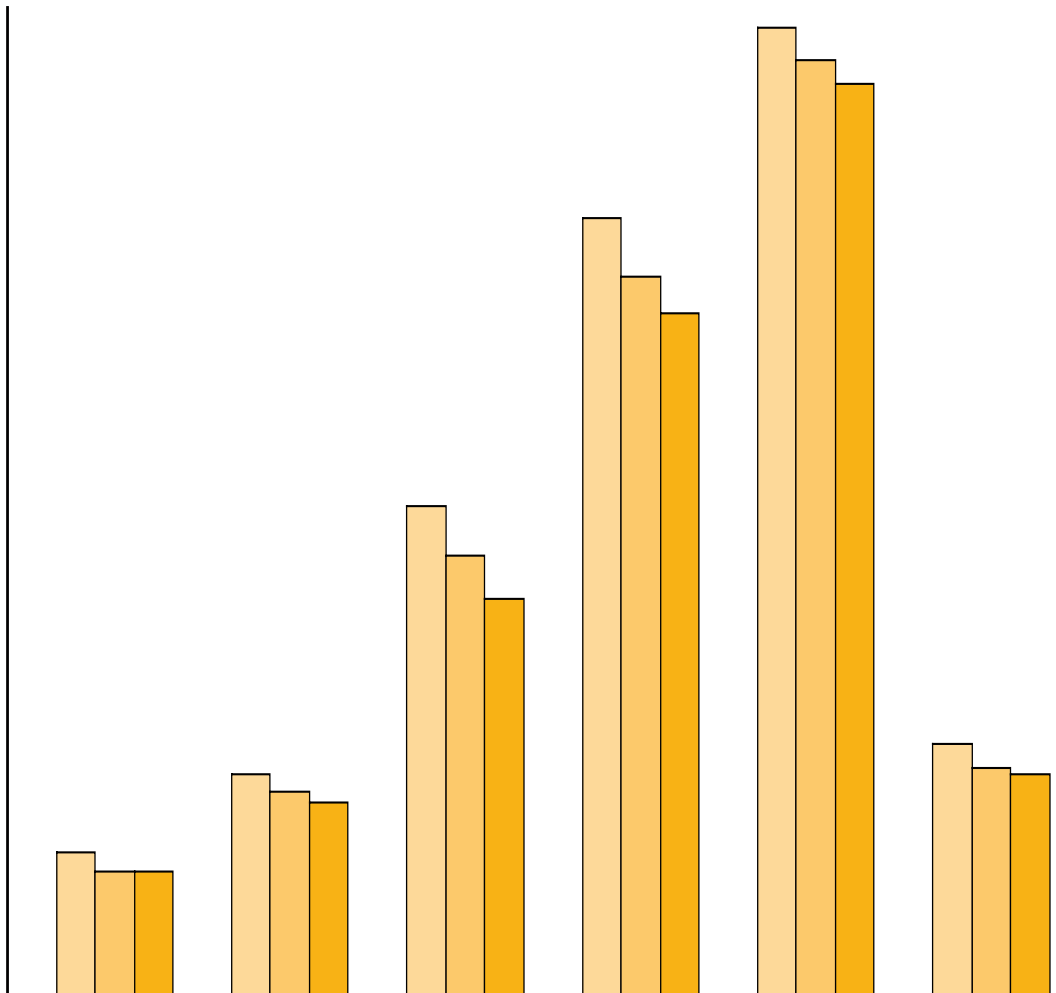


Swedish Health Care in Transition

– *Structure and Methods for Better Results*



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Foreword

The Swedish Association of Local Authorities and Regions (SALAR) publishes periodical reports about Swedish health care in transition. Some of the reports compare health care in Sweden with that in other countries. The most recent international comparison, which was published in June 2008, concluded that the quality and cost-effectiveness of Swedish health care is fully competitive with that of other countries. In collaboration with the Swedish National Board of Health and Welfare, SALAR also publishes annual comparisons of regional quality and cost-effectiveness. The purpose of the various reports is to promote transparency about healthcare performance and encourage improvement.

The most striking conclusion of the reports is that healthcare results improve from year to year. As a result, more lives are saved and more people with chronic disease can live long into old age. That is all to the good. But the trend also poses a financial challenge – as the percentage of elderly increases, the relative size of the working-age population decreases. Hitherto the challenge has been met by utilising existing resources more cost-effectively and by investing additional resources. The cost-effectiveness effort will be increasingly important going forward.

