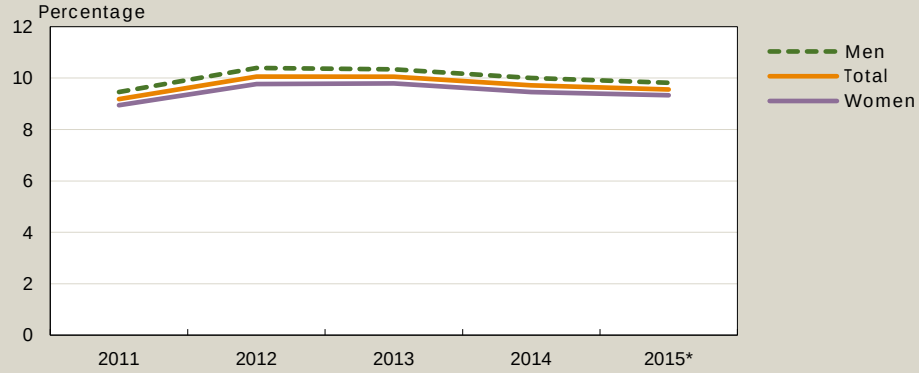
# 11. Unplanned readmissions within 30 days among the elderly

For the group aged 65 years or over the most common causes of unplanned readmission were heart failure and pneumonia. The diagnoses at the first admission are selected to capture the most common diagnoses among the elderly. The diagnoses on readmission are selected as being diagnoses that should have been preventable on first admission or through primary care or social services intervention [34].

The indicator shows that 9.6 per cent of patients had an unplanned readmission within 30 days in 2015, as can be seen in Figure 11.1. The results are around the same as those of the proceeding four years. The proportion of male readmissions in 2015 was 9.8 per cent, compared to around 9.3 per cent for women. Although the difference between the sexes is less than one per cent, the difference is apparent and consistent over the entire measurement period.

**11.1. Unplanned readmissions within 30 days among the elderly**

Number of patients aged 65 years and over with selected disease conditions who were readmitted within 30 days.



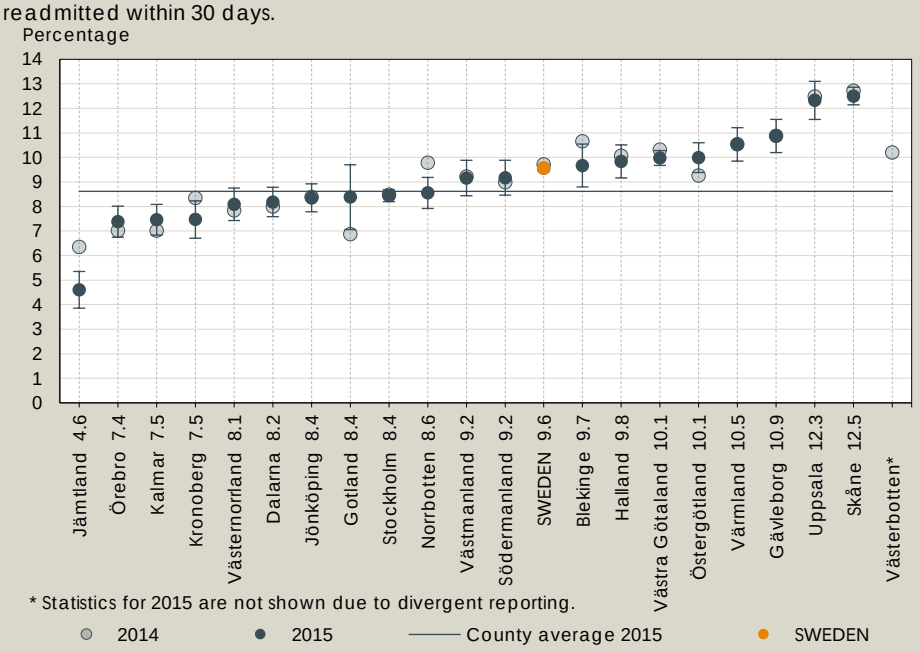

* Excluding Västerbotten.

Source: National Patient Register, National Board of Health and Welfare

The variations between counties in 2015 ranged from 4.6 per cent up to 12.5 per cent. For the majority of counties the results were stable in relation to the 2014 data. The proportion of men readmitted within 30 days was greater in 15 of the 20 counties reporting results for 2015.

**11.2. County. Unplanned readmissions within 30 days among the elderly**

Number of patients aged 65 years and over with selected disease conditions who were readmitted within 30 days.




* Statistics for 2015 are not shown due to divergent reporting.

Source: National Patient Register, National Board of Health and Welfare.

The indicator highlights premature discharge from hospital, or discharge from hospital with insufficient follow-up or subsequent insufficiently coordinated outpatient care. In addition, the indicator can be affected by the available primary care and social services resources. Availability of

competence, for example concerning dementia, within the social services and primary care can also influence this indicator. One source of error can also be variation in the registration of hospitalisations as planned or unplanned care.

### Related measurements and statistics

There are a wide range of different variants of indicators when it comes to readmissions. For example there are variants that are intended to highlight different groups, such as readmissions within 28 days for bipolar disorder.

## 12. Blood glucose levels, type 2 diabetes (higher than 70 mmol/mol)

HbA1c levels reflect long-term blood glucose regulation and have a strong correlation with the risk of developing diabetes complications. HbA1c is an important quality indicator and the primary measurement of the success of blood glucose lowering treatment. Good regulation of blood glucose levels is essential in reducing the risk of complications for people with type 1 and type 2 diabetes. This indicator reveals the high risk group of persons with a HbA1c level higher than 70 mmol/mol. This group should receive, and be encouraged to make, extra efforts to reduce HbA1c levels, which in turn can result in significant improvements in prognosis and contribute to better health and a higher quality of life. The degree of coverage for this variable is high in the National Diabetes Register (NDR), with small differences between the counties [35].

**National target levels**

For the indicator of HbA1c higher than 70 mmol/mol in people with type 2 diabetes NBHW has set the target level at < 10 per cent.

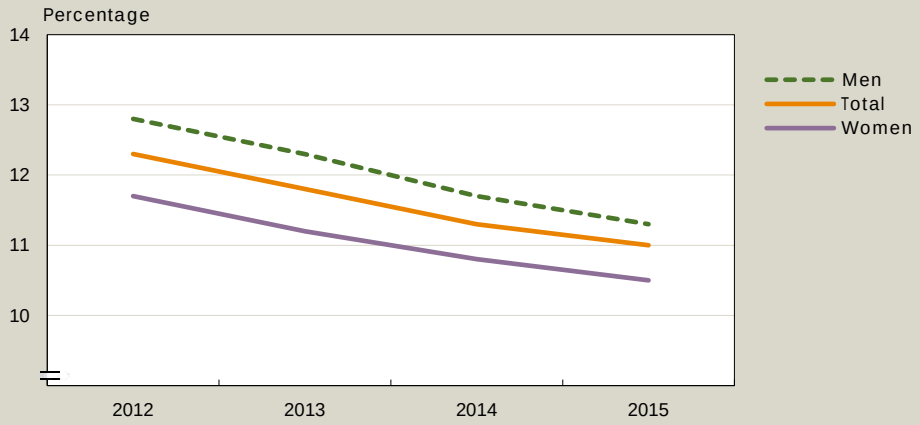
(For the indicator HbA1c higher than 70 mmol/mol in people with type 1 diabetes NBHW has set the target level at < 20 per cent.)

People with type 2 diabetes are included in this indicator. The corresponding statistics for people with type 1 diabetes are also published continuously, for example on the NDR website. The NBHW national target levels are set for the respective type of diabetes and therefore the data is not combined in this report, where the indicator for type 2 diabetes have been selected as it encompasses more patients and a greater proportion of healthcare [35].

The national NBHW target level for the indicator reflecting type 2 diabetes is 10 per cent or lower. For 2015 the national statistic was 11.0 per cent. The results for men have constantly been around 1 percentage point higher than that for women. The values have decreased continuously for both genders since 2012, when the total result was 12.3.

**12.1. Blood glucose levels, type 2 diabetes (higher than 70 mmol/mol)**

Proportion of people with type 2 diabetes with HbA1c higher than 70 mmol/mol.

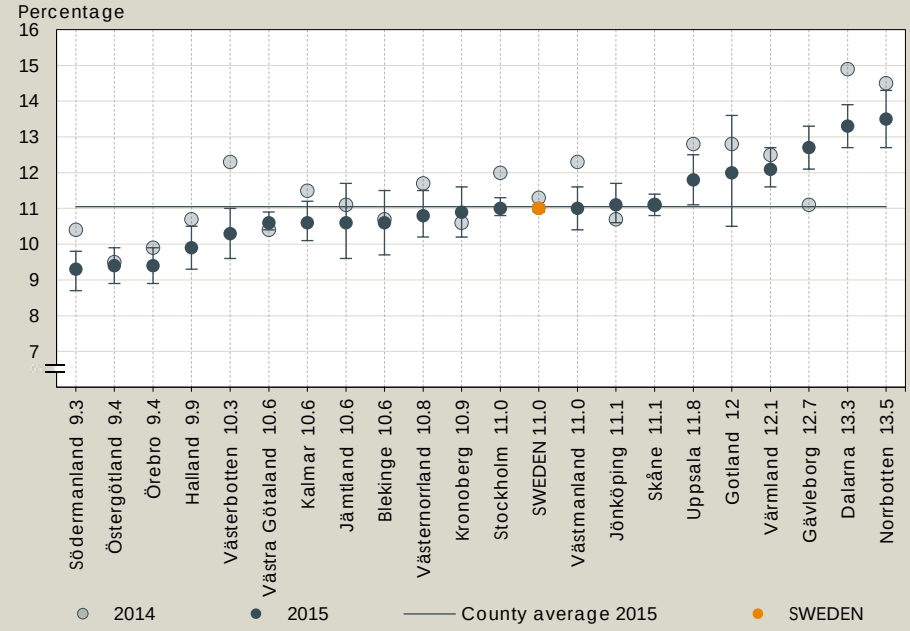



Source: NDR – National Diabetes Register.

The county of Södermanland had the lowest figures for 2015, which together with Östergötland and Örebro achieved values distinctly lower than 10 per cent. The range of variation between the counties was 4.2 per cent.

**12.2. County. Blood glucose levels, type 2 diabetes (higher than 70 mmol/mol)**

Proportion of people with type 2 diabetes with HbA1c higher than 70 mmol/mol.




Source: NDR – National Diabetes Register.

Insufficient regulation of blood glucose levels can lead to complications for the individual. For this reason it is of great importance that healthcare provides support for this patient group. In healthcare there is currently a number of development efforts ongoing to implement various treatment strategies for this target group. NBHW therefore assesses that there are

reasons to review and potentially adjust the target levels relatively quickly. NBHW also assesses that there are reasons for the county councils to carry out in-depth analyses for different patient groups, with a specific focus on people newly presenting with type 2 diabetes [35].

### Related measurements and statistics

As an indicator for an overall perspective we have selected a version of the indicator that reflects type 2 diabetes, as this encompasses a greater proportion of activities and more patients. Diabetes type/care activity is not reported as a single indicator as these have different target levels. The corresponding indicator is reported, for example in the report *Healthcare in Numbers,* for persons with diabetes type 1 attending medical clinics. High blood glucose levels should not be seen as a collective measure of diabetes care, but should instead be viewed as an important example of several factors and measurements that need to be monitored in the care of people with diabetes. In the *Healthcare in Numbers* report and on the NDR website indicators are also reported for blood pressure and blood lipids.

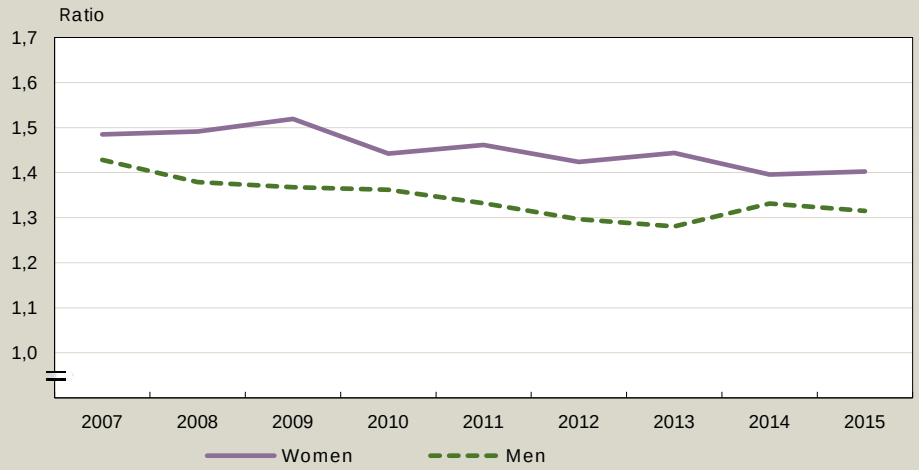
## 13. Excess cardiovascular disease mortality for persons with diabetes

People with diabetes have a higher risk of developing and dying of cardiovascular disease than the rest of the general population, as the major blood vessels in people with diabetes are more susceptible to developing arteriosclerosis with rapid progression. This leads to a doubling in the risk of stroke, myocardial infarction and impaired circulation in the legs. The increased risk of cardiovascular disease is the primary reason that people with diabetes have a higher mortality rate than the rest of the general population, and an important goal for diabetes care is to reduce this risk. The cardiovascular risk profile for people with diabetes includes the regulation of blood lipids, blood pressure and blood glucose, as well as various disease prevention measures such as quitting smoking and trying to achieve a good level of physical activity.

This indicator measures cardiovascular disease mortality among people with diabetes in comparison to the entire general population, and a ratio of 1.0 means that there is no higher mortality for diabetes. The results are age-standardised. Mortality rates have decreased somewhat for both women and men since 2007. Women have higher figures compared to men, with a ratio of 1.4. The corresponding ratio for men is just over 1.3.

**13.1. Excess cardiovascular disease mortality for persons with diabetes**

Mortality from cardiovascular disease among people with diabetes compared to the general population, age-standardised statistics; a ratio of 1.0 means no higher mortality rates for diabetes.

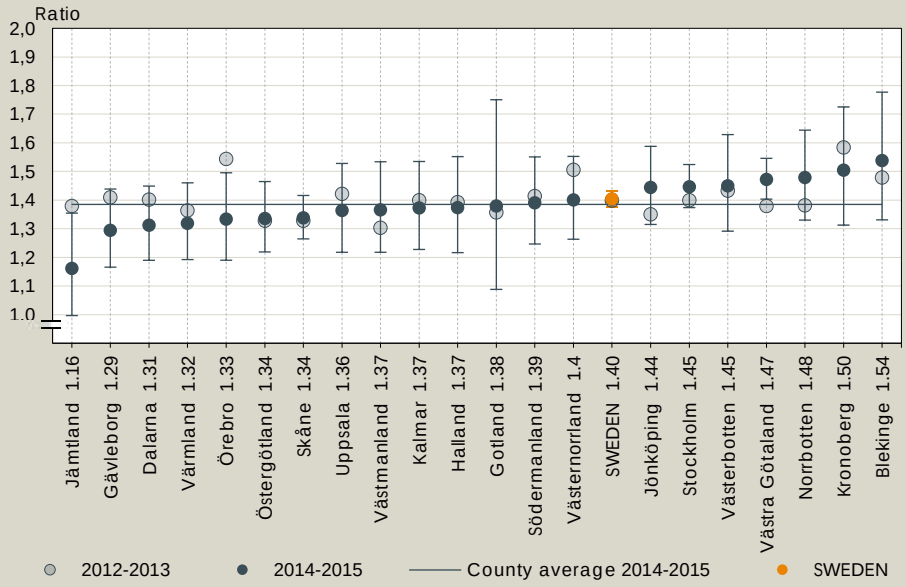



Source: Swedish Cause of Death Register and Swedish Prescribed Drug Register, National Board of Health and Welfare.

The ratios vary between the counties from 1.16 to 1.54 for the period 2014–2015, however, the confidence intervals shows that the comparison is not a distinct signal of difference in quality of care between the counties.

**13.2. County. Excess cardiovascular disease mortality for persons with diabetes**

Mortality for cardiovascular disease among people with diabetes compared to the general population; age-standardised statistics. A ratio of 1.0 means that there is no higher mortality rate for diabetes.




Source: Swedish Cause of Death Register and Swedish Prescribed Drug Register, National Board of Health and Welfare.

Healthcare needs to localise people with diabetes and then assess their risks of developing or prematurely dying of cardiovascular disease, where

different risk factors are considered collectively and provide an understanding of the probability of a person with diabetes developing or dying of myocardial infarction or stroke. In addition the activities within healthcare can offer programs to affect lifestyle habits with regard to smoking, physical activity and diet [35].

## Related measurements and statistics

As a complement to increased mortality the actual deaths from cardiovascular disease for diabetes also exists as a separate indicator: *Cardiovascular disease mortality for diabetes*. In Table 1 it can be seen, for example, that Halland has the lowest age-standardised cardiovascular disease mortality for people with diabetes, despite the primary indicator for Halland being at the same level as the average for the counties. The reason is that the total general population in Halland has a low age-standardised cardiovascular disease mortality, which results in *excess mortality* among people with diabetes in Halland being equivalent to the level for the other counties.

**Table 1. Cardiovascular disease mortality for diabetes**

**Number of deaths from cardiovascular disease per 100 000 people receiving medication for diabetes, 2014–2015. Age-standardised statistics.**

| | Value | | | *Margin of error 95%* | | |
|---|---|---|---|---|---|---|
| | Women | Men | Total | *Women* | *Men* | *Total* |
| Halland | 349 | 423 | **394** | *67* | *74* | ***51*** |
| Jämtland | 337 | 485 | **423** | *76* | *96* | ***64*** |
| Stockholm | 361 | 477 | **427** | *28* | *36* | ***23*** |
| Skåne | 367 | 478 | **429** | *31* | *35* | ***24*** |
| Uppsala | 397 | 474 | **437** | *66* | *75* | ***49*** |
| Östergötland | 366 | 492 | **439** | *48* | *59* | ***39*** |
| Västmanland | 400 | 465 | **440** | *65* | *72* | ***49*** |
| Örebro | 383 | 531 | **460** | *77* | *82* | ***55*** |
| **SWEDEN** | **390** | **523** | **463** | ***13*** | ***15*** | ***10*** |
| Värmland | 396 | 526 | **468** | *88* | *67* | ***56*** |
| Västerbotten | 389 | 551 | **473** | *82* | *79* | ***57*** |
| Gotland | 435 | 517 | **473** | *165* | *155* | ***109*** |
| Gävleborg | 428 | 508 | **474** | *68* | *76* | ***51*** |
| Södermanland | 393 | 558 | **479** | *66* | *80* | ***52*** |
| Dalarna | 445 | 522 | **485** | *67* | *67* | ***46*** |
| Kalmar | 384 | 574 | **489** | *61* | *87* | ***56*** |
| Västra Götaland | 389 | 575 | **493** | *36* | *40* | ***27*** |
| Kronoberg | 370 | 605 | **494** | *73* | *130* | ***76*** |
| Blekinge | 361 | 604 | **498** | *83* | *112* | ***72*** |
| Jönköping | 484 | 512 | **501** | *81* | *64* | ***52*** |
| Västernorrland | 480 | 580 | **534** | *81* | *87* | ***60*** |
| Norrbotten | 414 | 648 | **545** | *73* | *104* | ***69*** |

Source: Swedish Cause of Death Register and Swedish Prescribed Drug Register, National Board of Health and Welfare.

In this report and at the NBHW website several indicators are presented that have a bearing on the care of people with diabetes. In addition there are several indicators that are linked to the National Guidelines for Diabetes Care. Examples of these are *Amputation above the ankle* and *Statin treatment for diabetes according to the degree of risk of cardiovascular disease*.

In addition, the National Diabetes Register (NDR) also publishes a wealth of data, including county quality profiles for diabetes healthcare.

# 14. Pressure ulcers in hospitalized patients (stages 2–4)

A pressure ulcer (also known as a decubitus ulcer or bedsore) is local damage to the dermis layer or underlying tissue – normally the skin covering a bony area. Pressure ulcers are caused by pressure, or pressure in combination with shear forces, or in other words a displacement of the dermal layer in relation to the underlying tissue. Pressure ulcers result from the weight of the body pressing against a supporting surface, and parts of the body where the underlying bone is close to the skin, for example the heels and coccyx, are particularly vulnerable.

Pressures ulcers are normally caused by a person lying or sitting in the same position for an extended period. Around half of the pressure ulcers found are minor and present as irritated skin, with the most common pressure ulcers being found at the base of the spine and the heels. Only a small proportion of pressure ulcers comprise damage to the entire dermal layer with a cavity wound or tissue necrosis.

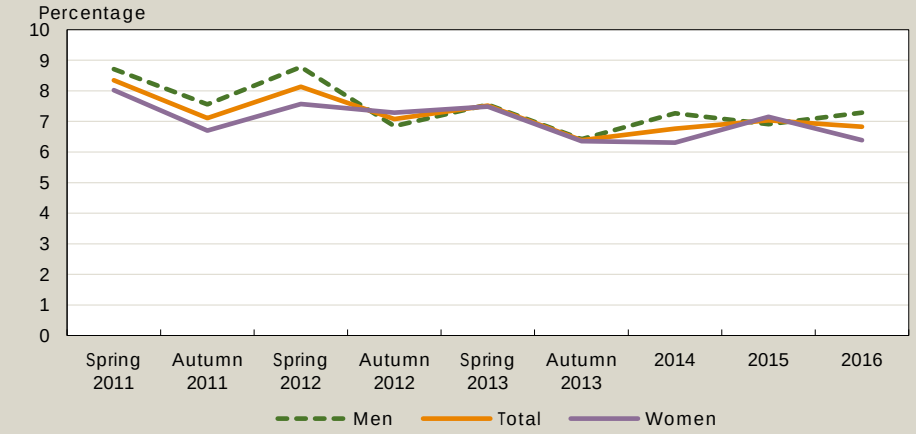
National measurements of the point prevalence of pressure ulcers have been carried out once or twice each year since 2011, both within municipal and county healthcare. On these measurement occasions the prevalence of pressure ulcers and preventive measures have been recorded, and at the same time a risk assessment for the patients found to have pressure ulcers has been carried out.

This indicator shows the number of hospitalized patients with at least one pressure ulcer at the time of the point measurement at the hospital. This however only provides a transitory picture and repeated measurement occasions are therefore needed to provide a more accurate interpretation of the situation at each participating clinic and hospital. Figure 14.1 shows the proportion of patients with stage 2–4 pressure ulcers for the period 2011 to 2016.

The proportion of patients with stage 2–4 pressure ulcers in 2016 was almost 7 per cent, and these were somewhat more common in men than in women. The proportion of hospitalized patients with stage 2–4 pressure ulcers was somewhat lower at the time of the measurements in 2016 compared to the measurements in 2011 and 2012.

**14.1. Pressure ulcers in hospitalised patients (stages 2–4)**

Proportion of hospitalised patients with at least one pressure ulcer, stage 2–4.

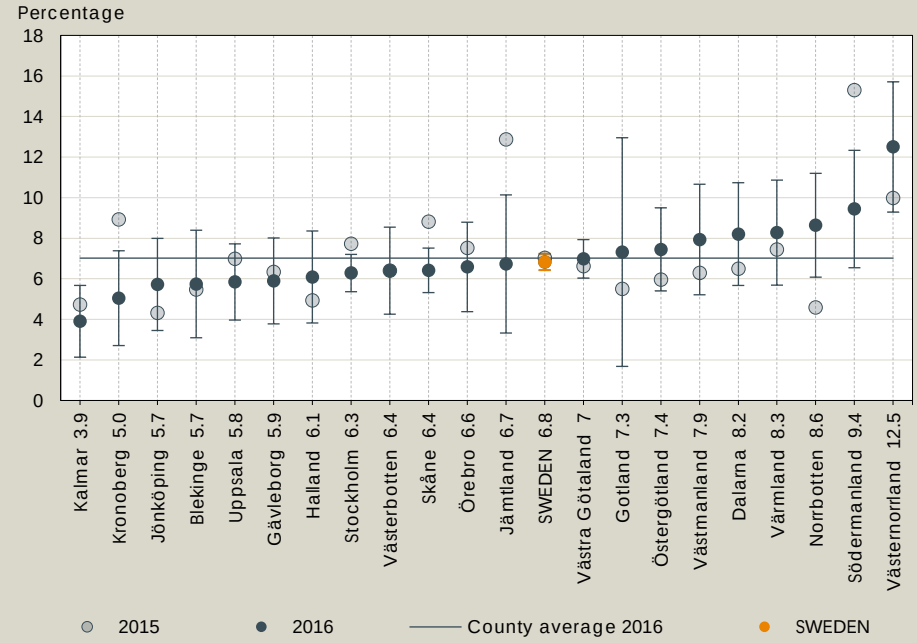



Source: Swedish Association of Local Authorities and Regions.

Figure 14.2 shows the results per region, and it can be seen that there is a large variation in the county data for the most recent point measurement of prevalence. However, the potential for temporary variations is large, which makes it difficult to view the results as clear indications of variations in the quality in different counties. Kalmar, which had the lowest value for 2016, also had relatively low values for 2015.

**14.2. County. Pressure ulcers in hospitalised patients (stages 2–4)**

Proportion of hospitalised patients with at least one pressure ulcer, stage 2–4.




Source: Swedish Association of Local Authorities and Regions.

Pressure ulcers mean unnecessary discomfort for the patient and unnecessary costs for healthcare. The majority of pressure ulcers can also be avoided by

preventive measures. Among other things the units should carry out risk assessments for persons aged 70 years and over using an adequate risk assessment tool, document the measures implemented and follow-up and evaluate these intervention measures [36].

### Related measurements and statistics

In the report series *Regional Comparisons – Healthcare and Welfare for the Elderly* the process indicators are reported for the prevention of the risk of pressure ulcers, particularly in normal residential care situations. Examples of such indicators are: *Use of a pressure reducing support, Risk prevention measures in standard residential care and Risk prevention measures in specialised residential care.* Several related process indicators are reported in *Regional Comparisons – Safe Health Care.* The Swedish Register of Palliative Care reports data for pressure ulcers within palliative care.

## Pressure ulcers in Swedish and American hospitals

A number of comparisons have been made between Sweden and other countries with regard to the prevalence of pressure ulcers. For example a study from 2012 demonstrates in part the differences in the prevalence of pressure ulcers and in part the proportion of patients assessed for risk of developing pressure ulcers in hospitals in Sweden and in the USA. In the study one university hospital and a general hospital in Sweden were compared with 207 American hospitals. This investigation revealed that the prevalence of pressure ulcers (stages 1–4) was 17.6 per cent at the Swedish university hospital and 9.5 per cent at the general hospital. For the American hospitals the proportions varied between 6.3 to 6.7 per cent. At the American hospitals a risk assessment was carried out for patients in every instance, while the number of patients who were risk assessed at the Swedish hospitals varied between 6 and 60 per cent, which is likely to have affected the outcome [37].

# 15. Healthcare-associated infections

A healthcare-associated infection (HCAI) is defined as an ”infection that develops in a hospitalized person or as a result of an intervention in the form of diagnostics, treatment or care within other healthcare and welfare services, or that personnel working within healthcare and welfare develop as a result of their occupational duties” [38]. Urinary tract infections, pneumonia and various skin and wound infections are the most common healthcare-associated infections.

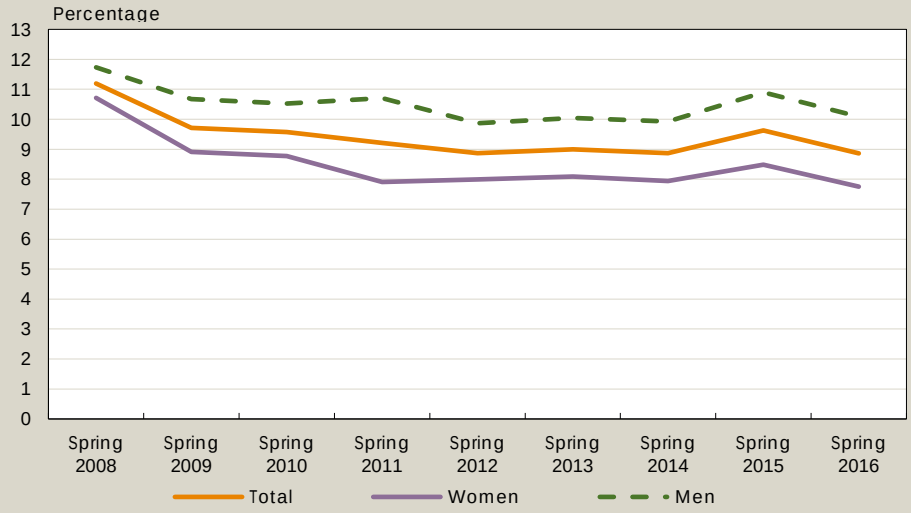
All of the hospitals in the public care sector, as well as a number of privately run hospitals that have agreements with county and regional healthcare, participate in the collection of data for HCAI. Data collection is carried out for one day within each hospital and all of the hospitals in Sweden collect data over a two week period. Data collection is carried out according to a standardised instruction and protocol. All patients admitted for

somatic hospitalisation at a given time point on the day of data collection are included in the report. This indicator demonstrates the proportion of all hospitalized patients affected by HCAI within somatic inpatient care at the time point of the data collection.

Nationwide almost 9 per cent of hospitalized patients had HCAI at the time of data collection in the spring of 2016. Among men 10.1 per cent had HCAI and among women the result was 7.7 per cent. All measurement periods showed a higher prevalence among men than among women. Compared to the data collected in the spring of 2008 the proportions in 2016 were lower, but the differences between men and women were greater.

**15.1. Healthcare-associated infections**

Proportion of patients with at least one healthcare-associated infection. Hospitalized patients.

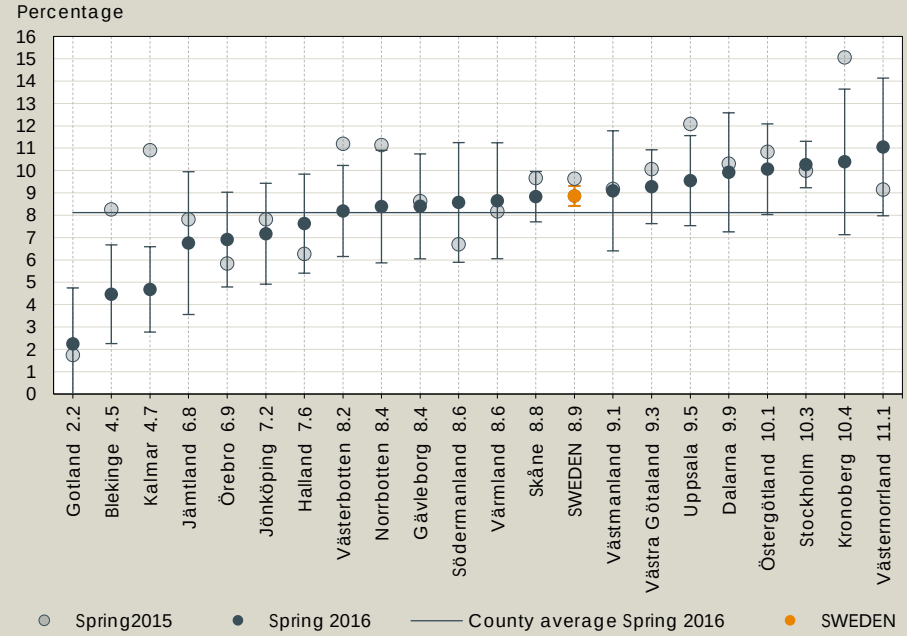



Source: Swedish Association of Local Authorities and Regions.

The results at county level are uncertain, which is reflected by the large confidence intervals. In Gotland 2.2 per cent of patients had HCAI, while more than 11 per cent of patients had HCAI in the county with the highest proportion affected at the most recent data collection time point.

**15.2. County. Healthcare-associated infections**

Proportion of patients with at least one healthcare-associated infection. Hospitalized patients.




Source: Swedish Association of Local Authorities and Regions.

There is evidence that high compliance with basic hygiene procedures and dress code for care staff contributes to reduced risk of spreading of infections.

### Related measurements and statistics

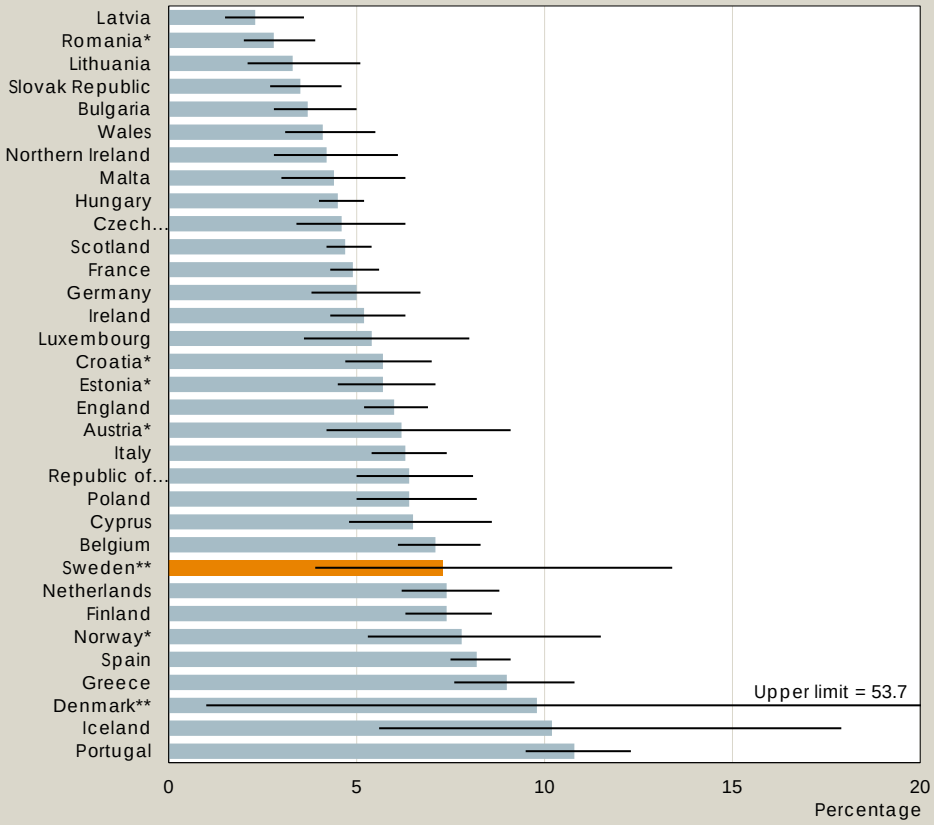
In association with the collection of data for healthcare-associated infections the data for processes and compliance with basic hygiene procedures and dress code is also collected for both municipalities and counties, and the results for the counties are published for example in the report *Healthcare in Numbers*.

## Healthcare-associated infections in Europe

The results from the most recent point measurements of prevalence of healthcare-associated infections that was carried out by the European Centre for Disease Prevention and Control showed that 5.7 per cent of patients at emergency care hospitals were infected with a least one type of healthcare-associated infection [39]. The data for Sweden, which in this data measurement is represented by a small number of hospitals from the collection of data in 2011–2012, was 7.3 per cent. The proportion of patients with at least one healthcare-associated infection varied between 2.3 per cent for Latvia and 10.8 per cent for Portugal (Figure A.7).

**A.7. Countries. Healthcare-associated infections**

Patients with healthcare-associated infections at emergency hospitals, 2011–2012.




* Countries with few (7-14) participating hospitals and therefore low representation.
** Countries with very few (3-4) participating hospitals and therefore very low representation.

Source: European Centre of Disease Prevention and Control (ECDC)

In a point measurement of prevalence in the USA in 2011 it was estimated that around 4 per cent of hospitalized patients had one or more healthcare-associated infection [40].

Healthcare-associated infections are more common in low and middle income countries than they are in high income countries. Healthcare-associated infections following an operation have the highest prevalence in low income countries and urinary tract infections are most common in high income countries [41].

# 16. Perineal tearing during delivery

Tearing of the perineum during vaginal delivery, known as perineal tearing, is classified according to four degrees of severity. First and second degree tears involve the external vulva, vagina and perineal tissue and are often less serious. Third degree perineal tears also include all or part of the anal sphincter muscle, and fourth degree perineal tears involve the rectal mucosa as well.

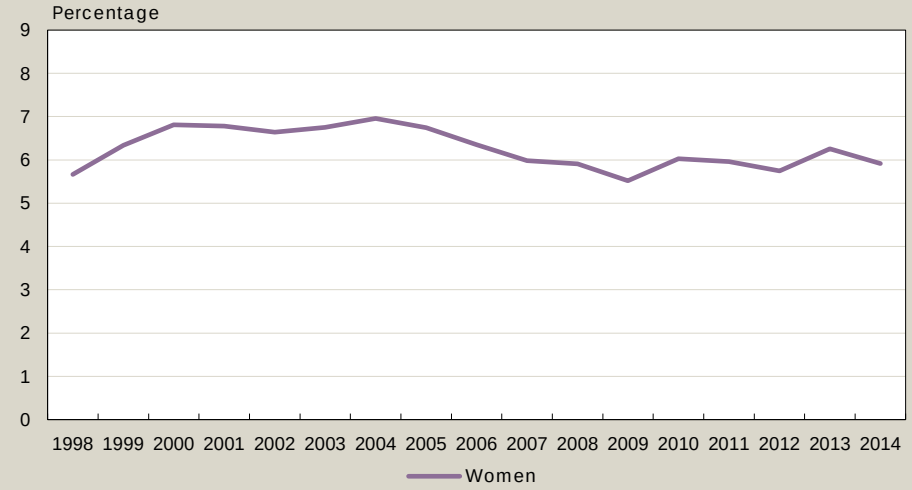
The known risk factors for third and fourth degree perineal tear are that the woman is a primipara, is bearing a large child, has protracted labour or has

an assisted delivery, i.e. with the aid of forceps or a ventouse. The maternal birthing position may also affect the degree of perineal tearing.

This indicator reports the proportion of grade III and grade IV tearing for primiparal vaginal deliveries and the statistics are age-standardised. Nationwide in 2014 grade III and grade IV tearing occurred in 5.9 per cent of primiparal vaginal deliveries.

**16.1. Perineal tearing during delivery**

Proportion of grade III and IV perineal tearing for primiparal vaginal deliveries. Age-standardised statistics.

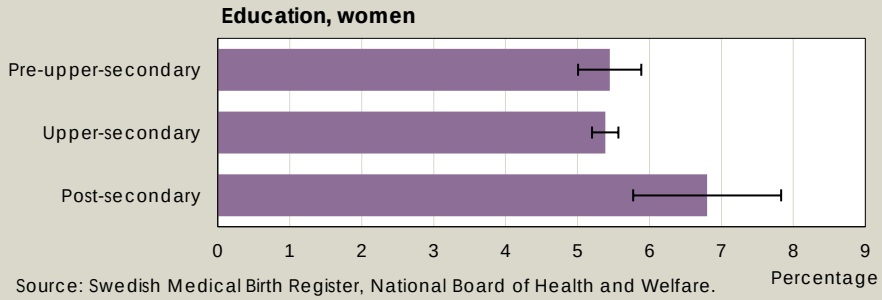



Source: Swedish Medical Birth Register, National Board of Health and Welfare

Primiparal tearing was more common among women with a post-secondary school education for the data collection period 2010–2014. A possible reason for this is that women with a post-secondary school education often give birth to larger babies [42].

**16.2. Education. Perineal tearing during delivery**

Proportion of grade III and IV perineal tearing for primiparal vaginal deliveries. Age-standardised statistics, 2010-2014.

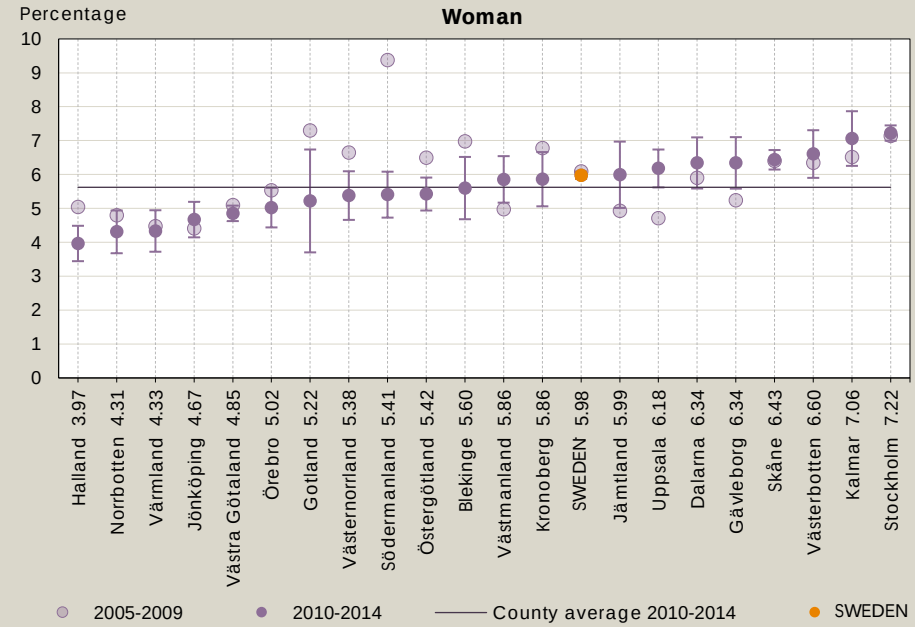



Source: Swedish Medical Birth Register, National Board of Health and Welfare.

