National Performance Assessment 2014

Quality and Efficiency of Care of Musculoskeletal Diseases in Sweden

Compliance with National Guidelines

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Preface

The National Board of Health and Welfare has undertaken a national performance assessment of the care for persons with musculoskeletal diseases, with the ambition to cover both quality and efficiency of care. The assessment focused mainly on county councils' compliance with the recommendations in the National Guidelines for Musculoskeletal Diseases 2012. The guidelines include the following diseases: osteoporosis, osteoarthritis in knees and hips, rheumatoid arthritis, axial spondyloarthritis, ankylosing spondylitis and psoriatic arthritis.

Musculoskeletal diseases often lead to extensive consequences. For the individual the disease can entail reduced quality of life with pain, reduced mobility and loss of independency. These diseases also account for a large part of health care consumption and societal costs. Approximately 20-30 percent of all visits to physicians in the primary health care services were found to be related by musculoskeletal disorders.

This report is a summary of the major conclusions and recommendations, as well as a selection of indicator-based comparisons of some particularly important areas for improvement. This report is included in the National Performance Assessment series with previous assessments of diabetes care, stroke care and cardiac care.

This assessment primarily targets decision-makers at various levels: politicians, civil servant and health care managers, as well as health care professionals. It may also be useful to other stakeholders such as patient organisations and media.

The assessment was undertaken by a team comprising of Inger Lundkvist (Project Manager), Vera Gustafsson, Björn Nilsson, Max Köster, Gunilla Ringbäck Weitoft, Jesper Hörnblad, Tsega Muzollo and Rosita Claesson Wigand. Special thanks are extended to the representatives of the participating health care quality registers and the medical experts for their contributions. Editor for the National Performance Assessment series is Rosita Claesson Wigand.

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Summary

The National Board of Health and Welfare has undertaken a national performance assessment of the care for persons with musculoskeletal diseases, with the ambition to cover both quality and efficiency of care. The assessment focused mainly on county councils' compliance with the recommendations in the *National Guidelines for Musculoskeletal Diseases 2012*. Equality of care was also assessed, that is if patients received good quality care regardless of their geographic location, gender, age, educational level and country of origin.

County councils complied well with the recommendations in the National Guidelines in some areas. For instance, treatment with biological pharmaceuticals has increased considerably over time. However, patients with inflammatory rheumatic diseases ought to be treated earlier with biopharmaceuticals. There were also several areas where considerable differences between county councils were found, indicating that improvements could be made.

Prescription of bone-specific drugs among patients who have had an osteoporotic fracture has remained at the same level since 2005 and the prescription rate varied greatly between county councils. County councils can improve care for persons with osteoporosis by improving diagnosis, particularly among elderly, and by treating more persons with osteoporosis with bone-specific drugs. Unmotivated differences in gender prescription patterns of bone-specific drugs ought to be analysed further.

Differences between county councils were found in diagnostics, access to physical training and treatments for patients with osteoarthritis. County councils can improve arthritis care by offering physical training and access to Arthritis Schools, as well as registering data in the designated health care quality register.

For patients with rheumatoid arthritis, disease duration before diagnosis and before receiving biological treatment varied between county councils. County councils can improve examination and diagnostics in order to reduce the disease duration, as well as start treating patients earlier with biopharmaceuticals.

Treatment with biopharmaceuticals for ankylosing spondylitis and psoriatic arthritis has increased over time. However, county councils and health care providers need to report data to relevant registers so that care for these patient groups can be comprehensively assessed.

The assessment highlighted some inequalities. Men were to a lesser extent than women treated with bone-specific drugs for osteoporosis. Highly educated patients were more likely to be treated with biopharmaceuticals for rheumatoid arthritis than persons with low education. County councils ought to analyse such unmotivated differences and work towards equal care.

The National Board of Health and Welfare will undertake a new assessment in a few years' time in order to monitor progress. The above mentioned areas for improvement will in particularly be reviewed.

Introduction

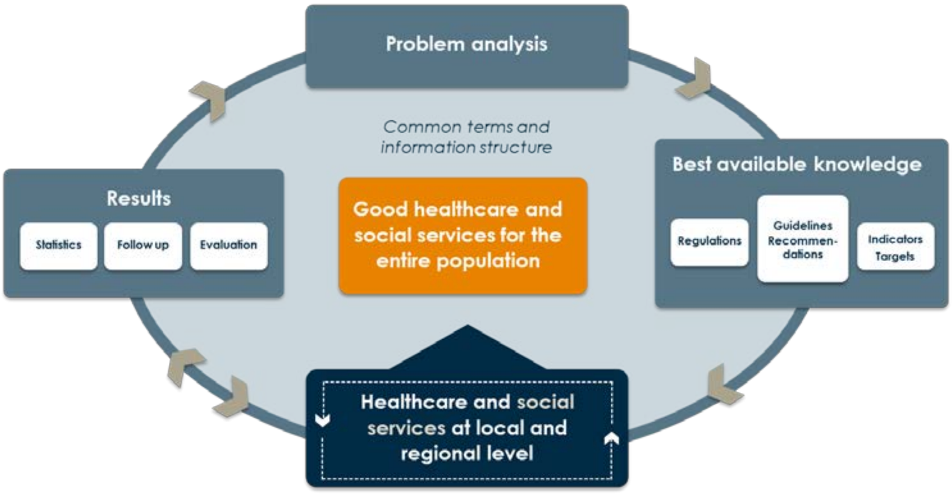
Terms of reference

The National Board of Health and Welfare is responsible for monitoring and evaluation of health care and social services, as well as reporting on the status of and developments within such services. The Health and Medical Services Act (1982:763) states that the objective of health and medical care is "good health and health care on equitable terms for the entire population". The National Board of Health and Welfare uses the terminology "good health care and social services". This means that good health care and social services should be knowledge-based, safe, patient-centred, efficient and equal, as well as accessible.

Figure 1 Good health care and social services defined

The National Board of Health and Welfare is also responsible for knowledge-based guidance of health care and social services. For this purpose several tools are used including knowledge-based national guidelines, performance indicators, open indicator-based comparisons and national performance assessments of different types of care, as well as public dissemination of findings of such assessments.

Figure 2 Model for knowledge-based guidance



The National Board of Health and Welfare develops national guidelines mainly for common, severe and often chronic illnesses with high costs of care as well as high societal costs. A national guideline contains recommended treatments or interventions for a particular condition. A recommended intervention is given a priority level, 1-10. An intervention with priority 1 should be undertaken, whereas one with priority 10 is considered relatively less important. Interventions which have no effect or which even might be harmful to the patient are labelled “not to do” and should not be undertaken at all. Newly introduced interventions should only be undertaken within a clinical trial and are therefore labelled “R&D” recommendations.

A national guideline is based on a thorough meta-analysis of not only the intervention’s effectiveness but also their cost-effectiveness. Organisational as well as financial implications of the introduction of the recommendations are also analysed in the guidelines.

The national guidelines target decision-makers in health and social care including politicians and directors, as well as various health care professionals. Different versions of the guidelines are published to reach the various target groups. There is also a version for patients.

The national guidelines include a set of performance indicators to be used for monitoring and evaluation in health and social care. Hence open indicator-based comparisons and more in-depth performance assessments are part of a package aiming to improve the quality of health care and social services.

This report is based on a national assessment of the quality and efficiency of the care of musculoskeletal diseases, focusing on county councils’ compliance with the recommendations in the *National Guidelines for Musculoskeletal Diseases* which the National Board of Health and Welfare published in 2012 [1].

Focus on musculoskeletal diseases

Musculoskeletal diseases are conditions of the bones, muscles and their attachments (e.g. joints and ligaments) leading to varying needs of care. Common symptoms are pain and swelling of joints, stiffness, limited joint movement, loss of muscle power and fatigue.