This report describes the practical strategies that the regions have been using to increase healthcare quality and cost-effectiveness, thereby improving results. For instance, emergency care is consolidating, emergency and elective care are increasingly run separately, and hospitals are becoming more specialised. More and more healthcare services are provided on an outpatient basis, both in and outside hospital, and increasingly at home. That has reduced the number of beds and emergency hospitals. More hospitals specialise in elective care. These changes represent a way of taking full advantage of medical advances, thereby enabling improved quality and cost-effectiveness. Medical progress will continue to require additional consolidation of emergency care and a greater focus on outpatient care. Just as integral to modernisation is to improve healthcare methods, emphasizing the creation of cost-effective processes for various groups of patients while systematically eliminating that which fails to generate patient value. Among the concrete manifestations of such an approach is that long-term scheduling and planning permit clinics to make appointments for treatment during the patient's initial visit.

Although such changes have been needed in order to exploit medical advances, they have largely been described as cut-backs and reductions in quality, leading to disappointment and uneasiness among patients, the general public and healthcare employees alike. If the healthcare sector had been able to more transparently describe medical considerations and effects in terms of better results and quality, patients and the public would have felt more secure and employees would have experienced a greater sense of pride.

Roger Molin and Maj Rom of the Health and Social Care Division put together this report. Lena Bäckström and Siv-Marie Lindquist of the Department of Finance and Management compiled the statistics.

Stockholm, June 2009



Håkan Sörman

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Swedish Health Care in Transition

– *Structure and Methods for Better Results*

Handling a growing need for care in the face of financial restrictions

This report is a follow-up to a 2004 report, which described Swedish health care in transition in the 1990s. As a result of the economic crisis during that decade, employees in the healthcare sector declined by approximately 20 per cent. But the rapid medical progress of the 1990s also enabled thoroughgoing restructuring that reduced the number of beds and emergency hospitals. Meanwhile, more and more health care was offered on an outpatient basis, both in and outside hospital, as well as by primary care clinics and local authorities. Like other successful sectors, health care took advantage of medical advances and provided its services in a more effective manner.

Such restructuring permitted the healthcare sector to offer better quality and results while serving an expanding, ageing patient population. The emphasis was on consolidation, differentiation and specialisation. Emergency care was consolidated in fewer institutions, emergency and elective care were increasingly run separately, and additional resources were devoted to outpatient care. Such approaches targeted – and were accompanied by – better quality, safety and security. Thus, the Swedish healthcare sector of the 1990s was able to meet the growing need for care of an ageing population, both improving results and reducing the number of employees.

The challenge of handling a rising need for care in the face of financial restrictions is just as pressing under current economic circumstances. As in the 1990s, medical progress permits and requires restructuring and new methods. Restructuring has proceeded in the 2000s as emergency care has been further consolidated and the specialisation of some hospitals in elective care has led to greater differentiation. The average length of stay is more stable than previously, while the number of beds is not decreasing as fast. Healthcare methods, particularly improvement of systems and processes, are in greater focus. Better logistics and more standardisation are fundamental to the effort. The goal is frequently to shorten the time between various interventions, so that the patient is quickly informed of the results of an examination and does not have to wait too long once an additional measure has been decided upon. Waiting times are rapidly decreasing in Swedish health care. Another emerging trend is that IT support is improving and beginning to represent an integral part of modernisation efforts. Healthcare employees have growing access to IT-based decision-making support that proceeds

from leading-edge medical knowledge. Partly as the result of a national IT strategy for all Swedish regions, patients also have greater access to medical data, either online or by phone.

More transparent results

The focus is now on achieving healthcare results for patients in a new, more transparent way. Open comparisons examine the performance of regions and individual hospitals in three areas: medical results, accessibility and patient assessments. The comparisons look at more than 100 quality indicators, including survival after stroke, myocardial infarction or cancer, perineal tears and waiting times for hip operations. Over time, a unit at a hospital can monitor its own results against other units. Government management proceeds increasingly from results, based on performance-oriented agreements with regions concerning sickness absence, waiting times and the like. The agreements allocate additional resources to the regions in proportion to the results they achieve.

The concept of knowledge management has been established to describe the increasingly systematic manner in which the healthcare sector applies state-of-the-art scientific knowledge and monitors the results for patients. That entails a greater focus on introducing new methods and eliminating those that do not produce satisfactory results. Thus, knowledge management involves setting up a collaborative infrastructure with research and educational institutions, putting together data, guidelines and care programmes, systematically monitoring healthcare results and conducting ongoing improvement efforts. A practical aspect of knowledge management is that employees of a hospital unit can use quality registries to regularly compare the results they produce for their patients with their previous performance and with the results of other units. Along with systematic improvement efforts, comparisons of quality and cost-effectiveness generate better results for patients. For instance, fewer people have strokes, while more stroke patients survive and experience enhanced function.