The total proportions of grade III and grade IV perineal tearing varied between 4.0 and 7.2 per cent for the different counties in 2010–2014. The variations between the counties and hospitals indicates that the frequency of grade III and grade IV perineal tearing can be influenced and that a significant number of delivery-associated tearing can be avoided.

**16.3. County. Perineal tearing during delivery**

Proportion of grade III and IV perineal tearing for primiparal vaginal deliveries. Age-standardised statistics.




Source: Swedish Medical Birth Register, National Board of Health and Welfare.

# 17. Pharmaceutical treatment of the elderly that should be avoided

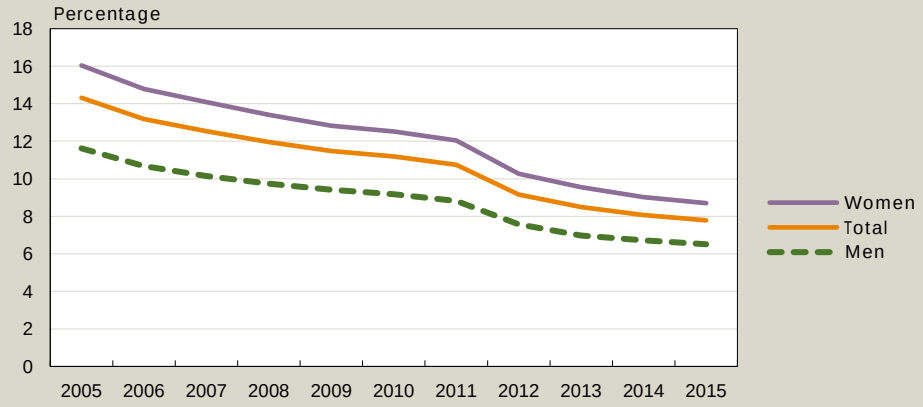
Advanced ageing is associated with several changes in the body that affect how medications are metabolised and function. Therefore the use of certain pharmaceuticals can have a significantly higher risk of adverse effects in the elderly, and these pharmaceuticals should therefore be avoided for this age group, unless there are specific reasons for such treatment. The prescribing physician must have assessed that the anticipated benefits of the medication outweigh the risks. The treatment should be monitored and reassessed at regular intervals. The unsuitable medications that are included in this indicator are:

- benzodiazepines with a long half-life (sedative and soporific)
- medications with significant anticholinergic effects
- tramadol (analgesic)
- propiomazin (soporific).

The proportion of people aged 75 years or over nationwide prescribed unsuitable medication in 2015 was 7.8 per cent. Among women the proportion was 8.7 per cent, which is just over two percentage points more than for men, where 6.5 per cent had been prescribed one or more of these medications.

**17.1. Pharmaceutical treatment of the elderly that should be avoided**

Proportion of the elderly in the general population consuming at least one drug that should be avoided among the elderly. People aged 75 years and over, 31



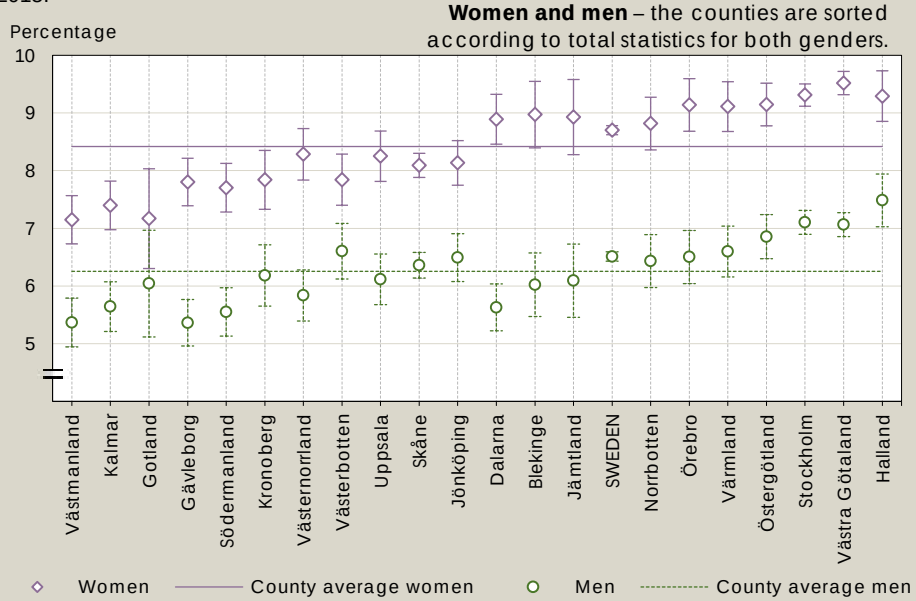

Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

Persons aged 75 years or over in Västmanland had the lowest proportion of pharmaceuticals that should be avoided. This county, together with Gävleborg, also had the lowest results for men. Gotland and Västmanland are the counties where the lowest proportion of women have been prescribed unsuitable medication. The highest proportion of unsuitable medication amongst men aged 75 years or over was in Halland and for women was Västra Götaland.

**17.2. County. Pharmaceutical treatment of the elderly that should be avoided**

Proportion of the elderly in the general population consuming at least one drug that should be avoided among the elderly. People aged 75 years and over, 31 December 2015.

**Women and men** – the counties are sorted according to total statistics for both genders.




Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

According to the NBHW regulations and general advice on the handling of medicines in health and medical services (SOSFS 2000:1) pharmaceutical reviews must be carried out. Pharmaceutical reviews are a way to follow up, analyse and re-evaluate the use of a medication by an individual in a predetermined and systematic manner. Reviews involve the person using the drug, the physician responsible and when necessary pharmacology expertise and nurses and all of the personnel in daily contact with the elderly person. The purpose of a simple pharmaceutical review is to list the medication prescribed to and used by the person, make sure that the list of medications is correct and evaluate whether the treatment is fit for purpose and safe.

NBHW offers online training in pharmaceutical reviews. This training is intended for physicians, nurses and care and welfare personnel.

### Related measurements and statistics

In the report series *Regional Comparisons – Healthcare and Welfare for the Elderly* this indicator is subdivided into people receiving home care and people in specialised residential care.

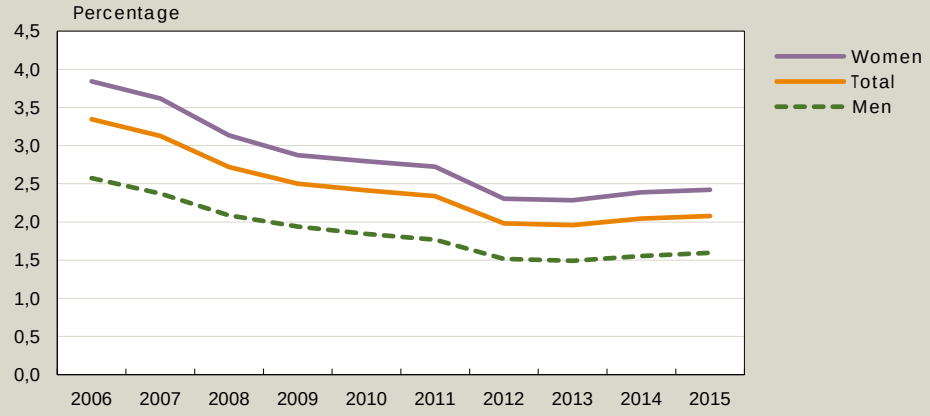
## 18. Antipsychotic drug use among the elderly

For antipsychotic drugs there are indications for prescribing for psychotic symptoms and certain serious behavioural symptoms associated with dementia, for example aggression. In the care of the elderly these drugs are often used however to suppress behavioural symptoms such as restlessness, shouting and wandering, but often with very little or no effect. These medications are strongly associated with adverse effects of various types, for example apathy, cognitive disorders and Parkinson's Disease-like symptoms. They also have negative effects on emotions and social functions, and confer increased risk for stroke and premature death among the elderly with dementia. If treatment is judged to be necessary lower doses should be used and a short treatment duration should be planned with immediate (within two weeks) assessment of the effects and any adverse effects. The treatment should also be reassessed at closely spaced intervals to be able to assess if treatment can be discontinued or dosages reduced.

This indicator shows the use of antipsychotic drugs in persons aged 75 years or over. People with diagnosed psychosis illnesses have not been excluded. Nationwide 2.1 per cent were treated with antipsychotic drugs in 2015. Treatment was more common in women than in men. The proportion among women was 2.4 per cent, while the proportion among men was 1.6 per cent. The numbers have dropped over the period 2006 to 2012, but subsequent to that no continued decrease has been observed.

**18.1. Antipsychotic drug use among the elderly**

Proportion of the elderly in the general population consuming antipsychotics. People aged 75 years and over, 31 December.



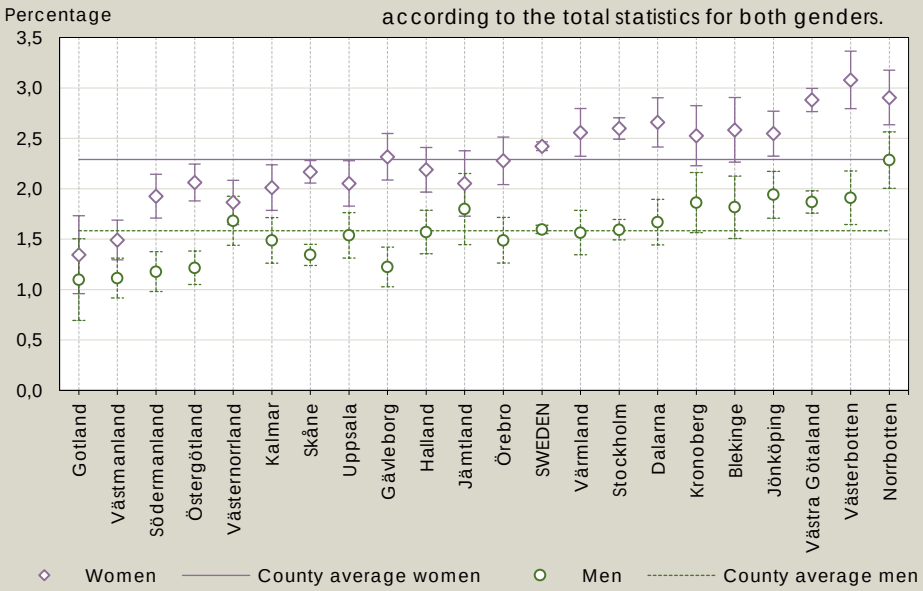

Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

Gotland is the county with the lowest proportion of antipsychotic drug use among people aged 75 years or over, both among women and men. Västerbotten had the highest figures for women, while the highest for men was in Norrbotten.

**18.2. County. Antipsychotic drug use among the elderly**

Proportion of the elderly in the general population consuming antipsychotics. People aged 75 years and over, 31 December, 2015.

**Women and men** - counties are sorted according to the total statistics for both genders.




Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

In exactly the same way as for the indicator *Pharmaceutical treatment of the elderly that should be avoided* it is important that healthcare units carry out pharmaceutical reviews to methodically follow-up and analyse drug use for every individual. It is also important that people suspected of suffering from dementia undergo a dementia assessment.

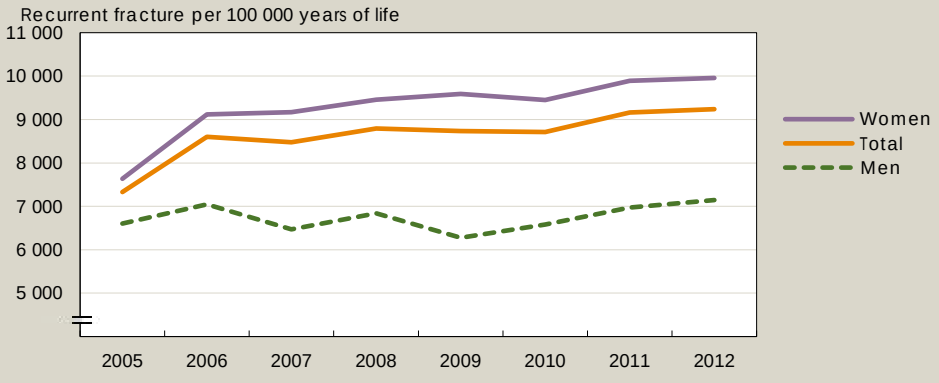
## Related measurements and statistics

In the report series *Regional Comparisons – Healthcare and Welfare for the Elderly* this indicator is subdivided into people receiving home care and people in specialised residential care.

# 19. Number of recurrent fractures within 3 years of an osteoporotic fracture

This indicator shows the number of new fractures within 3 years per 100 000 years of life for people aged 50 years or over who during the data collection period had an initial osteoporotic fracture treated by hospitalisation or by a physician at a specialised outpatient clinic. An initial osteoporotic fracture means that the patient has not had a fracture of any kind since 1998. The comparisons are age-standardised and the data collection period is from the time of the initial fracture, with subsequent follow-up carried out for 3 years. The NBHW target level is that the number of recurrent fractures shall decrease by 20 per cent in the respective county compared to the outcome for 2003–2007. Nationwide this target equates to almost exactly 6 000 recurrent fractures per 100 000 years of life [43]. In a longitudinal comparison, with initial fractures occurring during the period 2005 to 2012, it can instead be seen that there has been an increase in recurrent fractures within three years. For 2005 the age-standardised result were 7 329 and in 2012 this had increased to 9 238 recurrent fractures per 100 000 years of life. Around 70 per cent of those having an osteoporotic fracture who are included in the data are women. Women also have a higher frequency of recurrent fractures than men do. The differences were also greater in 2012 compared to 2005, as the increase has been more apparent among women.

**19.1. Recurrence of fracture after an osteoporotic fracture**
Number of new fractures within 3 years per 100 000 years of life after initial fracture. People aged 50 years and over. Measurement period from time of first fracture. Age-standardised.



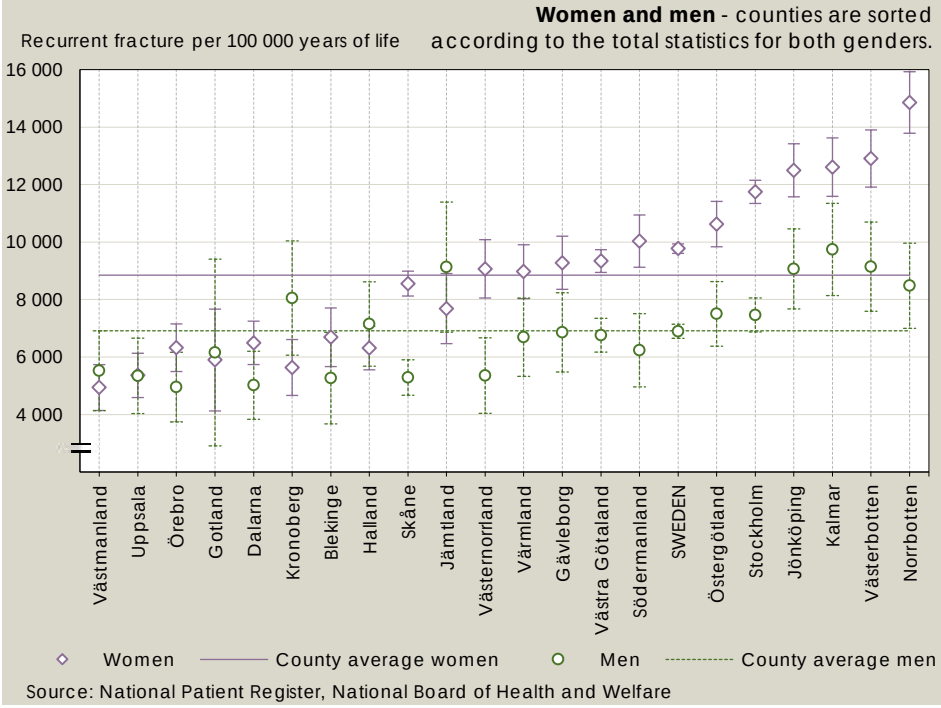

Source: National Patient Register, National Board of Health and Welfare

Among people with an initial fracture in 2010–2012 the number of recurrent fractures per 100 000 years of life varies between the counties, from 5 075–13 301 recurrent fractures per 100 000 years of life. The pattern that the

result for women is higher than for men was generally seen more clearly among the counties that had the highest total values. Among the counties with the best total results the values for women and men were also closer to each other.

**19.2. County. Recurrence of fracture after an osteoporotic fracture**

Number of new fractures within 3 years per 100 000 years of life after initial fracture. People aged 50 years and over. Measurement period from time of first fracture. Age-standardised, 2010-2012.




Source: National Patient Register, National Board of Health and Welfare

The National Board of Health and Welfare's patient register does not include patients with a new fracture that has been treated within the primary care sector. The diagnosis of vertebral fractures is also often inaccurate and many of these patients are treated by primary care services. As patients in primary care are not included in the National Board of Health and Welfare's patient register it is likely that both the number of initial osteoporotic fractures and recurrent fractures is underestimated in the comparisons.

### National target levels

For the indicator *Recurrent fracture within 3 years* the National Board of Health and Welfare has set the target that the number of recurrent fractures should decrease by 20 per cent in the respective regions by the year 2018, in comparison to the period 2003–2007 (nationwide this equates to a value of 6 002 for this indicator).

When a person has suffered a fracture that can be related to osteoporosis it is important to introduce measures that will as far as is possible prevent further fractures. These measures may comprise pharmaceutical treatment to

strengthen the skeleton, as well as different fall prevention measures. In addition, increased physical activity has a positive effect on muscular function, balance and, in certain instances, also bone density. Without these measures the risk increases that the patient may suffer a new fracture.

A structured chain of care for osteoporotic fractures increases the proportion of assessments and treatments and can reduce the number of new fractures by around 40 per cent. In December 2014 NBHW updated its recommendations about systematic risk assessment, review and treatment of osteoporotic fractures to a higher priority level [44].

### Related measurements and statistics

A closely related indicator is *Medication after osteoporotic fracture*. This indicator addresses the proportion of patients aged 50 years or over with initial fracture treated by medication for osteoporosis within 0 to 12 months following an osteoporotic fracture. For 2017 the national target level is set to 30 per cent or higher. In this report the indicator *Fall injuries among the elderly* is also reported, which can also be associated with recurrent fractures.

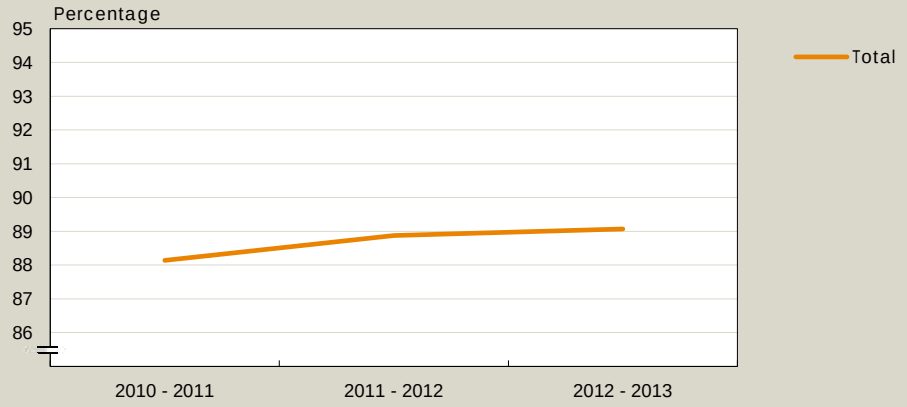
## 20. Patient satisfaction following hip surgery

In the Swedish Hip Arthroplasty Register survey there is a question about patient satisfaction; the question is asked at follow-ups 1, 6 and 10 years after the operation. The question can be considered to be a disease-specific outcome issue, where the patients use a visual analogue scale (VAS) to state how satisfied they are with the results of their surgery.

This indicator shows the proportion of patients who after 1 year following surgery state that they are happy with their hip arthroplasty operation, by stating a value of between 0 and 40 on the VAS scale, where 0 is *Satisfied* and 100 is *Dissatisfied*. Values of between 41 and 100 are interpreted as the patient being uncertain about whether they are satisfied with the results or that the patient is not satisfied with the results. The comparisons are based on 24 425 patients who underwent surgery in 2012 and 2013 and were followed up in 2013 and 2014, respectively. Based on the definitions of satisfaction, 89 per cent of all patients nationwide stated that they were satisfied with the results, with a variation between the different county councils of barely 78 up to 93 per cent. This indicator shows a patient-reported result with improvement potential when it comes to the care process, primarily outside of the operating theatre, for this large patient group.

## 20.1. Patient satisfaction following hip surgery

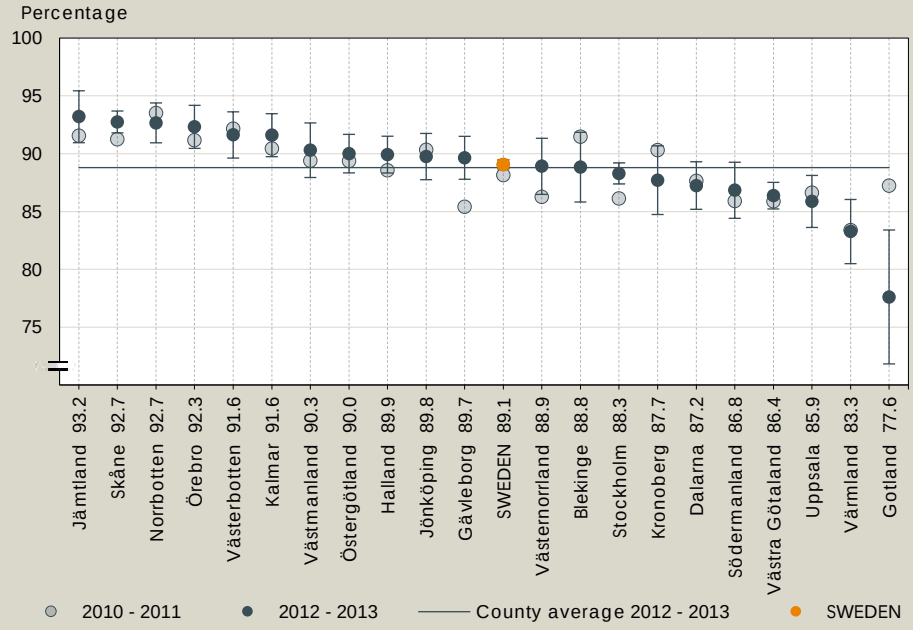
Proportion of patients who report that they are satisfied 1 year after hip arthroplasty. Measurement period is year of surgery.




Source: Swedish Hip Arthroplasty Register.

## 20.2. County. Patient satisfaction following hip surgery

Proportion of patients who report that they are satisfied 1 year after hip arthroplasty. Measurement period is year of surgery.




Source: Swedish Hip Arthroplasty Register.

The reasons that a complication-free patient is not satisfied one year after surgery are likely to be multi-factorial, where several different factors interact, for example doubtful indication for surgery, other diseases (comorbidity), socioeconomic background variables, country of birth and associated language difficulties, lack of information about the expected results and duration of rehabilitation time, as well as unrealistically high expectations about the end results [45].

### Related measurements and statistics

Related indicators are for example *Femur and hip fractures*, which are presented at municipal level in the report series *Regional Comparisons – Healthcare and Welfare for the Elderly*. The related indicator *Waiting times for hip fracture surgery* is also presented in *Healthcare in Numbers*. The indicator *Osteoarthritis school prior to hip arthroplasty* is measured by the Better Management of Patients with OsteoArthritis quality register (BOA Register) [44].

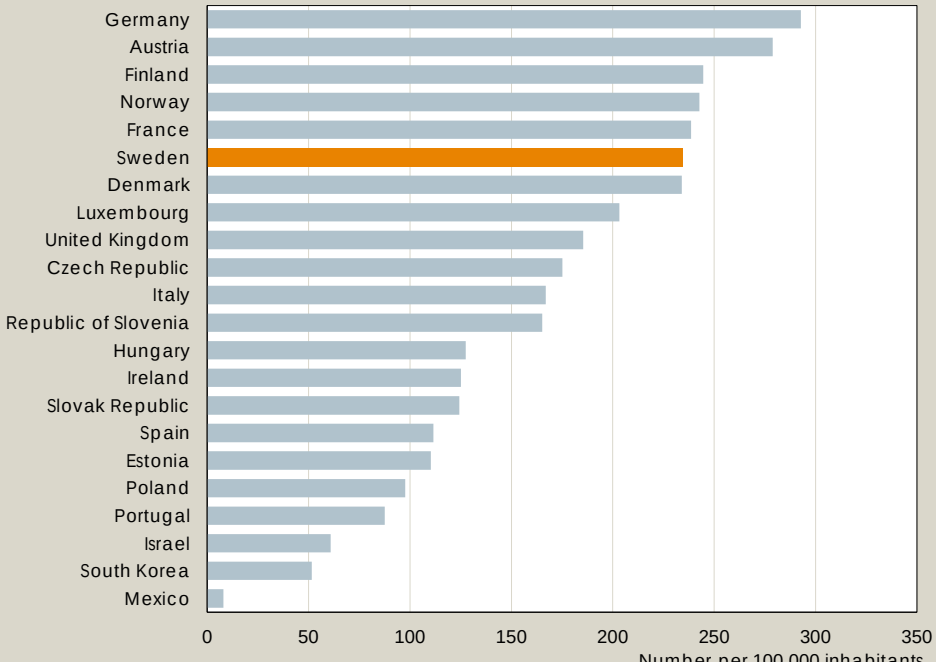
## Arthroplasty operations are comparatively more common in Sweden

In an international context hip arthroplasty operations are more common in Sweden. Among the OECD countries reporting data for 2014 Sweden is in sixth place for most hip arthroplasty operations per inhabitant, with 234 hip arthroplasty operations per 100 000 inhabitants, which can be seen in Figure A.8.

The need for hip arthroplasty is likely to vary significantly between the populations in the different countries, due for example to age structure and lifestyle habits. Given a similar disease prevalence in terms of osteoarthritis and fractures between the countries, the number of hip arthroplasty operations per inhabitant could be seen as an indication of quality and availability. In Sweden, for example, the proportion of the elderly who receive hip arthroplasty following a hip fracture, compared with fixation using plates or screws (osteosynthesis), has greatly increased. Among people aged 65 years or over the proportion has increased from less than 20 per cent in 1999 to more than 70 per cent in 2014. Hip arthroplasty has many advantages over fixation using plates or screws but also requires care resources, at the same time as this has been demonstrated to be significantly more efficient from a health economics perspective [46–48].

**A.8. Countries. Hip arthroplasty operations**

Number of hip arthroplasty operations per 100 000 inhabitants. OECD countries reporting statistics for 2014.




Source: Health Statistics, OECD.

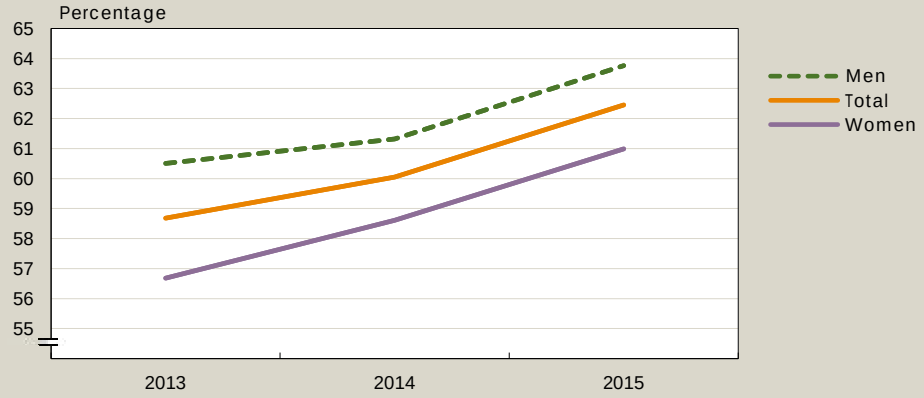
# 21. Meeting rehabilitation needs following stroke (12 months)

Stroke is one of the country's major endemic diseases and requires interventions from both municipal and county council healthcare. The indicator for fulfilment of rehabilitation needs demonstrates how large a proportion of the people treated for stroke believe that their rehabilitation needs have been met 12 months after they became ill. The results concern interventions for people who have had a stroke and provide an indication about the collective quality of healthcare and welfare.

The results for the year are based on data from 2015, and almost 63 per cent stated that they were satisfied with their rehabilitation, which indicates a somewhat better result than in 2014, when the point assessment was 60 per cent. There is a small but distinct difference between the genders for those who responded. Among men almost 64 per cent stated that they were satisfied, compared to 61 per cent of women.

**21.1. Meeting rehabilitation needs following stroke (12 months)**

Proportion of stroke patients who report that their rehabilitation needs have been met 12 months after suffering a stroke. Measurement period is year of stroke.

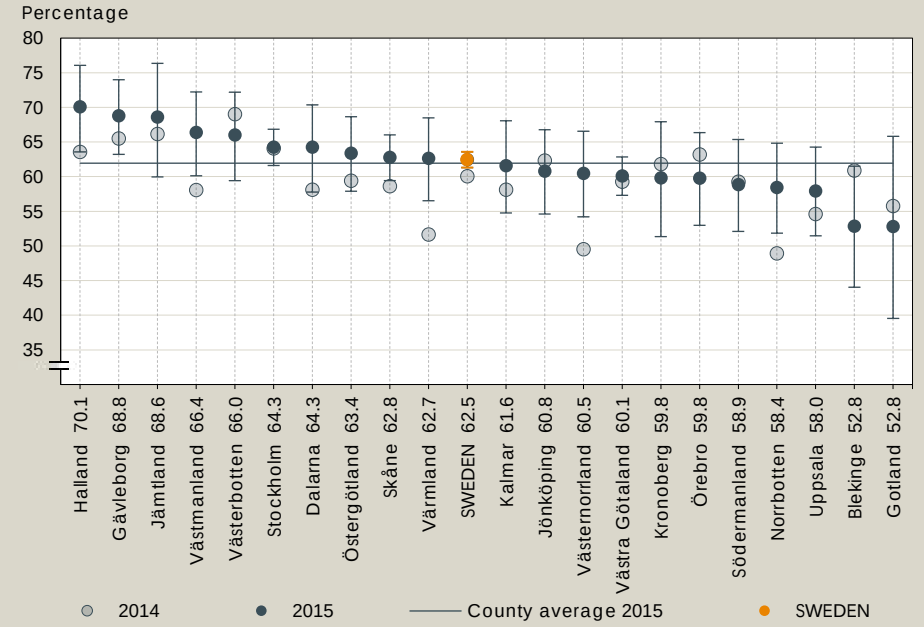



Source: Swedish Stroke Register.

The proportion of stroke patients who stated that their rehabilitation needs had been met 12 months after their stroke varied from 53 per cent up to just over 70 per cent between the counties in the 2015 follow up.

**21.2. County. Meeting rehabilitation needs following stroke (12 months)**

Proportion of stroke patients who report that their rehabilitation needs have been met 12 months after suffering a stroke. Measurement period is year of stroke.




Source: Swedish Stroke Register.

One of many factors that can influence the outcome is quality of coordinated care planning. A further aspect is the experience that needs are met can be influenced by expectations, and it is possible that the expectations for healthcare and municipal services support varies nationwide.

## Related measurements and statistics

There are a number of related indicators from the quality register 3 and 12 month follow-up questionnaires, respectively. For the indicator *Meeting needs for help and support following stroke after 3 months* there is a national target level of 75 per cent. There is also the indicator *Meeting rehabilitation needs after stroke*. There are also two indicators that shed light on the functional abilities of stroke patients. For the indicators that are based on the twelve month questionnaire there is data for the municipal level in the report series *Regional Comparisons – Healthcare and Welfare for the Elderly*.

# 22. Mortality following stroke (within 90 days)

This indicator shows the proportion of patients who died within 90 days of their first stroke. The comparison is age-standardised. Stroke here encompasses all cases of diagnosis for cerebral haemorrhage, cerebral infarction or non-specific stroke in either the Swedish Cause of Death Register or hospitalized patients in the Swedish National Patient Register. This means that patients who have died without receiving hospital care and patients who have died while receiving hospital care are included. First stroke is defined as persons who have not had a stroke within the previous 7 years. The proportion who die within 90 days for the period 2013–2015 was just under 27 per cent, which is an improvement of just over 5 percentage points since the period 1992–1994. For all periods the age-standardised proportion who die within 90 days is higher for women than for men. For the period 2013–2015 the result for women were 1.2 percentage points higher than for men.

**22.1. Mortality following stroke (within 90 days)**

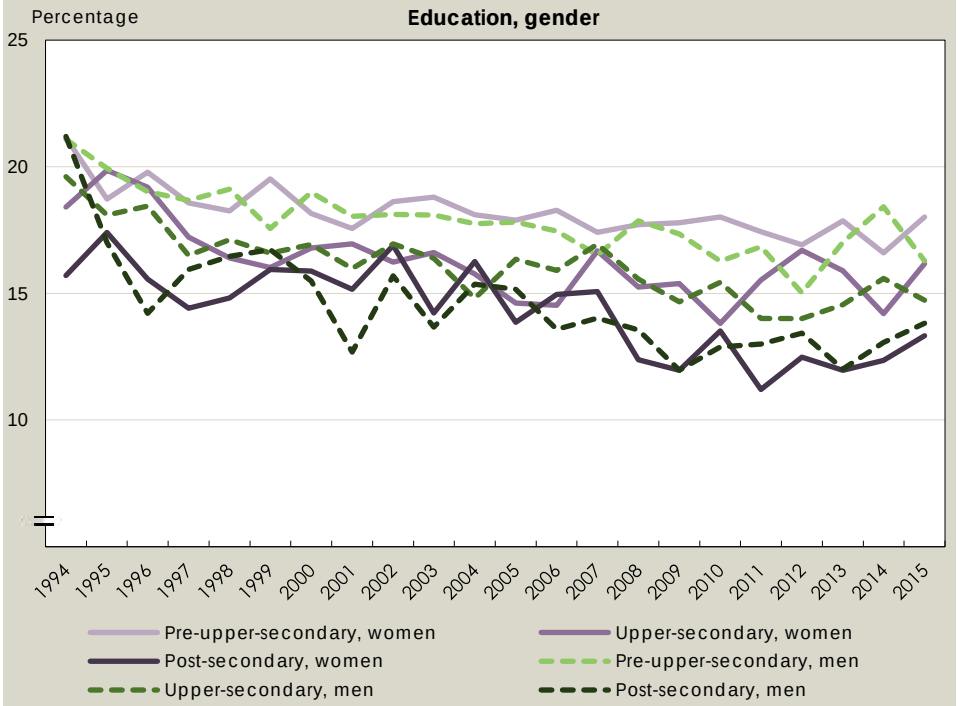
Proportion of deaths within 90 days after first-ever stroke, including non-hospitalized deaths. Age-standardised.


Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

When comparing education level categories the group was limited to the age range from 35 to 79 years, which gives a generally low level for the proportion of deaths within 90 days. For the respective genders the proportion of deaths among people with shorter education has been consistently higher over the period 2008 to 2015. For the respective education levels women often have higher results than men, although the shorter measurement period and age stratification limits mean that the differences are not so apparent, as the year by year results can be influenced quite greatly by coincidences.

**22.2. Education. Mortality following stroke (within 90 days)**

Proportion of deaths within 90 days after first-ever stroke, including non-hospitalized deaths, persons aged 35–79 years. Age-standardised.



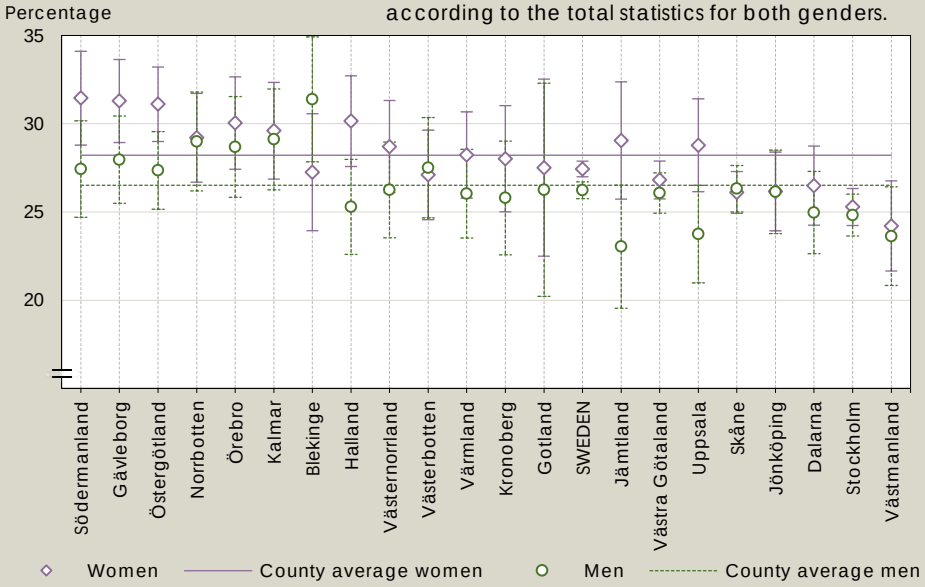

Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

The trend of a higher proportion among women than men is also seen at county level for the period 2013–2015. Although the confidence interval is often large, the results are higher for women than men in all counties, with few exceptions. This indicator is intended to measure the quality over the entire chain of care, from the ambulance services to emergency treatment and subsequent care. Therefore it also captures the effects of collaboration between the county councils healthcare units and municipal healthcare services. The healthcare units should follow NBHW guidelines and work according to the recommendations. NBHW is currently revising the National Guidelines for Stroke Care and this work is expected to be completed in the spring of 2017.

**22.3. County. Mortality following stroke (within 90 days)**

Proportion of deaths within 90 days after first-ever stroke, including non-hospitalized deaths. Age-standardised, 2013–2015.

**Women and men** - counties are sorted according to the total statistics for both genders.




Women — County average women — Men — County average men

Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

## Related measurements and statistics

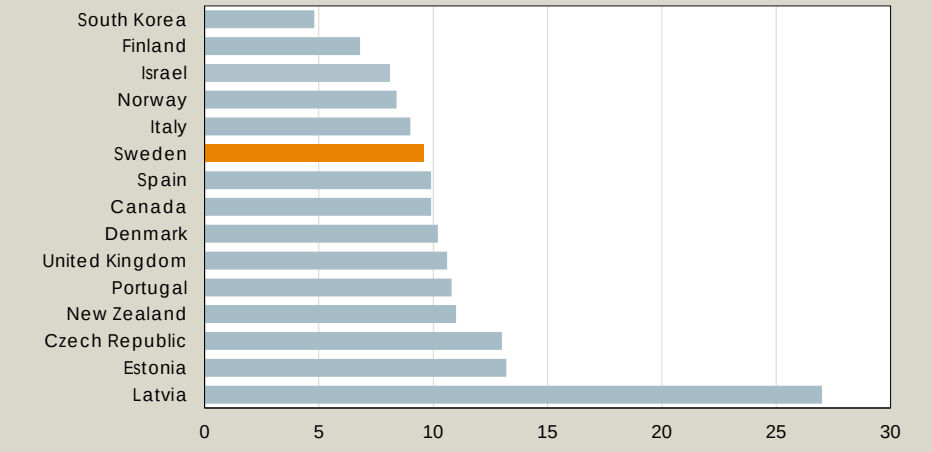
At the NBHW website the proportion who die within 28 days can be compared, even solely for the category of patients receiving hospital care. There are several indicators within the National Board of Health and Welfare's evaluation of stroke care. Examples of indicators that shed light on the emergency care phase are *Elapsed time between hospital arrival and initiation of thrombolytic treatment* and *Care on a stroke ward*. The indicators *Warfarin treatment for atrial fibrillation following stroke* and *Cessation of smoking following stroke* highlight secondary preventive treatments, while the effects of care and welfare can be seen from the indicators *ADL independence* and *Meeting needs for support and help after discharge from hospital*. More information is also available from the Swedish Stroke Register website.