Musculoskeletal conditions are relatively common in Sweden. According to Statistics Sweden's population survey 2012/2013 (ULF/SILC), 3.7 % of the men and 6.4 % of the women reported that they had reduced movability, preventing them from running a shorter distance of 100 metres or entering a buss without difficulty or walking briskly for 5 minutes [2]. Rheumatic conditions and joint issues are also the most frequent chronic conditions in Europe [3].

Sweden, as many other countries, has an ageing population and therefore over time more and more persons will experience musculoskeletal conditions. The number of overweight persons also increases which also may contribute to an increasing incidence of musculoskeletal diseases.

The consequences of a musculoskeletal disease for the individual are extensive in terms of reduced health and quality of life. These diseases also put demands on the health care services and account for a large part of health care consumption as well as a large part of the societal costs of illness. According to statistics from the national social security office (Forsakringskassan) around 23 percent of the persons on sickness benefit in December 2013 had it as a result of a musculoskeletal disease. This was a reduction compared to 2005 as the equivalent figure was almost 32 percent [4].

This assessment covers the following diagnosis:

- osteoporosis (fragile bones)
- osteoarthritis in the knee and hip (breakdown of joint cartilage)
- inflammatory rheumatic diseases:
    - rheumatoid arthritis (rheumatism in the joints)
    - axial spondyloarthritis and ankylosing spondylitis (inflammation in the sacroiliac joints and/or the spine)
    - and psoriatic arthritis (a combination of psoriasis and inflammation of the joints).

Objectives and limitations

The overall objective is to assess performance - quality and efficiency - of care for persons with musculoskeletal diseases, seeking to answer two overall questions:

- Do health care providers and county councils comply with the recommendations in the *National Guidelines for Musculoskeletal Diseases 2012*?
- Do patients with musculoskeletal diseases receive quality health care services regardless of their geographical location, their age, their gender, their educational background and their country of origin, more specifically is care provided on equal terms for everybody?

In this assessment, processes and outcome of care are openly compared between county councils using an indicator based approached. Hence, both process and outcome indicators are used. The Swedish version of the report also includes a comparison of costs of care between county councils, where the costing data could be used to further analyse efficiency aspects of care.

The assessment is covering the diseases included in the National Guidelines published in 2012. Data used in the assessment refers to the year 2012, the same year that the Guidelines were published. Therefore it is not possible to draw any definite conclusions regarding compliance with the Guidelines. Consequently this assessment is regarded as a baseline study, against which future results will be monitored.

Due to limited availability of data, only one indicator reflects care of axial spondylarthritis/ankylosing spondylitis and psoriatic arthritis. Consequently it is not possible to fully assess the performance of care for persons with these illnesses.

Several musculoskeletal conditions are managed in the primary health care services, a setting for which there currently is limited national data.

Target groups

This assessment primarily targets decision-makers at various levels: politicians, civil servants and health care managers, as well as health care professionals. It may also be useful to other stakeholders such as patient organisations and media.

Collaboration

The assessment was undertaken by a working group which collaborated with experts of from relevant medical fields as well as with persons responsible for the participating national health care quality registers: the Swedish Rheumatology Quality Register (SRQ), the register for Better Management of Patient with Osteoarthritis (BOA), and the Swedish Hip Arthroplasty Register (SHPR).

The project plan was discussed and anchored within the National Coordination Group for Knowledge-based Management (NSK) and the Swedish Rheumatism Association, a patient organization.

Methodology

The National Board of Health and Welfare has assessed the performance – both quality and efficiency –of care for persons with musculoskeletal diseases, by monitoring county councils' compliance with the recommendations in the *National Guidelines for Musculoskeletal Diseases* which was published in 2012. An indicator-based approached was used reflecting both process and outcome indicators. Such indicators were included in the National Guidelines. Additional indicators were developed for this particular assessment. Data was collected from national registers administered by the National Board of Health and Welfare as well as from national health care quality registers. Data was segregated by the patient's geographic location, gender, age, educational level and country of origin, as to study quality of care for various groups.

Data collection methods

Data was collected from national registers administered by the National Board of Health and Welfare as well as from national health care quality registers. However, at the moment there is no comprehensive national data source covering diagnosis and treatments in the primary health care services.

Indicators

The National Guidelines included a number of process and outcome indicators to be used for performance assessment. Such indicators reflected, where possible, the recommendations in the National Guidelines. These indicators as well as a few additional indicators were used in this assessment.

Each indicator is identified by a letter, O for Osteoporosis, A for Arthritis and R for Rheumatic Inflammatory Diseases, and a figure. Annex 1 includes a selection of indicator-based comparisons reflecting the most importance areas for improvement. The following indicators were used in the assessment.

Table 1 Process and Outcome Indicators

Osteoporosis	
Treatment with bone-specific drugs after osteoporotic fracture	O1
Monotherapy with calcium and vitamin D after osteoporotic fracture*	O2
Recurrent fractures within 5 years after osteoporotic fracture	O3
Mortality after hip fracture*	O4
Osteoarthritis	
Arthritis School before hip replacement surgery*	A1
X-ray before attending Arthritis School*	A2
Treatment with glucosamine*	A3
Treatment with hyaluronic acid*	A4
Arthroscopic surgery for knee osteoarthritis	A5
Inflammatory Rheumatic Diseases	
Disease duration before newly diagnosed rheumatoid arthritis	R1
Disease activity and Activities of Daily Living (ADL) status for newly diagnosed rheumatoid arthritis	R2
Biological treatment for rheumatoid arthritis	R3
Disease duration and Activities of Daily Living (ADL) status before and after biological treatment for rheumatoid arthritis	R4
Biological treatment for newly diagnosed rheumatoid arthritis	R5
Disease duration before start with biological treatment for rheumatoid arthritis	R6
Biological treatment for ankylosing spondylitis and psoriatic arthritis	R7

* New indicators developed for this performance assessment and not included in the National Treatment Guidelines for Musculoskeletal Diseases, 2012.

Data sources

In order to assess the performance of care of musculoskeletal diseases in Sweden, the National Board of Health and Welfare has openly compared the processes and outcome of care provided by county councils. Data was collected from national registers.

Data sources included national registers administered by the National Board of Health and Welfare including the Patient Register, the Prescribed Drug Register, the Cause of Death Register, as well as three national health care quality registers; the Swedish Rheumatology Quality Register (SRQ), the register for Better Management of Patient with Osteoarthritis (BOA), and the Swedish Hip Arthroplasty Register (SHPR).

County councils and hospitals are by law obliged to report data to national registers, but can choose to report data to health care quality registers, and patients can decline to have their data registered. However, health care quality registers have the ambition to comprehensively cover all care and all patients within their respective areas.

Data entered into the national registers and the national health care quality registers are based on a Unique Patient Identifier (UPI), the social security number, which all residents of Sweden have. The UPI makes it possible to co-run data from different registers over time.

National registers

The National Patient Register

The National Patient Register, administered by the National Board of Health and Welfare, covers approximately 1.5 million in-patient cases and nearly 10 million out-patient hospital visits to physicians (not primary health care visit) annually. As all in-patient care cases are registered using ICD-codes (primary diagnosis, secondary diagnosis and interventions), co-morbidities can also be studied. There is a limited number of missing cases regarding primary diagnosis and intervention codes, which appears to be more frequent among private health care providers. The quality of the reported data on out-patient visits has improved over time. However, there is still a considerably underreporting of data among private providers.

The Patient Register covers in-patient care since 1987 and out-patient care visits in hospitals since 2001. The register is presently updated on a yearly basis. When this assessment was undertaken, the National Patient Register contained data until the end of 2012.

The National Patient Register does not contain data on primary health care visits. Nor does the register contain visits to other health care professionals than physicians.