This trend is proceeding rapidly – in future, reporting of quality and results will also promote patient participation while providing guidance in the choice of treatment options and caregivers.

Healthcare sector restructuring along with medical advances

The Swedish healthcare sector is generally heading in the right direction. Restructuring is accompanying medical advances and results are improving. Employees and patients have growing access to leading-edge, IT-based decision-making data. Open comparisons present healthcare results and quality.

That doesn't mean that the healthcare sector faces no challenges at all. A good deal remains to be done before the key tendencies identified above are fully established.

Given the economic restrictions necessitated by the financial crisis and the challenge faced by regions to satisfy the greater need for care of an ageing population while producing improved results, restructuring must continue. Emergency care may have to be consolidated even more, and differentiation among hospitals may have to go further. Primary care must continue to evolve and local authorities need to collaborate more closely. Knowledge management and a process orientation must make a broader, more systematic breakthrough – interventions that do not create value for patients must be scaled back. Patient participation is fundamental to such an effort. Another vital area for improvement is to take greater advantage of IT to support modernisation of the healthcare sector.

Better coordination required

Perhaps the most urgent change is to improve coordinated interventions outside hospital for the sickest elderly. As long as a patient basically has one disease at a time and can actively participate, specialised care works well and can be run in isolation. But many patients have several concurrent diseases, diffuse symptoms and problems that are undiagnosed or require long-term rehabilitation. The demands that this situation places on the healthcare sector as a whole and on its processes are altogether different. Various units must collaborate while working with patients and their families to focus on interventions that ensure the best possible quality of life. Such an approach is particularly important for very ill patients at the end of life. Due to physical and cognitive decline, these patients cannot actively participate. In such cases, hospital and primary care interventions must be coordinated with the services provided by local authorities. Other groups of patients pose similar coordination issues. Among them are children and young people, particularly those with psycholog-

ical problems, and people with physical disabilities. Well-considered healthcare processes and teamwork, as well as overall public policy agreements, are needed. A comprehensive effort, often referred to as extended primary care, is under way throughout Sweden to ensure this kind of cohesion.

The primary care system is carrying out the Vårdval reform, which all regions are to have adopted by 1 January 2010. The reform involves comprehensive restructuring that will improve accessibility and quality through a combination of expanded options for patients and a greater variety of caregivers.

The restructuring of the healthcare sector in the 1990s coincided with an economic crisis that led to demands for cost reduction. As a result, restructuring came to be associated with cutbacks and poorer quality. But it is increasingly apparent that restructuring is not a matter of suddenly needing to save money but is a step in modernising the healthcare sector. Restructuring demonstrates the ability of the sector to take advantage of new medical technologies and is integral to improvement efforts. By exploiting technological advances, successful sectors can provide their services in a more effective manner. The Swedish healthcare sector must continue down that path if it is to retain its position as a world-leading supplier of medical results and quality.

Part I: Healthcare Sector Restructuring along with Medical Advances

Hospital beds are being used more cost-effectively

Swedish hospitals had more than 120 000 beds in the late 1960s. Just over 50 000 beds remained following the 1992 Ädel Reform, which transferred responsibility for long-term health care from the regions to the local authorities. Since then, the number has declined to just over 25 000.

With 2.2 beds per 1 000 inhabitants, Sweden was the lowest among the 17 countries (the EU 15, plus Norway and the United States) that were compared in 2007. Other countries also showed major decreases. Spain, the United States, Ireland, Norway, Portugal and the Netherlands all had 2.5-3.0 beds per 1 000 inhabitants.

While the number of beds declined fastest in the mid-1990s, the trend has continued in the 2000s. The number of bed-days has also declined but not at the same rate. As the average length of stay decreased from just under 8 days in 1992 to just over 5 days in 2007, the number of hospitalised patients only fell from 1.6 million to almost 1.5 million. In other words, each bed is being used more cost-effectively.

Meanwhile, outpatient hospital care has risen sharply. Inguinal hernia surgery trends are illustrative. In 1992, approximately 3 of 10 operations were performed in day-case surgery. The figure rose to almost 8 in 10 by 2007. New anaesthesia and surgical methods were responsible for the change.