# Swedish comparisons for stroke care fatalities

The OECD uses the indicator *Fatalities within 30 days following hospital care for stroke* as an indicator of the quality of hospital care in international comparisons. Unlike the primary indicator, only those patients treated in hospital and with a brief period of follow-up within the age category of 45 years and over are included. The results show that Sweden is one of the countries with a lower proportion of fatalities for those countries reporting data for 2013, although some countries also show better results than Sweden for the period, which can be seen in Figure A.9.

**A.9. Countries. Fatalities following hospital care for stroke**

Proportion of patients who died within 30 days of admittance for stroke, aged 45 years or over, 2013. Age and gender-standardised statistics according to OECD standard population data. OECD countries reporting statistics for 2013.




Source: Health Statistics, OECD.

# 23. Myocardial infarction – case fatality rate

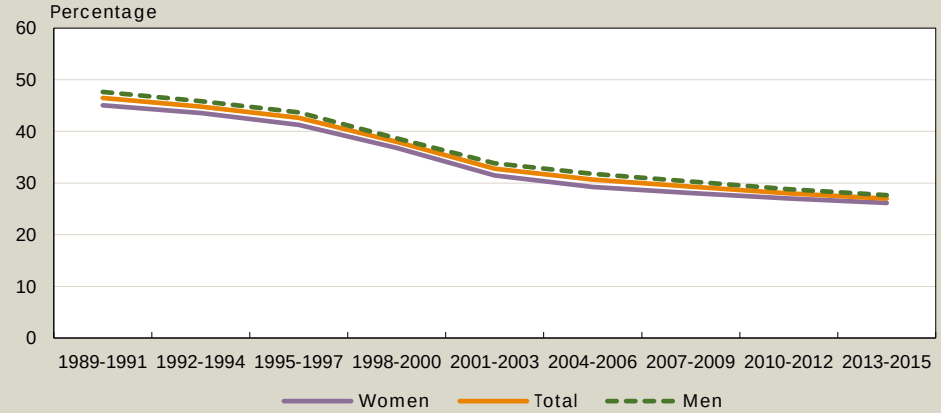
The risk of dying within 28 days following a myocardial infarction (lethality or *case fatality*) is an internationally established indicator of how well healthcare copes with provision of emergency care following a myocardial infarction. This measurement measures the quality of the entire care chain – from the ambulance services to emergency treatment and subsequent care.

This indicator shows the proportion of all persons suffering a myocardial infarction who have died within 28 days following their myocardial infarction. All diagnosis for myocardial infarction in the Swedish Cause of Death Register or hospitalized patients in the Swedish National Patient Register are included. This means that both persons who have initially received hospital care and persons dying from acute myocardial infarction as the cause of death without having received hospital care are included.

The results nationwide have continuously improved since 1989–1991, although a levelling out can be seen for subsequent periods. Men demonstrate a small, but distinctly higher, age-standardised proportion of those dying within 28 days, although the differences between the genders has decreased and is lowest for the most recent period, 2013–2015.

**23.1. Myocardial infarction – case fatality rate**

28-day case fatality rate for myocardial infarction. Both hospitalized patients and those who died without hospital care. Age-standardised.

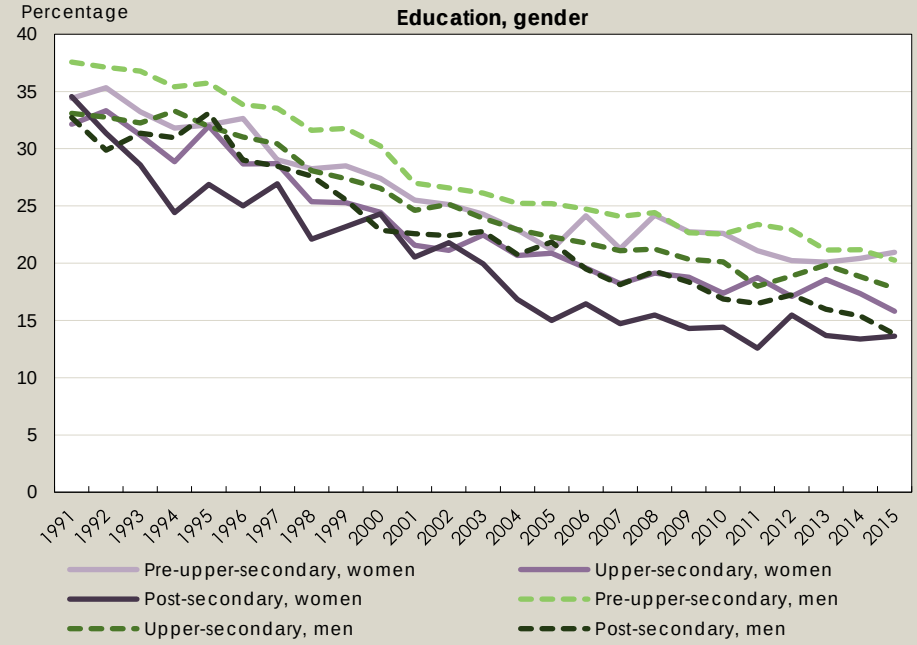



Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

Despite improvements, there are still differences between education groups. Here the ages compared are stratified to only include the age range 35–79 years, which gives a lower level for the values. Among both women and men with only a pre-upper-secondary school education just over 20 per cent died within 28 days of suffering a myocardial infarction in 2015. The proportion among both genders for persons with a post-secondary school education was 14 per cent.

**23.2. Education. Myocardial infarction – case fatality rate**

28-day case fatality rate for myocardial infarction. Both hospitalized patients and those who died without hospital care, age 35–79 years. Age-standardised.

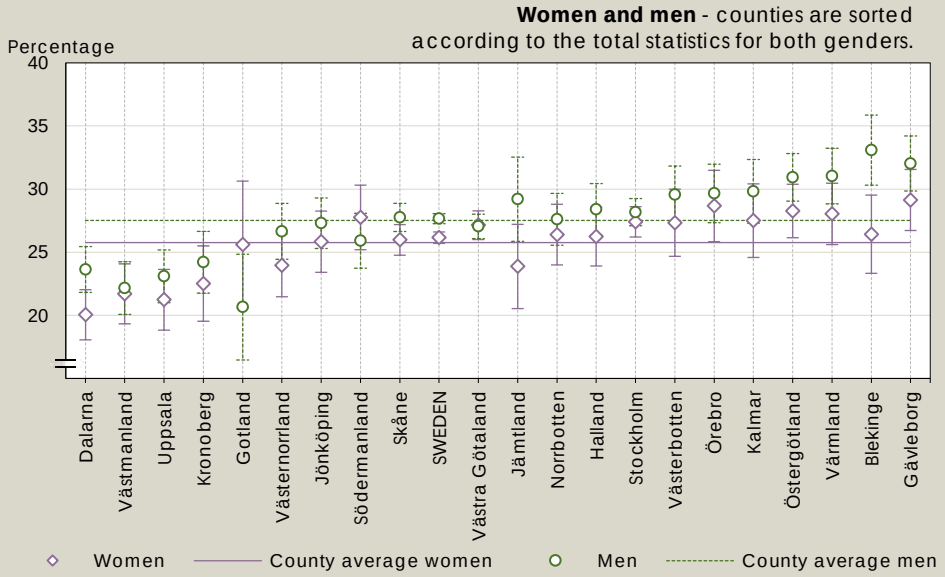



Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

The county with the lowest proportion of fatalities 28 days after a myocardial infarction is Dalarna and the highest proportion is found in Gävleborg. The county average for women was just over 26 per cent and for men was almost 28 per cent, for the period 2013–2015.

**23.3. County. Myocardial infarction – case fatality rate**

28-day case fatality rate for myocardial infarction. Both hospitalized patients and those who died without hospital care. Age-standardised, 2013–2015.




Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

Variations between the counties may be due to several different causes. For example, the reliability of the diagnosis, as well as different social factors. In addition other comorbidities also affect the willingness of the general population to seek medical attention. Direct healthcare-related factors can be distance to the Emergency Department, efficiency of the ambulance service and the emergency care on arrival at the hospital. Healthcare can improve cardiac care, for example by increasing the proportion who receive reperfusion treatment for ST elevation myocardial infarction, and by shortening the time between the initial ECG and the initiation of reperfusion treatment for patients with ST elevation myocardial infarction [29].

One source of error can be that the proportion of autopsies performed for older, non-hospitalized fatalities is low. Determining the cause of death among such patients is associated with greater uncertainty. Considering, however, that they significantly affect fatality and case mix among those who are hospitalized, they need to be included in the comparison.

## Related measurements and statistics

The indicator *Fatalities following hospitalisation for myocardial infarction* constitutes a fraction of the persons reported here. The indicators that concern survival for persons who have suffered myocardial infarction are related to the broader indicator *Avoidable deaths from ischaemic heart disease*, which in addition to survival after becoming ill is also affected by

the disease prevalence in the general population. The indicator *New infarction or death from ischaemic heart disease* follows patients for 365 days after they have been discharged. NBHW also monitors cardiac care using a number of other indicators.

In addition, more data is available from the quality register SWEDEHEART, including an index for myocardial infarction care where several measurements for secondary prevention are reported.

## Lower myocardial infarction fatality rate in Sweden than in Great Britain

As an example of international comparisons there is a study that encompasses data from almost 120 000 patients in Sweden and just over 390 000 patients in Great Britain examining fatality rates within 30 days of admittance to hospital for acute myocardial infarction, for the period 2004 to 2010. The fatality rate was higher for patients in Great Britain, even in relevant subgroups stratified by age, gender and concentration of troponin. One difference that according to the study could affect the results is that cardiac care in Sweden is provided earlier and PCI is performed more often, with beta blockers also being used more frequently in Sweden following discharge from hospital [49].

# 24. Cancer five-year survival – several cancer forms

Cancer is defined here as a malignant tumour disease. There are around 200 different cancer diseases with varying degrees of severity. The chances of cure have risen over recent decades due to increased knowledge, improved treatment and greater possibilities to detect cancer at an early stage. Nevertheless around 23 000 people die annually from a cancer disease in Sweden. This makes cancer the second most common cause of death, after cardiovascular disease [50].

In Sweden there are more than 450 000 people who have or have had cancer. The number of people living with a cancer diagnosis is anticipated to rise in the future, due to improved diagnostics, increased survival and general population changes. According to *A National Cancer Strategy for the Future* (SOU 2009:11) the number of men with cancer are predicted to be 130 per cent higher in 2030 than currently, with a corresponding increase for women of around 70 per cent [50]. Cancer mortality rates have decreased over the past 40 years and survival following diagnosis has risen. These improvements are due, among other things, to healthcare having better possibilities to diagnose cancer at an earlier stage and to offer more effective treatments.

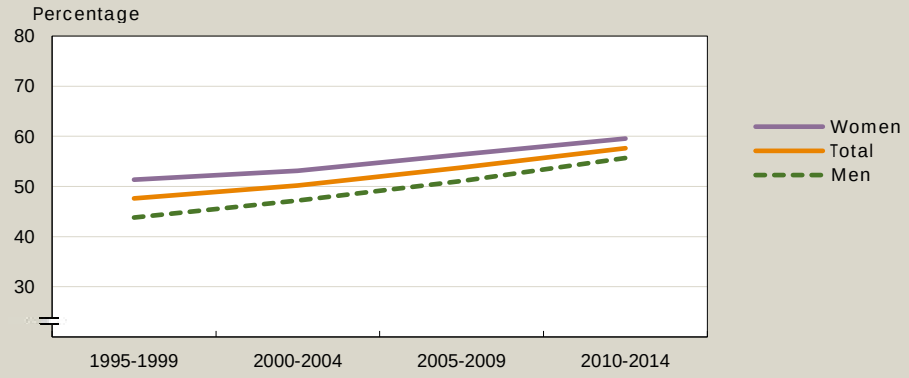
The highest survival rates are seen for patients with prostate cancer, breast cancer and skin cancer other than malignant melanoma, and these forms of cancer are not included in this indicator. In general survival has developed in a positive direction for the majority of areas within cancer care. This positive

development indicates that the national cancer strategy has had an effect [51].

This indicator measures relative survival five-years after a cancer disease, excluding breast cancer, prostate cancer and skin cancer other than malignant melanoma for persons aged between 30 and 89 years when the disease was identified. This indicator is not the same as previously when all tumour types were included. As skin cancer other than malignant melanoma, breast cancer and prostate cancer diagnoses have been excluded from this indicator, and these cancer types have a high survival, the level is around ten percentage points lower for this adjusted indicator. Five-year survival is around 58 per cent. For the period 2010–2014 the results for women were close to 60 per cent and among men almost 56 per cent survive for 5 years after receiving their cancer diagnosis, which can be seen in Figure 24.1.

**24.1. Five-year cancer survival – several cancer forms**

Relative 5-year survival for cancer diseases, all tumour types except breast cancer, prostate cancer and skin cancer other than malignant melanoma. Patients aged 30-89 years at the time of diagnosis. Age-standardised statistics.

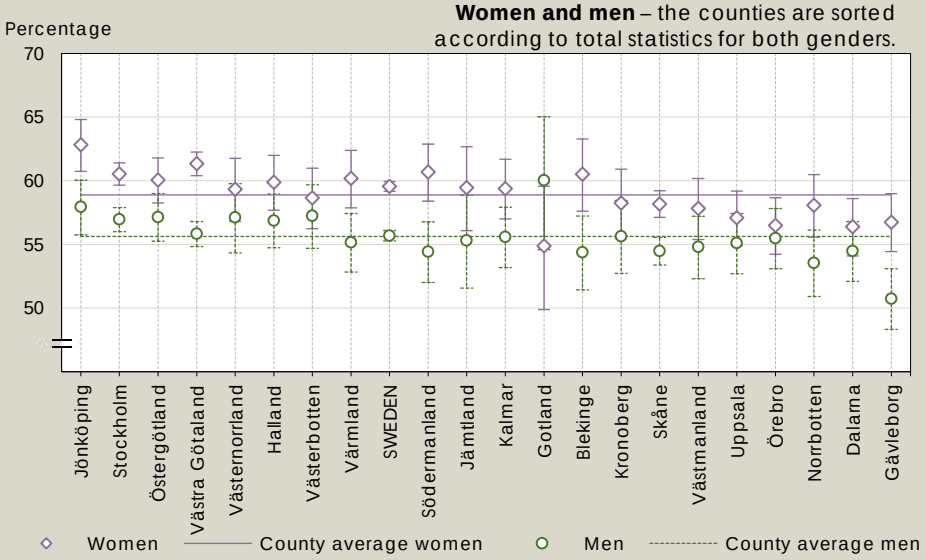



Source: Swedish Cancer Registry, National Board of Health and Welfare.

The relative five-year survival for 2010–2014 among women varied between counties from just under 55 per cent up to almost 63 per cent. Among men the five-year survival varied from barely 51 per cent up to 60 per cent.

**24.2. Five-year cancer survival – several cancer forms**

Relative 5-year survival for cancer diseases, all tumour types except breast cancer, prostate cancer and skin cancer other than malignant melanoma. Patients aged 30-89 years at the time of diagnosis. Age-standardised values, 2010-2014.

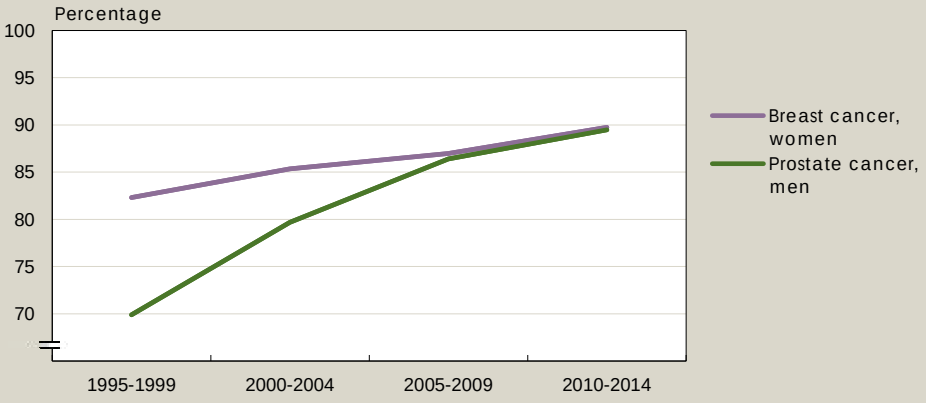



Source: Swedish Cancer Registry, National Board of Health and Welfare.

The five-year survival among men with prostate cancer and among women with breast cancer, which are the two most common forms of cancer, was almost 90 per cent for the period 2010–2014, which can be seen in Figure E.4. Male five-year survival for prostate cancer is currently almost at the same level as the five-year survival for women with breast cancer.

**E.4. Survival rates for breast cancer and prostate cancer, respectively**

Relative 5-year survival for breast cancer and prostate cancer. Patients aged 30–89 years at diagnosis. Age-standardised statistics.




Source: Swedish Cancer Registry, National Board of Health and Welfare.

## Related measurements and statistics

NBHW reports relative survival rates for different forms of cancer. In addition, indicators showing results and processes within the area of cancer are published in *Healthcare in Numbers*.

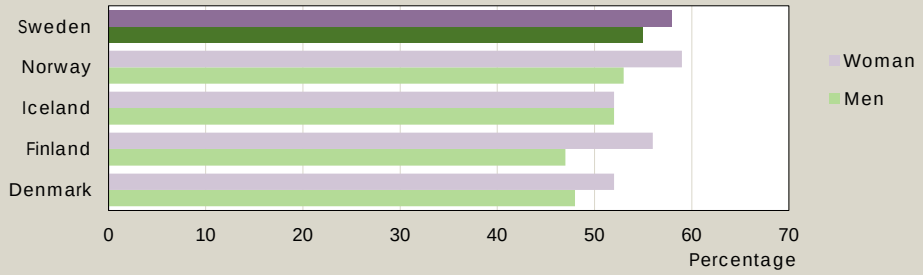
## Swedish men have the highest survival rates for the Nordic countries

Comparisons between the Nordic countries are based on data from NORDCAN. The statistics presented in Figure A.10 have the same stratification limits as the primary indicator in terms of tumour type, but do not have the lower cut off limit of 30 years. Among the Nordic countries the Swedish male relative survival rate was 55 per cent for the period 2010–2015. This can be compared to men in Finland where the five-year survival was 47 per cent for the same period.

Swedish women also have a high relative five-year survival. The proportion of Swedish women who live for five years following a cancer diagnosis was 58 per cent for the period 2010–2014. The only Nordic country with a higher relative five-year survival for women was Norway, where 59 per cent of women live for five years following their cancer diagnosis.

**A.10. Countries. Five-year cancer survival – several cancer forms**

Relative 5-year survival for cancer diseases, all tumour types except breast cancer, prostate cancer and skin cancer other than malignant melanoma, 2010–2014. Patients aged 0-89 years at the time of diagnosis. Age-standardised statistics. Sorted according to the mean value for the genders.




Source: Cancer Incidence, Mortality, Prevalence and Survival in the Nordic Countries (NORDCAN).

## 25. Mortality following hip fracture

Around 18 000 hip fractures associated with osteoporosis are reported every year. Hip fracture is often associated with a poorer quality of life, among other things due to impaired walking mobility. This can make it difficult for a person to return to living in their own home and can also have a negative impact on social life. The mortality rate within the first year following a hip fracture is also high [44].

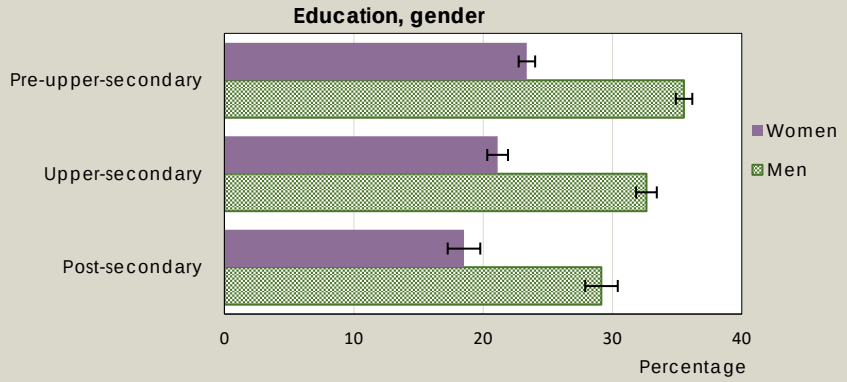
This indicator shows the proportion of patients aged 50 years and over who have died within 365 days of hospital care for a first-time hip fracture. The 2012–2014 measurement period encompasses just over 47 000 patients. A first-time hip fracture means that the patient has not had a hip fracture since 1999. The hip fractures that are included in this statistic are in the majority of cases related to osteoporosis. For the period 2012–2014 the age-standardised mortality for women was 22 per cent and for men was almost 34 per cent. In terms of absolute numbers, however, more women died, as two-

thirds of people who suffer a hip fracture and are included in this indicator are women.

No distinct difference in the figures for women or for men can be seen at national level in comparison to the previous 2009–2011 period.

**25.1. Education. Mortality following hip fracture**

Number of deaths within 365 days of first-time hip fracture. Persons aged 50 years or over, 2012-2014. Age-standardised statistics.




Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

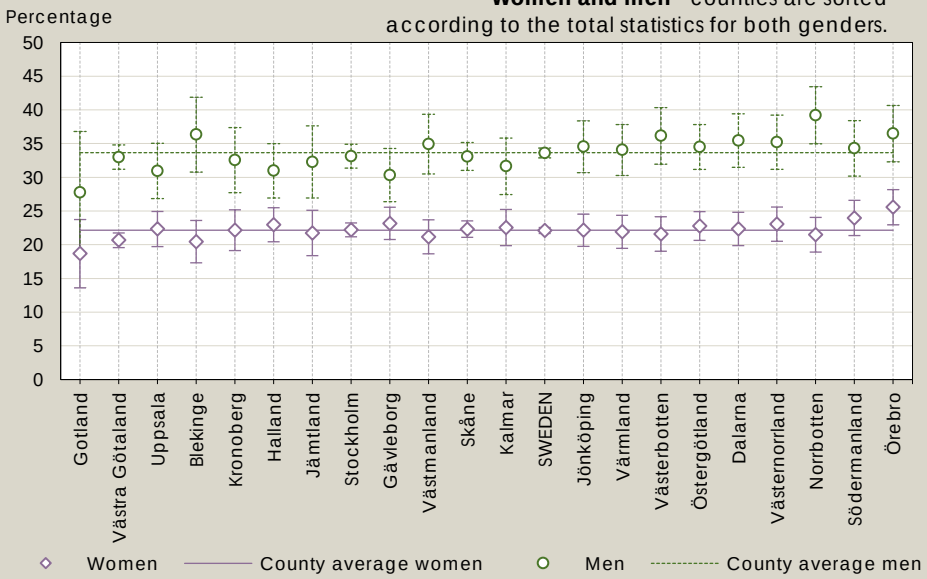
In addition to the distinct differences between men and women, there is also a consistent pattern for the respective genders in terms of differences in education level, where a lower level of education is associated with higher mortality.

The differences between women and men are also consistently distinct at county level but no obvious differences can be seen between the results for the different counties.

**25.2. County. Mortality following hip fracture**

Number of deaths within 365 days of first hip fracture. Persons aged 50 years or over, 2012–2014. Age-standardised statistics.

**Women and men** - counties are sorted according to the total statistics for both genders.




Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

Mortality within 365 days among other things captures the quality of the surgical care and the hospital care during the post-operative phase (the first month), but also the effects of rehabilitation and secondary prevention following a hip fracture.

Healthcare can to a certain extent reduce the number of deaths following a hip fracture through good initial care and early surgery, rapid mobilisation and optimised subsequent care. The instrument FRAX (*fracture risk assessment tool*) has been developed to assess fracture risk. Healthcare should investigate osteoporosis and the risk of falling to a greater extent, especially among the elderly. In addition to this the care units should treat more people who have a high risk of fracture with bone-specific drugs [44]. In addition, municipal healthcare interventions in standard and specialised care homes can prevent the risk of falls and fractures.

## Related measurements and statistics

In NBHW performance assessment of National Guidelines for Musculoskeletal Diseases related indicators are reported, such as *Treatment with bone-specific drugs after osteoporotic fracture* and *Monotherapy with calcium and vitamin D after osteoporotic fracture*. The indicators *Fall injuries among the elderly* and *Femur and hip fractures* are also presented at municipal level in the report series *Regional Comparisons – Healthcare and Welfare for the Elderly*. In the National Hip Fracture Register, Rikshöft, there is also the indicator *Waiting time for hip fracture surgery*.

# 26. Excess mortality for adult patients with bipolar disorder

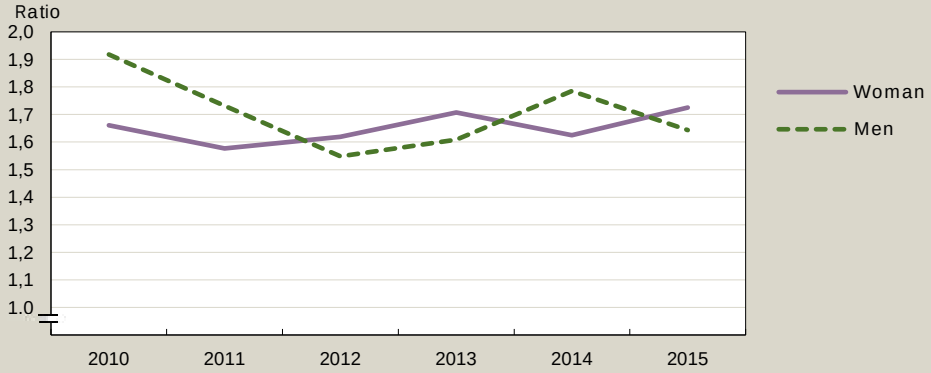
Bipolar disorder affects around 1–2 per cent of the population and is equally as common in women and men. There are two forms of bipolar disorder. One form is characterised by the occurrence of manic episodes and the other is characterised by episodes of euphoria and hyperactivity, known as hypomania. Men more often have manic periods, while women are more prone to suffer depression [52].

This indicator shows the mortality for people aged 20 years and over with bipolar disorder compared to mortality rates in the general population. The statistics are age-standardised. A value of 1 equates to the general population level and indicates that no excess mortality exists.

Nationwide in 2015 the value for women with bipolar disorder was 1.73 and for men the value was 1.64. There was however no distinct difference between the genders, as the cohort for individual years is relatively small and the values for women and men are relatively similar.

**26.1. Excess mortality for adult patients with bipolar disorder**

Mortality for people with bipolar disorder compared to mortality in the general population. A value of 1.0 equates to the general population level and means that no higher mortality rate exists. People aged 20 years and over. Age-standardised.

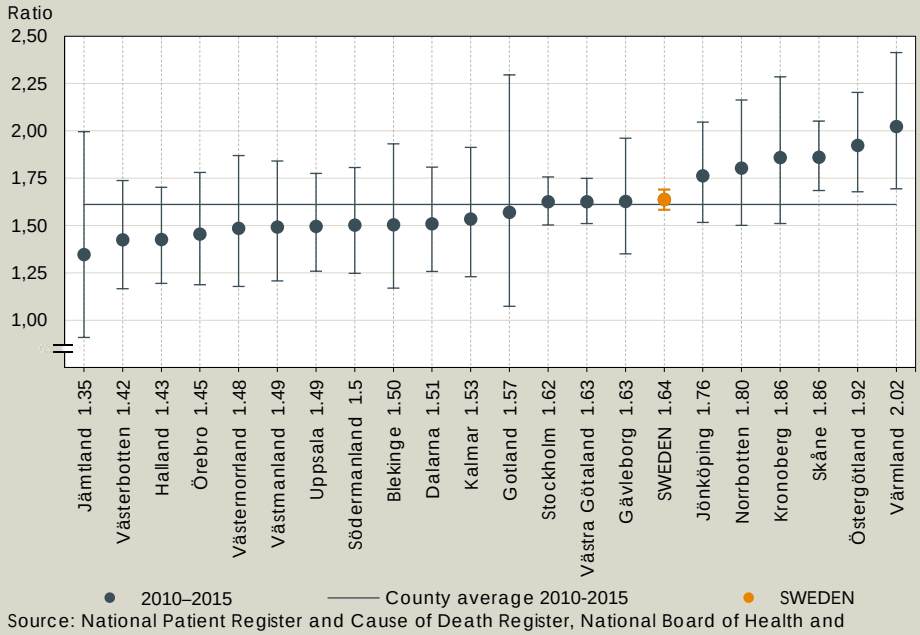



Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

All counties report a higher mortality for adult patients with bipolar disorder. Although the differences between the outcomes in different counties are large, the cohorts are not sufficient to view the individual results as any clear indication of variations in the quality of healthcare provided. This is true despite the measurement period for deaths in the county comparisons spanning five years.

**26.2. County. Excess mortality for adult patients with bipolar disorder**

Mortality for people with bipolar disorder compared to mortality in the general population. A value of 1.0 equates to the general population level and means that no higher mortality rate exists. People aged 20 years and over. Age-standardised.




Source: National Patient Register and Cause of Death Register, National Board of Health and Welfare.

Bipolar disorder is associated with a higher premature mortality resulting from a common medical disease. Mortality in certain somatic diseases has been seen in studies to be significantly higher among patients with bipolar spectrum disorders. This applies, for example, for cardiovascular diseases, pulmonary disease, diseases involving the blood vessels of the brain and hormonal disorders.

Previously the higher mortality rate for people with bipolar disorder was linked to a higher number of suicides and accidents. Today many people with bipolar disorder are treated using drugs that can give rise to an increased risk of obesity and metabolic syndrome disorders. This has contributed to a change in the reasons for increased mortality.

Within healthcare there should be procedures for assessing suicide risk and procedures for preventive drug treatment using lithium for people with bipolar disorder. In addition, healthcare should strive to make sure that people receiving psychiatric care feel that they are treated respectfully and that they are provided with sufficient information and sufficient support to be able to manage their health [53].

## Related measurements and statistics

At the NBHW website corresponding indicator is also published for schizophrenia: *Excess mortality for adult patients with schizophrenia.*

NBHW is revising the National Guidelines for the Care of Depression and Anxiety Syndromes, as well as the associated indicators for follow-up and assessment. From the performance assessment in 2013, for example, the following indicators were reported: *Recurrence prevention treatment with lithium for patients in remission following a manic or depressive bipolar*

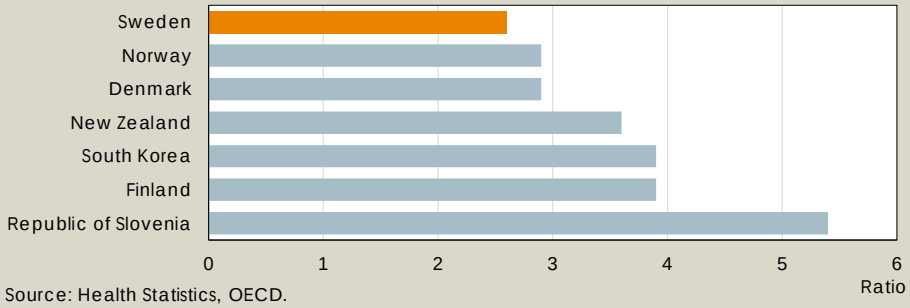
*disorder episode*, and *Outpatient treatment after discharge for bipolar disorder*.

## Sweden has the lowest excess mortality rate for people with bipolar disorder

Elevated mortality rates for people with bipolar disorder in Sweden are relatively low in comparison to the other OECD countries reporting data for this indicator in 2013. Figure A.11 shows the total values, but even subdivided for women and men Sweden had the lowest results. For all countries the results for men were lower than for women, but in Sweden the differences between the genders was least [32].

**A.11. Countries. Excess mortality for patients with bipolar disorder**

Mortality for people with bipolar disorder compared to mortality in the general population, 2013. Persons aged 15–74 years. Gender and age-standardised statistics according to OECD standard population data. OECD countries reporting data for 2013.




Source: Health Statistics, OECD.

The corresponding indicator for people with schizophrenia, *Excess mortality for patients diagnosed with schizophrenia,* is also reported in international comparisons. Within the Nordic countries, in 2013 Sweden had a somewhat lower elevated mortality rate among people with schizophrenia than Norway and Finland, but was somewhat higher than Denmark [32].

## 27. Repeated hospitalisation at end-of-life

A large number of people with incurable diseases spend their final days in hospital, in an environment that is primarily focused on short care times and curative interventions. Many elderly patients also become subjects for transfer between hospital care and home care in their final two weeks of life, to eventually die in hospital [54].

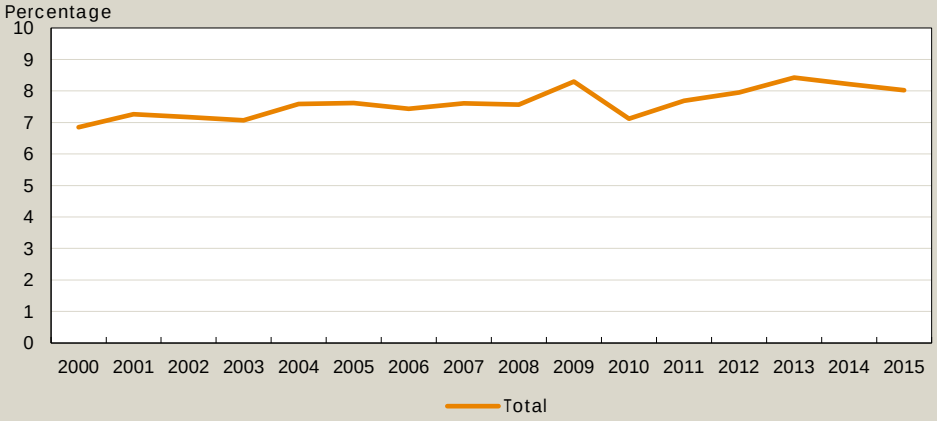
There is a prevailing consensus that a person in the final phase of life should not need to be moved unnecessarily. This indicator is included in the national knowledge support for palliative care in the final phase of life, and is intended to monitor the proportion of deaths subsequent to two or more hospital admissions in the final 30 days of life [55].

A new admission means an admission that has not resulted from a transfer from another hospital or clinic, as this indicator is primarily intended to

measure admissions to emergency somatic care. This indicator shows that around 8 per cent of the patients who died in 2015 had been admitted to hospital two or more times during their final 30 days of life. Since the year 2000 this statistic has increased by 1 percentage point.

**27.1. Repeated hospitalisation at end-of-life**

Proportion of deaths following two or more hospital admissions in the final 30 days of life.

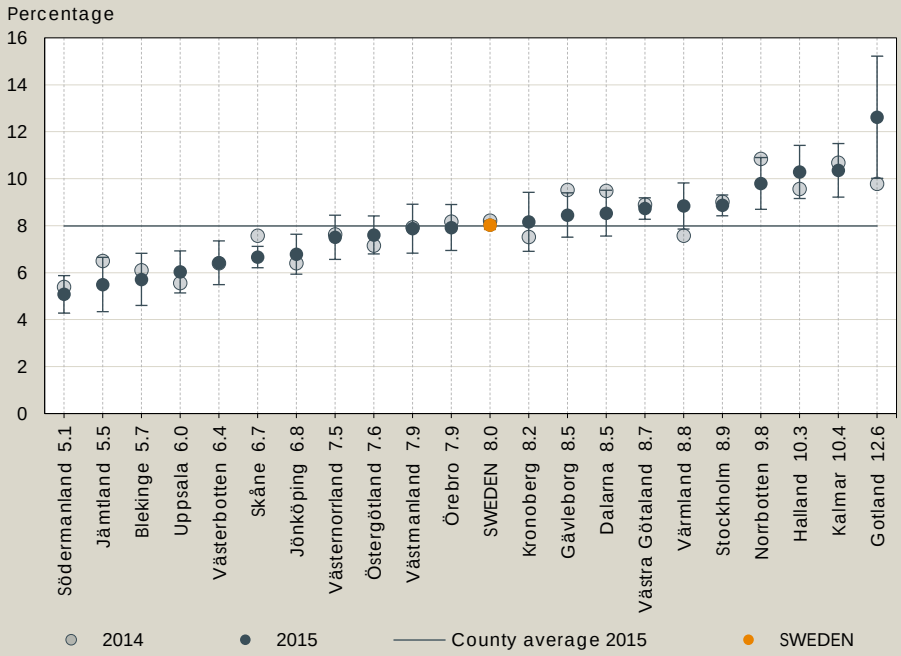



Source: National Patient Register, National Board of Health and Welfare.

When this indicator is used for comparisons between the counties the results show that the proportion of patients who in their final 30 days of life were admitted to hospital two or more times varied between 5 and 13 per cent.

**27.2. County. Repeated hospitalisation at end-of-life**

Proportion of deaths following two or more hospital admissions in the final 30 days of life.




Source: National Patient Register, National Board of Health and Welfare.

Coordination is a fundamental prerequisite for good quality palliative care. Healthcare and social services must coordinate their various interventions so that the care and welfare provided is of good quality for the individual patient.

People who are severely ill are often particularly dependent on good care and welfare continuity. For life-threatening conditions a designated care contact must be appointed and the designated care contact must be a qualified physician. Within municipal healthcare the medical nurse in charge must ensure that procedures are in place for a physician or other healthcare personnel to be contacted when the condition of the patient demands [55].

Healthcare must also provide the patient with information and advice about different treatment alternatives. It is also important that the information is tailored according to the ability of the person to understand what is said.

The NBHW recommendations for palliative care at end-of-life consist of around 30 specific measures. Some of these recommendations have been assessed by NBHW to be particularly central from a policy and management perspective. This concerns, for example, the recommendations that healthcare and social services should offer:

- training and supervision in palliative care for personnel working with care and welfare, for the purpose of alleviating symptoms and improving the quality of life for end-of-life patients.
- regular analysis and assessment of pain for patients experiencing pain at end-of-life, as well as structured assessment of the patient's symptoms, for the purpose of providing the patient with as adequate alleviation of symptoms as possible.
- discussions with the patient about the content and focus of the care at end-of-life, for the purpose of preventing worry and misunderstanding, as well as to improve the quality of life for persons at end-of-life [55].

## Related measurements and statistics

In the NBHW national knowledge support for good quality palliative care at end-of-life there are several related indicators:

- coverage level for the Swedish National Registry of Palliative Care
- presence of pressure ulcers (stages 2–4)
- documented individual on demand prescription of anxiolytics
- documented individual on demand prescription of opioids
- documented oral health assessment.

In addition the indicators *Treatment breakpoint dialogue* and *Pain assessment at end-of-life* are presented at municipal level in the report series *Regional Comparisons – Healthcare and Welfare for the Elderly*. The Swedish National Registry of Palliative Care also contains additional related material.

# “How well does healthcare contribute to keeping us healthy?”

Many factors at several different levels in society affect our state of health. The majority of factors can be influenced, not least by political decisions within employment and education policies, while other factors concern changes in lifestyle, such as smoking and exercise habits. Although the choices of the individual have great importance for health, factors at societal and structural levels can also create favourable preconditions and supportive environments to facilitate good choices. In many cases healthcare can also contribute to this area, which is not a direct responsibility of healthcare, for example through joint action and dissemination of knowledge.

This report focusses on the core activities of healthcare and indicators are reported here that concern health-oriented healthcare. Several of the indicators concern lifestyle habits for people who already have a disease, so that they will not become worse or relapse. There are also measures, for example within Maternal and Child Health, for the purpose of disease prevention and promoting health for persons with no current illness.

### Health-oriented healthcare

The preface to the Swedish Health and Medical Services Act (1982:763) states that healthcare must strive towards good health and the provision of care on equal terms for everyone and that healthcare must work to prevent disease. The World Health Organisation (WHO) has developed a model for health-oriented healthcare that comprises four overarching dimensions. In addition to promoting positive health development for individuals/patients and equality in health development in the population, the model also includes improving preconditions of healthcare personnel to work in a health-oriented manner and to work strategically to promote health-orientation. Health-oriented healthcare includes the central terms *health promoting* and *disease prevention*, respectively, which are often used in conjunction. More information about this area is also available in a specific regional comparison of health-oriented healthcare and in the National Board of Health and Welfare performance assessment of disease prevention methods.