Prescribed Drug Register

The Prescribed Drug Register includes all pharmaceuticals that have been prescribed and sold via pharmacy since July 1, 2005. Between 1999 and 2005 the same variables were registered, however without the patient’s social security number (the UPI). Data is updated every month.

Every year approximately 90 million drugs are sold and registered. Every year approximately 0.3 percent of the prescriptions registered lack the patient’s social security number and around 0.6 percent of the cases lack the information on residence of the patient. Pharmaceuticals used in in-patient care and drugs sold without prescriptions are not included in the register. The Prescribed Drug Register does not include any diagnosis, therefore the cause for using a particular drug treatment is not known.

Cause of Death Register

The Cause of Death Register contains data on persons who are registered in Sweden at the time of death. When this assessment was undertaken the Cause of Death Register included data from the years 1961 to 2013. Every year all deaths are registered in the register. Between 90,000 and 95,000 deaths are registered annually. For between 1-2 per cent of the persons who die in a year, the cause of death is unknown.

Health care quality registers

A national health care quality register contains individual-based data (UPI) on diagnosis, interventions and outcome of health and/or social care. Data can be monitored at various levels; county council, hospital or clinic.

Traditionally, the health care quality registers have been needs-based initiated and administered by health care professionals. In 2012, the Swedish Government and the Swedish Association of Local Authorities and Regions (SALAR) agreed on a five year development plan for the national quality registers aiming at increasing the use of register-based data for quality enhancing work in the health care services and at facilitating register-based research. The plan aim at a faster and more uniform development of the registers; better use of information technology; integration of patient records and register-based data. The Government and SALAR are jointly financing this work.

In 2014, there were 81 national quality registers and 24 additional register under development, all of which were receiving financial support. Most of the registers are run by various clinics throughout Sweden. All health care quality registers are monitored and certified by the National Steering Committee for Health Care Quality Registers as to ensure a certain standard of quality. SALAR is hosting a national health care quality office.

Swedish Rheumatology Quality Register (SRQ

The Swedish Rheumatology Quality Register is a registry-supported care and learning system that enables an integrated approach to the improvement of health, clinical practice, public reporting and research.

The patient reports his or her own symptoms, perceived health and quality of life in an internet accessed module called PER (Patient sElf Registration) prior to a visit to the physician, either at home or in the clinic’s waiting room. The self-reported data are synthesised and graphically displayed to provide a snapshot of the current health status and a longitudinal image of personal health and treatment trends over time.

During the visit to the physician, data from the clinical examination, the laboratory tests and a global scoring of disease activity is added. Data on past and present prescribed medications and current patient outcomes are also added. The result is a clinical decision supporting tool – a dashboard – which allows the patient and the physician to work together to optimize treatment according to the patient’s needs. Both physicians and nurses use the clinical decision supporting tool during clinical encounters with patients.

Structured data from each visit is immediately exported to the national Swedish Rheumatology Quality Register which stores data on patients, interventions and outcomes.

All 64 rheumatology clinics throughout Sweden can offer their patients to have their data submitted to the register. In the year 2012, 58,600 patients had their data reported to the Swedish Rheumatology Quality Register. In some counties, all patients with the relevant diagnosis were included in register. The national average was 65% in 2011.

Better Management of Patient with Osteoarthritis (BOA)

The BOA-register aims at evaluating the outcome of structured physiotherapy of patients with osteoarthritis in hips or knees. Patients who have been diagnosed with arthritis based on their symptoms, their medical history and the clinical examinations are offered to attend a so called Arthritis School led by a physiotherapist. While attending the arthritis school patients receive education, training and support to lose weight if deemed necessary.

Hence, the BOA-register is an intervention register aiming at including all patients with hip and/or knee arthritis who have attended Arthritis School. Persons who do not understand the Swedish language and who therefore cannot attend the Arthritis School will be attended to individually, possibly with an interpreter, but will not be included in the register. Primarily persons attending Arthritis School organized by the primary health care services are registered, but also persons seeking care in the specialized health care services are registered.

The register collects data on health-related quality of life (EQ-5D); estimation of level of pain using VAS (visual analogue scale); patient satisfaction; willingness to undergo surgery; fear of movement; physical activity; surgery with full hip or knee replacement.

The register will in the future be able to give in-depth information regarding socio-economic and life-style related factors and their impact on health-related quality of life and health care consumption for persons with arthritis.

The BOA-register was stated in 2010. Since then the number of participating patients and health care units have doubled every year. In 2013, over 25,000 patients were registered and all county councils had participating health units. In April 2014, 376 health units or clinics were reporting data to the register.

Swedish Hip Arthroplasty Register (SHPR)

The Swedish Hip Arthroplasty Register is the fusion of two registers: one for surgery with total hip replacement with arthrosis/arthritis as the primary indication, and one for surgery with so-called hemi-arthoplasty with hip fracture as the main indication. Patient groups vary considerably: a relatively healthy population with an average age of just below 70, and a group of patients with a mean age of approximately 85, with severe comorbidity and short life-expectancy.

The register's main task is to analyse the entire process surrounding hip replacement surgery. The 10-year survival of the most common and well-documented implants is currently over 95%.

All units, both public and private, which carry out hip replacement report to the register. All hospitals, where hemi-arthroplasty is carried out, also report to the register. When hip replacements reported to the SHPR are compared with those reported to the National Patient Register, coverage was 97.5%. The coverage for hemi-arthroplasty was 96.2%. Most clinics report their data via a web application. Patient-reported outcome measures were reported from all hospitals in 2012, with a response rate of slightly higher than 90% for the one-year follow-up.

Data analysis

Data is presented for the country as a whole and at county council level. Data is also segregated and analysed by age and gender, as well as by educational level and by country of origin. Such segregated data is presented in the report when differences between groups were found. By segregating data by various groups it is possible to identify and illustrate inequalities in health care.

Educational level and country of origin

Data from the National Registers and the National Health Care Quality Registers can be co-run with data on an individual's highest achieved educational degree from the Educational Register administered by Statistics Sweden.

The patients were divided into three groups according to their length of education. Their educational level was classified according to the following:

- Low education - primary school education of 9 years or less;
- Middle education - secondary schooling of 2 or 3 years;
- High education - university education including PhD-studies.

Data on country of origin is found in the National Patient Register for the years 1998-2012. Patients' countries of origin have been divided into the following groups:

- Born in Sweden
- Born in other Nordic countries
- Born in other countries within the European Union (Belgium, Bulgaria, Cyprus, Estonia, France, Greece, Ireland, Italy, Croatia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Rumania, Slovakia, Slovenia, Spain, Great Britain, Czech Republic, Germany, Hungary and Austria).
- Born in the rest of the world.

Diagrams

Data is presented in separate diagrams for the country as a whole and for the county councils, where it is relevant and when data is available.

For some indicators there were too few observations and it was not possible to statistically draw any conclusions from the material. Such data was therefore not presented in a diagram. Presentations at county council level always included at least 30 observations.

Although data analysis was undertaken for age and gender segregated data as well as for educational level and country of origin, diagrams with such data are only included in the report where differences between groups were found.

In all diagrams county council with the strongest results are presented at the top of a diagram, and the one with the weakest result is at the bottom. When it is not possible to evaluate the results, then data is presented in the order, highest to lowest. The major aim of the presentation is to highlight variations in the country.

Conclusions and Recommendations

The National Board of Health and Welfare's performance assessment of care for patients with musculoskeletal diseases showed that health care providers in some areas complied well with the National Guidelines. For instance, the percentage of patients being treated with glucosamine and hyaluronic acid has decreased over last the few years, which is a positive development as these substances have limited or no effect compared with placebo treatment. Over the years, more patients with inflammatory rheumatic diseases are also being treated with biopharmaceuticals which considerably improves the quality of life for these patient groups.

Below, the National Board of Health and Welfare lists the areas where county councils could improve their care. There were many areas of care where there were significant differences between country councils, and differences indicate that significant improvements can be made. These conclusions and recommendations are intended to support county councils and health care providers in their own quality improvement work.