Thus, comprehensive restructuring was carried out in the 1990s and early 2000s. Surgery and other treatment, as well as diagnosis and nursing, were transferred to outpatient and home health care. Emergency care, including trauma, emergency surgery and maternity care, was consolidated in fewer and larger hospitals. Although small hospitals still operate, they now focus on internal and geriatric medicine, often on elective surgery as well.

Elderly have more access to care and to improving results

The need for care increases with age, and the elderly consume a growing share of healthcare services. Thanks to the cost-effectiveness measures brought about by restructuring, the healthcare sector has managed to meet this need despite financial restrictions. People age 75 and older, who made up 9 per cent of the population in 2007, accounted for 45 per cent of bed-days in somatic inpatient care.

While it may appear to be paradoxical, the 50 per cent reduction in hospital beds has been accompanied by increasing access by the elderly to advanced healthcare interventions and improving results. A number of simultaneous changes are responsible for the trend. The 1992 Ädel Reform transferred responsibility for health care, with the exception of physician services, at assisted living facilities from the regions to the local authorities. More than half of the local authorities have agreements with regions to take charge of ordinary home health care as well. The purpose of the reform was to ensure that elderly with a greater need for care would have access to a better living environment than offered by a long-term stay at hospital or a nursing home. As envisaged, the result has been shorter stays at hospital among the elderly. The resources thereby freed up have been used to provide the elderly with access to more advanced interventions at older ages. Among such interventions are active treatment of myocardial infarction, cancer, stroke and osteoarthritis of the hip. As a result, people in the oldest age groups now account for a greater percentage of bed-days in somatic inpatient care.

Approximately 12 per cent of the population have cardiovascular diseases, which cause one fourth of all deaths. Acute myocardial infarction is the most common cause of death among both women and men. Modernisation of cardiac care has led to better survival rates, lower risk of recurrence and improved quality of life. The biggest improvement has occurred among people over 70, for whom absolute mortality has decreased by almost 10 per cent. Interventions are being performed at more advanced ages – for instance, the number of care episodes for acute myocardial infarction has more than doubled in patients over 85. The almost 50 per cent decline in the average length of stay since the early 1990s has permitted this expansion of care.

Hip and knee surgery are vital treatments for relieving pain among the elderly. The resulting pain relief and improved mobility have a significant impact on health-related quality of life. The number of hip operations has risen rapidly, particularly among the oldest age groups. When hip replacement surgery was first performed in Sweden in 1967, only a few patients were treated. The number of operations rose to approximately 4 000 in 1977, 8 000 in 1987, 10 000 in 1997 and more than 14 000 in 2007.

Of the more than 90 000 Swedes who die every year, approximately 60 per cent are 80 or older and 30 per cent are 65-79. Cardiovascular disease is the most common cause of death, followed by cancer. In the last 15 years, more people than before have died at home or assisted living facilities, as opposed to hospital. Approximately 35 per cent of people age 65 or older died in hospital in 2007, compared with 75 per cent before the 1992 Ädel Reform. That has had a significant impact on the number of bed-days for elderly at hospital. Improving end-of-life care is an urgent need. Initiatives to set up palliative teams for home health care and other improvement efforts have got further in some places than others. A newly established quality registry of palliative care enables both local authorities and regions to monitor their results and compare them with those of others. Participation by local authorities is increasing very rapidly throughout the country.

Consolidation, differentiation and expansion of extended primary care

Restructuring of the Swedish healthcare sector has followed three parallel tracks:

- consolidation of specialised care
- differentiation between emergency and elective care processes
- extended primary care

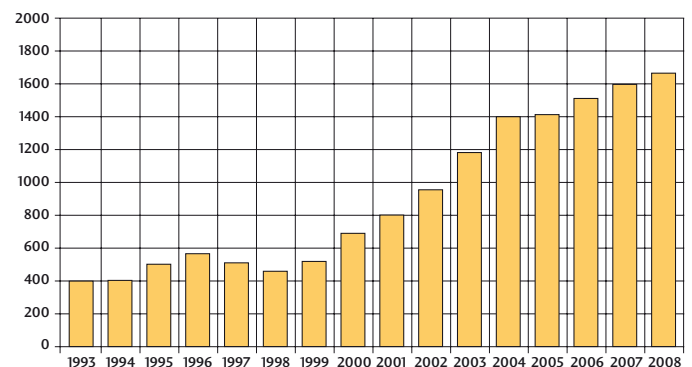
The growing body of healthcare knowledge requires greater specialisation in many areas. General surgery has long since been broken down into upper and lower abdominal surgery, vascular surgery, etc. General internal medicine has spawned specialists in diabetes, cardiovascular, gastrointestinal, blood diseases, etc. Specialists need to treat many patients if their expertise is going to improve. And if the workplace is to be secure and stimulating, each specialty at a hospital must have enough employees to deal with sickness and other absence. Specialisation is also needed if patients are going to have

certain, rapid access to new medical technologies. Specialised care at hospitals has successfully promoted development of medical quality registries and thereby improved results.