## 28. Tobacco use during pregnancy

Smoking is the single largest preventable risk factor for illness and premature death. The evidence for damaging effects of tobacco use during pregnancy has become stronger. Several scientific studies have shown that smoking increases the risk of miscarriage, premature birth, reduced foetal growth,

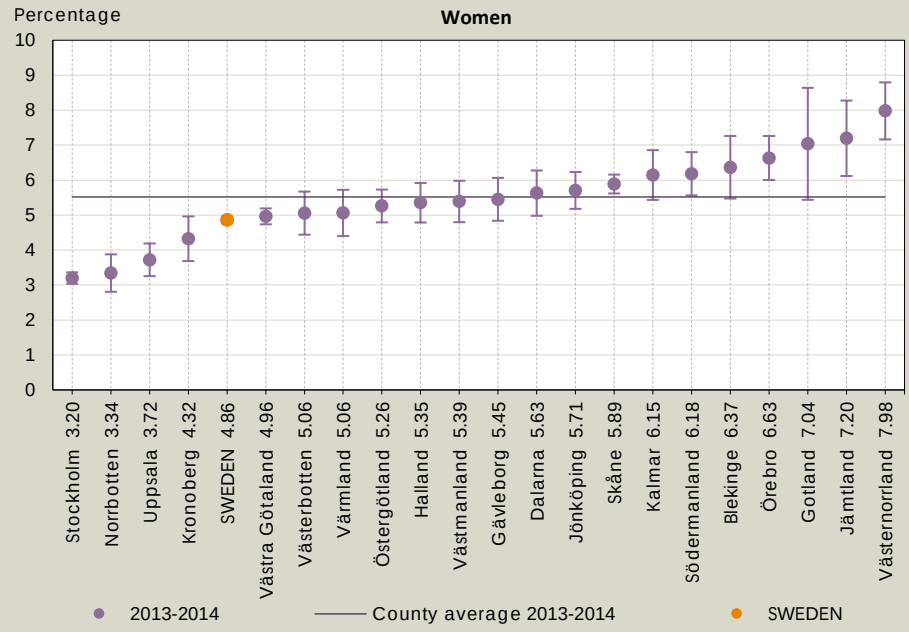
placental detachment, stillbirth and sudden infant death. The amount of smoking is directly proportional to the risks to the foetus and the majority of substances in tobacco smoke are transferred to the foetus. In addition, the nicotine in tobacco contributes to a reduced blood flow in the womb and in the placenta. As soon as a woman stop smoking the foetus benefits. The health effects of snuff are not so well investigated [56].

The tobacco habits of pregnant women are recorded at the time of registration at the maternity care clinic early in the pregnancy, which frequently takes place between weeks 8–12, as well as around two months before the anticipated delivery date, during weeks 30–32.

The comparison shows the proportion of women who smoked or used snuff during weeks 30–32 of their pregnancies for the years 2013–2014. The data for the counties varied between 3.2 and 8.0 per cent, with a nationwide average of 4.9 per cent, as shown in Figure 28.1.

**28.1. County. Tobacco use during pregnancy**

Proportion of woman who smoked or used snuff during weeks 30–32 of pregnancy. Age-standardised.




Source: Swedish Medical Birth Register, National Board of Health and Welfare.

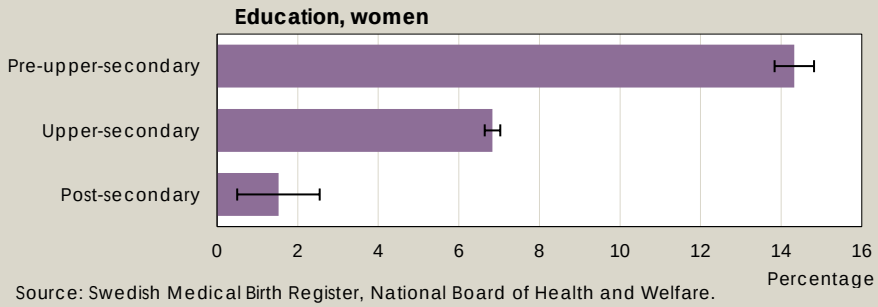
This indicator, stratified by education level, shows that there are large differences in the proportion of smokers among women with only a pre-upper-secondary school education and women with a post-secondary school education. The proportion of women with a post-secondary school level of education who smoke or use snuff during weeks 30–32 of their pregnancies is 1.5 per cent. Among women with only a pre-upper-secondary school education the proportion is 14.3 per cent.

The midwife at the antenatal care clinic should provide pregnant women with advice about stopping smoking and stopping using snuff. In addition the personnel can provide information about the stop smoking helpline that is

available, which is a free nationwide service. The helpline is run by Stockholm County Council and the Karolinska Institute.

**28.2. Education. Tobacco use during pregnancy**

Proportion of people who smoked or used snuff during weeks 30–32 of pregnancy. Age-standardised, 2013–2014.




Source: Swedish Medical Birth Register, National Board of Health and Welfare.

# 29. MMR vaccination of children

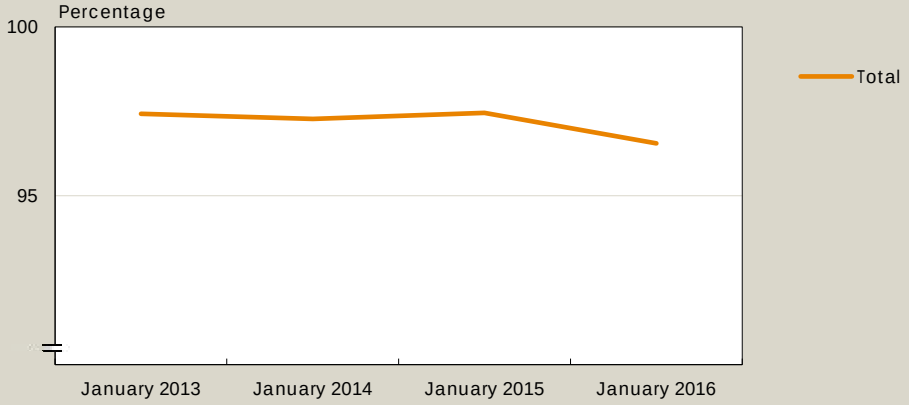
Measles, mumps and rubella were once common childhood diseases, each caused by its own virus. While contracting any of these diseases is normally harmless, they can lead to complications and even result in death. Serious side effects of MMR vaccination are rare, and the advantages at group level are clearly considerable.

Since 1982 the MMR vaccine has been included in the public vaccination program in Sweden and is offered to children aged 18 months and 6–8 years, respectively [57]. Swedish paediatric care system annually reports information about vaccination status among registered children aged two years to the Public Health Agency of Sweden.

Since January 2013 the proportion of children vaccinated against measles, mumps and rubella has fallen from 97.2 per cent to 96.5 per cent in January 2016.

**29.1. MMR vaccination of children**

Proportion of children vaccinated against measles, mumps and rubella. Children aged 2 years registered at a primary paediatric care clinic.

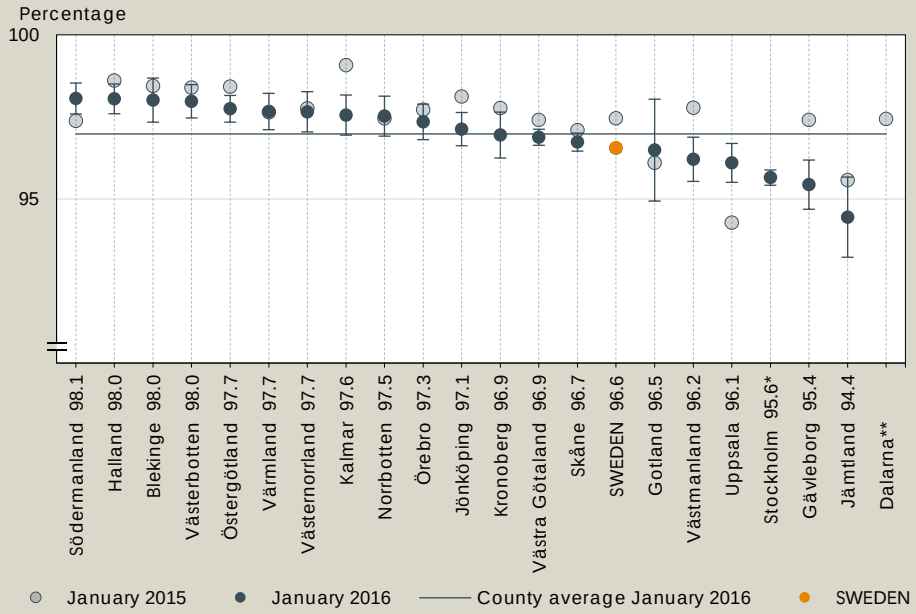



Source: Vaccination Register, Public Health Agency of Sweden.

There are differences between the counties in terms of vaccination coverage. The proportion of children vaccinated against measles, mumps and rubella varies between 94.4 per cent and 98.1 per cent.

**29.2. County. MMR vaccination of children**

Proportion of children vaccinated against measles, mumps and rubella.
Children aged 2 years registered at a primary paediatric care clinic.




* Information missing for 2015. ** Information not shown due to inadequate reporting for 2016.

Source: Vaccination Register, Public Health Agency of Sweden.

For the diseases to be prevented from once more becoming prevalent requires immunity in 95 per cent of the general population, either by vaccination or as a consequence of a naturally contracted infection. There are however groups of parents who choose not to vaccinate their children, and vaccination coverage in some municipalities has sometimes fallen to below 90 per cent. Therefore local outbreaks, in particular of measles, can occur [57].

## Related measurements and statistics

The Public Health Agency of Sweden and the Swedish Medical Products Agency publish a number of statistics about child vaccination programs, including vaccination coverage longitudinally and vaccination coverage for HPV vaccine [57].

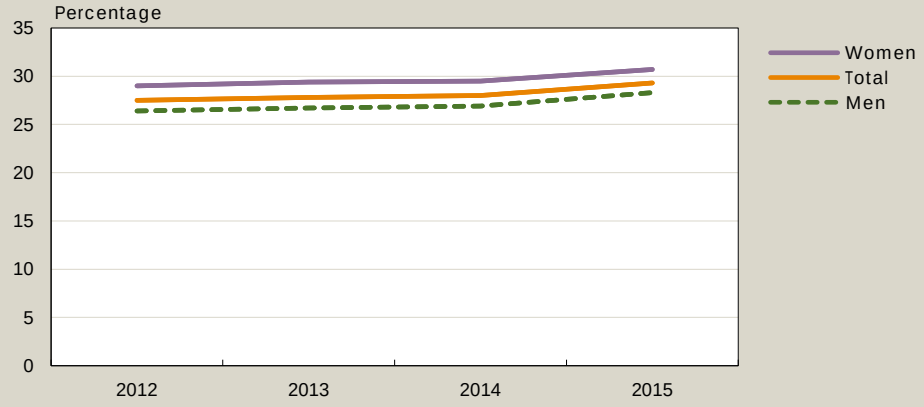
# 30. Physical inactivity and diabetes

In the National Diabetes Register (NDR) information is recorded about physical activity corresponding to a 30 minute walk, divided into five activity groups, ranging from “never” to “daily”. The information is not based on patient-reported data but is instead derived from care providers stating the alternative response that fits best following discussions with or knowledge of the patient. This data can sometimes be viewed as an estimate that is affected by both the patient's and the care provider's definition of physical activity.

This indicator shows the proportion of patients who are physically inactive among those that data exists for. To be physically inactive means that a person never or fewer than once a week engages in physical activity corresponding to a 30 minute walk. The proportion of physically inactive patients in the country as a whole amounted to 30 per cent and there is a somewhat larger proportion of women than men who are physically inactive; 31 per cent compared to 29 per cent. The proportion of physically inactive has increased somewhat since 2012.

**30.1. Physical inactivity and diabetes**

Proportion of people with diabetes who are physically inactive, all diabetes types, aged 18 years and over.



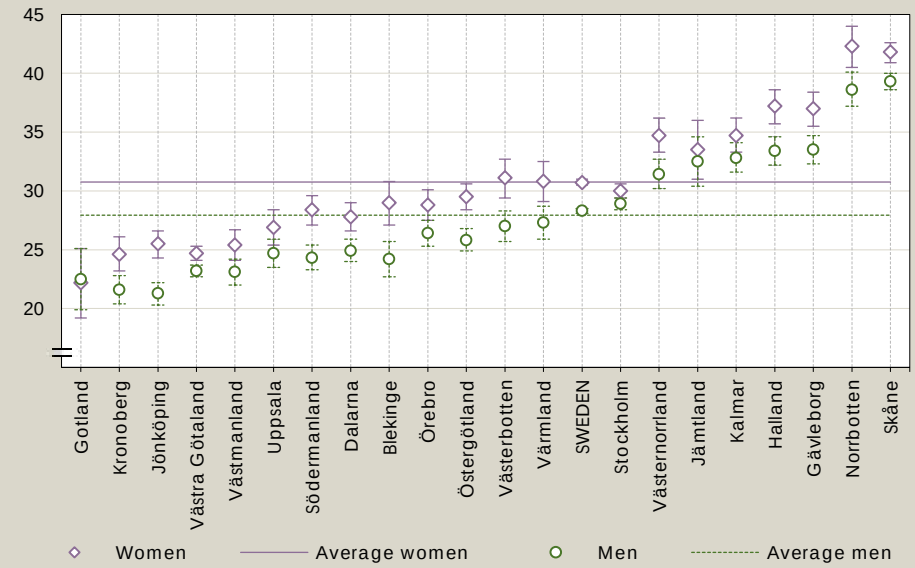

Source: NDR – National Diabetes Register.

Among people with diabetes in most counties women are more often physically inactive then men. There are also differences between the counties and for women the results vary at county level from 42 per cent down to 22 per cent for the county with the best results. Among men the results vary at county level between 21 per cent and 39 per cent.

**30.2. Physical inactivity and diabetes (all types of diabetes)**

Proportion of people with diabetes who are physically inactive, all diabetes types, aged 18 years and over, 2015.

**Women and Men** – the counties are sorted according to total statistics for both genders.




Source: NDR – National Diabetes Register.

People with diabetes can lower their HbA1c levels and reduce their risk of complications by combining physical activity with a good diet. Advice about physical activity must be adapted for each patient.

Physical activity is a central aspect of the treatment of diabetes and it is therefore important to provide the patient with support. According to the NBHW National Guidelines for Methods of Preventing Disease different degrees of advisory discussions have shown good effects. Physical activity is an underutilised resource in diabetes care, despite aids such as physical activity on prescription and expert advice [35].

## Related measurements and statistics

Corresponding indicators are reported, for example on the NDR website, stratified by primary care (primarily type 2 diabetes) and people with diabetes type 1 attending medical clinics.

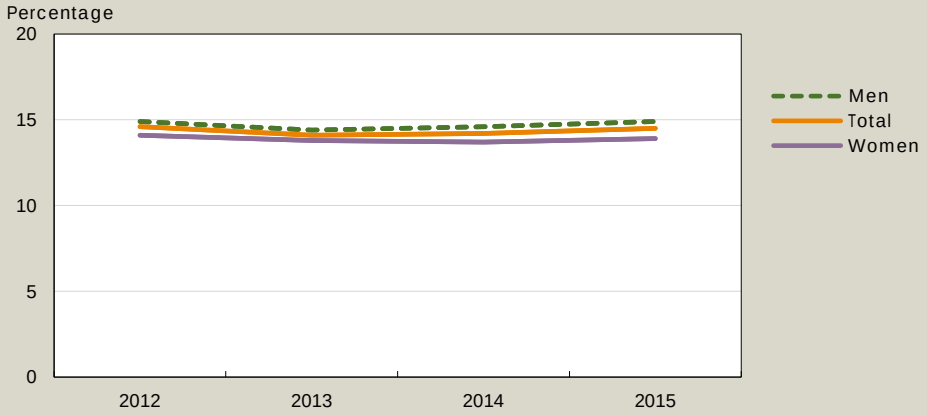
# 31. Smoking and diabetes

In the National Guidelines for Diabetes Care support to stop smoking is one of the most highly recommended measures. The target level, which is set based on the proportion of people with diabetes who are non-smokers, is 95 per cent for both type 1 and type 2 diabetes, which equates to 5 per cent for the indicator shown here and that can be monitored on the NDR website [58]. In the NDR there is also the possibility to investigate the proportion of smokers among diabetes patients, through patient-reported data. However, supplementary information about reduction of smoking or stopping smoking is not available.

In total 14.5 per cent of people with diabetes were smokers in 2015. This is a small rise compared to 2013 and 2014. This could however be due to healthcare to a greater extent asking people if they smoke. Nationwide a greater proportion of men than women with diabetes are smokers – 14.9 per cent among men and 13.9 per cent among women.

**31.1. Smoking and diabetes**

Proportion of people with diabetes who smoke, all diabetes types, aged 18 years and over.




Source: NDR – National Diabetes Register.

### National target levels

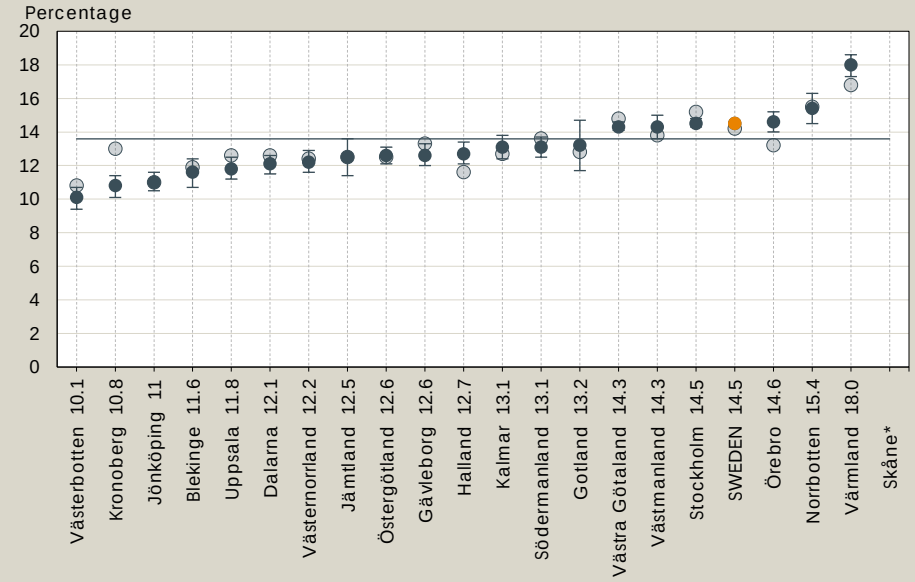
For the indicator *Non-smokers among people with type 1 diabetes* NBHW has set the target level at ≥ 95 per cent.

For the indicator *Non-smokers among people with type 2 diabetes* NBHW has set the target level at ≥ 95 per cent.

In the county with the lowest proportion of smokers with diabetes, just over 10 per cent smoke. In the county with the highest proportion of smokers, 18 per cent of people with diabetes smoke.

**31.2. County. Smoking and diabetes (all types of diabetes)**

Proportion of people with diabetes who smoke, all diabetes types, aged 18 years and over.




* Not shown due to a low level of reporting during implementation of a new system.

2014 2015 County average 2015 SWEDEN

Source: NDR – National Diabetes Register.

For people who have diabetes and smoke, healthcare should offer support to stop smoking [35]. Although all counties are some way from having a proportion of smokers of 5 per cent or less, NBHW regard the target of 95 per cent non-smokers among people with type 1 and type 2 diabetes, respectively, as being realistic over the long-term [58].

The possibility to perform international comparisons in the proportion of smokers among people with diabetes is not available. However, the WHO does publish information about how different countries work with diabetes care, for example if national guidelines exist [59].

### Related measurements and statistics

Corresponding indicators are reported regularly, stratified by primary care (primarily type 2 diabetes) and for people with diabetes type 1 attending medical clinics, among other places in *Healthcare in Numbers*.

## 32. Anticoagulant therapy for patients at risk

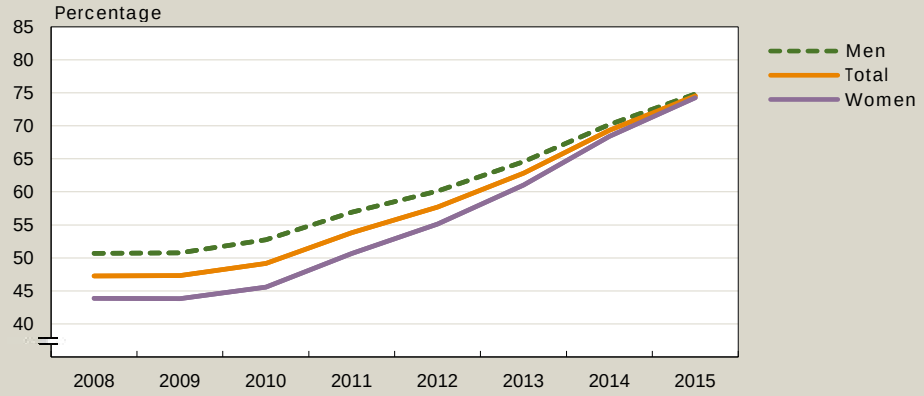
Atrial fibrillation is a heart arrhythmia that increases the risk of thrombosis and ischaemic stroke. The risk of ischaemic stroke is further increased if the patient has one or more other risk factors for stroke in addition to atrial fibrillation. In such cases therapy with blood thinning drugs (anticoagulants) is indicated. All patients are not suitable for treatment, however, as there are contraindications and risks associated with this therapy.

This indicator includes patients who received hospital care for atrial fibrillation and who had a risk score of at least 2 for stroke according to CHADS2-Vasc, which provides clinical prediction support. CHADS2-Vasc is used by physicians to assess risk factors and to score the indications for anticoagulant therapy for patients with atrial fibrillation. The indicator measures the proportion of patients ≥ 18 years who collected a prescription for anticoagulant therapy in the first half of 2015. NBHW has set a target level of ≥80 per cent [60].

In total, developments have progressed in the intended direction, with a continuous increase in the proportions among both men and women between 2009 and 2015. The difference between the genders has also concomitantly gradually diminished and the proportion for both men and women was just under 75 per cent in 2015.

**32.1. Anticoagulant therapy for patients at risk**

Proportion of patients receiving anticoagulant therapy 1 January–30 June who were hospitalized due to atrial fibrillation and risk factors for stroke.




Source: National Patient Register, Swedish Prescribed Drug Register and Cause of Death Register, National Board of Health and Welfare

## National target levels

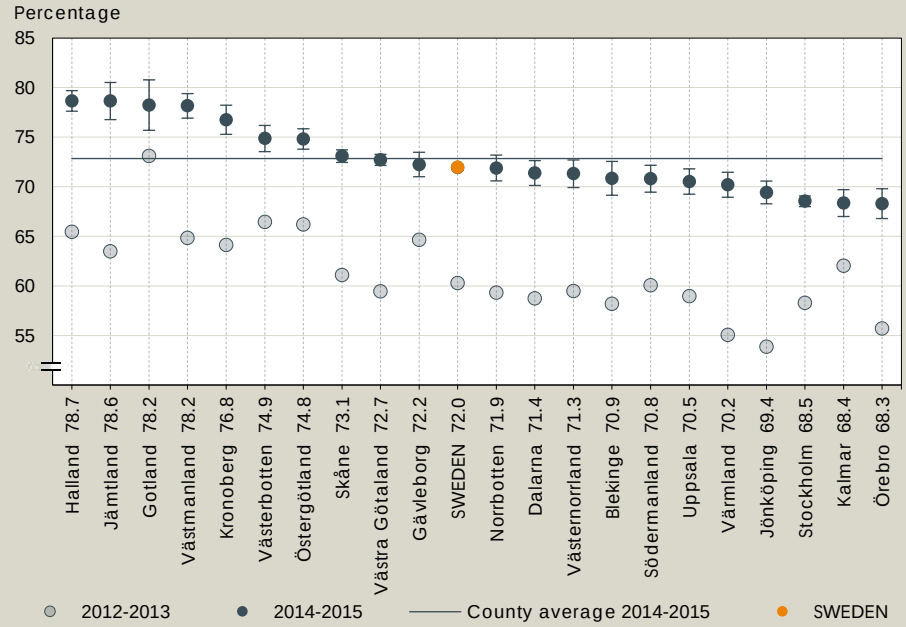
For the indicator *Anticoagulant therapy for atrial fibrillation and risk factor for stroke* NBHW has set the target level at ≥80 per cent.

The discrepancies between counties with the highest and lowest results, respectively, for the period 2014–2015 was just over 10 percentage points. This was a reduction compared with 2012–2013, where the differences were just over 19 percentage points. All of the counties have concomitantly improved their results and a number are close to the target level of 80 per cent or higher.

For many years Warfarin has been the only available medication for the prevention of stroke in this patient group, but in recent years several new anticoagulants have been introduced as alternatives.

**32.2. County. Anticoagulant therapy for patients at risk**

Proportion of patients receiving anticoagulant therapy 1 January–30 June who were hospitalized due to atrial fibrillation and risk factors for stroke.




Source: National Patient Register, Swedish Prescribed Drug Register and Cause of Death Register, National Board of Health and Welfare

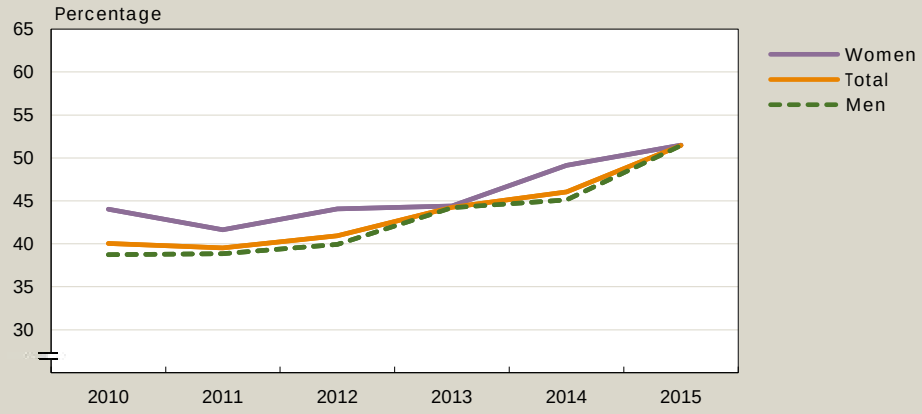
# 33. Physical exercise program after myocardial infarction

People who have had a myocardial infarction have a higher risk of suffering a new infarction or other cardiovascular disease, and one of several ways to prevent new disease is physical exercise. For secondary prevention of ischaemic heart disease, physical exercise of a sufficiently high intensity has been demonstrated to be effective. This indicator shows the proportion of patients younger than 75 years of age who have participated in a physical exercise program 12–14 months after a myocardial infarction.

For 2015 the comparison is based on just over 3 000 followed-up patients. Nationwide the proportion has increased from around 40 per cent in 2010 to just over 51 per cent in 2015. This patient group consists of men for the most part and for 2015 no differences between the genders could be seen for this indicator, where previous years often shown a higher percentage among women.

**33.1. Physical exercise program after myocardial infarction**

Proportion of patients who have participated in a physical exercise program 12–14 months after a myocardial infarction. Patients younger than 75 years.

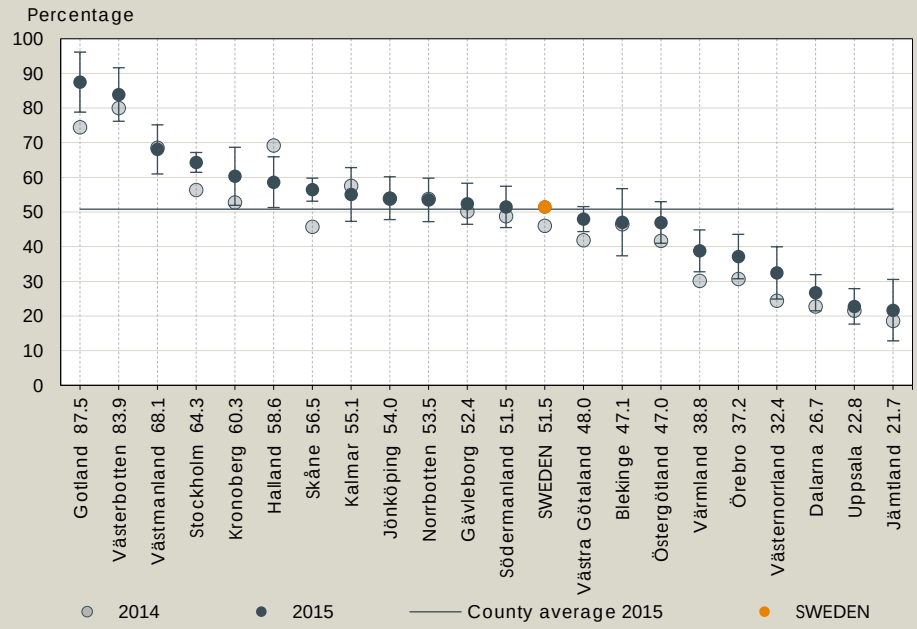



Source: SWEDHEART - SEPHIA.

There are large differences in the proportions of patients who have participated in a physical exercise program 12–14 months after a myocardial infarction. The proportion who have participated in a physical exercise program varies from 21.7 per cent to 87.5 per cent in the county with the best result.

**33.2. County. Physical exercise program after myocardial infarction**

Proportion of patients who have participated in a physical exercise program 12–14 months after a myocardial infarction. Patients younger than 75 years.




Source: SWEDHEART - SEPHIA.

In the NBHW National Guidelines for Cardiac Care physical exercise has high priority and there is strong evidence that exercise has a positive effect on all risk factors for cardiovascular disease [29]. For this indicator the

quality registry SWEDEHEART has set a lower target threshold level of from 50 per cent and a higher target threshold of 60 per cent or higher. For the previous follow-up within 6–10 weeks NBHW has set a national target level of 60 per cent or more [61].

### Related measurements and statistics

The indicator reported here is part of a combined measurement *Combination variables for secondary prevention care* that the quality registry SWEDEHEART publishes at individual hospital level. This combined measurement shows the proportion of patients who have achieved the four targets for secondary prevention that the registry has assessed to be most important: non-smoker, participant in a physical exercise program, systolic blood pressure lower than 140 mmHg and an LDL cholesterol level lower than 1.8 mmol/l.

## 34. Fall-related injuries among the elderly

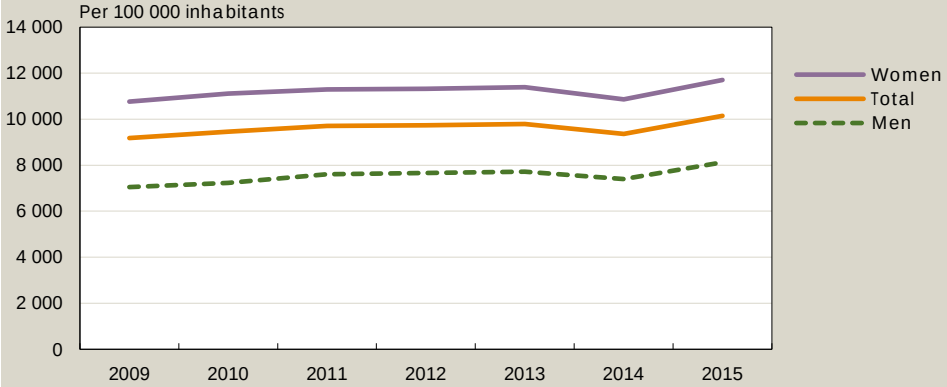
Fall-related accidents are more common among elderly persons and can result in injury, loss of independence, impaired quality of life and death. Fall risk increases with age, among other things due to muscle weakness, impaired sight and hearing, loss of balance and walking mobility, diseases and medication.

This indicator shows, after age-standardisation, the number of admittance to hospital or treatment by a physician in specialised outpatient care as a result of a fall accident per 100 000 inhabitants among people aged 65 years and over. One source of error for this indicator, both for comparisons longitudinally and between the counties, can be lack of registration of the cause of an injury.

Women injure themselves to a significantly greater extent than men, although it can be seen in the data reported in certain counties is lower for women than the figures for men in other counties.

**34.1. Fall-related injuries among the elderly**

Number of people treated by hospitalisation or by a physician at a specialised outpatient clinic for a fall injury per 100 000 inhabitants aged 65 years and over. Age-standardised.



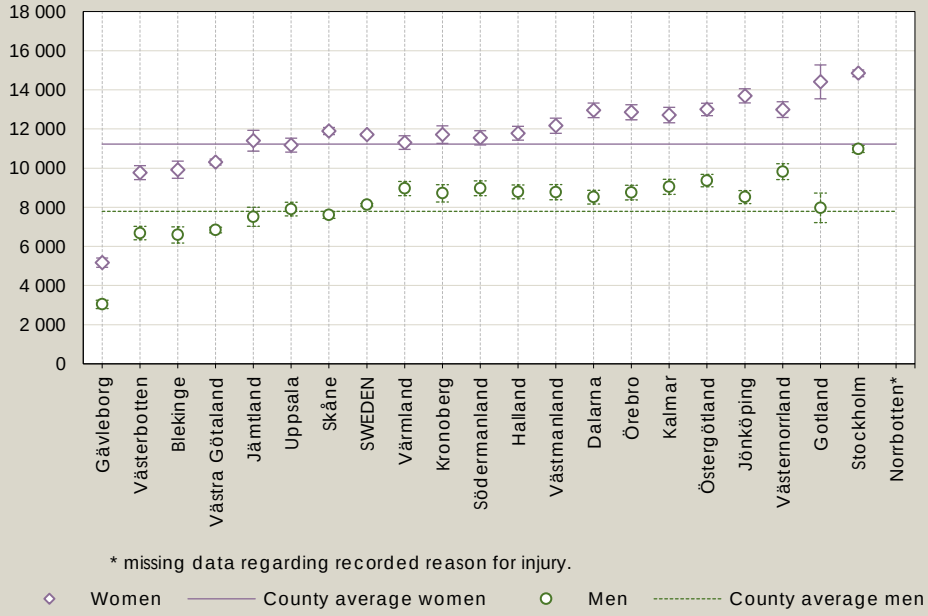

Source: National Patient Register, National Board of Health and Welfare.

For women the results vary between the counties from just over 5 000 to almost 15 000 per 100 000 inhabitants and for men from just over 3 000 to almost 11 000.

**34.2. County. Fall-related injuries among the elderly**

Number of people treated by hospitalisation or by a physician at a specialised outpatient clinic for a fall injury per 100 000 inhabitants aged 65 years and over. Age-standardised, 2015.

**Kvinnor och män** - counties are sorted according to the total statistics for both genders.




* missing data regarding recorded reason for injury.

Women — County average women — Men — County average men

Source: National Patient Register, National Board of Health and Welfare.

Fall accidents can be prevented, for example physical exercise can effectively reduce the risks of both fall and fracture among the elderly. In December 2014 NBHW made the recommendations in the National Guidelines for Musculoskeletal Diseases more stringent in terms of fall prevention measures in the home [44]. Certain types of drugs also confer an increased risk of fall accidents [62].

A number of measures have been shown to be successful in protecting individuals from falling and injuring themselves. Examples of injury prevention measures are physical exercise and balance training, adapting the environment, snow clearance and sanding in the winter, good lighting outdoors, therapy for osteoporosis, regular reviews of medication and sight examinations.

Several of these measures however require collaboration between municipal and county council healthcare. At the municipal level it may be worthwhile to initiate a local fall injury report to provide an overview of the prevalence of fall injuries. These statistics should be able to be monitored longitudinally and comparisons can then be made with the prevalence of injuries in other municipalities. This supporting data can then be used to develop a tangible plan for how the municipalities must structure their injury prevention efforts.

Here the municipalities should focus on certain risk environments and individuals who are particularly vulnerable, which is an assessment that should be made in consultation with healthcare.

### Costs for fall injuries

The costs to society for fall injuries are comprehensive. Specialised care units costs nationwide in 2014 amounted to SEK 7.4 billion. This equates to 5.2 per cent of the total costs of specialised somatic care. The proportion varies from region to region, ranging from 1.9 up to 13.6 per cent. In addition to specialised care, regional healthcare also bears the costs of fall injuries within primary care. These costs have not been able to be calculated. Fall injuries do not just generate costs for regional healthcare. Fall injuries result in people to a greater extent requiring care, welfare and support from the municipalities. The costs for care and welfare in the municipalities as a result of fall injuries were estimated to be at least SEK 3.7 billion in 2014. Of these costs the care of the elderly accounts for SEK 3.6 billion, which corresponds to 3.3 per cent of total geriatric care costs. The proportion of these costs varies between the municipalities, ranging from 0.2 to 10.5 per cent, and from between 1.9 per cent to 4.7 per cent for regional healthcare.

The Swedish Civil Contingencies Agency (MSB) has previously calculated what fall injuries cost society. In 2005 it was calculated that the total costs to society amounted to SEK 22.0 billion. This is the equivalent of SEK 24.6 billion in current terms. The costs for this specialised care area are estimated to be SEK 5.6 billion in current terms and for municipal care and welfare the estimated costs are SEK 2.6 billion. It is not possible to say whether these costs have increased since the MSB calculations were performed or if these calculations were an underestimate. It is clear, however, that the municipal and regional healthcare costs are higher than previously estimated by the Swedish Civil Contingencies Agency.

## Related measurements and statistics

In the report series Regional Comparisons – Healthcare and Welfare for the Elderly the following indicators and measurements are presented that can be related to this indicator: Fall injuries among the elderly; Measures for those at risk of fall injury, Fall risk prevention measures, Malnutrition, pressure ulcers and poor oral health and Fall injury among persons aged 80 years and over.

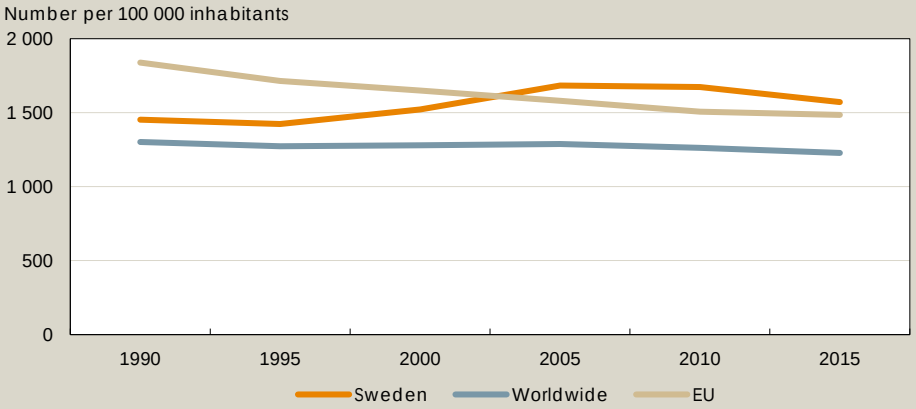
# Fall injury is a major contributory factor for the burden of disease in Sweden

Falls contribute to a significant proportion of the measurement of lost DALYs – *disability adjusted life years* in Sweden. In a global comparison

and in comparison with EU countries for people aged 70 years and over it can also be seen that Sweden is above the mean value compared to the rest of the world and the EU. In Sweden the numbers have increased since 1990 from 1 452 to 1 572 in 2015.

**A.12. Disability-adjusted life years lost due to fall injuries.**

Number of disability-adjusted life years (DALYs) lost due to fall injuries among people aged 70 years and older.




Source: The Institute for Health Metrics and Evaluation (IHME).

The data has been collected by *The Institute for Health Metrics and Evaluation* (IHME), which comprises approximately 1 800 researchers who collect data about premature death, diseases and injuries in approximately 190 different countries [28].

# “Do we have access to healthcare when we need it?”

Accessibility to healthcare is not clearly defined. In Sweden this has often been considered to be a matter of waiting time. It can also be a matter of the distribution coverage of the system with respect to the population, geographical proximity, adequate resources, information, opening hours, continuity, participation, economic factors, rights, discrimination, trust, cultural competence, disabled access and so on [63].

This section reports data for indicators that deal with both accessibility of services and accessibility that is more central to quality of care and patient safety. These often coincide, but can also be conflicting due to displacement effects, where for example a guarantee of care within a certain time for all patients can lead to different prioritisations than a purely medical assessment would have resulted in.

Access to care when people *need* it does not simply mean a right to care within a reasonable time when care is actively *asked for*. Sometimes people are not aware of their own needs, or underestimate them, which in turn may result from the individuals themselves or healthcare being unsuccessful in correctly and at an early stage identifying the need or that the individual does not have sufficient information and knowledge about the system and the help that can be sought.

The system can also assign a lower priority to the needs of certain groups via controls and prioritisations and if certain groups of individuals are better at communicating their needs than others are. This can lead to groups who have needs that are not recognised to an equal extent and who do not have their needs met.

An indicator for dental health examinations in the general population is reported in this section. Economic factors, such as patient fees and lack of income can be viewed as accessibility factors, which is perhaps most apparent for adult dental care where a large proportion of the financing is paid directly by the patient.

Two indicators about the experiences of the patient in interacting with healthcare in terms of participation and continuity are also reported. These aspects deal with several dimensions of good health care, but have among other things been highlighted as aspects of accessibility of care when the patient has been asked [63].