More data on ankylosing spondylitis and psoriatic arthritis is needed to enable comprehensive performance assessments in the future.

Osteoporosis

Indicators presented for osteoporosis showed that the prescription of bone-specific drugs among patients who have had an osteoporotic fracture has been at the same level since 2005 and that the variation in prescription rate was large between county councils.

The National Board of Health and Welfare concludes that county councils and health care providers can improve care for persons with osteoporosis by:

- examining and diagnosing osteoporosis to a greater extent, particularly among elderly patients
- examining more fractured patients for osteoporosis and risks of falling, particularly in elderly
- treating considerably more persons with high risk of fractures with bone-specific drugs
- analysing unmotivated differences in gender prescription patterns of bone-specific drugs
- prescribing calcium and vitamin D as monotherapies only if there is a documented deficiency of these substances. These substances can be prescribed in combination with bone-specific drugs though.

Osteoarthritis

Indicators for care of persons with osteoarthritis indicated some differences between county councils in terms of diagnostics, access to physical training and treatment.

The National Board of Health and Welfare suggests that county councils and health care providers can improve osteoarthritis care by:

- offering more persons access to physical training according to the recommendations in the National Guidelines for instance within an Arthritis School
- encouraging health care providers that offer Arthritis Schools to register data in the health care quality register designated for patients with osteoarthritis, Better Management of Patient with Osteoarthritis (BOA)
- improving examination and diagnostics of patients
- reviewing the use of x-ray examination when diagnosing patients as to ensure it is not used on a routine basis
- reducing the prescription of glucosamine and hyaluronic acid in country councils where prescription levels are high
- thoroughly analysing the use of knee arthroscopy for patients with osteoarthritis, as well as correctly reporting the procedure to relevant registers.

Inflammatory rheumatic diseases

Rheumatoid arthritis

Indicators reflecting care of patients with rheumatoid arthritis highlighted differences between county councils in terms of the disease duration before diagnosis, as well as disease duration before receiving biological treatment.

The National Board of Health and Welfare concludes that county councils and health care providers can improve care for persons with rheumatoid arthritis by:

- improving examination and diagnostics of patients in order to shorten disease duration before diagnosis
- considering treatment of more patients with biopharmaceuticals already during the first year after diagnosis
- monitoring prescription patterns and offering patients treatment regardless of gender and/or socio-economic background.

Ankylosing spondylitis

The only included indicator referred to prescription of biological treatment for patients with ankylosing spondylitis, indicating that the number of patients treated has increased over the years.

However, more data is needed on care of patients with ankylosing spondylitis to enable thorough performance assessments, monitoring and evaluation to be undertaken. The National Board of Health and Welfare strongly suggests that county councils and health care providers report data to the relevant registers so that performance assessments can be undertaken for this area of care in the future.

Psoriatic arthritis

The only included indicator referred to prescription of biological treatment for patients with psoriatic arthritis, showing that the number of patients treated has increased a great deal over the years.

However, more data is needed on care of patients with psoriatic arthritis to enable thorough performance assessments, monitoring and evaluation to be undertaken. The National Board of Health and Welfare strongly suggests that county councils and health care providers report data to the relevant registers so that performance assessment can be undertaken for this area of care in the future.

Equality in health care

Equality in health care means that health care should be received on equal terms for all. This performance assessment has highlighted care for different age groups, gender, country of origin and educational level. The assessment showed that there were differences between men and women, for instance regarding prescription of bone-specific treatment for osteoporosis after osteoporotic fractures. Men were to a lesser extent treated with bone-specific drugs.

Differences were also found when it came to educational level and country of origin. Highly educated women and men to a greater extent received biopharmaceuticals for rheumatoid arthritis than people with a low education. Highly educated and Swedish-born patients were more likely receive treatment for osteoporosis after an osteoporotic fracture.

These comparisons did not however take into account that there might have been differences in the patients’ severity of illness (often referred to as patient case-mix). Such differences in the patient groups might have explained some of these highlighted differences in prescription patterns. Findings indicated that health care could become more equal if treatment and care were to be given on equal terms regardless of patients’ gender or educational background.

Future performance assessments

The National Board of Health and Welfare will undertake a performance assessment of care for musculoskeletal diseases in a few years’ time with the objective to monitor progress in the compliance with the National Guidelines. The above mentioned areas for improvements will in particular be monitored. Hopefully by then data sources will include data on all the diseases included in the National Guidelines so that all diseases in the guidelines can be included in the performance assessment. In order to monitor structures, processes and outcomes of health care, data sources need to be developed at local, regional and national levels. Comparable data on costs is also needed as to enable analysis of efficiency of health care.

The National Board of Health and Welfare will undertake further developmental work as to improve all present national registers, as well as working towards a national database for the primary health care setting.

The National Board of Health and Welfare concludes that county councils and health care providers as well as municipalities can improve care for persons with musculoskeletal diseases by:

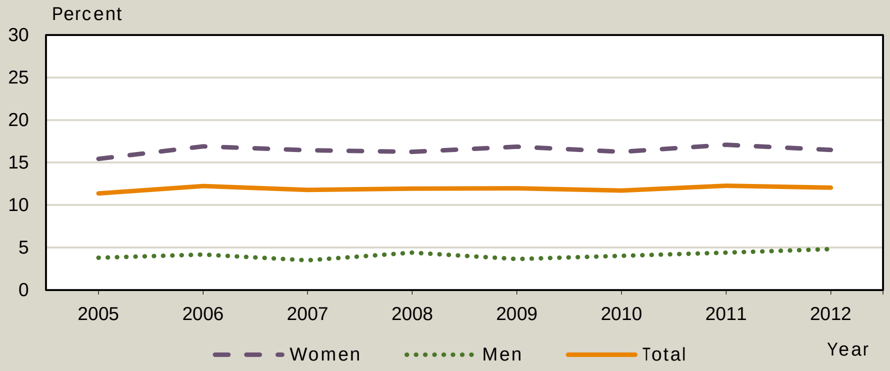
- reporting data to the relevant health care quality registers and to the cost per patient-database (KPP-database)
- monitoring their own performance.

Annex 1: Indicator-based Comparisons

Treatment with bone-specific drugs after osteoporotic fracture (O1)

Figure O1.2. Treatment for osteoporosis - osteoporotic fracture, Sweden

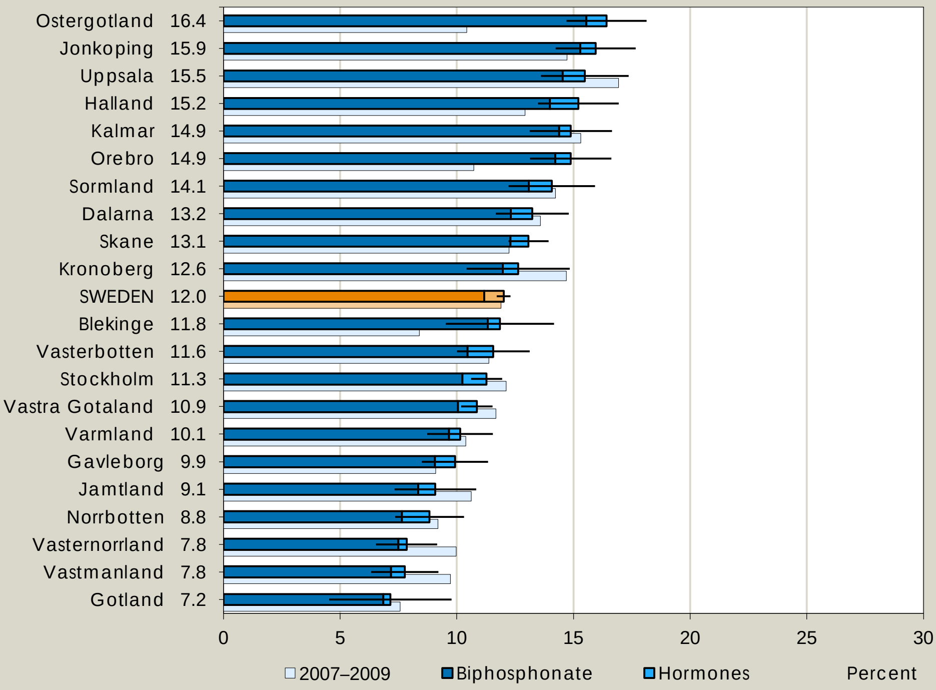
Proportion of persons, 50 years and older, prescribed bone-specific drugs (biphosphonate, zoledronic acid, denonsumab) or systemic hormones 0-12 months after hospital-treated first osteoporotic fracture, 2005–2012. Age-standardised data.