The old structure consisted of county and regional hospitals. Each county had one large hospital with many specialist wards that took on emergency cases, such as infection, urology and neonatal intensive care. Small county hospitals ordinarily housed surgical and medical wards, often a maternity ward that offered associated emergency services. The six regional hospitals were responsible for resource-intensive services – including neurosurgery, thoracic surgery and treatment of brain injuries – that required a large patient population. The breakdown between large and small county hospitals has lost most of its significance over the past 15 years.

In accordance with the differentiation inherent to the revised structure, the small county hospitals of the past offer new services in the area of extended primary and elective specialised care. The distinction between emergency and elective care has emerged most particularly in the area of specialised surgery. Lead-times, flowcharts, bottlenecks and production plans are key concepts in the current healthcare sector. Hässleholm is among the hospitals that most explicitly perform elective surgery in a business-oriented manner. The result has been a reduction in the average length of stay and cost per intervention, along with an increase in the number of operations. The hospital meticulously monitors its activities and has documented that cost-effectiveness has been accompanied by good quality.

Hip replacement surgery at the Hässleholm-Kristianstad Orthopaedic Clinic in 1993-2008



The trend holds to one extent or another throughout the country. The table below shows the number of publicly run hospitals that, following restructuring, performed hip replacement surgery more than 200 times in 2007. Hospitals increasingly schedule elective hip replacement surgery instead of operating on acute hip fractures. The overall impact has been that more operations are performed, quality is better and costs are lower.

Hip replacement surgery – primary operations in 2007

Hässleholm*	851
Trelleborg	476
Motala	402
Piteå	363
Uddevalla	326
Bollnäs	262
Lycksele	238
Falköping	233
Oskarshamn	233
Alingsås	211
Katrineholm	201

*Reports together with Kristianstad

Emergency wards have also restructured. Identifying an optimum structure for emergency care is important, given that patient safety, vulnerability, services for the general population and cost feasibility must all be considered. Because 24/7 accessibility entails high costs, the goal is to offer as many services as possible during the day. Palliative caregivers have successfully focused on reviewing conceivable scenarios during the day and foreseeing emergency measures, thereby creating a sense of security that eliminates the need for too many interventions at night.

To provide good, secure care in emergency, life-threatening situations, a hospital must have access to resources from a number of specialities and treat enough patients for the staff to maintain its expertise. That is why full-scale emergency hospitals have been consolidated in smaller institutions. Meanwhile, a prehospital healthcare organisation has emerged that takes advantage of well-trained ambulance personnel and mobile technology to make a diagnosis and commence treatment during the trip to hospital. That is one reason that the survival rate after myocardial infarction has improved so markedly.

Nevertheless, not all emergency interventions should be consolidated at a few hospitals. The sickest elderly are among those who have a particularly great need for both emergency and elective care. For them, the trend is toward decentralisation. Mobile teams equipped to make emergency home visits are being put together. As a result, interventions can be performed at an early stage so that the patient can avoid going to hospital or can be admitted immediately rather than having to deal with the emergency ward.

Community emergency centres are being established to ensure good services for the general population. If the closest emergency hospital is within a reasonable distance, the centres ordinarily stay open during the day and evening but close for a few hours at night when emergency interventions are not needed as much. Sandviken and Nacka are among the municipalities with such setups.

Restructuring of emergency wards also includes methods. Many wards are moving toward a team orientation. Putting teams with complementary skills in charge of first receiving the patient has made for more accurate interventions and reduced waiting times. Ever since 2007, Karolinska University Hospital has worked hard to improve patient flows at emergency and nursing wards. Waiting times at the emergency surgical ward of Karolinska University Hospital/Huddinge have decreased by 50 per cent, while daily waiting times for a doctor at the 16 emergency wards of Karolinska University Hospital/Solna have decreased by the equivalent of 20 days.