An important prerequisite for inhabitants and patients to have access to care when they need it within a reasonable time is that healthcare in turn has access to adequate resources. In the section *Reporting of background factors* there is a comparison of healthcare resources, such as healthcare personnel and number of hospital beds per inhabitant in different countries.

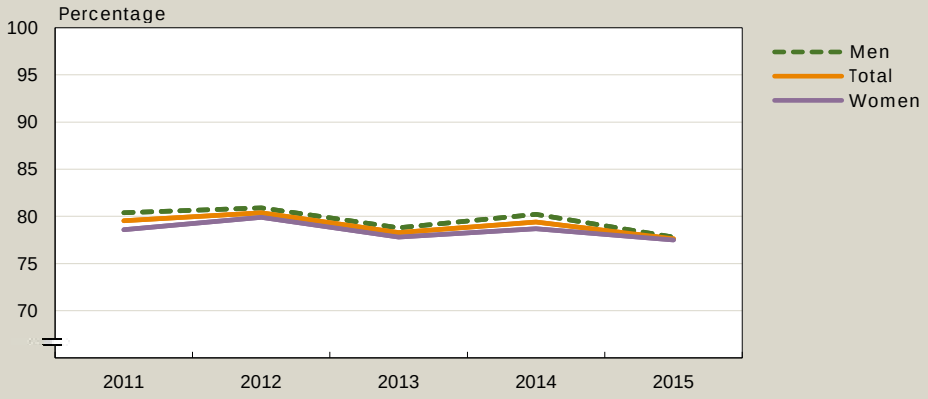
# 35. Access to healthcare

This section reports the perception of the general public of their access to healthcare, regardless of whether they have had contact with healthcare or not over the preceding six months. The data is for 2015 and data collection is based on telephone interviews with randomly selected respondents.

The indicator shows the proportion who entirely or partially agree with the statement “I have access to healthcare when I need it” compared to the total number of respondents (the alternatives *Don't know* and *Can't answer* are excluded). Figure 35.1 shows the nationwide results for the period 2011 to 2015. The proportion who entirely or partially agree with the statement “I have access to healthcare when I need it” were 78 per cent of the respondents in 2015, which was somewhat lower than the results for 2014.

**35.1. Access to healthcare**

Proportion of the general population who wholly or partially agree that they have access to the health care they need.

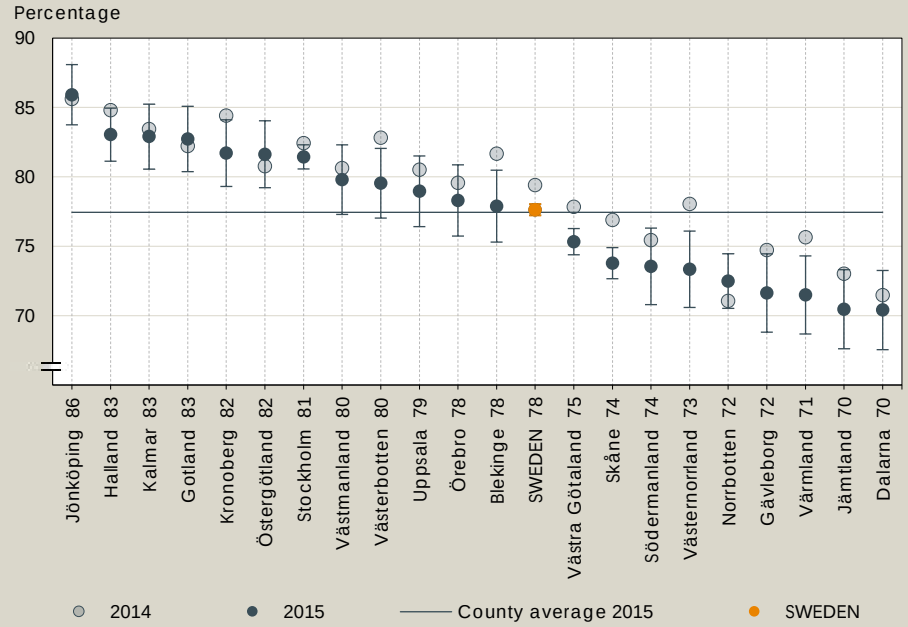



Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

The county councils results vary from 70 to 86 per cent, which can be seen in Figure 35.2.

**35.2. County. Access to healthcare**

Proportion of the general population who wholly or partially agree that they have access to the health care they need.




Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

To influence the perception of the general public about the accessibility of healthcare more information can be provided by healthcare about opening times and alternative ways to enter the system. In addition, the organisational structure and available healthcare resources can affect how the general population perceives accessibility to healthcare.

## Related measurements and statistics

The indicator *Access to healthcare* reflects the experiences of the general public with regard to healthcare accessibility. In the report there are several related indicators that shed light on the perception of accessibility of healthcare from a patient perspective.

# 36. Access to primary care by telephone

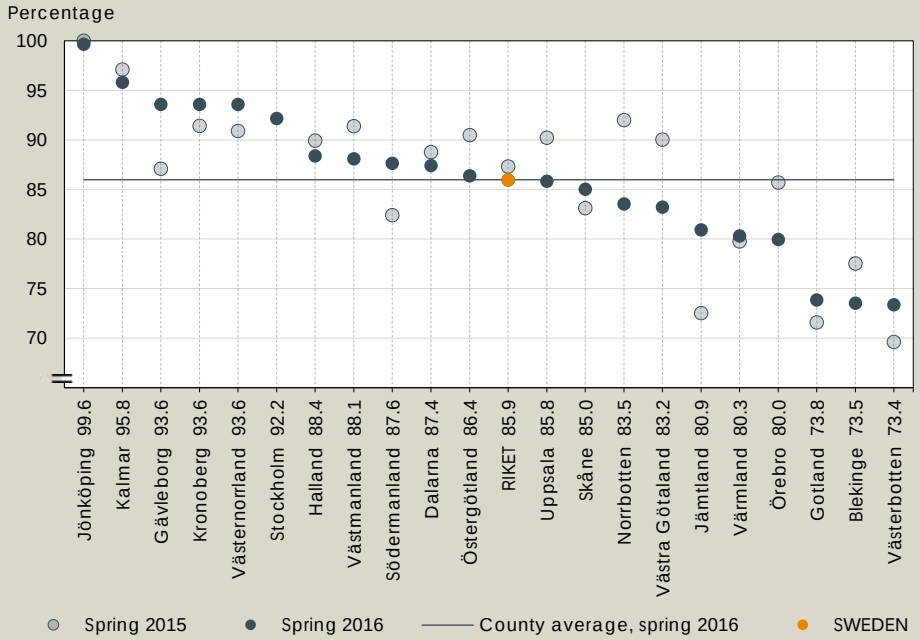
According to the Swedish National Health Care Guarantee every person who telephones a healthcare service must on the same day receive advice or be given an appointment time. To follow this up, telephone accessibility is monitored twice each year. The results reported here are based on monitoring that was performed in the spring of 2016.

All health centres or equivalent units that have a computerised telephone system are expected to report data. In total just over 2 million calls were reported, of which just over 1.74 million received responses with advice about questions or allocation of an appointment time. Nationwide just under 86 per cent of all calls were responded to. The variation between the different counties was between just over 73 per cent up to almost 100 per cent.

The possibilities to contact primary healthcare are affected by the organisational structure and available resources, but also by the type of telephone system used. For healthcare units with inadequate results it could be suitable to make alternative contact and information avenues available.

**36.1. County. Accessibility of primary care by telephone**

Number of answered telephone calls in primary care.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

## Related measurements and statistics

Results for monitoring of National Health Care Guarantee waiting times are available at www.vantetider.se. Results are also stratified by individual unit, such as health centres and clinics.

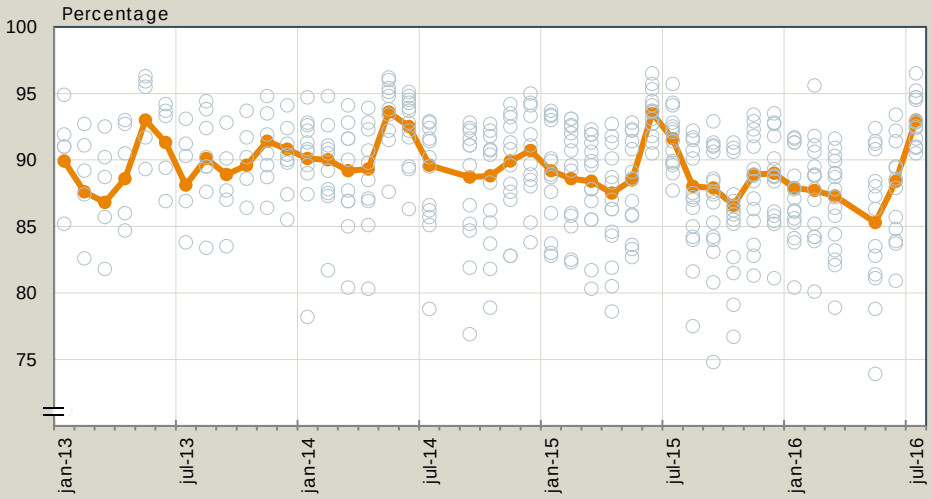
# 37. Appointment with a primary care physician within seven days

This indicator shows the number of patients receiving an appointment with a general practitioner within seven days during the monitoring period. Visits to a physician for a health certificate, vaccination, check-up or follow-up are not included. When reporting waiting times the health centre can state whether patients themselves have requested a time that is further away than seven days, even if the patient was initially offered a time within seven days. This waiting time is called “patient requested waiting time” and is excluded from the reporting. In all monitoring of waiting times there can be methodology problems that need to be considered. In addition, the medical indications and criteria for when a patient must be given a particular treatment varies throughout the country.

The proportion nationwide in July 2016 was 93 per cent.

**37.1. Appointment with primary care physician within seven days**

Proportion of appointments with a primary care physician within seven days. Monthly reporting.*




* The number of reporting regions has successively increased. Only regions reporting data are included in the national statistics.

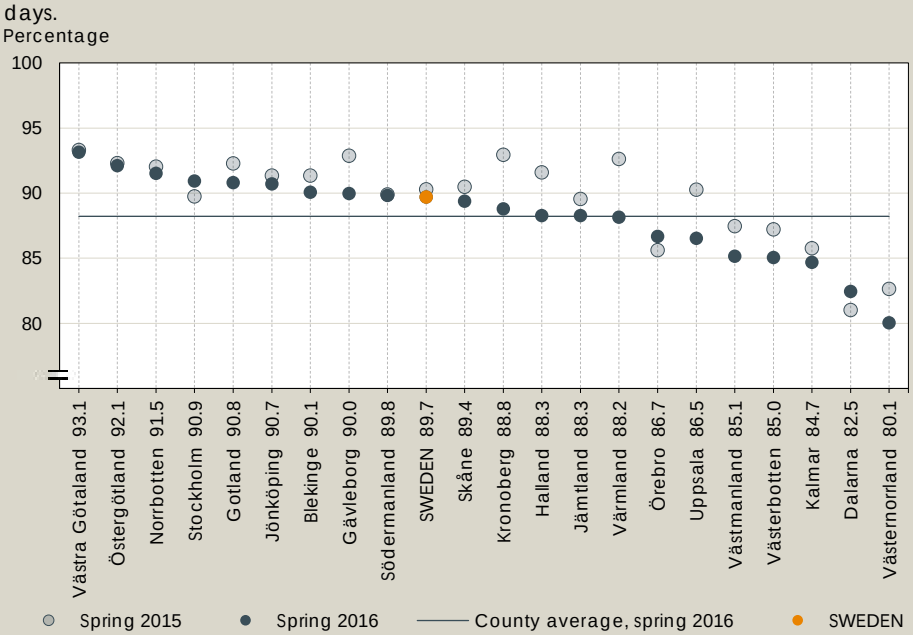
Sweden Counties

Source:Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions,

The results from the spring of 2016 are presented for the county councils in Figure 37.2. The proportion of patients receiving an appointment with a primary care physician within seven days varies from 80.1 per cent to 93.1 per cent for the different county councils.

**37.2. County. Appointment with primary care physician within seven days**

Proportion of patients receiving an appointment with a primary care physician within 7 days.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

The possibility for people to be given an appointment with a primary care physician within seven days is stated in the National Health Care Guarantee. The possibilities of fulfilling the criteria in the National Health Care Guarantee can be affected by the number of patients, the number of available physicians and the primary care organisational structure. Analyses of regional and local waiting times are important, as these can be affected by patient cohorts and various system factors [63].

### Related measurements and statistics

Results for monitoring of National Health Care Guarantee waiting times are available at www.vantetider.se. Results are also stratified by individual unit, such as health centres and clinics.

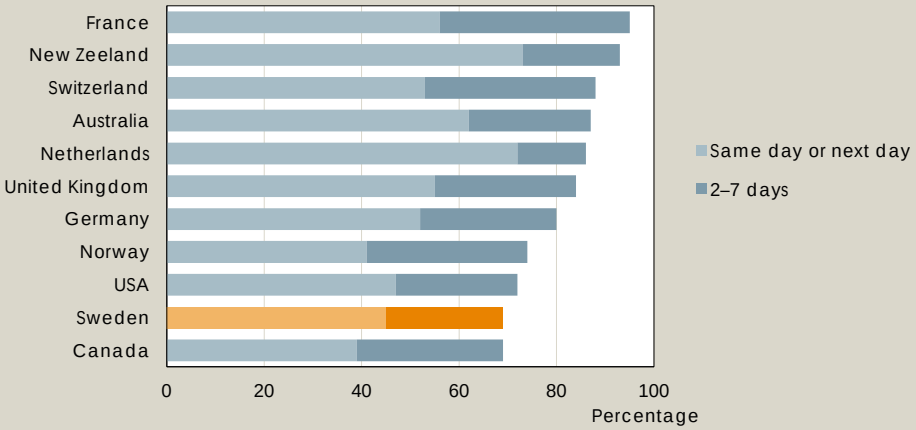
## Booking an appointment is difficult, according to respondents in Sweden and Canada

*The Commonwealth Funds* most recent edition of the *International Health Policy Survey* (IHP) was carried out in 2016. Eleven countries are included in the survey and in Sweden just over 7 000 people aged 18 years or over participated by answering a telephone questionnaire. Of those who responded when telephoned, 31 per cent agreed to participate in the survey [64, 65].

When asked how quickly it was possible to book an appointment with a physician or nurse, 69 per cent of the Swedish participants answered seven days or less. This was the lowest proportion, together with respondents in Canada. The IHP data deviates in a couple of aspects from the main indicator, which uses data from the *Waiting Times in Health Care Database*, but there is nevertheless a noticeably large difference between the Swedes who responded to the IHP questions in 2016 compared to the information reported for the main indicator in the spring of 2016, with the data being approximately 20 percentage points lower in the IHP survey. Respondents were informed that they could not include attending an Accident & Emergency department in their answers to the IHP survey.

**A.13. Countries. Time until an appointment within 7 days**

Respective proportion who responded “Same day or following day” or “2–7 days” to the question: “The last time you were ill or needed medical care, how quickly could you book an appointment with a physician or nurse?” 2016.




Source: International Health Policy Survey, The Commonwealth Fund.

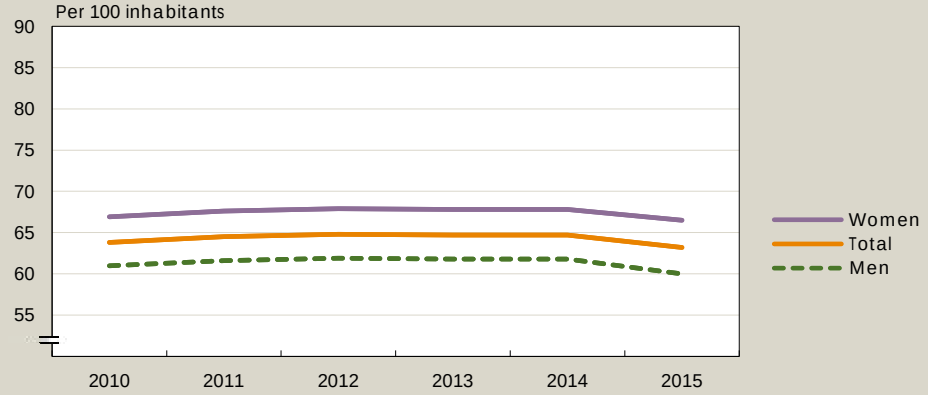
# 38. Dental health examination

The goal of dental care is good dental health and dental care on equal terms for the entire population (§ 2 Swedish National Dental Service Act). For children and adolescents up to the age of 19 years dental care is free of charge and the county council is responsible for inviting children and adolescents to attend dental health examinations. Adult dental health examinations are however voluntary and prices are not fixed, with the patients themselves paying a significant proportion of the costs. Patients are therefore themselves responsible for contacting the dental health services, and this responsibility, together with the costs themselves, can mean that people abstain from regular visits to the dentist.

This indicator measures the number of people per 100 inhabitants who have attended a dental health examination at any time during the past two years. Nationwide the number was just over 63 per 100 inhabitants in 2015. More women than men had attended a dental health examination; almost 67 per 100 women compared to 60 per 100 men.

**38.1. Dental health examination**

Number of people per 100 inhabitants who have had a dental health examination at any time during the past two years, age-standardised data.



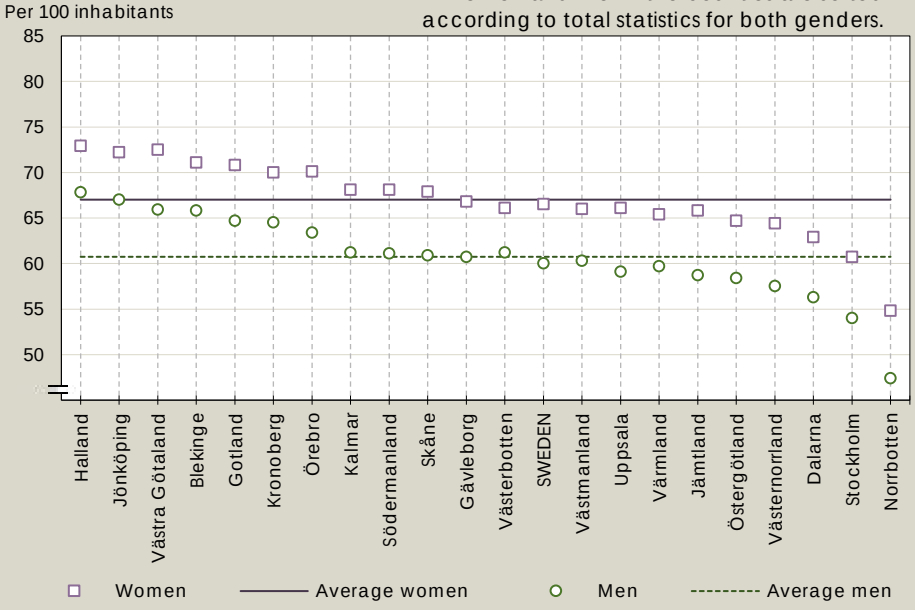

Source: Swedish National Dental Health Register, National Board of Health and Welfare.

The variation in the results between the counties for women ranges from barely 55 per 100 inhabitants up to almost 73 per 100 inhabitants. For men the number of people who have had a dental health examination was just over 47 to almost 68 per 100 inhabitants.

**38.2. County. Dental health examination**

Number of people per 100 inhabitants who have had a dental health examination at any time during the past two years, age-standardised data from 2015.

**Women and men** – the counties are sorted according to total statistics for both genders.



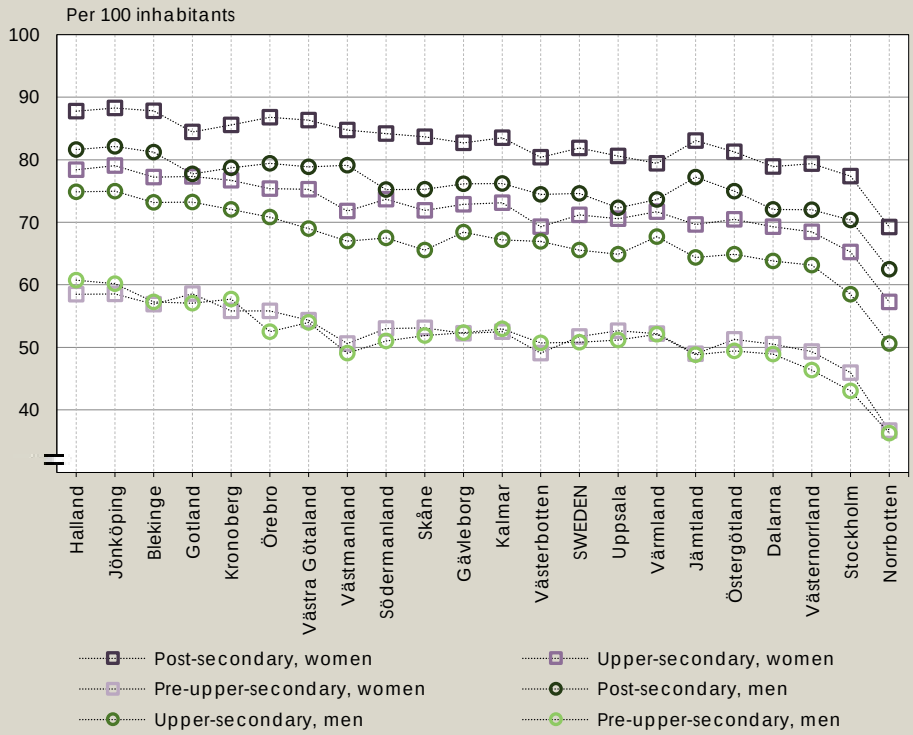

Source: Swedish National Dental Health Register, National Board of Health and Welfare.

For a comparison with education level the age limit was set between 35–79 years. There are distinct differences in the results between people with a post-secondary school education, an upper-secondary school education and only a pre-upper-secondary school education. These differences exist in

every region. The general pattern for the genders, where women to a greater extent than men have attended a dental health examination, is clear among those with a longer education period in all counties. Among those with only a pre-upper-secondary school education women often have a value equal to that of men, or even lower.

**38.3. Education and county. Dental health examination**

Number of people per 100 inhabitants who have had a dental health examination at any time within the past two years, age-standardised data, age 35-79 years, 2015.




Source: Swedish National Dental Health Register, National Board of Health and Welfare.

One way to increase the proportion of people attending a dental health examination over the past two year period could be to improve how patients are received. Dental health patients certainly already perceive that they are treated respectfully, with 95 per cent stating this, but the unemployed, low income earners, the poorly educated and people born in a non-EU country perceive that they are respectfully treated to a lower degree than average [66]. An improved reception for this group could improve the results for this indicator.

Socioeconomically vulnerable groups and people not born in Sweden have to a higher degree than the nationwide average abstained from seeking dental care for economic reasons, which means that there is an inequality issue in the consumption of dental healthcare and dental health [66].

Subscription dental care is one way to encourage people to regularly visit a dentist. According to the Swedish Dental Service 700 000 people had subscription dental care on 31 December 2015 [67].

In the section *Reporting of background factors* data is presented about the number of dentists per 1 000 inhabitants for OECD countries, and a

comparison shows that Sweden has a high number of dentists per 1 000 inhabitants – 0.86. In comparison Turkey has 0.29 dentists per 1 000 inhabitants.

### *Related measurements and statistics*

In the NBHW national performance assessment of dentistry report in 2013 a number of indicators were presented. Examples of such indicators are *Disease treatment of caries* and *Caries-free 12-year old children* [66]. The results are available in the NBHW statistical database.

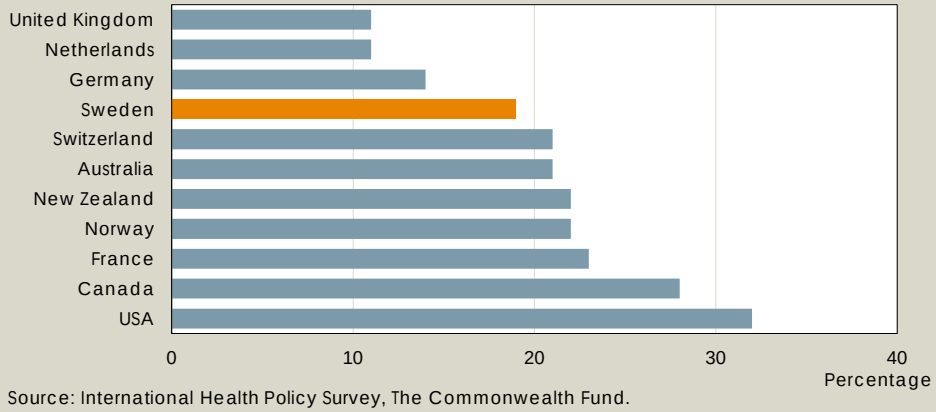
## One in five said they abstained from dental care because of the cost

*The Commonwealth Funds* most recent edition of the *International Health Policy Survey* (IHP) was carried out in 2016. Eleven countries are included in the survey and in Sweden just over 7 000 people aged 18 years or over participated by answering a telephone questionnaire. Of those who responded when telephoned, 31 per cent agreed to participate in the survey [64, 65].

The survey included a question that asked respondents if they had abstained from dental care over the past year because of the cost, and 19 per cent of the Swedish participants said that this was the case. This was more than in Great Britain, the Netherlands and Germany, but was lower than many other countries, particularly Canada and the USA, where the proportions were 28 and 32 per cent, respectively, of respondents.

**A.14. Countries. Abstained from dental care due to the cost**

Proportion who responded "yes" to the question: "In the past 12 months have you abstained from dental treatment or dental examination due to the cost?", 2016.




Source: International Health Policy Survey, The Commonwealth Fund.

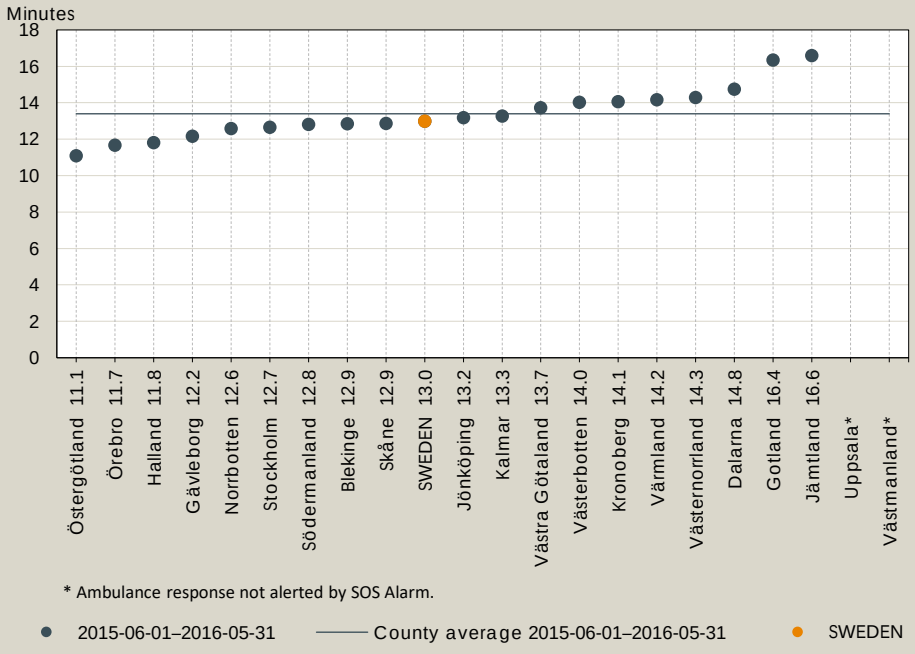
# 39. Ambulance response time

The technology developments within ambulance care have led to more advanced health care being carried out directly in the ambulance. This has meant that many chains of care have become more efficient and that the quality of care has improved. The time taken by the ambulance to reach a severely ill or injured person is often decisive.

This indicator shows the response times for priority 1 alarms calls, or in other words emergency calls that according to NBHW regulations concern an acute life-threatening symptom or accident. The statistics are provided by the SOS Alarm emergency call service. For a twelve-month period spanning June 2015 until May 2016 almost 450 000 priority 1 alarms calls were made to the SOS Alarm service. The average response time for these emergency calls was 13 minutes. The average time differs by up to 5 minutes and 30 seconds between the counties. Factors that affect response times are primarily how the county has chosen to organise ambulance care, for example with regard to the number of ambulance stations and the size of the area the individual ambulance station has to cover.

**39.1. County. Ambulance response time**

Median length of time between emergency call and ambulance arrival for priority 1 alarms.




Source: SOS Alarm.

The conditions that are handled as priority code 1 emergencies depend on the assessment criteria used by SOS Alarm, and a medical index is used as a basis for prioritisations. Prioritisations are not however standardised nationwide and SOS Alarm reports that several counties demand that prioritisations must be adapted according to the respective chain of care [68].

### Related measurements and statistics

This indicator has previously been presented at municipal level in the *Regional Comparisons Safety and Security* report from SALAR. NYSAM publish key figures for ambulance care and in 2015 this encompassed 13 counties. Examples of published statistics are *Outcome of emergency response times within respective time intervals - primary ambulance call outs priority code 2* and *Number of potential ambulance hours per 1 000 inhabitants in the region*.

## Ambulance response times in Great Britain

It is difficult to make international comparisons of ambulance care. The reasons for this include the fact that prioritisations are different and that the healthcare systems are structured in different ways. The National Health Service (NHS) in Great Britain publishes monthly reports showing results for ambulance care, and in December 2015 it took less than 8 minutes from the time of an emergency call until the ambulance arrived in approximately 73 per cent of priority code 1 cases [69].

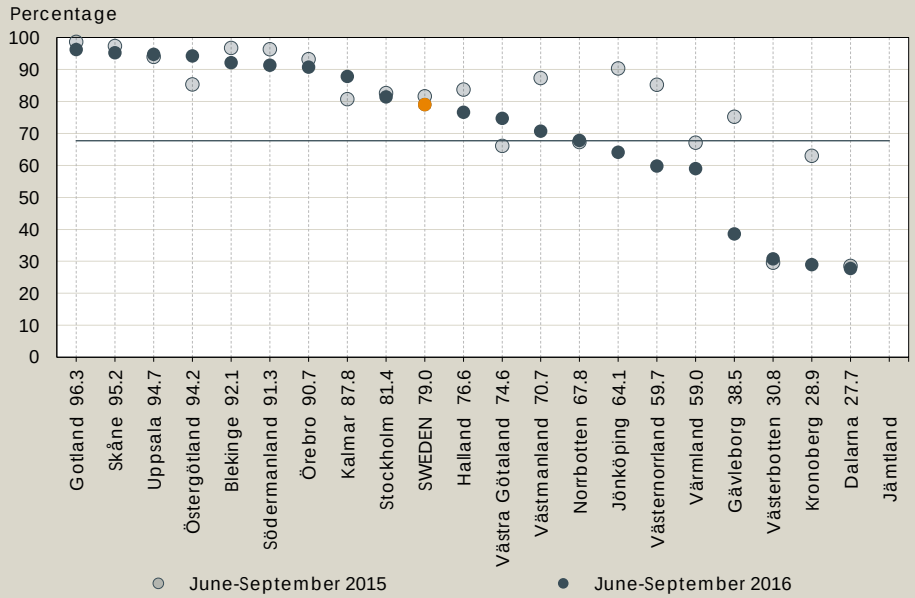
# 40. Child and adolescent psychiatry – assessment/treatment within 30 days

SALAR and the Swedish Government have entered into an agreement about a specific initiative concerning the psychiatric health of children and adolescents. A first appointment at a specialised child and adolescent psychiatric care unit must be offered within 30 days. After that an in-depth assessment and treatment start must be offered within 30 days. The proportion of children and adolescents waiting a maximum of 30 days for this indicator is based on information reported each month to the national waiting time database. There can be methodology problems in monitoring waiting times. For example, the medical indications and criteria for when a patient should be given a certain therapy varies throughout the country.

Figure 40.1 shows the period from June to September 2016 and the corresponding period for 2015. Nationwide the proportion for the most recent period was 79 per cent, which is a certain reduction compared to the June–September 2015 period. There is great variation between the different counties – from barely 28 to more than 96 per cent.

**40.1. County. Child and adolescent psychiatry – assessment/treatment within 30 days**

Proportion waiting a maximum of 30 days for assessment/treatment at a child and adolescent psychiatric care unit.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

The waiting times can be shortened by appropriate provision of personnel, better ways of working and more efficient use of available resources. For example, the Swedish Agency for Health Technology Assessment and Assessment of Social Services (SBU) has compiled a knowledge comparison of the diagnosis and treatment of ADHD, which has demonstrated that treatment results are affected by how the care and welfare support is organised with respect to access to assessment, treatment, rehabilitation and support [70].

An important part of the work with child and adolescent psychiatric health is the health of schoolchildren. The Swedish Schools Inspectorate concluded in a review of the health of schoolchildren that a school psychologist was often not involved in preventive efforts and that half of the children and adolescents included in the review had experienced illness or anxiety. The Swedish Schools Inspectorate also concluded that pupils should be given more knowledge of psychiatric illness [71].

## Related measurements and statistics

The results for the follow-up of the National Health Care Guarantee are available at www.vantetider.se. Results are also stratified by individual unit, such as health centre and clinic. Information about children and adolescents waiting a maximum of 30 days for an first BUP appointment are also included.

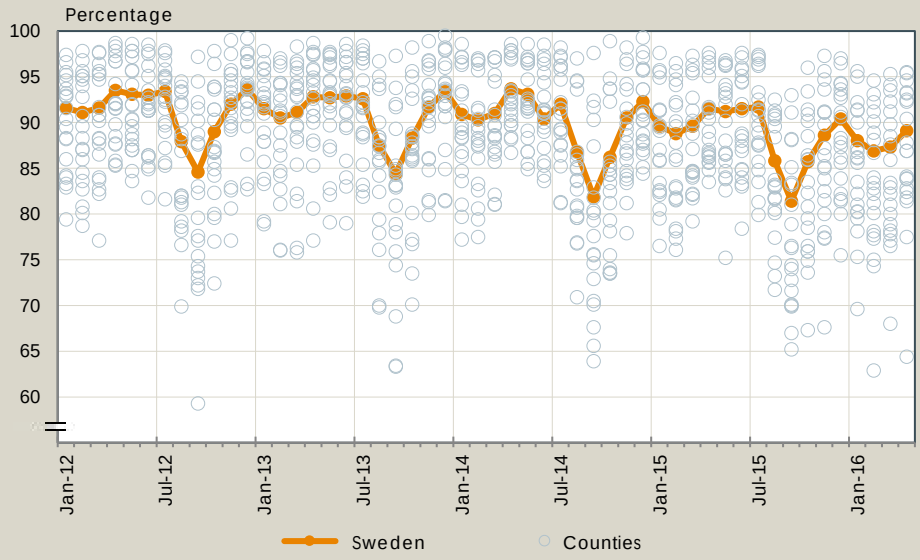
# 41. Specialist appointment within 90 days

This indicator is based on data that is reported each month to the national waiting time database. The data includes the number of people waiting for a booked appointment with a specialist within 25 specialised care and intervention areas. The indicator shows the proportion of patients who have waited a maximum of 90 days for an appointment with a specialist, in relation to the total number of patients waiting for an appointment. Waiting times chosen by the patient are excluded. Waiting patients are defined as both patients with an appointment and patients waiting for an appointment, for whom a decision about care has been made.

The indicator does not include patients who have refused care or patients who should wait longer than the set limit of 90 days. Also excluded are medical services, assessments and examinations, return visits and provision of aids and medical devices, with the exception of trial hearing apparatus appointments. The proportion varies between measurement points and nationwide was 89.1 per cent in April 2016. The lowest proportions for each respective year were observed in September.

**41.1. Specialist appointment within 90 days**

Proportion of visits for planned specialised care within 90 days, monthly.

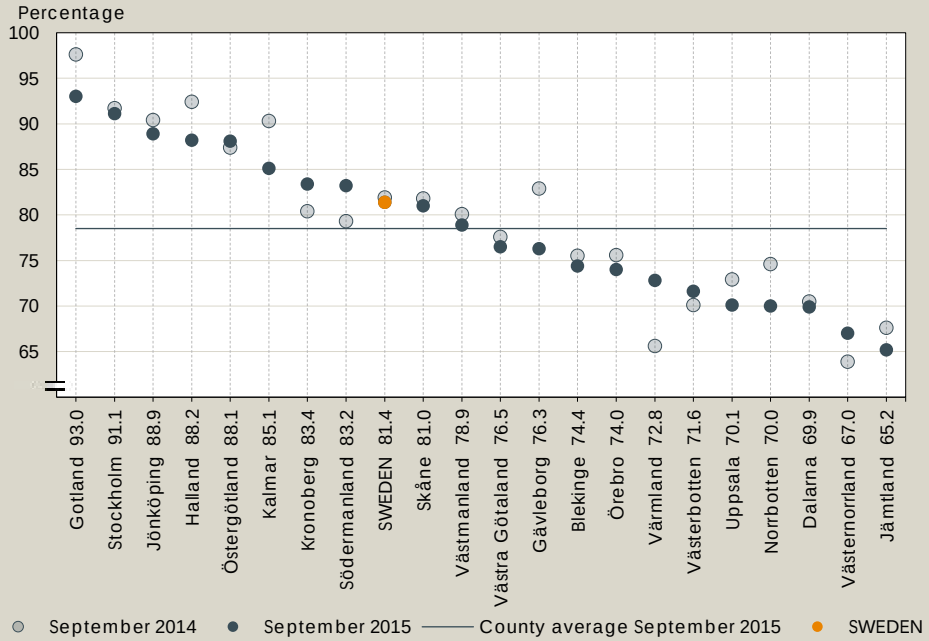



Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

Figure 41.2 shows the proportion of patients in each county who have waited a maximum of 90 days for an appointment with a specialist in September. The variation between counties ranged from 65 per cent up to 93 per cent in September 2015. There can however be methodology problems in the monitoring of waiting times. For example, the medical indications and criteria for when a patient must be given a certain therapy varies throughout the country.

**41.2. County. Specialist appointment within 90 days**

Proportion of visits for planned specialised care within 90 days.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

The Swedish Agency for Health and Care Services Analysis has followed up and analysed the Swedish National Health Care Guarantee and has concluded that waiting times can be reduced by provision of the required personnel, improved ways of working and more efficient use of available resources. In addition the Agency has concluded that the counties do not provide sufficient information to patients in terms of the possibilities to change to another care provider if the care cannot be given within the set time period [72].

## Related measurements and statistics

The results for the follow-up of the National Health Care Guarantee are available at www.vantetider.se. Results are also stratified by individual unit, such as health centre and clinic.

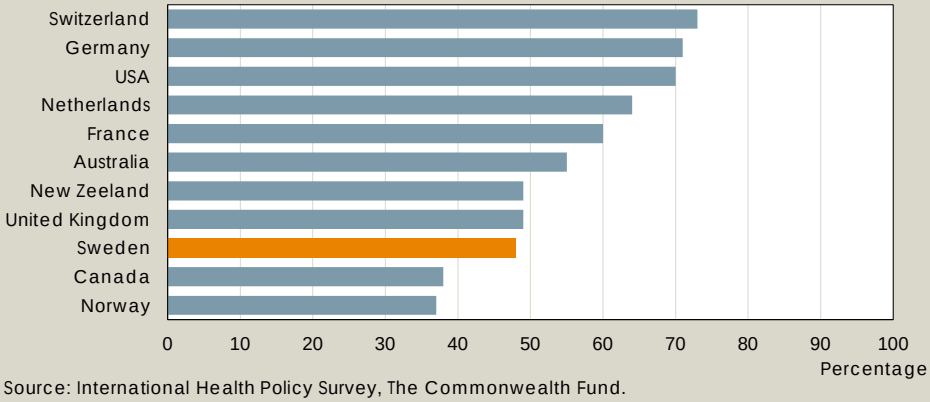
# Waiting times for specialist care in 11 countries, Sweden is far from the top

*The Commonwealth Funds* most recent edition of the *International Health Policy Survey* (IHP) was carried out in 2016. Eleven countries are included in the survey and in Sweden just over 7 000 people aged 18 years or over participated by answering a telephone questionnaire. Of those who responded when telephoned, 31 per cent agreed to participate in the survey [64, 65].

In Switzerland, Germany and the USA at least 70 per cent said that they were given an appointment within four weeks to see a specialist. Of the respondents in Sweden just over half said that they had waited a shorter time than four weeks.

**A.15. Countries. Appointment with a specialist within four weeks**

The proportion of those who met with a specialist in the past two years who responded that they had waited less than four weeks when asked "After you had been advised to or decided to visit a specialist, how many days, weeks or months did you have to wait for an appointment?", 2016.