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

Figure O1.3. Treatment for osteoporosis - osteoporotic fracture, county councils

Proportion of persons, 50 years and older, prescribed bone-specific drugs (biphosphonate, zoledronic acid, denonsumab) or systemic hormones 0-12 months after hospital-treated first osteoporotic fracture. Age-standardised data.



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

Monotherapy with calcium and vitamin D after osteoporotic fracture (O2)

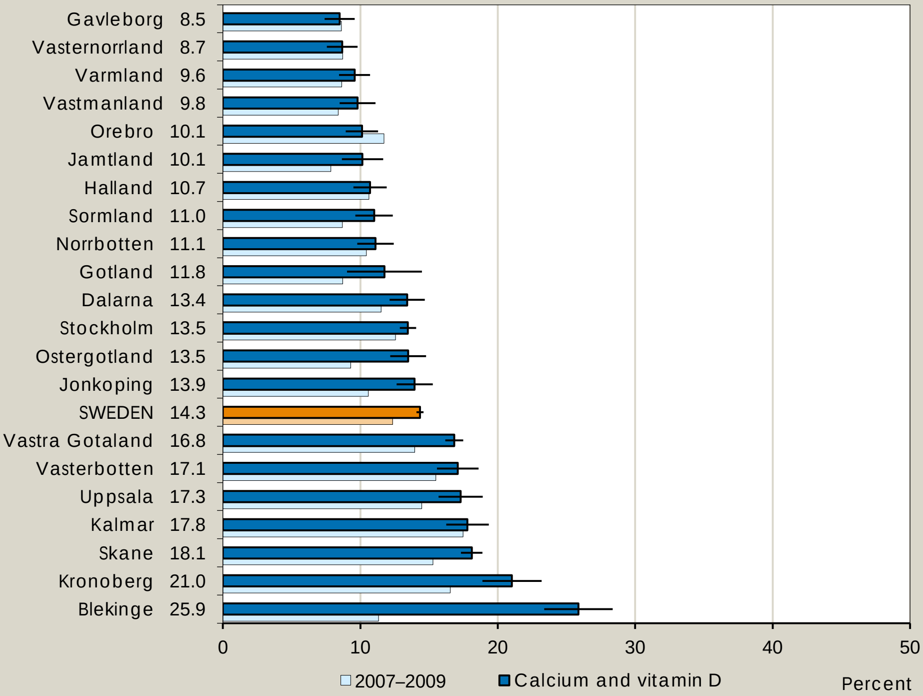
Figure O2.1. Monotherapy after osteoporotic fracture, Sweden

Proportion of persons, 50 years and older, prescribed calcium and vitamin D as monotherapy 6–12 months after first osteoporotic fracture, 2005–2012. Age-standardised data.

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

Figure O2.2. Monotherapy after osteoporotic fracture, county councils

Proportion of persons, 50 years and older, prescribed calcium and vitamin D as monotherapy 6–12 months after first osteoporotic fracture, 2010–2012. Age-standardised data.

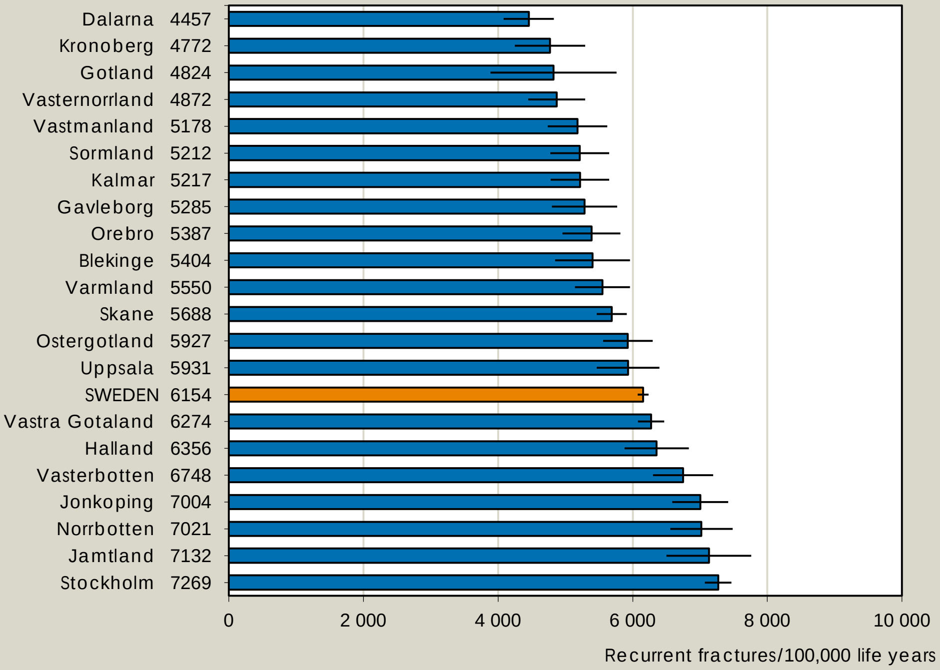


Source: Patient Register and Prescribed Drug Register, National Board of Health and Welfare.

Recurrent fractures within 5 years after osteoporotic fracture (O3)

Figure O3.1. Recurrent fractures within 5 years, county councils

Number of new fractures within 5 years per 100,000 life years, persons 50 years and older treated for their first osteoporotic fracture 2003–2007. Age-standardised data.

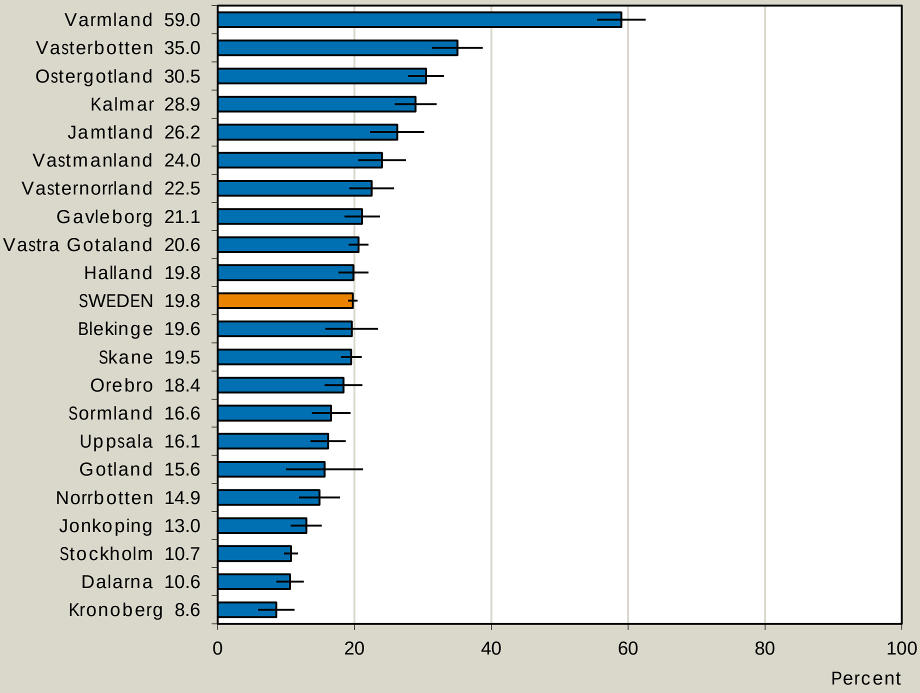


Source: Patient Register, National Board of Health and Welfare.