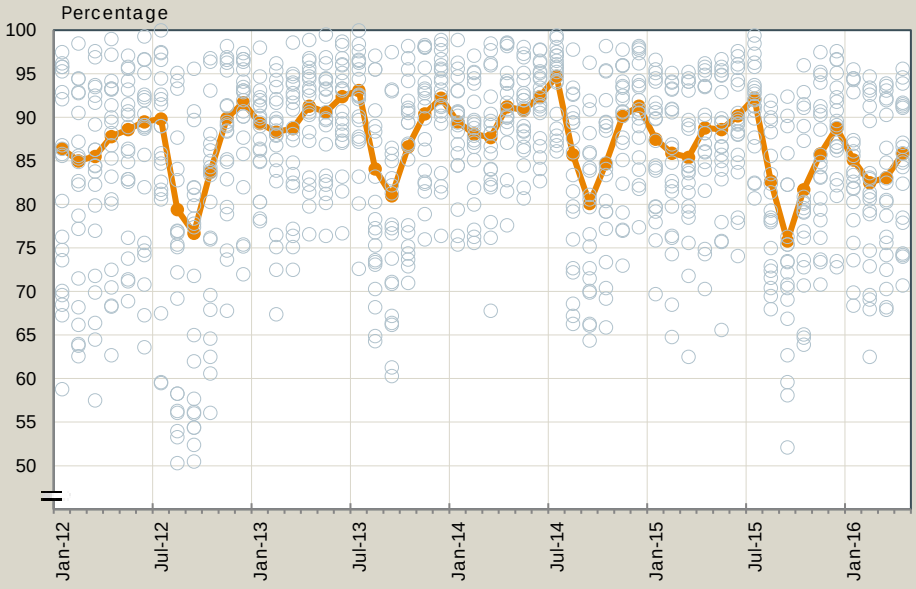

Source: International Health Policy Survey, The Commonwealth Fund.

# 42. Surgery within 90 days

This indicator is based on data that is reported each month to the national waiting time database. The information describes the number of people waiting for a planned operation or specialised treatment within 54 different specialised care and intervention areas.

**42.1. Surgery within 90 days**

Proportion of operations/interventions in planned specialised somatic care within 90 days.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

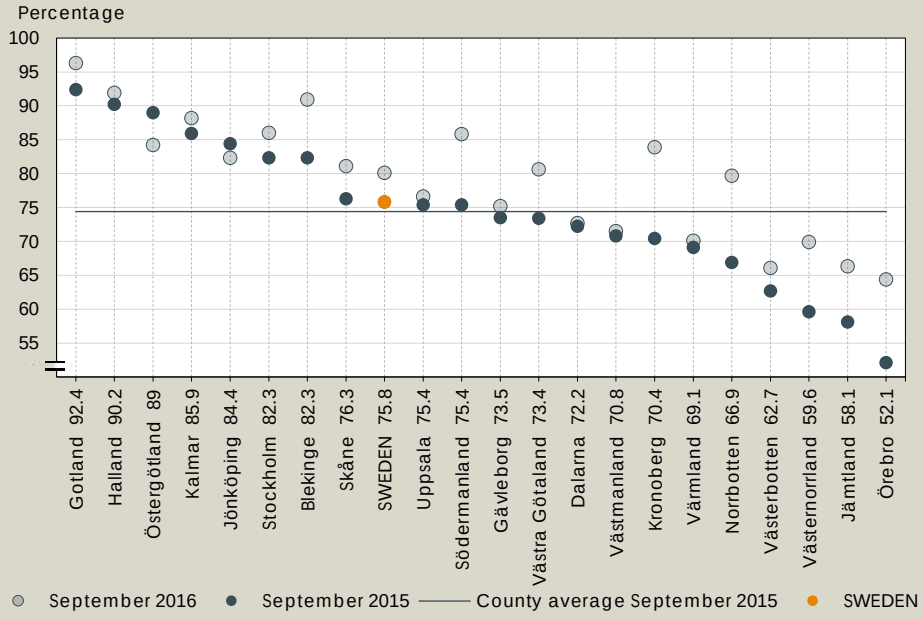
This indicator shows the proportion of patients who have waited a maximum of 90 days for an operation or treatment within specialised care, in relation to

the total number of patients waiting for an appointment. Waiting times chosen by the patient are excluded. Waiting patients are defined as both patients with an appointment and patients waiting for an appointment, for whom a decision about care has been made. Nationwide the results for the indicator show that almost 86 per cent of patients are operated on within 90 days, April 2016. The longitudinal results in Figure 42.1 show that the proportion reduced sharply during August and was lowest in September each year.

Figure 42.2 shows the proportion of patients who waited a maximum of 90 days for a specialised care operation in September in the different counties. The proportion varied between the counties from 52 per cent to just over 92 per cent in September 2015. There can however be methodology problems in all monitoring of waiting times. For example, the medical indications and criteria for when a patient must be given a certain therapy varies throughout the country.

**42.2. County. Surgery within 90 days**

Proportion of operations/interventions in planned specialised somatic care within 90 days.




Source: Waiting Times in Health Care Database, Swedish Association of Local Authorities and Regions.

## Related measurements and statistics

The results for the follow-up of the National Health Care Guarantee are available at www.vantetider.se. Results are also stratified by individual unit, such as health centre and clinic.

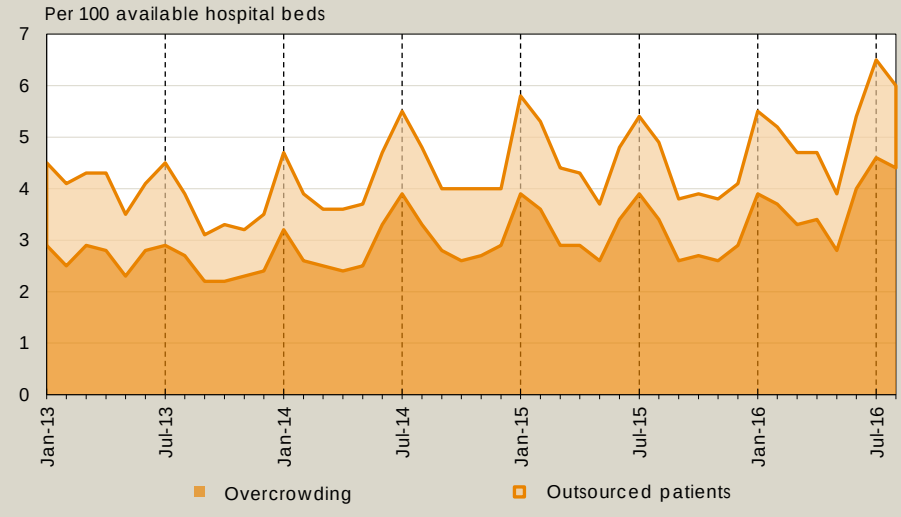
# 43. Overcrowding and outsourced patients

Having the available resources and competence in relation to the needs that exist are important aspects of accessibility of healthcare. A hospital bed is a place within inpatient care that has a physical environment with equipment and personnel to ensure patient safety and a safe working environment. Overcrowding means that an admitted patient is cared for in an environment that does not meet the criteria of a hospital bed. An outsourced patient means that an admitted patient is cared for at a care unit other than one that has the specific competence and medical responsibility for the patient.

Throughout the world there has been a transition from inpatient care to more outpatient care, which has contributed to better medical results and more efficient healthcare. Sweden is in the vanguard of this development process. Despite this positive development there is still a problem of overcrowding and outsourced patients. This problem also seems to have accelerated during the measurement period. Figure 43.1 shows overcrowding and patient outsourcing for the respective months, nationwide. There is a clear pattern that shows the problem is greatest in January and in June–August, and that the peaks are higher at the end of the measurement period than at the beginning, for example with a distinct difference between 2013 and the corresponding months in 2016. Certain sources of error can be incorporated in the measurement data, for example the application of definitions and difficulties in registration and patient administrative systems.

**43.1. Overcrowding and outsourced patients**

Overcrowding and outsourced patients per 100 available hospital beds in somatic hospital care, monthly nationwide statistics.



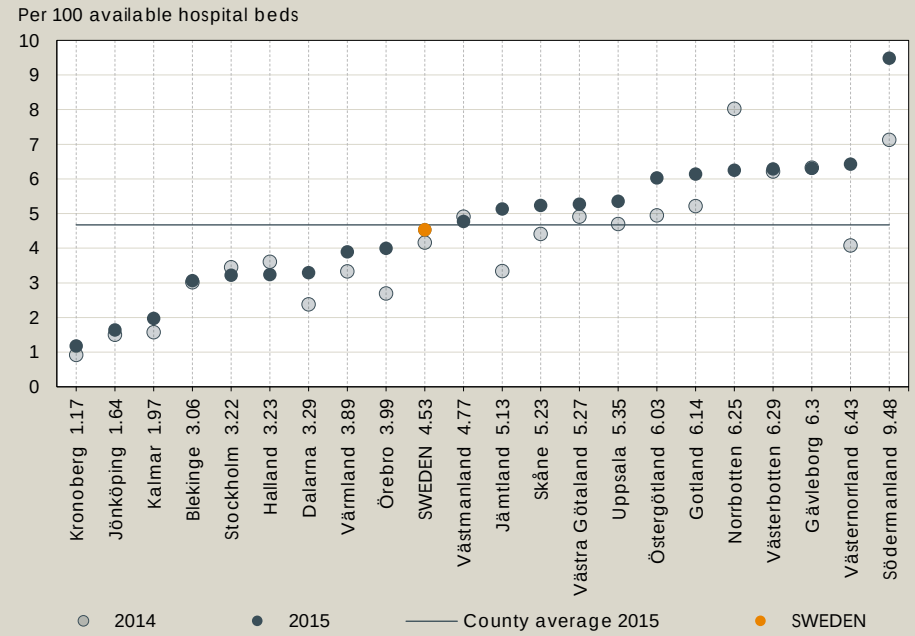

Source: Swedish Association of Local Authorities and Regions.

Figure 43.2 shows the number of overcrowded and outsourced patients per 100 available hospital beds, stratified by county for 2015 and 2014.

The nationwide average for 2015 was 4.5 overcrowded or outsourced patients per 100 available hospital beds, which was an increase compared to the whole of 2014. For the individual counties the overcrowding numbers and outsourced patients per 100 available hospital beds varied in 2015 from 1.2 to 9.5. An overcrowded care ward means that patients are cared for in a place that does not have the medical equipment that may be needed and a physical working environment that increases the risk of care injuries.

**43.2. County. Overcrowding and outsourced patients**

Overcrowding and outsourced patients per 100 available hospital beds in somatic hospital care.




Source: Swedish Association of Local Authorities and Regions.

As one phase in the efforts to improve patient safety, SALAR and NBHW, together with county councils, have developed a model for monthly monitoring of overcrowding and outsourced patients. The model can be used to improve knowledge, provide support for the implementation of knowledge, assist monitoring and development of efforts at local and regional level and facilitate monitoring and evaluation at national level.

A NBHW report on overcrowding and outsourcing of patients (*Modell för kunskapsstyrning av överbeläggningar och utlokalisering av patienter)* describes an investigation by Stockholm County Council that demonstrated that the need for hospital beds can be affected by

- better distribution of the number of available hospital beds
- better cooperation between emergency care services and the other stakeholders
- improved patient safety efforts
- process development [73].

### Related measurements and statistics

The indicators *Overcrowding numbers per 100 hospital beds* and *Outsources patients per 100 hospital beds* are reported in *Healthcare in Numbers*. In addition, the indicator *Hospitalized patients who are able to be discharged* is related to this indicator.

## Sweden reports the fewest number of hospital beds per inhabitant

The OECD collects data about the number of hospital beds in different countries. Of all of the countries included, Sweden reports the fewest number of hospital beds per inhabitant. Fewer hospital beds can be a sign that healthcare works more efficiently, for example by shortening the average length of stay in hospitals, preventive measure, home care and outpatient care. An increasing and, in certain areas, high prevalence of overcrowding and outsourcing however indicates that hospital resources in certain cases have been insufficient for the actual needs.

## 44. Hospitalized patients who are able to be discharged

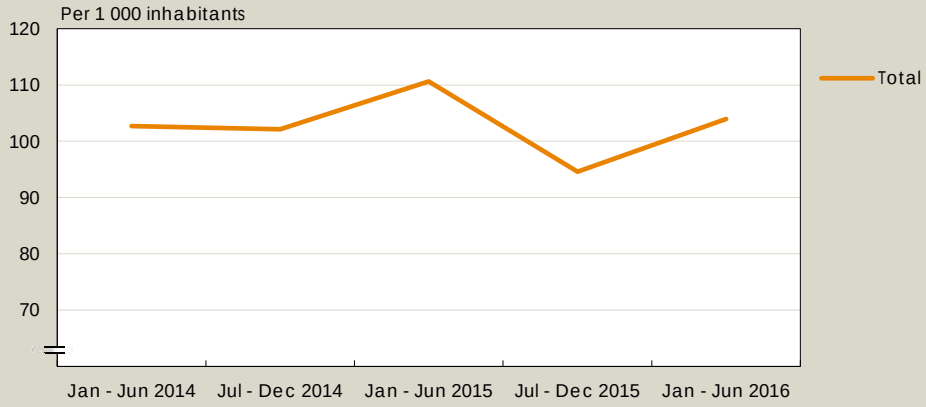
An important aspect of cooperation within the healthcare system is that a patient who no longer needs hospital resources must be able to leave hospital for further care at home or in another care format. A patient is able to be discharged from hospital if a physician assesses that the patient no longer requires inpatient hospital care. If the physician assesses that the person cannot manage on their own after discharge from hospital the physician must call a care planning meeting.

The municipalities have the responsibility for ensuring that elderly patients receive continued care and supports when they leave hospital and the municipalities also have the responsibility for paying for patients who remain in hospital for five days after the point that they are able to be discharged.

This indicator shows the number of days people remain hospitalized after they are able to be discharged, per 1 000 inhabitants. Only patients aged 65 and over are included. Nationwide this amounted to 104 days during the measurement period of January to June 2016, which is a decrease of almost 7 days compared to the same period in 2015.

**44.1. Hospitalized patients who are able to be discharged**

Number of days patients are cared for in hospital after they are able to be discharged per 1 000 inhabitants. Only people aged 65 and over.

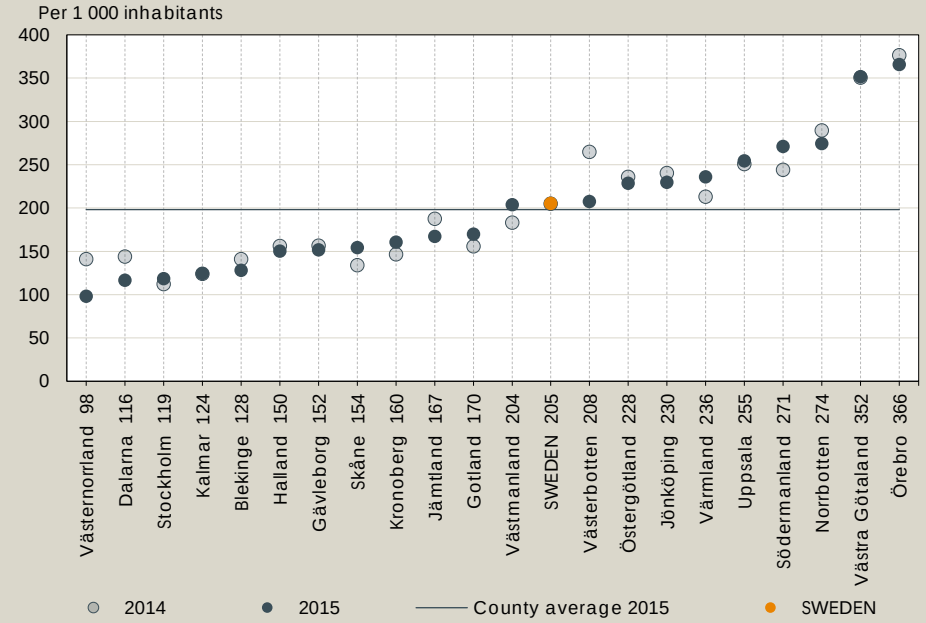



Source: Swedish Association of Local Authorities and Regions.

There are large variations between the counties in the number of patients who remain hospitalized after they are able to be discharged per 1 000 inhabitants. The numbers vary from between 98 days up to almost 366 days. The results are based on statistics from 2015.

**44.2. County. Hospitalized patients who are able to be discharged**

Number of days patients are cared for in hospital after they are able to be discharged per 1 000 inhabitants. Only people aged 65 and over.




Source: Swedish Association of Local Authorities and Regions.

A large number of days for patients who are able to be discharged remaining hospitalized per inhabitant can be a sign that the municipalities do not have sufficient capacity or that there are other insufficiencies in the interactions between the municipalities and the county councils. Therefore there is a need

for development of earlier cooperative measures for those patients who require continued care in another care format.

### Related measurements and statistics

A related indicator that in certain cases can affect the number of patients who remain hospitalized after they are able to be discharged is *Waiting time for special housing*. That indicator is presented below in this report and in *Kolada*.

## 45. Waiting time for special housing

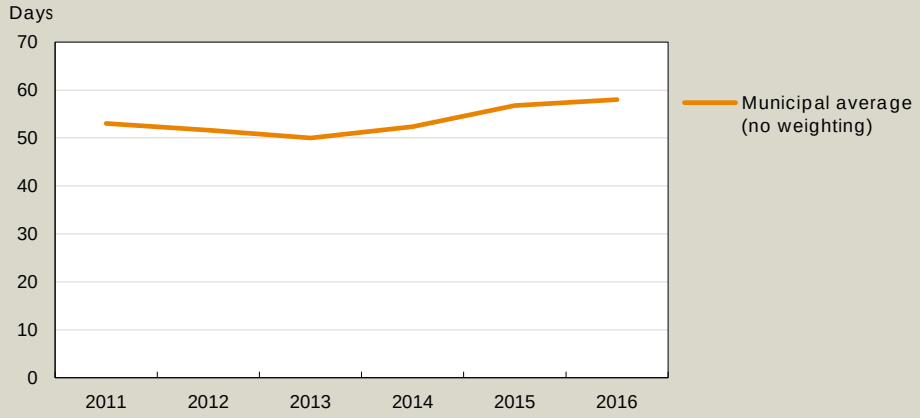
The municipalities are responsible for healthcare in special residential forms, up to care nurse level. A person who needs special housing must not need to wait for the offer of a place, as a long wait can affect the health of the elderly person. The municipalities must report non-executed decisions to the Health and Social Care Inspectorate (IVO) if a decision is not carried out within three months. Between 2010 and 2013 just over 24 000 non-executed decisions were reported to the IVO in accordance with the Social Services Act. All decisions, however, were not about special housing [74].

This indicator shows the preparedness and capability to plan access to special housing of the municipalities in relation to the needs of the general population. The municipalities carry out their own monitoring of the average number of waiting days from application to an offer of a place in a special housing unit for people aged 65 years and over, and the indicator is based on statistical data reported on a voluntary basis.

The results for this indicator show a mean value of 58 days for the municipalities participating in the 2016 analysis. At the national level the waiting time has increased by just over 1 day compared to 2015 and 8 days in comparison to 2013. The council for municipal analysis

**45.1. Waiting time for special housing**

Waiting time in days from date of application until offer of a moving-in date for special housing, average figures for municipalities.

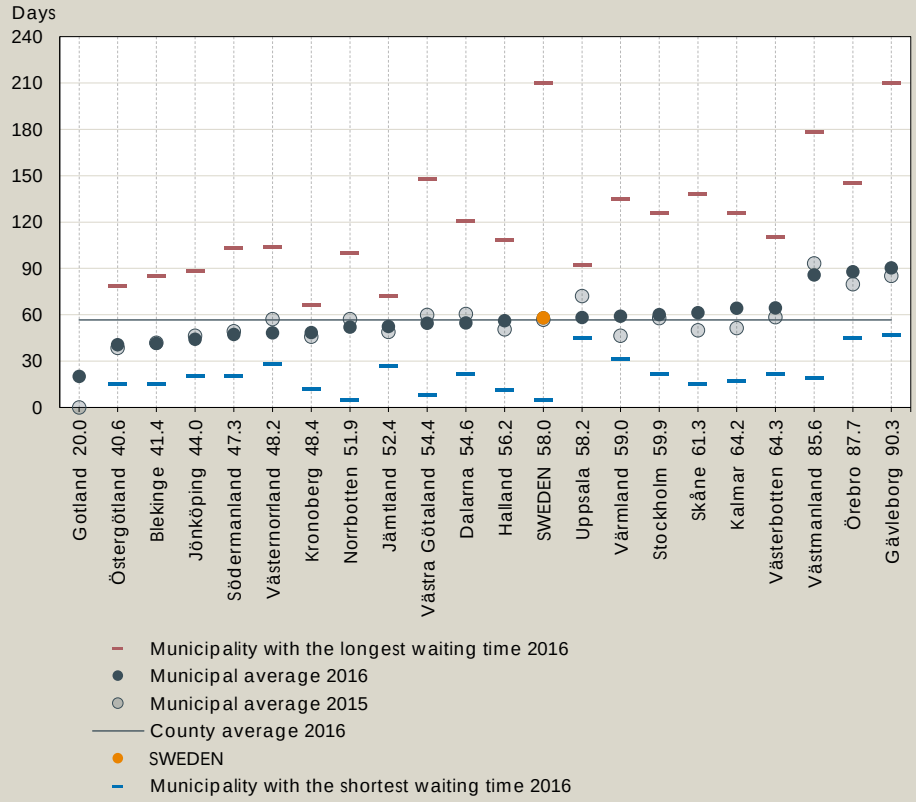



Source: Municipal and regional database, Kolada, the council for municipal analysis.

The results vary between the counties and municipalities. The range between the municipalities varies from 5 to 210 days. The waiting time can also vary greatly between the municipalities within a region. In the county that has the largest discrepancies at municipal level the difference is 163 days. The number of days varies between the counties from 20 to 90 days.

**45.2. County. Waiting time for special housing**

Waiting time in days from date of application until offer of a moving-in date for special housing for the elderly. Average figures for municipalities in the county and values for the municipalities with the shortest and longest waiting times in the county.




Source: Municipal and regional database, Kolada, the council for municipal analysis.

To meet the needs of the elderly for special housing within three months the municipalities need to have good planning for future requirements, for example through local provision plans. One reason that advance planning must be good is that new construction takes a long time and costs a lot, and the municipalities have been able to apply for state funding from the Swedish National Board of Housing, Building and Planning for the new construction and renovation of special housing. From 2007 up until June 2015 state funding was granted for just over 13 000 new constructions and renovations.

The municipalities can also create what is known as interim housing forms. This type of housing is adapted for the elderly but has no care personnel. The purpose of the interim housing forms is to increase the security of the elderly and reduce the need for special housing, among other things. It has also been possible to apply for state funding for interim housing

forms and up until mid-2015 such funding had been granted for just over 3 500 residential places.

Waiting time can also be affected by cooperation between the municipalities and county councils healthcare, including collaboration concerning people who are able to be discharged from hospital.

### Related measurements and statistics

A related indicator that can influence waiting time in certain cases is *Hospitalized patients who are able to be discharged*. This indicator is presented in this report and in *Kolada*.

## Low proportion of the elderly in special housing forms in Denmark and Sweden

There are certain difficulties in comparing Sweden to other countries when it comes to special housing forms, as there is wide variation in what is classed as and regarded to be housing for the elderly. Table 2 shows the proportion of people aged 65 years and over in different hosing forms for the elderly in the Nordic countries. Sweden has a somewhat lower proportion of the elderly in these housing forms, although the differences vary depending on age group.

**Table 2. Proportion of people aged 65 years and over living in special housing for the elderly, reported for the Nordic countries, per cent**

| Age group | Denmark[1] | Faroe Islands[2] | Finland | Iceland[3] | Norway | Sweden[4] |
|---|---|---|---|---|---|---|
| | 2014 | 2013 | 2013 | 2014 | 2014 | 2014 |
| 65+ | 4,0 | 9,5 | 5,2 | 8,0 | 7,7 | 4,8 |
| 80+ | 12,8 | 24,7 | 14,3 | 18,1 | 21,5 | 14,3 |

Source: Nordic Social-Statistical Committee (NOSOSKO).
1. Includes people in care homes, sheltered housing, special housing and housing specifically for people aged 67 years and under. Data reflects the second quarter of 2014.
2. Age groups 67–74 years, 75–79 years and 80 years and over.
3. Includes people in care homes and sheltered housing. Data for December 2014.
4. Based on data for October 2014. What are known as serviced apartment buildings for the elderly may also be included in the reporting.

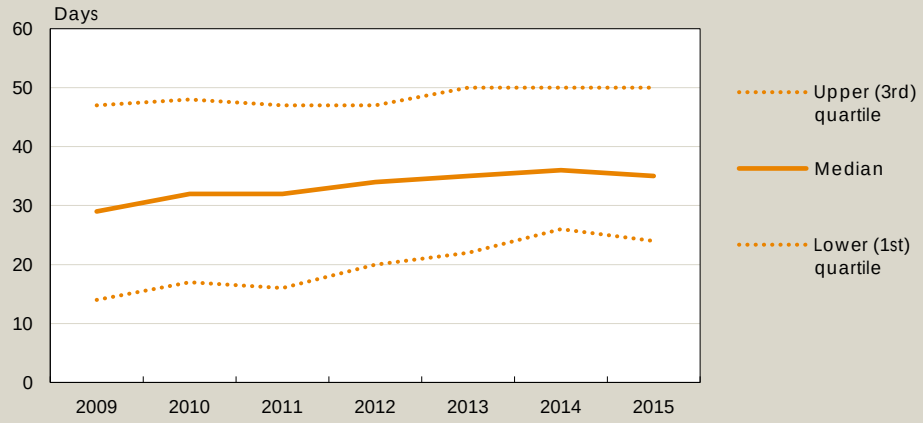
## 46. Waiting time from diagnosis to treatment for colon cancer

For the sake of the patient healthcare should strive for as short a waiting time as possible. Here the waiting time from diagnosis to the initiation of treatment is reported. For colon cancer that often means surgery.

Figure 46.1 shows the waiting time in days from diagnosis to the start of treatment for colon cancer. The median waiting time nationwide was 35 days in 2015. The lowest quartile for waiting time was 24 days and the highest quartile was 50 days.

**46.1. Waiting time from diagnosis to treatment for colon cancer**

Waiting time in days from diagnosis to the start of treatment for colon cancer.

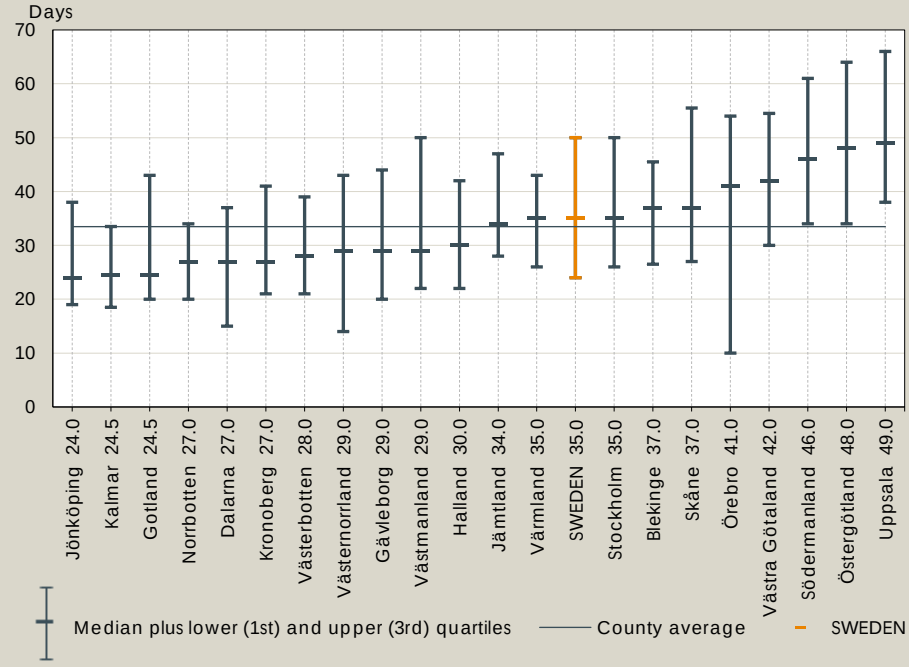



Source: Swedish National Quality Registry for Colorectal Cancer Treatment.

The variation between the counties for the median (when 50 per cent of patients had begun a treatment) was from 24 to 49 days.

**46.2. County. Waiting time from diagnosis to treatment for colon cancer**

Waiting time in days from diagnosis to the start of treatment for colon cancer, 2015.




Source: Swedish National Quality Registry for Colorectal Cancer Treatment.

During 2016 work with standardised care plans (SCP) has continued and SCP has been introduced for 18 diagnoses. Work will continue in 2017.

### Related measurements and statistics

An indicator is shown here as an example of waiting times within cancer care. Different types of waiting times and lead times are measured and published for different types of cancers in the various quality registers.

In conjunction with the development and implementation of standardised care plans (SCP) for a number of cancer forms, the monitoring of waiting times and lead times is also being revised. The measurement points are therefore often different from those that were previously monitored by the various quality registers. The starting point is therefore often from a "well-founded suspicion" rather than a referral or established diagnosis. Measurements and data collection are still at the development and quality assurance stage. In conjunction with the development of SCP there have also been targets set for waiting times for the various cancer forms and patient groups.

## 47. Continuity and coordination

Continuity and coordination of care are aspects of efficient and individually adapted care, but also of accessibility. For example, continuity and coordination have been highlighted by patients when they have been asked what they consider to be accessible care [63].

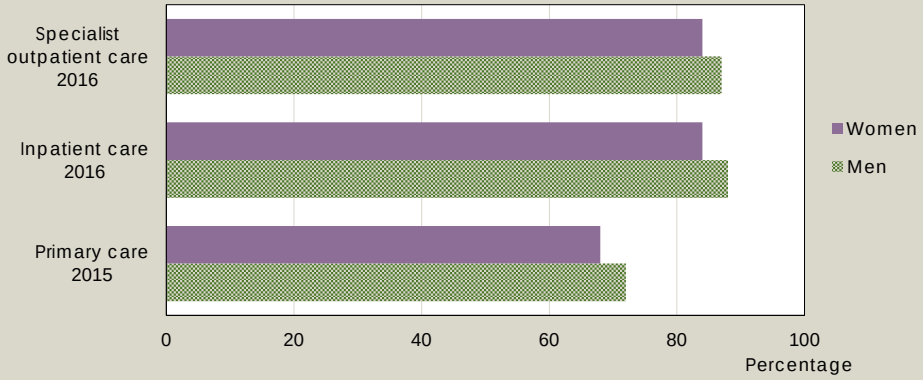
This indicator is a combined measurement of five questions from the national patient survey that were designed to collectively capture patient perceptions of the ability of healthcare to provide continuity and coordination. The survey is carried out for different aspects of care activities, and all aspects are not covered on every occasion. Figure 47.1 shows that the results were poorer for primary care than for inpatient and specialised outpatient care. It should be taken into consideration that the questions included in the measurements are similar but not exactly the same for the three different healthcare areas of operation. For primary care monitoring the questions were:

- Can you see the same physician/nurse when you visit a clinic/health centre?
- Do you get to see the physician/nurse you want to see?
- If during your visit you talked to more than one member of staff, was the information you were given consistent?
- Did you feel that the personnel collaborated well?
- Do you feel that the personnel at the clinic/heath centre coordinate your contacts with care services to the extent you need?

For the most recent measurements the results were lower for women than for men within all three healthcare activity areas. The proportion of men who experienced continuity and coordination in specialised outpatient care in 2016 was 87 per cent, compared to 84 per cent of women. For inpatient care the proportion for men was 88 per cent and 84 per cent for women. For primary care in 2015, 72 per cent of men and 68 per cent of women stated that continuity and coordination was experienced.

**47.1. Continuity and coordination**

Proportion of patients who experienced continuity and coordination in their care. The proportion is based on the combined results of several survey questions. Results from several measurements.

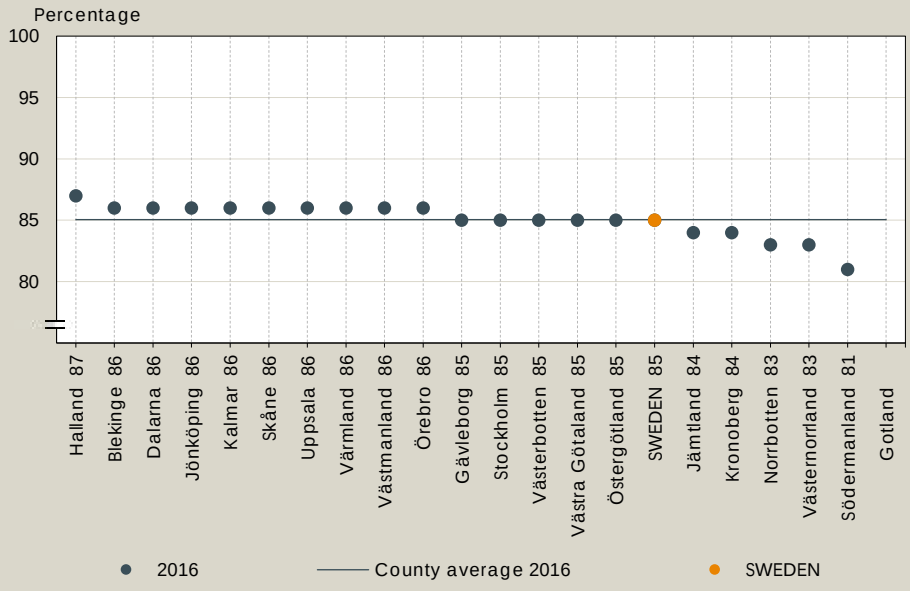



Source: National Patient Survey, Swedish Association of Local Authorities and Regions.

Figure 47.2 shows the county councils results for specialised outpatient care in 2016. The results vary from 87 to 81 per cent, and the majority of the county councils have a value of 86 or 85 per cent. The response frequency for the survey was 47 per cent.

**47.2. County. Continuity and coordination in specialised outpatient care**

Proportion of patients who experienced continuity and coordination in their care when attending specialised outpatient care, based on the combined results of several survey questions.




Source: National Patient Survey, Swedish Association of Local Authorities and Regions.

In international comparisons Sweden has shown poor results in comparison to other countries for different measures of continuity and coordination of healthcare [75]. This is also cited as an improvement area in a government issued investigation into health care efficiency, *Effektiv vård* [76].

## Related measurements and statistics

To advance the results for this dimension a first step is to examine the results from the approach of the questions included in the combined measurement. Data from the National Patient Survey is also available at the individual unit level, such as for clinics and health centres, via the website *npe.skl.se*.

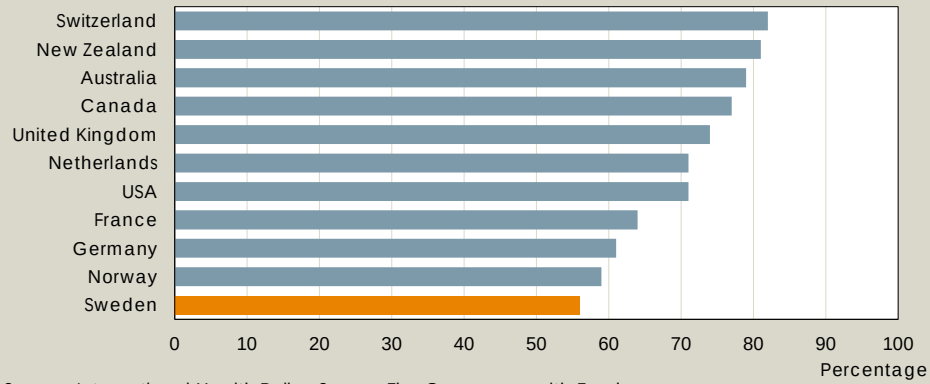
# Sweden shows poor results for coordination of care

*The Commonwealth Funds* most recent version of the IHP was carried out in 2016. Eleven countries were included in the measurements and for Sweden just over 7 000 people aged 18 or over participated. Of those who answered when telephoned, 31 per cent completed the interview [64].

In general Sweden demonstrated comparatively poor results for questions concerning continuity, communication and coordination in relation to patients and between different care areas. This pattern has also been seen in previous IHP surveys, both when the general public has been asked about its interaction with healthcare and when care personnel have been questioned. One example from the most recent survey is that of those who had need of help with coordination of care, 56 per cent of the Swedish participants stated that they often or always received help with this from their prescribing physician or clinic. This was the lowest proportion among the countries investigated. This is despite Sweden demonstrating a distinct and continuous improvement when the results of previous IHP surveys are examined. In 2010, for example, the result was only 38 per cent [65].

**A.16. Countries. Help with coordination of care**

Proportion who answered “Always” or “Often” when asked: “How often does your regular physician or someone from your physician's surgery help to coordinate or plan the care you receive from another physician or site?”, 2016. Only those who do not state that they have no need of coordination or do not have a regular physician or clinic.




Source: International Health Policy Survey, The Commonwealth Fund.

# 48. Participation and involvement

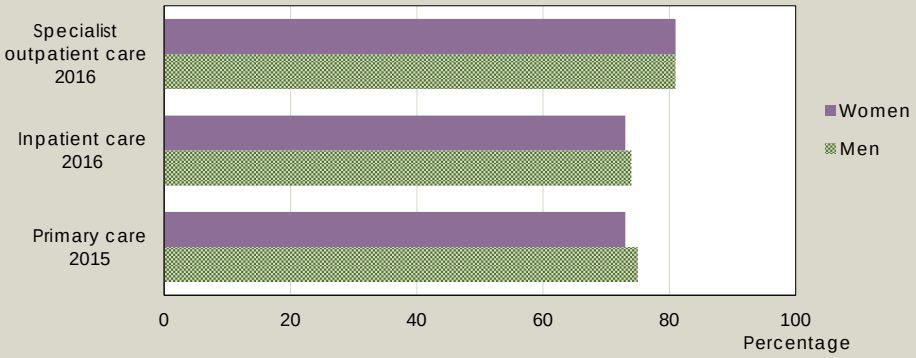
Participation and involvement reflect aspects of individually adapted and patient-focussed care. The possibilities for the patient to be involved in the process and decisions about his or her own care also constitutes an aspect of accessibility. Among other things, this has been highlighted when patients have been asked what accessible care means for them [57]. The questions included in this indicator for primary care were:

- Did the care personnel give your family/relatives the information they wanted?
- Did the care personnel allow you to participate in decisions concerning your care/treatment?
- Would you have liked to participate more in decisions concerning your care/treatment?
- Did the care personnel take your own experience of your illness/health status into account?

In specialised outpatient care 81 per cent of both women and men experienced that they felt participatory and involved in their care in 2016. For inpatient care the proportion among men was 74 per cent, compared to 73 per cent among women. In the most recent primary care measurement in 2015, 73 per cent of women felt that they were participatory and involved, compared to 75 per cent of men.

**48.1. Participation and involvement**

Proportion of patients who experienced being participatory and involved in their care, based on the combined results of several survey questions. Results from several measurements.

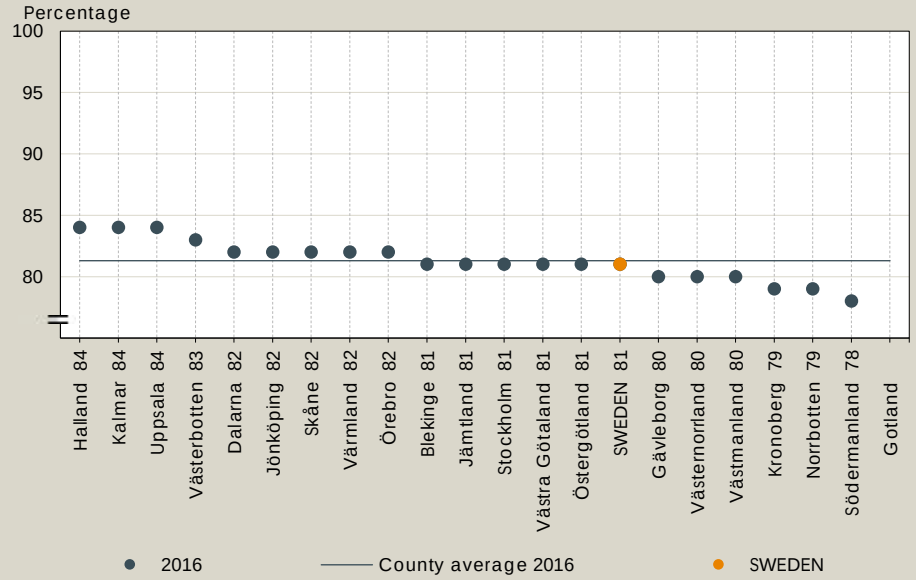



Source: National Patient Survey, Swedish Association of Local Authorities and Regions.

Figure 48.2 shows the results for the counties in the measurement of specialised outpatient care in 2016, where the response frequency was 47 per cent. The nationwide value was 81 per cent and the results for the counties varied from 84 down to 78 per cent.

**48.2. County. Participation and involvement in specialised outpatient care**

Proportion of patients who experienced being participatory and involved in their care when attending specialised outpatient care, based on the combined results of several survey questions.




Source: National Patient Survey, Swedish Association of Local Authorities and Regions.

In international comparisons Sweden has demonstrated poor results in relation to other countries for different measurements of participation and involvement [65].

## Related measurements and statistics

To advance a first step is to examine the results of the questions included in the combined measurements. Data from the National Patient Survey is also available at the individual unit level, such as clinics and health centres, via the website *npe.skl.se*.

# “How does healthcare contribute to sustainable good health care?”

This section reports indicators that do not directly reflect good health care but that are regarded to concern important prerequisites for good results now and in the future. The indicators represent a range of different such prerequisites:

- The legitimacy of the system among the general public.
- Antibiotic resistance.
- Staff conditions.
- Generation of new knowledge and information for development.

To a certain extent this is about the sustainability of the healthcare system, but there are also indicators that are reported in other indicator areas that concern aspects of sustainability. How indicators for results and quality are developed collectively could be an indication of the current developmental potential in the system. How much resources that are used and how the preconditions are developed for financing them are also aspects of sustainability.

## 49. Confidence in healthcare

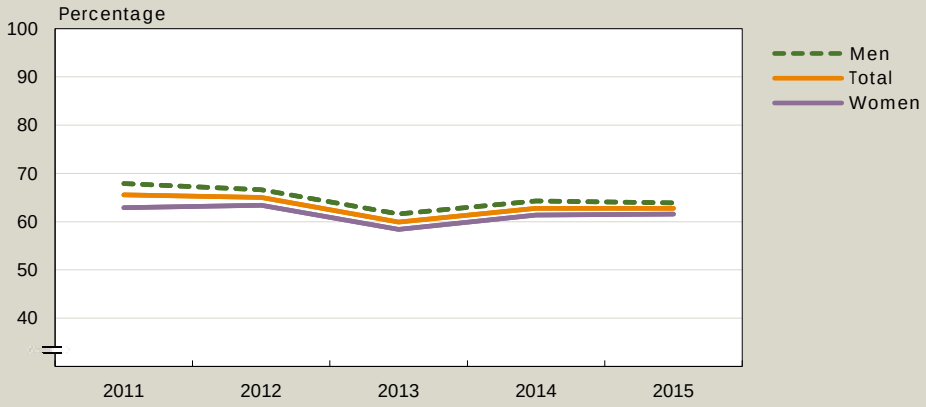
For a healthcare system to be sustainable it is important that those who contribute to its funding and use its services have confidence in the system, its performance and its personnel.

The indicator *Confidence in healthcare* reflects the confidence of the general public, regardless of whether the inhabitants have recently had healthcare contact or not. The indicator is derived from the *Healthcare barometer* and shows the proportion who have great confidence or reasonably high confidence in healthcare in their own county. People who were not able to answer the question are excluded.

In 2015 barely 63 per cent nationwide had great confidence in healthcare. Almost 62 per cent of women and 64 per cent of men stated that they had great confidence in healthcare. Approximately 38 000 people answered the question in 2015. The so called corrected response rate was 54.2 per cent and the non-responders include those who chose not to participate (23.1 per cent) and those who could not be contacted (22.6 per cent) [77].

**49.1. Confidence in healthcare**

Proportion of the general population who have great confidence or very high confidence in healthcare.

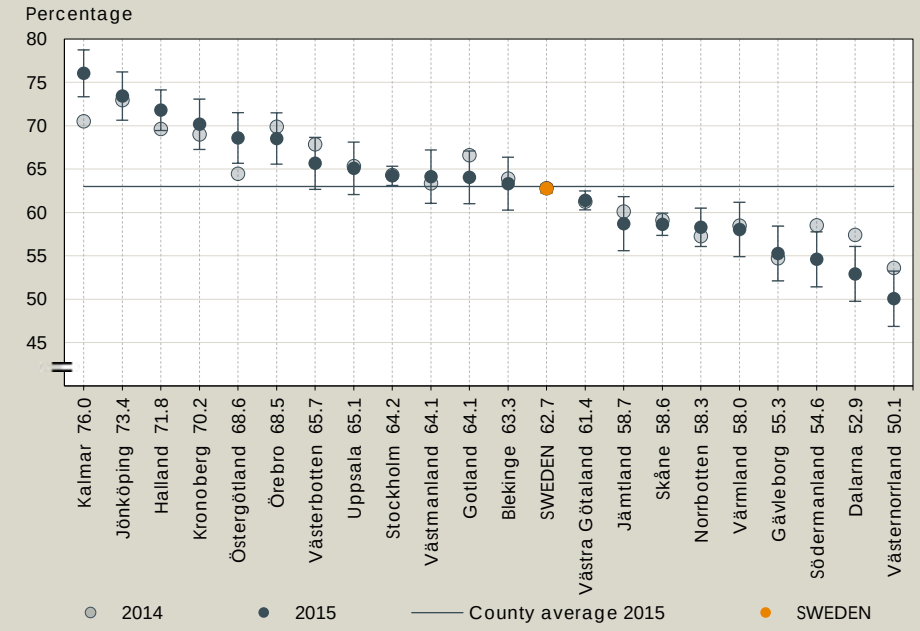



Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

The proportion with great confidence in healthcare varied between the counties from 50 to 76 per cent in 2015.

**49.2. County. Confidence in healthcare**

Proportion of the general population who have great confidence or very high confidence in healthcare.




Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

To a large extent the Swedish general public has confidence in hospital care and to an even higher degree has confidence in the nursing and healthcare personnel groups, according to the Society Opinion Media Institute (SOM) National Survey. The groups that the general public has the greatest confidence in are the police and teachers [78]. The confidence of the general public in healthcare, according to the same survey, has improved in recent

years. Public confidence is affected by personal patient experience. It is therefore important to retain the confidence of patients and the general public in the healthcare system. It is difficult however to ensure that the survey covers municipal healthcare, which is an important part of the healthcare system. Around 400 000 people received health care interventions from the municipalities in 2015, and among these the majority were elderly people [79].

### Related measurements and statistics

The indicator *Confidence in healthcare* can be related to several other indicators – in part there are a number of indicators that further illuminate the views of the general public about healthcare in the Healthcare Barometer, and in part there are additional indicators that highlight patient experiences in the SALAR National Patient Survey.

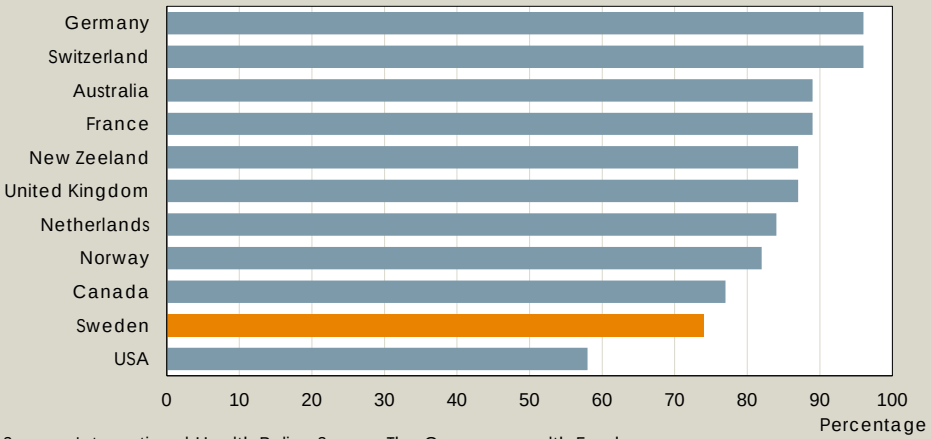
## More people than in other countries say that healthcare needs to change

*The Commonwealth Funds* most recent edition of the *International Health Policy Survey* (IHP) was carried out in 2016. Eleven countries were included in the measurements and for Sweden just over 7 000 people aged 18 or over participated. Of those who responded when telephoned, 31 per cent agreed to participate in the survey [64, 65].

In the 2016 comparison Sweden ranks second last of the compared countries when the survey respondents provide an overall assessment of healthcare quality. In Sweden 74 per cent gave the assessment “Excellent”, “Very good” or “Good”. For Germany and Switzerland the proportion was 96 per cent.

**A.17. Countries. Assessment of overall healthcare quality**

Proportion who responded “Excellent”, “Very good” or “Good” to the question: “How would you score the overall quality of healthcare in Sweden?”, 2016.




Source: International Health Policy Survey, The Commonwealth Fund.

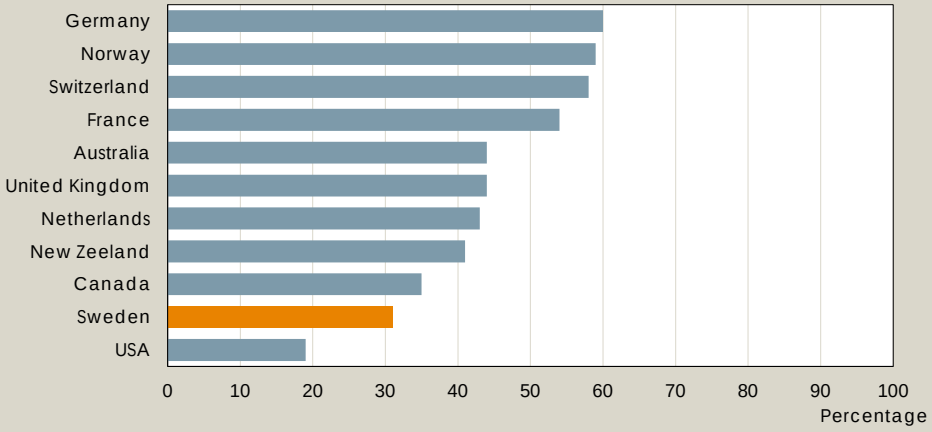
There is also a lower percentage in Sweden and the USA who believe that the healthcare system in general works well and does not need to change to

any large extent to function better. The proportion in Sweden in 2016 was 31 per cent and this has dropped in comparison to the IHP surveys in 2013 and 2010, when the responses were then 43 and 44 per cent, respectively.

The same trend is not seen at all in the more direct Healthcare Barometer question about confidence, despite the measurement period there currently only extending as far as 2015. The interpretation of the IHP question does not need to be primarily associated with distrust in the system and can be different in other countries. One of the other response alternatives to the question is for example "*Parts of the healthcare system work well, but major changes are needed for it to function better"*. The decreasing proportion in Sweden who responded "*Overall the healthcare system works well and only minor changes are needed for it to function better"* could alternatively reflect an increased belief in the potential of possible reforms of those who answered, and not necessarily a poorer assessment of the current system.

**A.18. Countries. Regard that healthcare works well**

Percentage of respondents who believe that this statement best reflects their opinion: "Overall the healthcare system works well and only minor changes are needed for it to function better", 2016.




Source: International Health Policy Survey, The Commonwealth Fund.

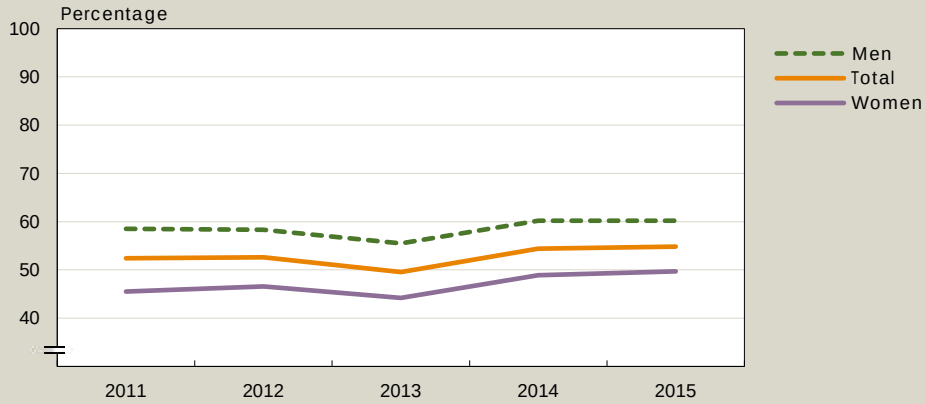
# 50. General public perception of care on equal terms

The goal of healthcare is good health and care on equal terms for the entire population. This indicator shows the proportion of the general population who perceive that care is provided on equal terms, or in other words that it is the need of care that is decisive, and nothing else. Those who answered "Don't know" or did not answer the question are excluded.

Nationwide 55 per cent feel that care is provided on equal terms. Women to a lower extent feel that care is provided on equal terms. The proportion among men is 60 per cent and 50 per cent among women, which is a more distinct gender-based difference than for example the question of confidence in healthcare demonstrates.

**50.1. General public perception of care on equal terms**

Proportion of the general population who wholly or partially agree that care is provided on equal terms according to need.

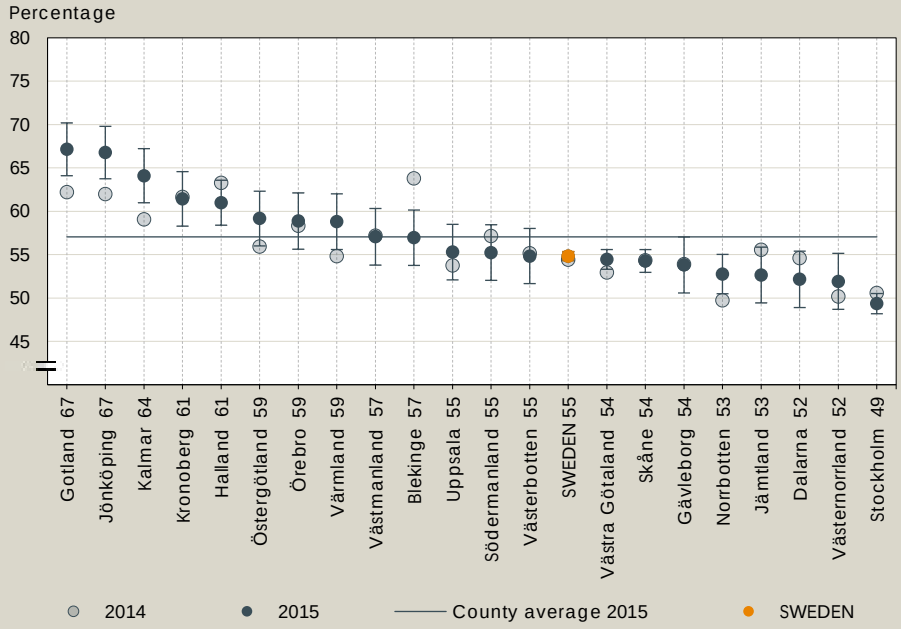



Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

Figure 50.2 shows the results for this indicator by county. The proportion who state that care is provided on equal terms varies from between 49 to 67 per cent at the county level.

**50.2. County. General public perception of care on equal terms**

Proportion of the general population who wholly or partially agree that care is provided on equal terms according to need.




Source: Healthcare Barometer, Swedish Association of Local Authorities and Regions.

# 51. Occurrence of antibiotic therapy

There is a clear correlation between antibiotic consumption in a country and the percentage of resistant bacterial strains. With an ever increasing use of antibiotics there is a risk that patients with serious infections may no longer be able to be treated effectively. Antibiotics must therefore not be used unnecessarily. According to the SOM Institute seven in ten Swedes are worried about antibiotic resistance [78].

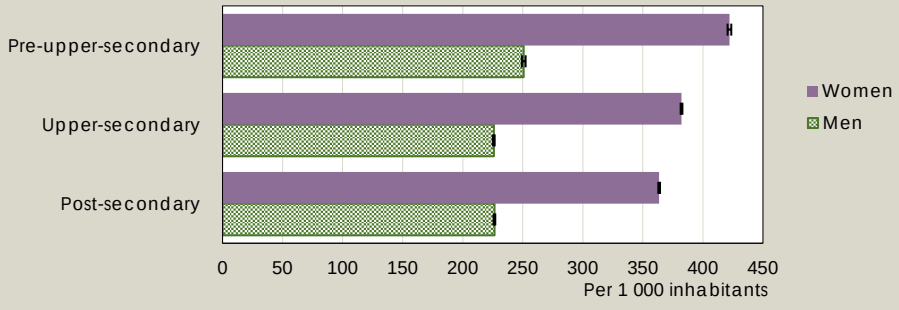
This indicator shows the number of antibiotic prescriptions per 1 000 inhabitants. The source is the NBHW Swedish Prescribed Drug Register. This register is complete with regard to outpatient drug use, but lacks information about the reason for prescribing the drug. This means that the indicator provides only an approximate picture of the use of antibiotics.

Nationwide the number of dispensed prescriptions was 310 per 1 000 inhabitants in 2015. Antibiotic consumption is noticeably higher among women than among men – with 368 compared to 254 dispensed prescriptions, respectively, per 1 000 inhabitants. A significant reason for the differences between the genders is differences in illnesses, for example urinary infections are much more common among women [80].

Persons with only a pre-upper-secondary school education have a somewhat higher age-standardised result than persons with an upper-secondary school or post-secondary school education. Women with only a pre-upper-secondary school education had a value of 422 dispensed prescriptions per 1 000 inhabitants. This can be compared to 382 per 1 000 for women with an upper-secondary school education and 364 per 1 000 inhabitants for women with a post-secondary school education. For men the age-standardised results for persons with an upper-secondary and post-secondary school education were 226 per 1 000 inhabitants in 2015. The results for men with only a pre-upper-secondary school education were 251 per 1 000 inhabitants.

**51.2. Education. Occurrence of antibiotic therapy in outpatient care**

Number of dispensed prescriptions for antibiotics per 1 000 inhabitants, age-standardised results, 2015.



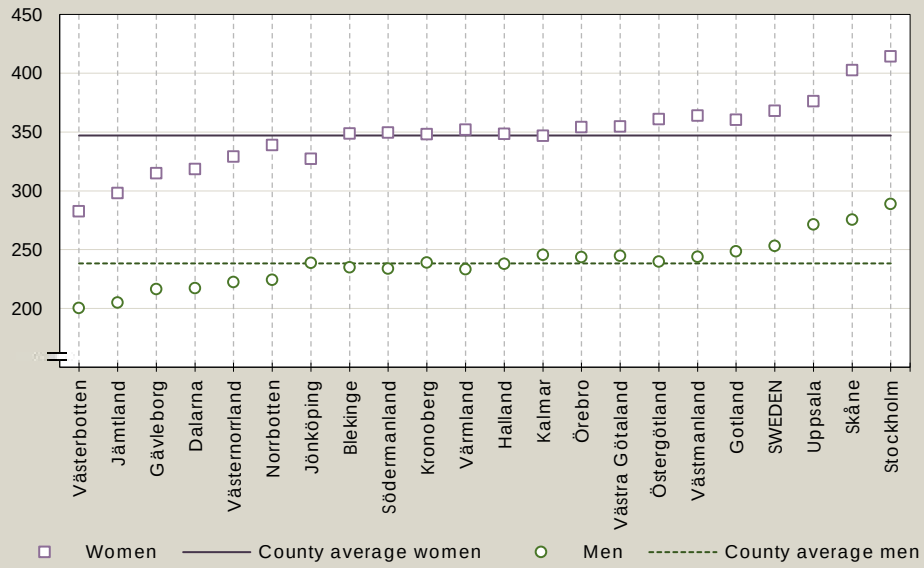

Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

In the counties the numbers of dispensed antibiotic prescriptions per 1 000 inhabitants varies between 200 and 289. For women the results vary between 282 and 414. The results are age-standardised.

**51.3. County. Occurrence of antibiotic therapy in outpatient care**

Number of dispensed prescriptions for antibiotics per 1 000 inhabitants, age-standardised results, 2015.

**Women and men** – the counties are sorted according to total statistics for both genders.




Source: Swedish Prescribed Drug Register, National Board of Health and Welfare.

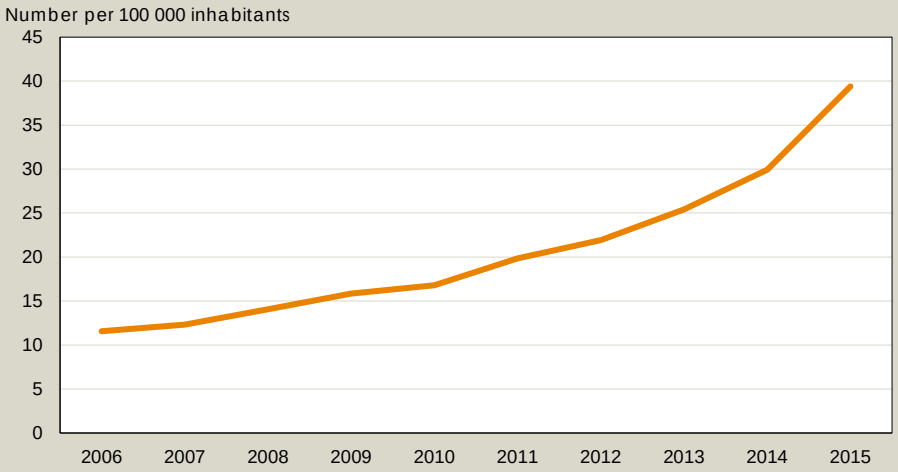
One way to reduce unnecessary antibiotic use is to refrain from immediately initiating and antibiotic course of treatment for minor infections that often clear up without treatment. The duration of the treatment also affects the total antibiotic burden. Several recent studies have shown that the treatment duration for certain infections, for example urinary infections in women, can be shortened without negatively impacting the treatment outcome. It is also desirable for antibiotic treatment to be as narrow spectrum as possible, to affect as few bacteria strains as possible. This is desirable both in terms of the development of resistance and in terms of side effects. The use of an antibiotic with a broad antibacterial spectrum means greater disturbance in the normal bacterial flora in the body, which in turn can increase the risk of side effects. In addition the risk of development of resistance is increased for several bacterial strains [80].

## Related measurements and statistics

Data concerning MRSA and other multi-resistant bacteria is published by the Public Health Agency of Sweden. Despite a positive trend in reduced antibiotic consumption, antibiotic resistance continues to increase in Sweden. The resistant bacteria that have increased most are VRE (vancomycin-resistant enterococci) and MRSA (methicillin-resistant Staphylococcus aureus). MRSA has increased from less than 12 cases per 100 000 inhabitants in 2006 to just over 39 cases in 2015. There were more people infected abroad than in Sweden in 2015 [81]. The Public Health Agency of Sweden also reports several measurements and indicators that concern antibiotic use.

**E.5. Development of MRSA**

Number of reported cases of MRSA per 100 000 inhabitants in Sweden.




Source: Public Health Reporting and Statistics, Public Health Agency of Sweden.

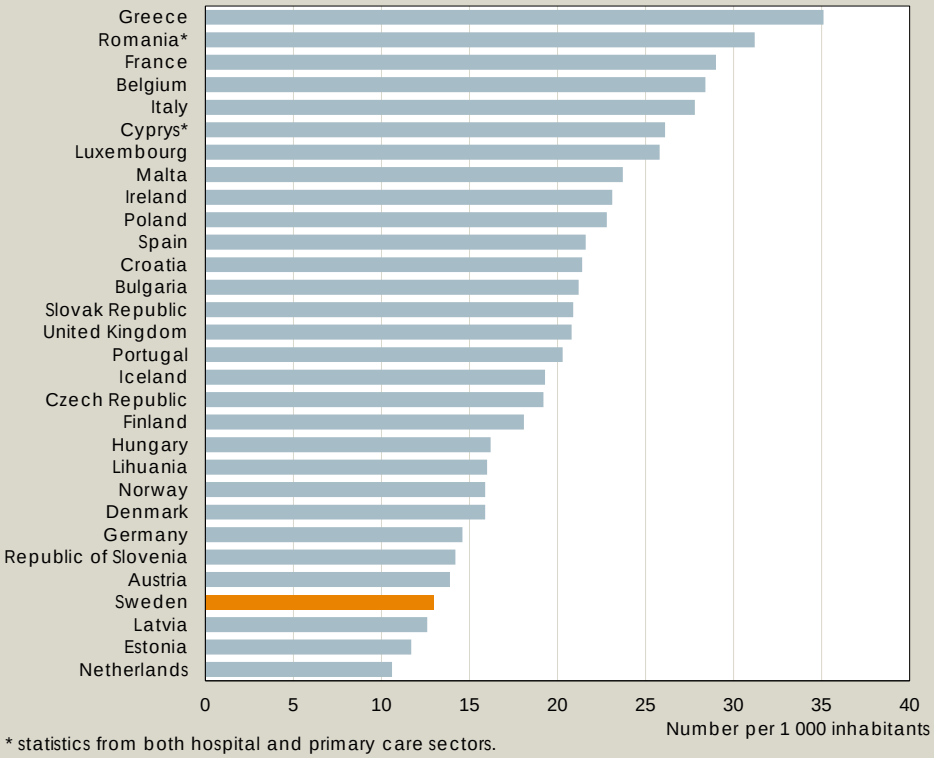
# Sweden has a low prescribing rate for antibiotics in a European comparison

The European Centre for Disease Prevention and Control (ECDC) reports the use of antibiotics in European countries. In 2014 the use of antibiotics varied from 10.6 defined daily doses (DDD) per inhabitant per day in the Netherlands to 35.1 DDD in Greece (Figure A.18) [82].

The trend in antibiotic use in outpatient care, expressed as DDD per 1 000 inhabitants per day, has increased in the majority of European countries over the period from 1997 to 2009. During the same period the seasonal variations (quarterly statistics) have decreased [83]. For Europe as a whole antibiotic use has increased during 2010–2014. In terms of individual countries, Sweden and Cyprus have shown significant reductions in use, while use in Great Britain has risen. There are numerous factors that affect the use of antibiotics, of which patient demand and cooperation between healthcare professions are two important aspects. Examples of other factors are the structural organisation of healthcare, the number of different antibiotics available, climate, disease burden, demographics and socioeconomics [84]. Cultural factors also affect the prescribing of antibiotics [85, 86].

**A.19. Countries. Antibiotic use in primary care**

Number of defined daily doses (DDD) per 1 000 inhabitants per day for primary care,




* statistics from both hospital and primary care sectors.
** For Finland use at opted-out primary care clinics and care homes is excluded from the reporting.

Source: European Centre of Disease Prevention and Control (ECDC).

# 52. Sick leave among county council employees

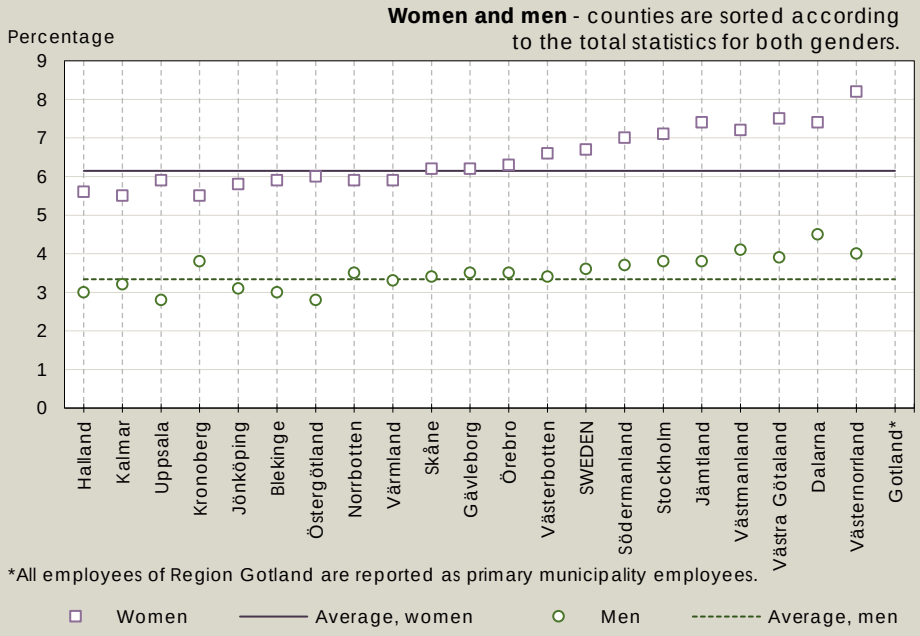
Sick leave means an employee's absence from work counted in number of days. According to the Swedish Work Environment Authority some of the most common reasons for sick leave among healthcare personnel are that work tasks are physically challenging and there is a risk of contagion. Shift work, heavy workload and irregular working hours also contribute to sick leave [87].

This indicator is one part of the mandatory sick leave reporting that is presented in the local authority annual management report. The data therefore represents all local authority and county council employees. Although healthcare employees clearly predominate, there are also other activities that contribute to significant and varying degrees.

Figure 52.1 shows the proportion of sick leave in relation to normal working hours for county council employees. Women have a higher sick leave than men in every local authority. The proportion of sick leave varies between county councils for women from 8.2 down to 5.5 per cent. For men the proportion varies from 4.5 down to 2.8 per cent.

**52.1. County. Sick leave among county council employees**

Proportion of sick leave compared to normal working hours among county council employees (mandatory sick leave reporting), 2015.



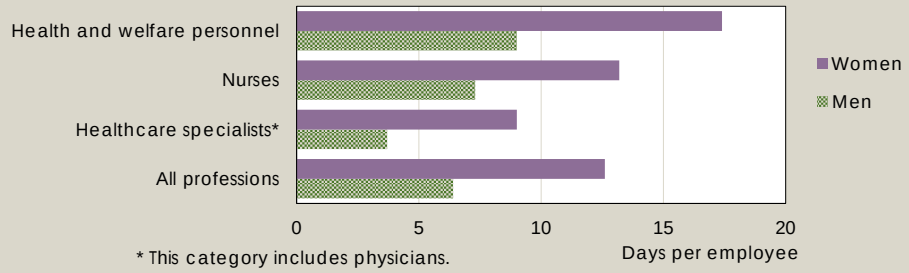

Source: Swedish Association of Local Authorities and Regions.

There are a number of measures that the county councils can implement to improve work environments and reduce sick leave. According to the Swedish Work Environment Authority, systematic work environment efforts are needed to reduce sick leave and also sick leave within healthcare. This includes making sure that personnel have sufficient knowledge and competence to reduce the risks. The personnel must also have knowledge of suitable ergonomic working positions and movements and have the tools and equipment and working space needed. According to the Swedish Work Environment Authority, company healthcare is an important resource in this work and their resources must be used in preventive work environment efforts [88].

Sick leave longer than 14 days is reported to the Swedish Social Insurance Agency. Several personnel categories within healthcare have higher than national average figures for the number of sick leave days per employee exceeding the 14 day period. The only category that deviates is healthcare specialists, which includes physicians. Healthcare follows the pattern for all career categories with regard to women on average having more sick leave days than men, which can also be seen in Figure E.6, where the days reimbursed by the Swedish Social Insurance Agency, are reported.

**E.6. Career categories. Sick leave longer than 2 weeks, number of days**

Number of sick leave days per employee in excess of a 14 day period of sick leave that were reimbursed by the Swedish Social Insurance Agency, 2014.



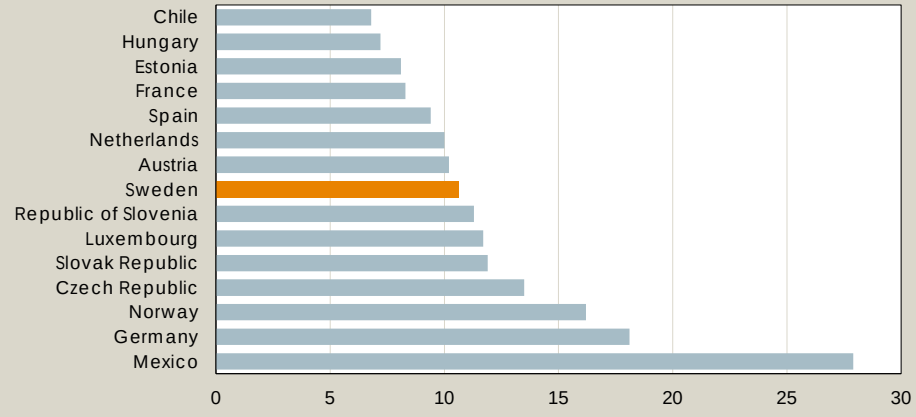

* This category includes physicians.

Source: Swedish Social Insurance Agency, Försäkringskassan.

Internationally the statistics for sick leave are seldom stratified by different labour market sector. The OECD reports the number of sick leave days with reimbursement and the Swedish statistics are provided by the Swedish Social Insurance Agency. Of the countries where employees can be reimbursed for lost earnings due to sick leave Sweden occupies a position in the middle, as can be seen in Figure E.7. The data is not however reported by career category or for the healthcare area.

**E.7. Countries. Working days lost due to illness with reimbursement of earnings**

Number of lost working days with reimbursement of earnings per person in OECD countries that reported statistics for 2014.




Source: OECD.

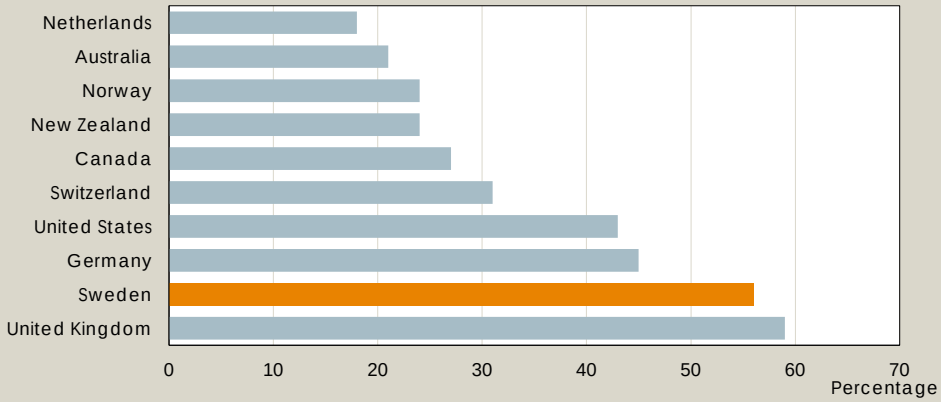
## Related measurements and statistics

There is the possibility to report standardised data from employee surveys to the database *Kolada* to be able to make comparisons with other counties and municipalities, for example for the collective measurement *Employee Sustainability Index (HMI)*. One indicator that is also clearly related to working conditions in healthcare is *Overcrowding in inpatient care.*

## A high proportion of primary care physicians in Sweden report that they are stressed

In 2015 the *Commonwealth Fund* carried out a survey focussed on primary care physicians in several countries. When asked about stress in their work 56 per cent of the Swedish primary care physicians stated that their work was very or extremely stressful. This was the second highest proportion among the countries surveyed and more than double the proportion of several other countries. Apart from the USA, Sweden has the lowest number of general practitioners per inhabitant among the countries included in the comparison, which can be seen in the section *Reporting of background factors.* Great Britain also has a relatively low proportion of general practitioners per inhabitant.

**A.20. Countries. Self-reported stress among primary care physicians**
Proportion of primary care physicians who stated that their work was very or extremely stressful, 2015.




Source: International Health Policy Survey of Primary Care Physicians, Commonwealth Fund.

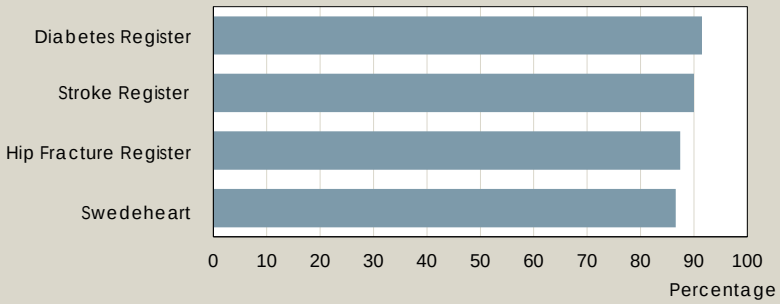
## 53. Reporting to quality registers – four major diseases

The degree of coverage in healthcare quality registers, as well as in NBHW National Health Care Registries, is an important aspect for the quality of the data. A low degree of coverage reduces the utility, for example for research and improvement efforts. For indicator based follow-ups, such as regional comparisons, it is also important that the degree of coverage is not too low, and above all is not uneven between the entities to be compared with regard to which patients or elements of healthcare that are included. The benefits of a high degree of coverage in quality registers is also strongly emphasised in the quality data register initiative agreement that the Swedish Government and SALAR entered into for the period 2012–2016. For the end of 2016 the goal of this agreement was that 80 per cent of the national quality registers shall have a degree of coverage of at least 80 per cent, with 40 per cent having a degree of coverage of at least 95 per cent [89].

NBHW annually carries out several degree of coverage comparisons between the quality registers and the National Health Care Registries. Several different types of register are compared in several different ways. The indicator that has been selected here is the average degree of coverage for four quality registers in relation to the cases they should include in the NBHW National Health Care Registries, taking into account the limits of the respective analyses. The challenges in achieving a high degree of coverage for different quality registers are different, as these often have different purposes. It is easier to register and follow up a certain type of surgical procedure, for example, than to cover longitudinal data for different interventions at several operational activity levels and care forms for a large patient group with chronic disease. The quality registers that have been selected for this indicator are more of the latter type. The quality registers that are included are the Swedish National Hip Fracture Register, the Swedish Stroke Register, the Swedish National Diabetes Register and SWEDEHEART – RIKSHIA.

**53.1. Reporting to quality registers – four major diseases**

Degree of coverage for four quality registers for major diseases: SWEDEHEART – RIKSHIA (ischaemic heart disease), Swedish Stroke Register (cerebrovascular diseases), Swedish National Hip Fracture Register (osteoporosis and hip fracture) and the Swedish National Diabetes Register (diabetes), 2015.

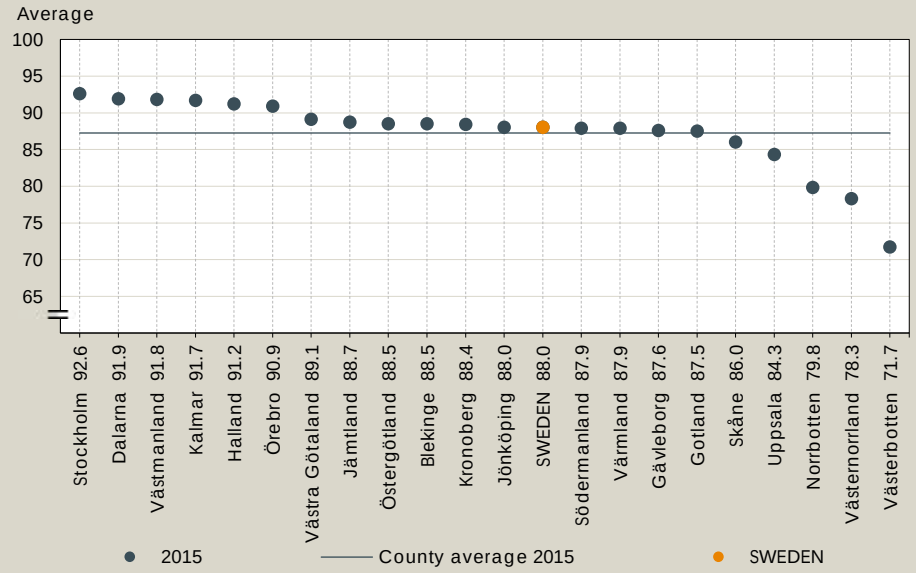



Source: Processing of data from several quality registers and National Health Care Registries, National Board of Health and Welfare

The indicator shows that the degree of coverage was around 88.9 per cent for the four quality registers in 2015. There is a small difference in the degree of coverage for women and men. The degree of coverage for women was 88.0 per cent and was 89.1 per cent for men. There is also a distribution spread of the results for the indicator between counties. The total degree of coverage varies from 73.0 per cent to 92.9 per cent between the counties.

**53.2. County. Reporting to quality registers – four major diseases**

Degree of coverage measurement average for four quality registers for major endemic diseases: SWEDEHEART – RIKSHIA (ischaemic heart disease), Swedish Stroke Register (cerebrovascular diseases), Swedish National Hip Fracture Register (osteoporosis and hip fracture) and he Swedish National Diabetes Register (diabetes), 2015.




Source: Processing of data from several quality registers and National health Registers, National Board of Health and Welfare.

Improving the quality of the data in the registers that are important for describing and developing care is a responsibility that is shared between the organisations administering the registers and those who report data to the registers. Both county councils and municipalities can impose demands on reporting of their own activities and also those of private health care providers. At the same time it is important to facilitate the work of registering data and ensuring that the data benefits the activities and patients who devote resources to reporting data to the registers.