Arthritis School before hip replacement surgery (A1)

Figure A1.1. Arthritis School before hip replacement surgery, county councils

Proportion of persons with osteoarthritis of the hip who reported having participated in Arthritis School before hipreplacement surgery, among persons registered in the Swedish Hip Arthroplasty Register 2012.

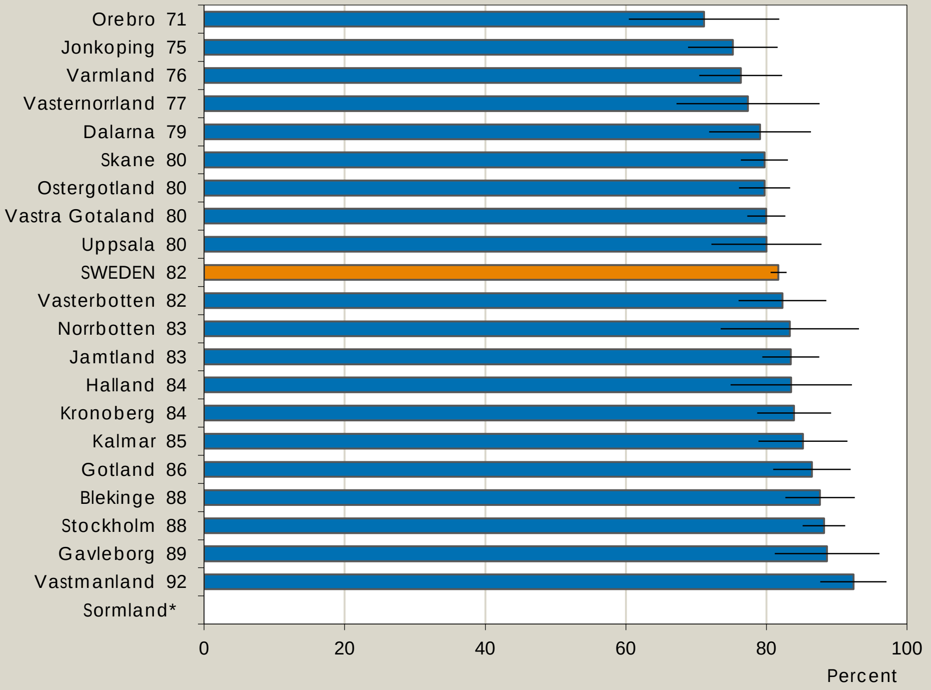


Source: Swedish Hip Arthroplasty Register.

X-ray before attending Arthritis School (A2)

Figure A2.1. X-ray before Arthritis School, county councils

Proportion of persons, all ages, who have been X-rayed before attending Arthritis School, 2013.



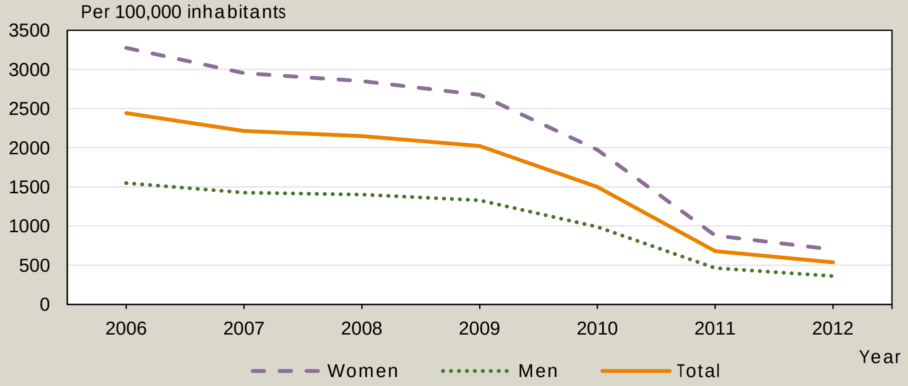
*Fewer than 30 reported observations.

Source: Better Management of Patients with Osteoarthritis (BOA).

Treatment with glucosamine (A3)

Figure A3.1. Glucosamine, Sweden

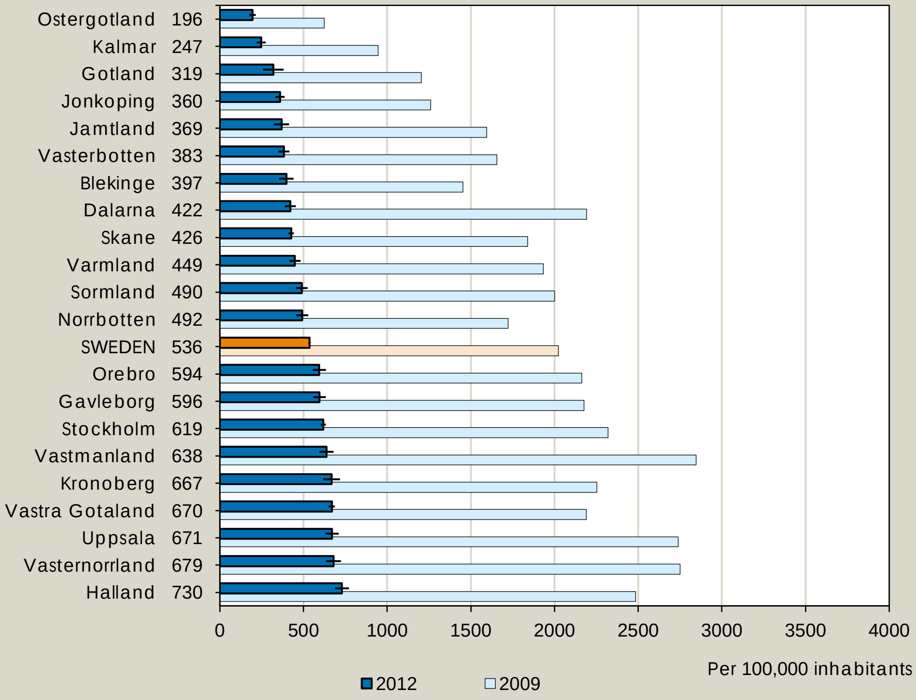
Number of persons, 40 years and older, prescribed glucosamine at least once per 100,000 inhabitants, 2006–2012.



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

Figure A3.2. Glucosamine, county councils

Number of persons, 40 years and older, prescribed hyaluronic acid at least once per 100,000 inhabitants, 2012.

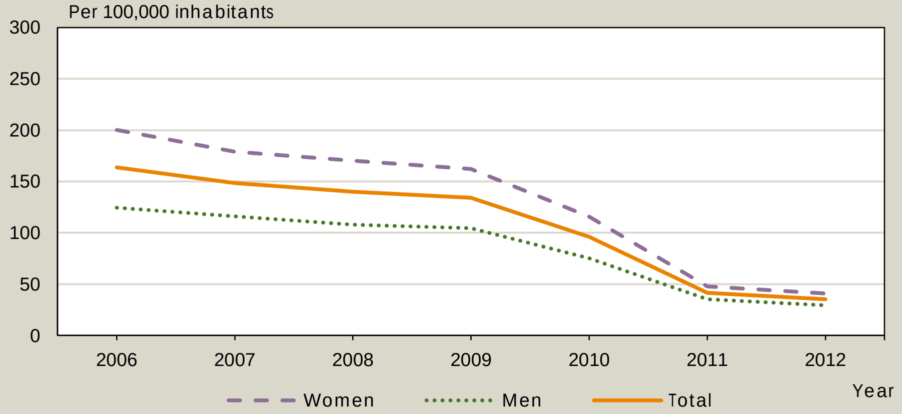


Source: Prescribed Drug Register, National Board of Health and Welfare.