## Related measurements and statistics

NBHW annually publishes a number of degree of coverage analyses for the quality registers that submit material for integration with the National Patient Register, and this includes information concerning the data quality in the National Patient Register. The results are often reported at the county and individual clinic level. In the separate analyses it can be seen that there is also a significant number of care contacts in the quality registers that do not match the data in the National Patient Register, although this should not be the case. This indicates insufficient quality in registering data to the National Patient Register or inaccurate reporting. This means that, based on these analyses, there are grounds for the county councils, hospitals and private care providers to also review their reporting to the National Patient Register [90].

The quality registers that are not integrated with the National Patient Register normally publish information about degree of coverage in their annual reports.

The degree of coverage is only one aspect of data quality, and NBHW has for example collated and presented results for indicators of coding quality in the National Patient Register [91].

# 54. Participation in colorectal cancer treatment studies

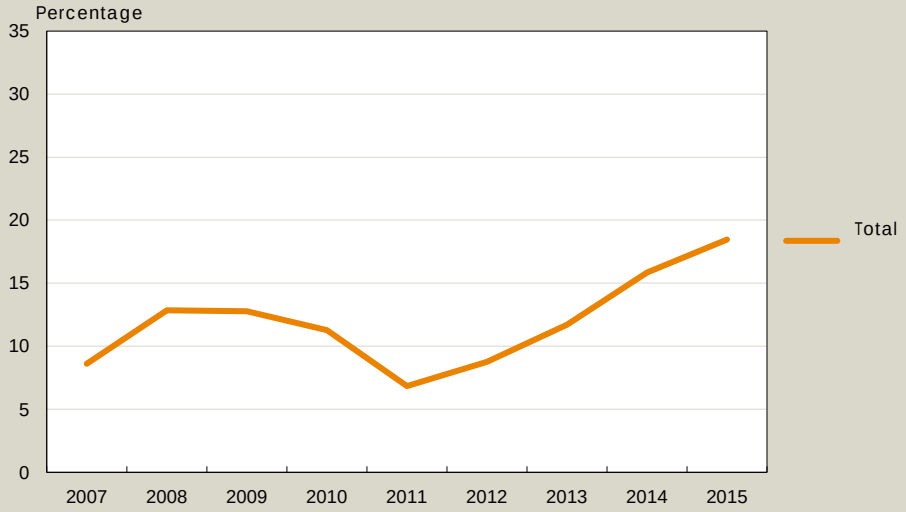
To a large extent scientific studies form the knowledge base for recommendations for care and treatment in national guidelines and care programmes. Based on these guidelines and care programmes healthcare can in turn offer patients the best possible care and treatment. It is therefore important that the counties and hospitals actively participate in clinical research.

The indicator that is used here is based on information from the Swedish National Quality Registry for Colorectal Cancer Treatment, where the proportion of patients included in treatment studies is regularly monitored and published. This indicator shows the proportion of patients with colon cancer or rectal cancer who have taken part in some form of structured treatment study. By treatment study is intended both randomised studies and observational studies. The studies must have been approved as treatment studies by a Regional Ethical Review Board [50].

Figure 54.1 shows that just over 18 per cent of the patients who were both diagnosed with colon cancer or rectal cancer in 2015 and who were registered in the quality register, participated in a treatment study. Nationwide the proportion has increased annually since 2011, but there is still some way to go to reach the NBHW national target level of at least 33 per cent participation in clinical studies [92].

**54.1. Participation in colorectal cancer treatment studies**

Proportion of patients who have participated (have been included) in a structured treatment study for rectal cancer or colon cancer.




Source: Swedish National Quality Registry for Colorectal Cancer Treatment.

### National target levels

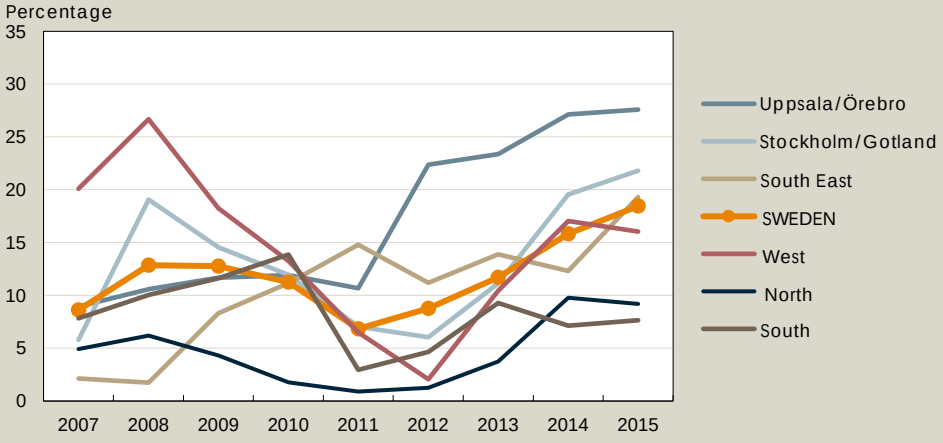
"It is important that hospitals participate in structured treatment studies, which in turn provide better knowledge and improved quality in cancer care. The National Board of Health and Welfare has therefore set a target level of at least 33 per cent."

(The target levels apply for colon cancer and rectal cancer separately.)

In addition to participation in studies improving the collective knowledge base, it is also regarded that participation is also beneficial for the individual clinics, as a method of following the developments in the research that is being carried out [92]. This indicator varies greatly between healthcare regions and longitudinally. For 2015 the proportion of patients participating in a structured treatment study varied from barely 8 per cent up to almost 28 per cent.

**54.2. Healthcare regions. Participation in colorectal cancer treatment studies**

Proportion of patients who have participated (have been included) in a structured treatment study for rectal cancer or colon cancer, healthcare region and nationwide.




Source: Swedish National Quality Registry for Colorectal Cancer Treatment (SCRCR).

The indicator statistics are dependent on the number of ongoing studies and the inclusion and exclusion criteria for each study. An assessment based on target level can only be made based on a longer duration period. The indicators are more stable as quality indicators over a longer duration period in order to show the healthcare region, local authority and individual hospital activity level for participation in treatment studies. Results at national level do however show that continued improvement is needed within the area.

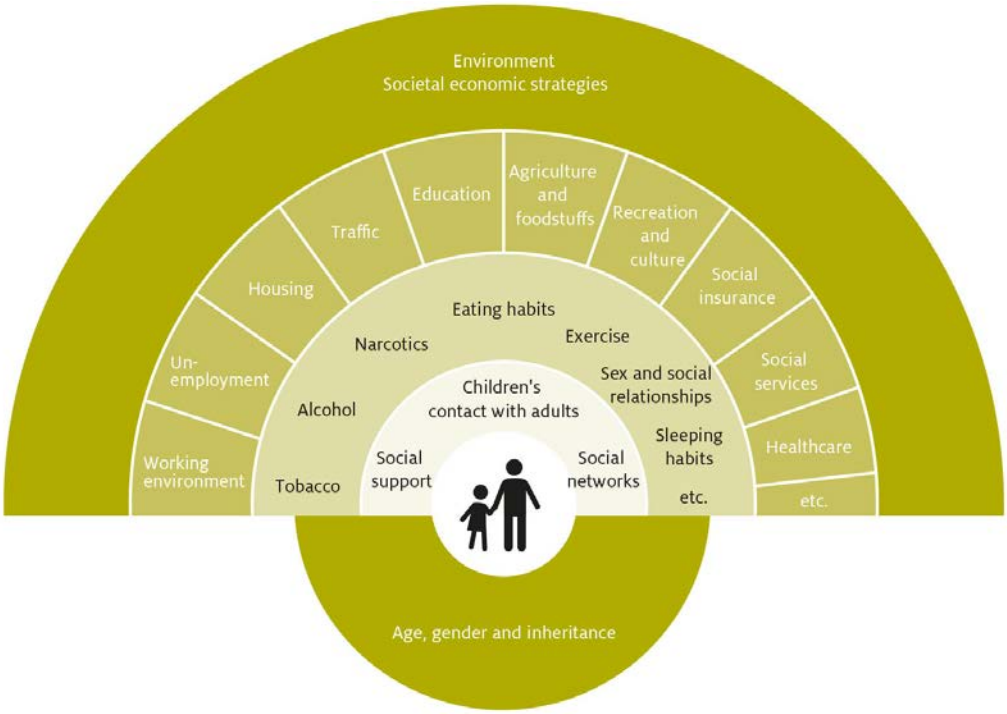
## Related measurements and statistics

The Swedish National Quality Registry for Colorectal Cancer Treatment shows the indicators stratified by rectal cancer and colon cancer, respectively, and in addition to healthcare region the results are also shown at individual clinic level [92].

# Reporting of background factors

Background factors can affect both the healthcare system as a whole and the system in the individual region. Background factors are often not able to be controlled within the system to the same degree as the indicators. Background factors can affect the results and the achievement of targets. But it is also the case that healthcare results to a certain extent affect background factors, such as the age structure of the general population or available resources in the form of tax revenues and new knowledge. Some background factors are presented here, together with examples of measurement data

**Figure 2. Health determinants [93] including healthcare**



# Population structure

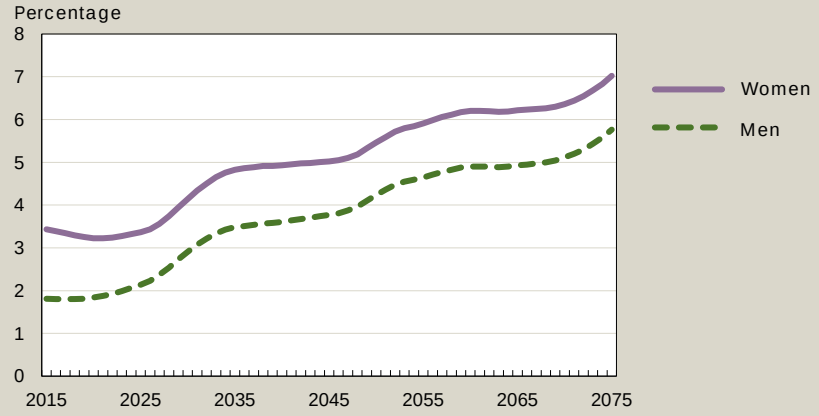
The demographic preconditions that have the greatest importance for healthcare are the age distribution and the socioeconomic composition of the population. These factors affect both the scope of the task of healthcare and the resources that can be used in task fulfilment. The proportion of elderly in the population and the education level of the population are highlighted here as examples.

## Proportion of elderly in the population

The proportion of elderly in the population affects the healthcare system as this group often has extensive healthcare needs. For example, more than half of the people in the age group 65–74 years have at least two chronic diseases. For people aged 85 and over the proportion is just over 80 per cent [76]. The prognosis for the proportion of people aged 80 years and over in the population in the future shows that there will be a major increase in Sweden. The proportion is anticipated to begin to increase rapidly around the year 2025 and will be twice as large as it is today by around 2050.

**B.1. Proportion aged 80 years and over, future development**

Population prognosis (2016), proportion aged 80 years and over in the swedish population 2015-2075.

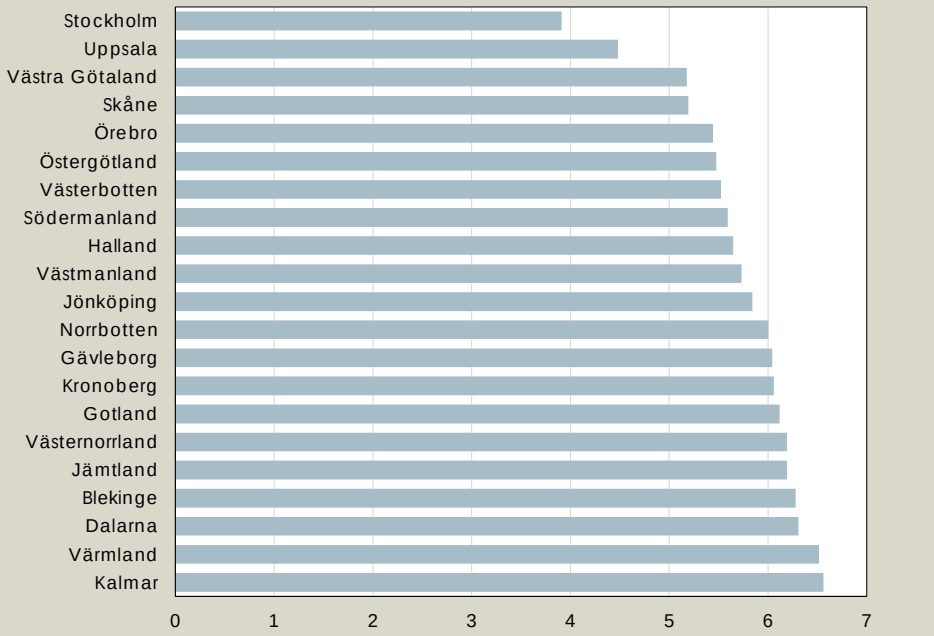



Source: Sweden Population Statistics, Statistics Sweden.

The proportion of people aged 80 years and over in the population varies from county to county, which can affect healthcare in the respective county, both in terms of needs and resources available. A large proportion can mean a greater need, which in turn confers need for more resources or more efficient ways of working. The proportion of people aged 80 years and over varies between counties from 3.9 per cent up to 6.6 per cent, which can be seen in Figure B.2.

**B.2. County. Proportion of the population aged 80 years and over**

Proportion of people aged 80 years and over in the total population, 2015.




Source: Sweden Population Statistics, Statistics Sweden.

County councils with an older population are compensated through a local government equalisation system. The part of the local government equalisation system that concerns healthcare also includes gender, civil status, employment status, income, housing type, salary structure and sparsely populated areas [94].

## Education level in the population

The education level is to a high degree covariant with the prevalence of diseases and health status in general. A large proportion of this association is assumed to be due to education level being an indicator, and an aspect, of the socioeconomic position of people in society. This can in turn have importance for many other health-determining factors, such as living habits and social contacts, but also for different standards of living related to working life and housing etc. For healthcare this means that there may be a need for more resources and measures to compensate for these preconditions. Differences in knowledge, economic and social preconditions can also affect demand for healthcare that is not directly linked to differences in care needs [95, 96].

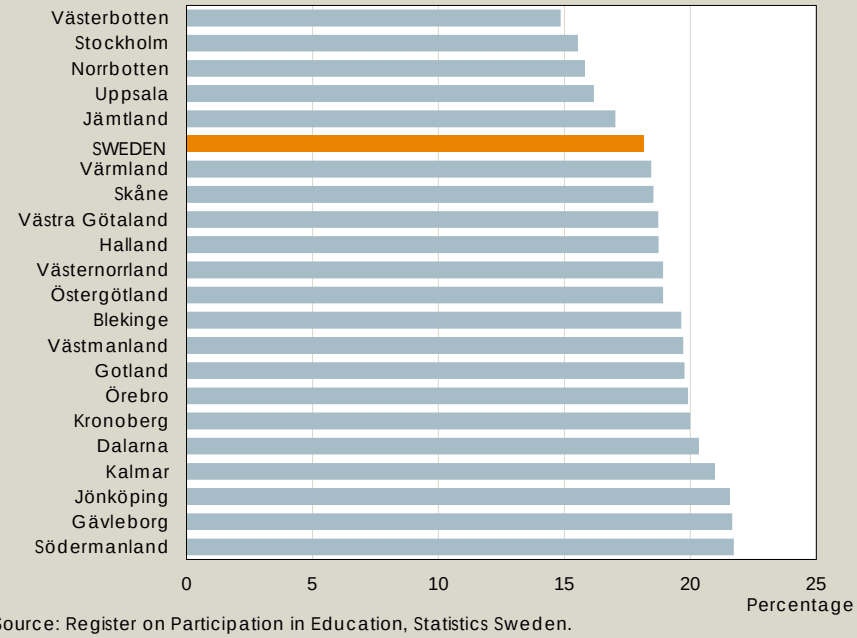
It is a challenge for healthcare to in part provide good health care with high accessibility for those who need it but do not necessarily seek it, and in part not devote more than sufficient resources to those with less need despite them perhaps seeking it more. Examples show, among other things, that expensive and more advanced medication, in certain cases, to a greater extent have been prescribed to people with a higher education [44, 97].

In an international context the population of Sweden has a high level of education, but there are differences between the counties. In counties where a high proportion of the population only have a primary school education the

healthcare system needs to work to ensure that the education level will not affect the outcome of the efforts of the system. Figure B.3 shows the proportion of the population with only a primary school education. The proportion varies between counties from barely 15 per cent up to almost 22 per cent.

**B.3. County. Only pre-upper-secondary school education**

Proportion of the population with only a pre-upper-secondary school education (primary school level), for those where there is information about education, 2015.



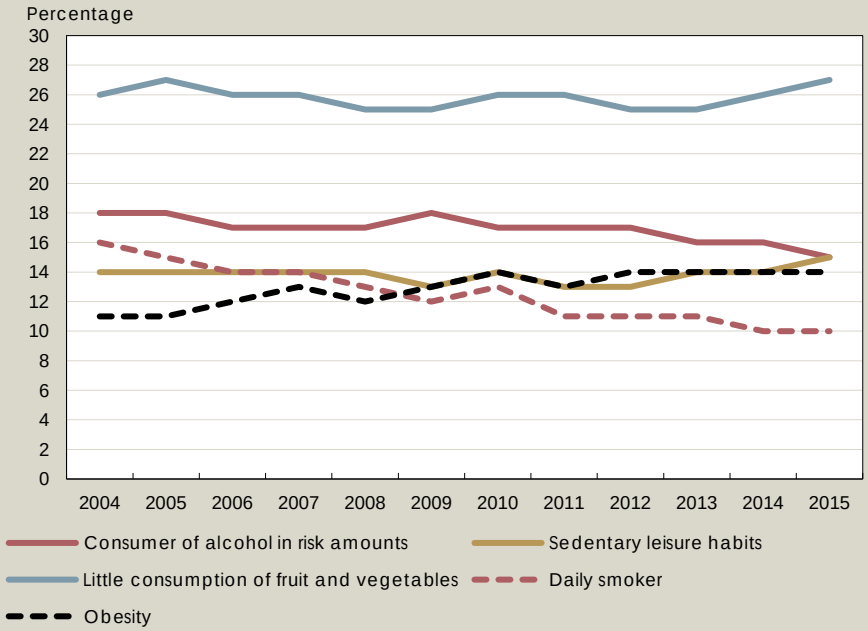

Source: Register on Participation in Education, Statistics Sweden.

# Lifestyle and living habits

Certain living habits can have importance for health status. In the National Population Health Survey questions are asked about the living habits of the population. Figure B.4 shows the results for the proportion of respondents who during the period 2004–2015 had a risk consumption of alcohol, ate little fruit and vegetables (maximum 1.3 times/daily), had sedentary leisure habits, smoked daily or had a body mass index (BMI) classed as obese. It is primarily the prevalence of daily smoking and obesity that has changed during the period. The proportion who smoke daily has reduced from 16 to 10 per cent between 2012 and 2015. At the same time the proportion of obesity increased from 11 to 14 percentage points between 2004 and 2012, to then remain at that level until 2015.

**B.4. Living habits and obesity**

Proportion of the population who stated that they risk consume alcohol, eat little fruit and vegetables (maximum 1.3 times/daily), have sedentary leisure habits, smoke daily or have a BMI classed as obese, 16–84 years.

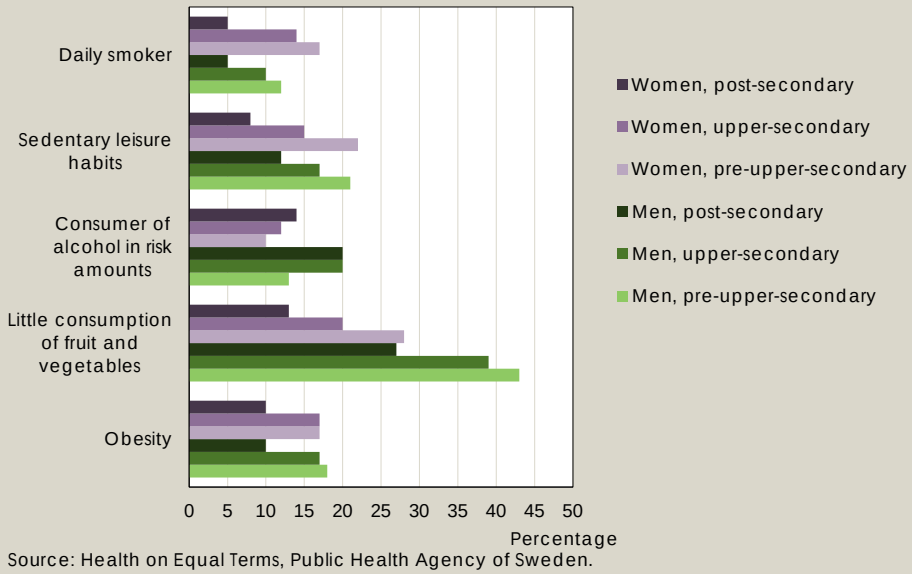



Source: Health on Equal Terms, Public Health Agency of Sweden.

The results can also be reported stratified by gender and education level. Figure B.5 shows that in the categories with a higher education level there is almost constantly a higher proportion of people with healthier lifestyle habits among those who responded to the survey. The result that does not follow the pattern for education level is the proportion of people who risk consume alcohol, where the category with only a pre-upper-secondary school education has the lowest proportion of risk consumption for both men and women. In total women are more often daily smokers and men are more often risk consumers of alcohol. Women also more often eat fruit and vegetables than men do.

**B.5. Education. Living habits and obesity**

Proportion of the population who state that they risk consume alcohol, eat little fruit and vegetables (maximum 1.3 times/daily), have sedentary leisure habits, smoke daily or have a BMI classed as obese, age 16–84 years, 2015.




Source: Health on Equal Terms, Public Health Agency of Sweden.

In an international context Sweden has a small proportion of the population who smoke daily. Sweden reports the lowest proportion of daily smokers of the OECD countries that reported data for 2014 [98].

# Available resources with international comparisons

The resources available for providing good health care are, for example, the competence of the personnel, medical equipment, drugs and buildings.

In addition to the prioritisations between different activities in society and within health care, the resources are determined by the extent of the collective resources. For a healthcare system with a high degree of public funding the amount of tax revenue is therefore an important prerequisite.

More information about the financing of the system is described in the section *"How much do we pay for healthcare?"*. In this section other examples of resources that are important for the system is presented: health care personnel, hospital beds and new knowledge and technology.

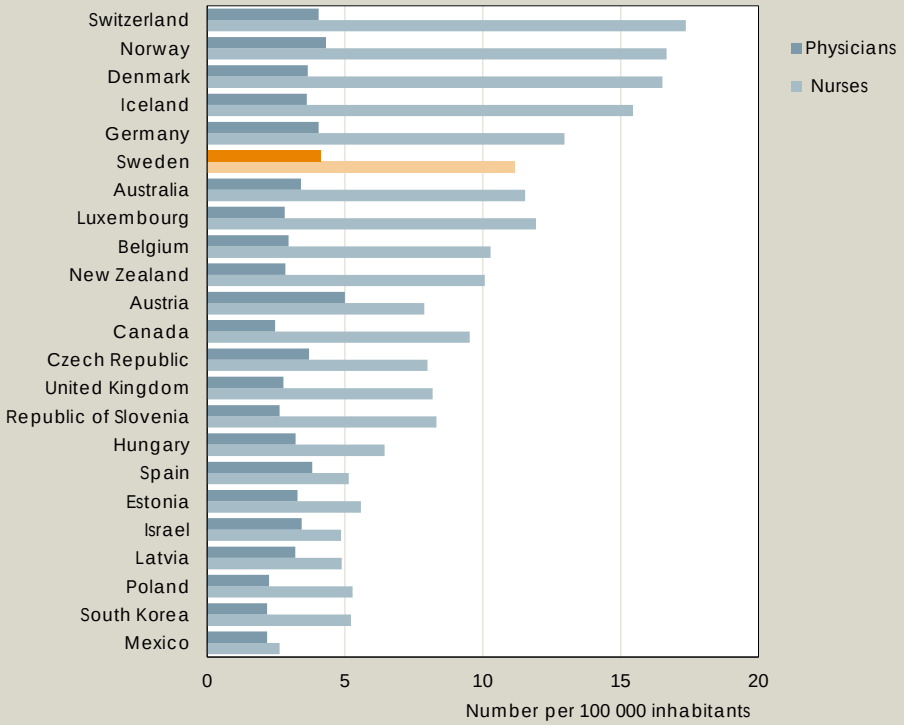
## Health care personnel

An important aspect in describing available resources is the healthcare system's current and estimated future access to personnel. According to prognoses published by the Swedish Higher Education Authority (UKÄ) there will be a future shortage in several profession groups of importance to the healthcare system. In the authority's supporting material for planning for the academic year 2015/16 it is stated that in the future there will be a shortage of dentists, specialist care nurses, biomedical scientists, dental hygienists, physiotherapists, occupational therapists and physicians [99].

In an international comparison Sweden is ranked relatively highly in terms of number of nurses and physicians per inhabitant among the OECD countries reporting data for 2013; only Norway and Austria report more physicians per inhabitant.

**B.6. Countries. Nurses and physicians**

Nurses and physicians per 1 000 inhabitants, 2013. OECD countries reporting data for both categories. Ranked according to highest total number of nurses and physicians per 1 000 inhabitants.



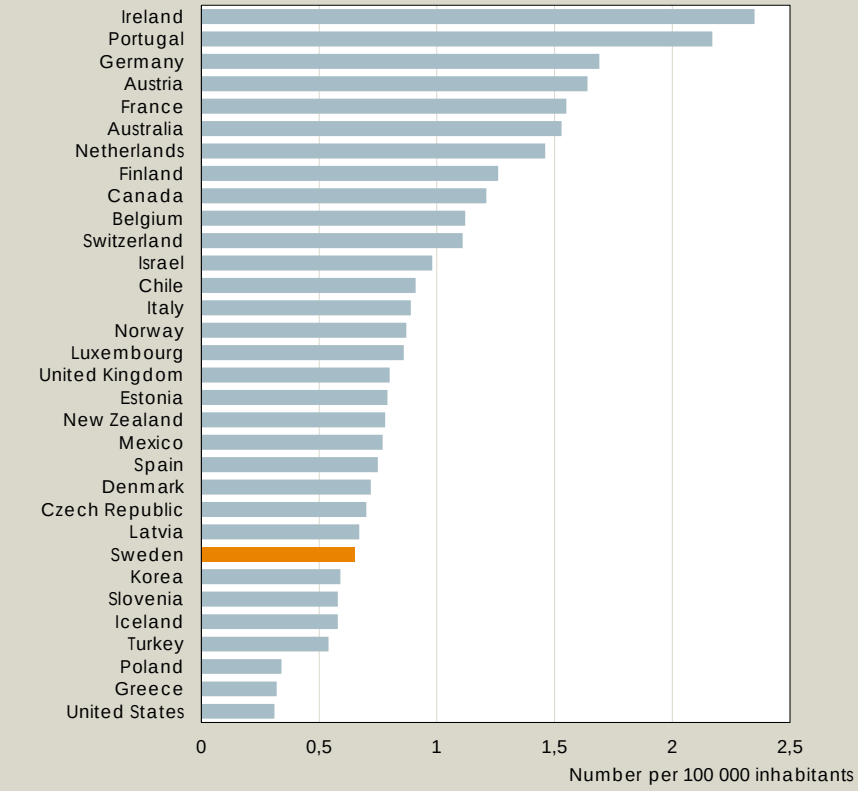

Source: Health Statistics, OECD.

Sweden has however a relatively low proportion of general practitioners per inhabitant compared to other OECD countries (Figure B.7), which also means that the proportion of general practitioners in relation to total number of physicians is low in Sweden compared to other countries.

For physicians there is also data for psychiatrists separately reported, and in Sweden there were 0.23 psychiatrists per 1 000 inhabitants in 2013, which in relative terms is a high number. Only two countries had more psychiatrists per 100 inhabitants; Finland with 0.24 and Switzerland with as many as 0.49.

**B.7. Countries. General practitioners**

General practitioners per 1 000 inhabitants, 2013. OECD countries reporting data.

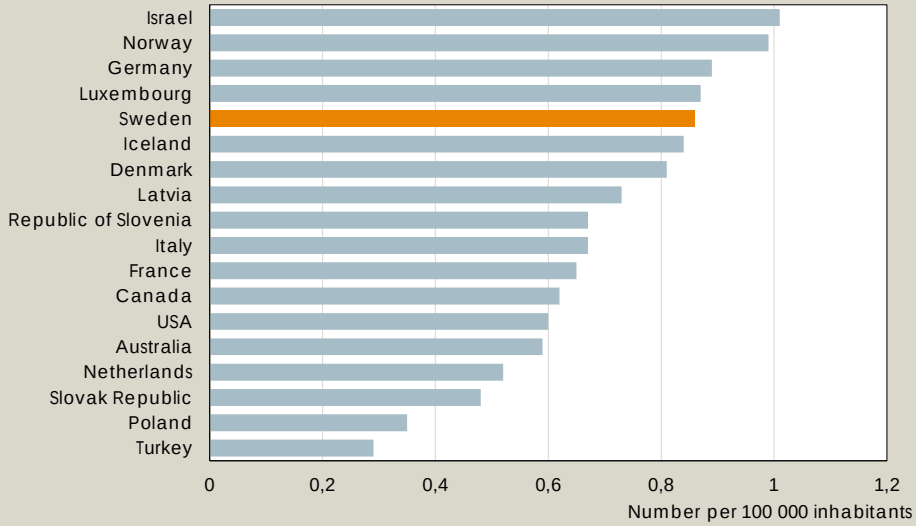



Source: Health Statistics, OECD.

When it comes to dentists Sweden has a relatively high number per inhabitant among the OECD countries reporting statistics. The data for Sweden was 0.86 dentists per 1 000 inhabitants in 2013. The highest number, 1.01 per 1 000 inhabitants, was reported by Israel.

**B.8. Countries. Dentists**

Number of dentists per 1 000 inhabitants, 2013. OECD countries reporting data.



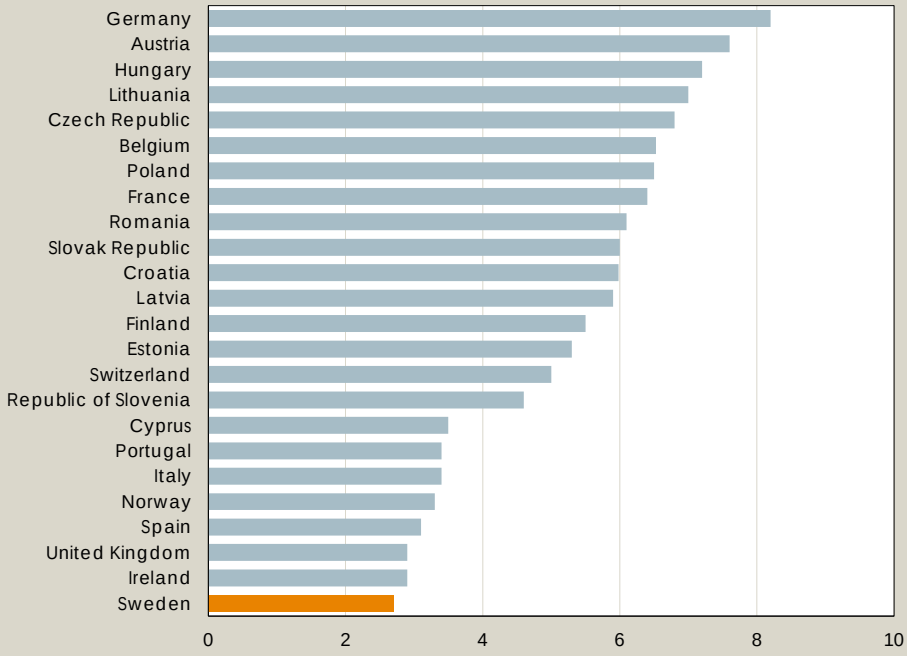

Source: Health Statistics, OECD.

## Hospital beds

Internationally the number of hospital beds per 1 000 inhabitants is usually compared. However, there are certain difficulties in making such comparisons as countries can define hospital beds in different ways. In the figures for Sweden special housing places are not included, which they are for some other countries. Figure B.9 shows that Sweden has the lowest number of hospital beds per 1 000 inhabitants of the OECD countries reporting data for 2011.

**B.9. Countries. Hospital beds**

Number of hospital beds per 1 000 inhabitants, 2011. OECD countries reporting data.




Source: Health Statistics, OECD.

## New knowledge and new technology

New knowledge and new technology is here intended to mean knowledge and technology that is not already available within the (entire) system and where it is possible to achieve improvement by implementing this. Identifying and utilising valuable knowledge and technology in an efficient manner so that this leads to improvement is a major challenge for many systems. New technology and new knowledge provide possibilities to improve efficiency, which in turn means that the available resources contribute to a higher degree to the achievement of objectives. This does not however mean that less resources are needed; new possibilities often lead to heightened ambitions and higher expectations for results and needs met.

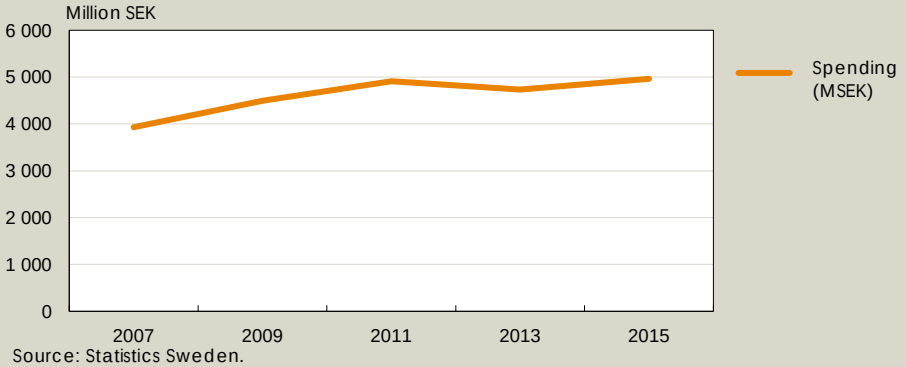
Research and development (R&D) in terms of improvements within healthcare concern both new knowledge, new technology and implementation. The public sector annual spending on R&D with regard to improvements in healthcare has increased by more than SEK 1 billion (in current prices) since 2007. For 2015 spending was almost SEK 5 billion,

which can be seen in Figure B.10. County council healthcare accounted for the majority of the spending, but municipal, government and various R&D units also contribute to research and development, and successful R&D can be part of the solution to the challenges faced by healthcare in the future.

Information about spending is collected by a Statistics Sweden (SCB) survey that is carried out regularly. More information is also available from the Statistics Sweden database under the topic of *Research and Development*.

**B.10. Improvement of healthcare, R&D spending costs**

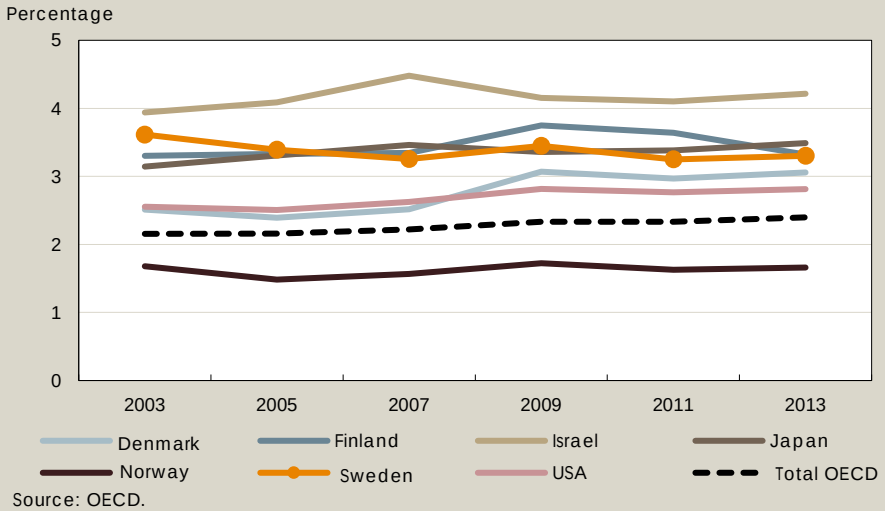
Total spending for public R&D activities within the area of improvement of healthcare. Million SEK, current prices.




Source: Statistics Sweden.

In 2013 Sweden invested a total of 3.3 per cent of its GDP on research and development (Figure B.11), which in an international context is a relatively large proportion. This figure includes all R&D activities, not just investment in the area of improvement of healthcare. The area of pharmaceuticals and other healthcare-related areas do however comprise a significant amount of all R&D activities in Sweden. For universities and university colleges, for example, the area of *Medicine and Health Science* was the research area that had the highest funding in 2013 [100].

**B.11. Proportion of GDP spent on R&D**




Source: OECD.

# Discussion

The report is part of a comprehensive reporting of indicators that concern the follow-up of healthcare quality and efficiency[5]. The purpose of this NBHW report is for the indicators to collectively provide a general overview of healthcare results, including municipal healthcare. The choice of indicators and comparisons should preferably be perceived by all stakeholders as the starting point for a dialogue about how a general indicator-based follow-up should be carried out in the future.

A difference from previous regional comparisons is the reporting of international comparisons. There are however difficulties in that the national indicators and the international comparisons are seldom structured in the same way, and in addition there are measurement issue that need to be further investigated. NBHW will therefore continue to work to harmonise the indicators and improve the relevance and information in the international comparisons that are selected in the reporting.

From the indicators and international references that have been selected to address the six questions in this report we can in summary see the following:

1. **"How much are we paying for healthcare?":** Healthcare costs increase continuously and Sweden invests a relatively large amount of resources in comparison to other countries.
2. **"Are we getting healthier and living longer?":** Here the general answer is positive – with the notable exceptions of suicide and increasing female mortality for COPD. In addition, relative longitudinal differences remain for people with different education levels. This is despite the differences, for example in number of deaths, decreasing concomitant with the general improvements.
3. **"What is the quality of the healthcare we receive?":** Also here the results at the national level are in many cases going in the right direction longitudinally and are positive in the international comparisons, for example for cancer survival, especially among men. For certain indicators development could certainly be more rapid and a number also demonstrate somewhat poorer results, while for certain indicators there are striking differences between counties.
4. **"How well does healthcare contribute to keeping us healthy?":** This question is particularly important to address. Secondary preventive measures are certainly implemented to an increasing extent, but major potential remains, which can be seen in the large differences between the counties and education levels, or in relation to national target levels for several of the indicators. An example of a secondary preventive measure is a physical exercise programme following a myocardial infarction,

[5] At the beginning of 2017 the National Board of Health and Welfare published reports that included regional comparisons concerning *Safe Health Care* and *Health Care and Welfare for the Elderly*. A number of the indicators from the National Board of Health and Welfare National Patient Register, in addition to those presented in the various reports, are also updated in the National Board of Health and Welfare *comparative performance assessment tool*, which can currently be accessed at: www.oppnajamforelser.socialstyrelsen.se

where the proportion has increased by more than 10 percentage points over five years, but where the proportion in the county with the highest value is more than four times greater than in the county with the lowest value. The indicator *Anticoagulant therapy for patients at risk* is one example that indicators that illustrate processes can develop rapidly in the right direction.

5. **"Do we have access to healthcare when we need it?":** Here the same positive development or results in relation to other countries is not seen for several of the indicators concerning accessibility. There are also poorer results observed for continuity and coordination relative to other countries. The international references are however difficult to directly couple to the results for the national indicators and more work is needed to obtain a clearer picture. One factor in this is low patient and population survey questionnaire response frequencies, not least in the international comparisons that are reported. One new indicator that shows an image worthy of note is dental health examinations within the past two years. These results have not improved and only 63 of 100 inhabitants have been for a check-up over the past two years. There are distinct differences between genders, education levels and healthcare region. An international study has also shown that one in five of the respondents in Sweden abstained from dental care because the cost was too high.
6. **"How does healthcare contribute to sustainable good health care?":** Here there are indicators that address a number of different preconditions and sustainability aspects that are able to be influenced. This should be seen as a development area.

In addition to the results that the indicators demonstrate, the reporting of background factors provides a picture of shifting preconditions and challenges faced by the county councils, including resource availability and the age structure of the population, but also opportunities for continued improvement and development.

In relation to the challenges and opportunities posed by changing preconditions, there is reason to couple to a greater extent the outcomes within the different areas, and for individual indicators, to better see how the different aspects are linked in relation to underlying and surrounding factors. One aspect of this is to augment the efforts in following up and analysing efficiency in healthcare, also in relation to and interaction with other parts of society.

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