Treatment with hyaluronic acid (A4)

Figure A4.1. Hyaluronic acid, Sweden

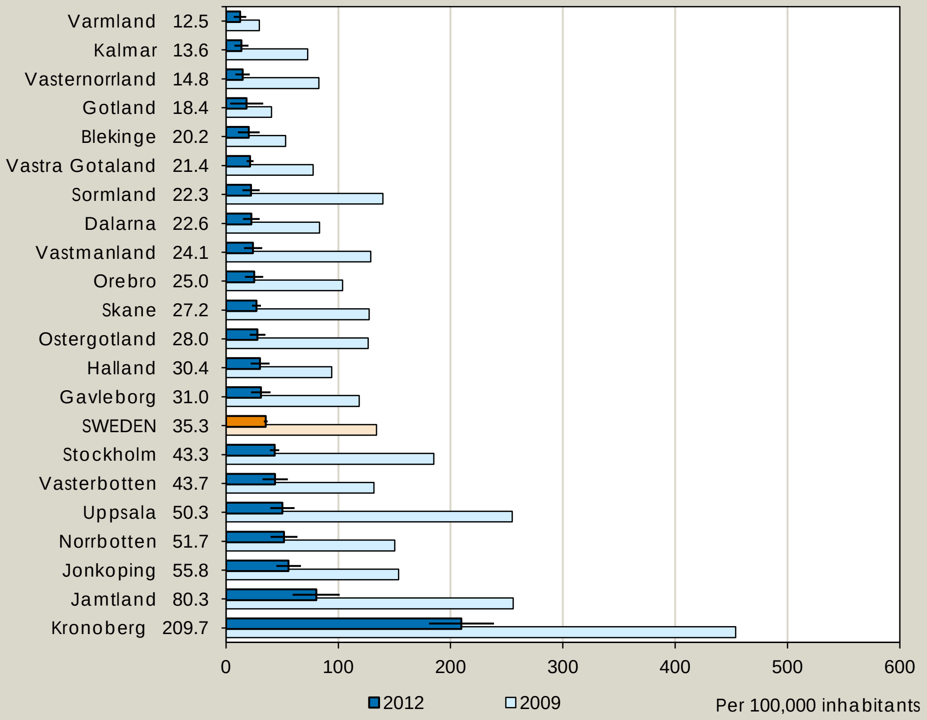
Number of persons, 40 years and older, prescribed hyaluronic acid at least once per 100,000 inhabitants, 2006–2012.



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

Figure A4.2. Hyaluronic acid, county councils

Number of persons, 40 years and older, prescribed hyaluronic acid at least once per 100,000 inhabitants, 2012.

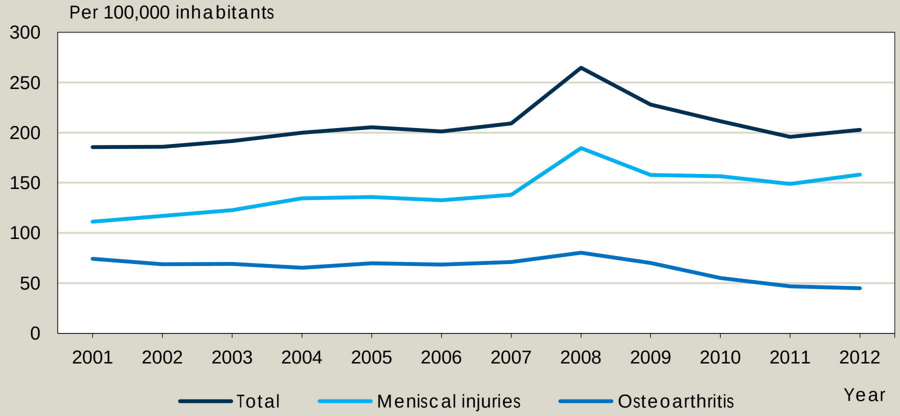


Source: Prescribed Drug Register, National Board of Health and Welfare.

Arthroscopic surgery for knee osteoarthritis (A5)

Figure A5.1. Arthroscopy for knee osteoarthritis, Sweden

Number of arthroscopic surgery procedures for knee osteoarthritis and meniscal injuries (as primary diagnosis)per 100,000 inhabitants, persons 40 years and older, 2001–2012.

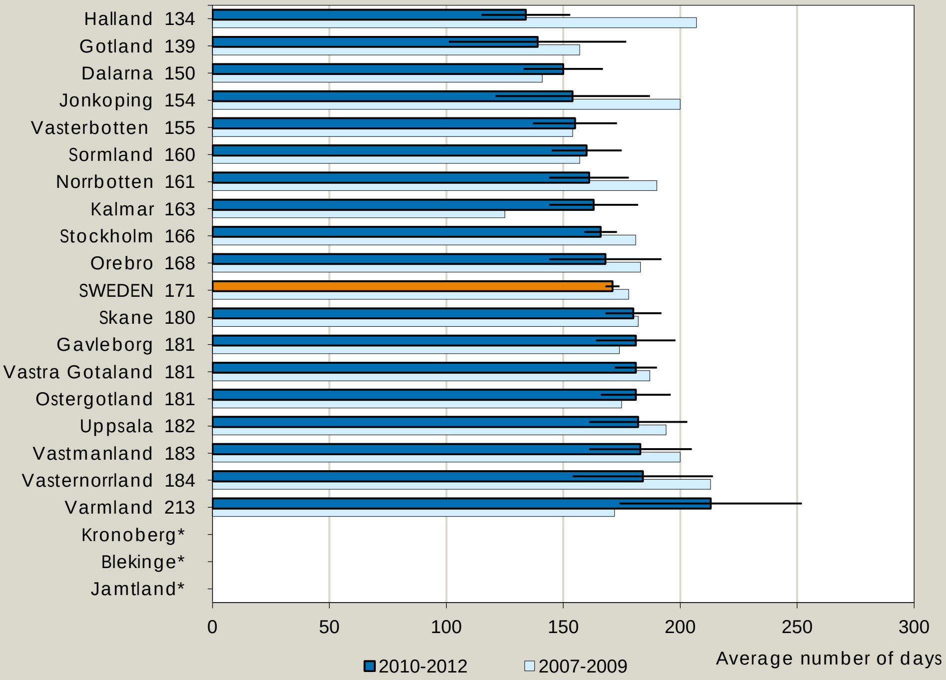


Source: Patient Register, National Board of Health and Welfare.

Disease duration before newly diagnosed rheumatoid arthritis (R1)

Figure R1.2. Disease duration before newly diagnosed RA, county councils

Number of days between first characteristic symptoms and first visit to specialist leading to newly diagnosed RA among persons with disease duration <13 months, 2010–2012. Age-standardised data.



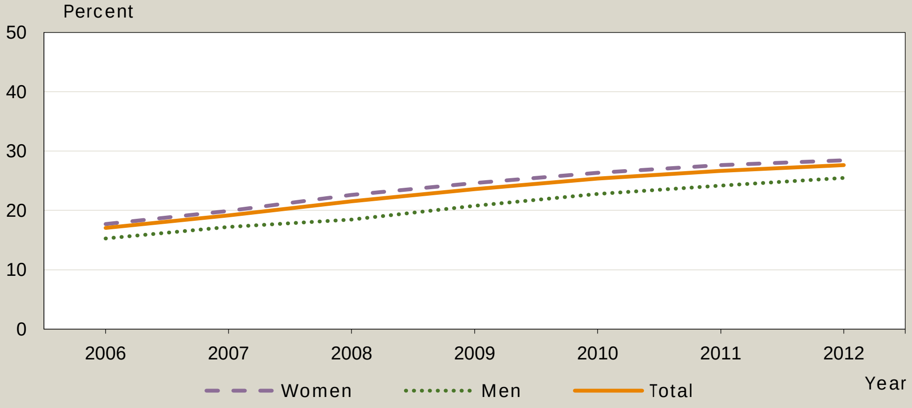
*Fewer than 30 reported observations.

Source: Swedish Rheumatology Quality Register (SRQ).

Biological treatment for rheumatoid arthritis (R3)

Figure R3.1. Biological treatment for rheumatoid arthritis, Sweden

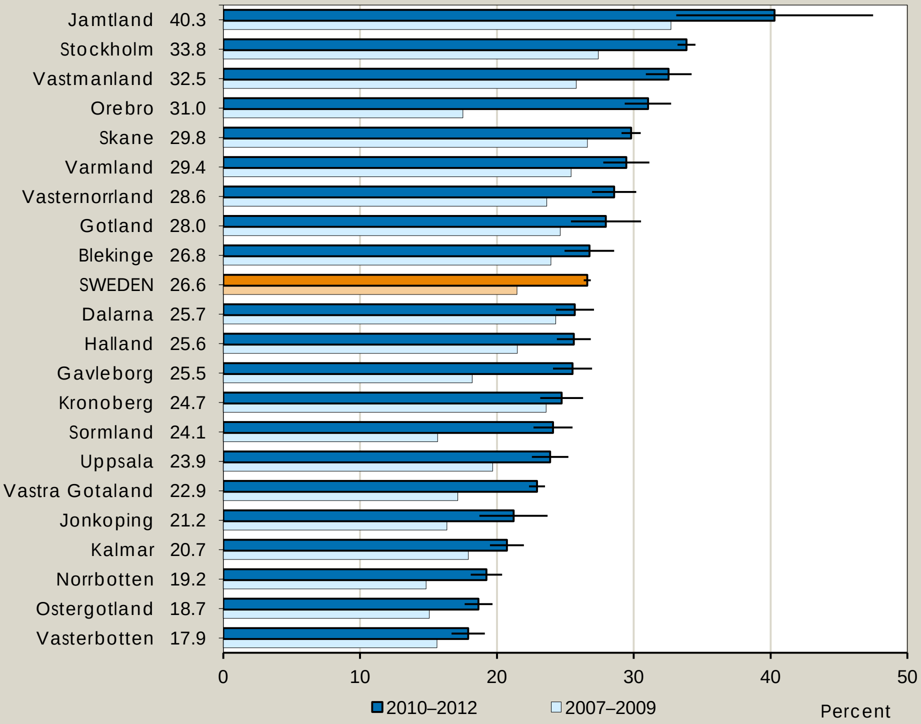
Proportion of persons, 18 years and older, with rheumatoid arthritis treated with biopharmaceuticals, 2006–2012. Age-standardised data.



Source: Patient Register and Prescribed Drug Register, National Board of Health and Welfare. Swedish Rheumatology Quality Register (SRQ).

Figure R3.2. Biological treatment for rheumatoid arthritis, county councils

Proportion of persons, 18 years and older, with rheumatoid arthritis treated with biopharmaceuticals, 2010–2012. Age-standardised data.

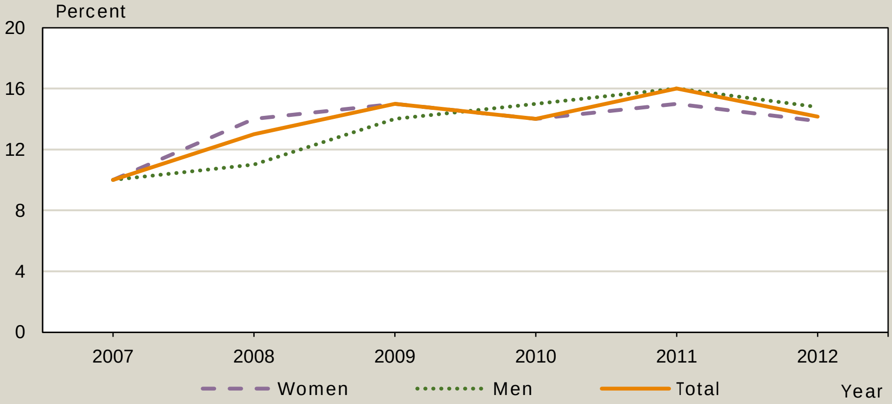


Source: Patient Register and Prescribed Drug Register, National Board of Health and Welfare. Swedish Rheumatology Quality Register (SRQ).

Biological treatment for newly diagnosed rheumatoid arthritis (R5)

Figure R5.1. Biopharmaceutical treatment start of newly diagnosed, Sweden

Proportion of newly diagnosed RA patients who within 12 months have started treatment with biopharmaceuticals, 2007–2012. Age-standardised data.



Source: Swedish Rheumatology Quality Register (SRQ).

Disease duration before start with biological treatment for rheumatoid arthritis (R6)

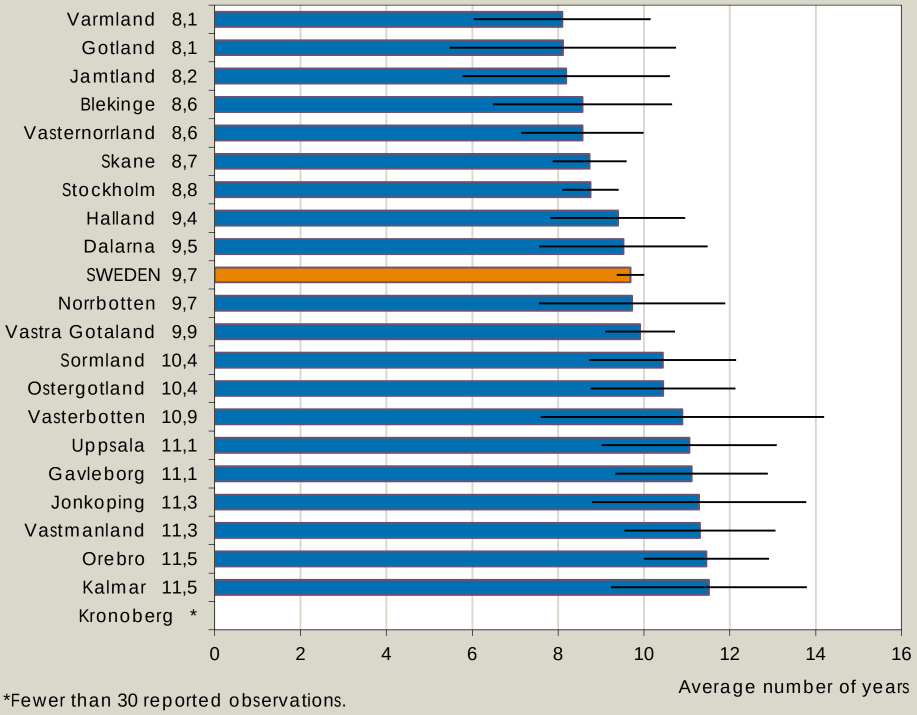
Figure R6.1. Disease duration (years) before treatment start, Sweden

Disease duration (years) before start with biological treatment for rheumatoid arthritis, persons 18 years or older, 2007–2012. Age-standardised data.

Source: Swedish Rheumatology Quality Register (SRQ).

Figure R6.2. Disease duration (years) before treatment start, county councils

Disease duration (years) before start with biological treatment for rheumatoid arthritis, persons 18 years or older, 2010–2012. Age-standardised data.



*Fewer than 30 reported observations.

Source: Swedish Rheumatology Quality Register (SRQ).

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