New methods

All value created by health care is related to patients and the general population. Results for patients represent the basic yardstick of quality. When fewer people have strokes, more stroke patients survive and more do so with good function, health care has clearly improved for both patients and the population. Thus, results must be measured and monitored over time to determine whether or not such an improvement has taken place.

Well-documented methods, often originating from industry, have shown to be useful in modernising the healthcare sector. The methods are based on defining and describing key processes. The goal is to minimise unwanted variation and to strive for a continual patient flow that eliminates as much waste as possible. On the concrete, everyday level, that

is a matter of shortening lead-times throughout the process. Referrals are sent electronically, received and assessed without delay; patients do not have to wait long for a doctor's appointment; and any treatment is scheduled at the time of the visit to the clinic.

Skaraborg Hospital is among the pioneers whose process orientation has improved care with lower resource utilisation. Capacity utilisation of operating theatres increased by 70 per cent and surgeons' operating time by 13 per cent. The hours that have been freed up allow the ward to perform 1,650 more operations each year, thereby reducing waiting times. The systematic minimisation of interventions that failed to create patient value shortened the process for fundus photography at the Växjö Hospital Eye Clinic from five weeks to three hours. Such changes proceed from the concept of working smarter, not harder.

Standardisation works well for care processes characterised by large volumes and similar strategies. Such a method reduces variation in treatment options and better promotes the best possible results each time. The method has been used successfully in the area of elective surgery.

Monitoring that involves measurement of results is central to systematic improvement efforts. Setting targets, measuring and monitoring results, and making comparisons over time and with other units is becoming integral to such initiatives. In other words, all employees have two tasks: providing good care and contributing to its improvement by updating their methods. Approaches that lead to improvement have been identified. Breakthrough is one such approach that has been introduced in Sweden.

Teamwork is imperative now that nobody single-handedly possesses all the expertise required to satisfy complex care needs. The formation of teams composed of people with expertise in various professional categories sets the stage for better, more cost-effective care. A team orientation is suitable for patients who have chronic diseases and require continual monitoring. Palliative, care planning, rehabilitation and chronic obstructive pulmonary disease (COPD) teams are among the most common types. Special diabetes and heart failure centres further illustrate the fact that care can be reorganised to ensure rapid help and support for the chronically ill when their disease progresses.

The intensive care unit in Malmö demonstrates how new methods can make a difference. Mortality rates appear to have declined since the adoption of mobile intensive care teams, three shifts for doctors and other changes. Larger evening and weekend staffs have made it easier to reach care decisions at most times of the day. Meanwhile, productivity has increased and costs have decreased by 4 per cent.

New technologies provide better access to knowledge about treatment options

Technological advances have enabled new interfaces with care. Contacting the healthcare sector by means of online services and improved telephone exchanges is getting easier. The availability of healthcare counselling on a 24/7 basis is a key contributing factor.

A national hotline (1177) for coordinated national healthcare counselling will be available for the entire population within a year or two if the present rate of implementation continues. The nurses who staff the hotline have access to a decision support database. Special information is available about children's diseases, and the service is offered in various languages. Approximately half of the phone calls provide the caller sufficient information to deal with the situation. Patients are otherwise referred to the appropriate caregiver, and nurses in some areas can immediately schedule an appointment at a clinic if deemed necessary.

The corresponding online service, which is available at 1177.se, provides up-to-date, easy-to-read and fact-reviewed written information in the healthcare areas that patients and the general public most frequently ask about. The service attracts approximately one million visitors every month.

The UMO online youth clinic, which started in November 2008, was developed by Sjukvårdsrådgivningen SVR AB for 13-25 year-olds. The purpose of the website is to make it easier for young people to find relevant, current and quality-assured information about sex, health and relationships. The klamydia.se site enables residents of the Västerbotten, Västra Götaland, Gävleborg and Sörmland regions to perform simple, free and confidential home tests for chlamydia and receive the results online. People may also text a request for the test.

Online health care is a joint regional project to develop a website that will provide citizens with a common portal of information and guidance. Users will be able to schedule and

cancel appointments, renew prescriptions, ask questions and obtain advice. Some regions have already launched such services. E-services are another ingredient of the effort to make health care more accessible.

New opportunities are also available for employees who currently have access to reliable sources of assistance in offering practical online patient services. For instance, a national decision support project has been started up to provide healthcare counselling over the phone. EIRA is a regional collaborative effort that involves joint purchases of electronic information resources such as periodicals and other medical databases.

National IT strategy to support modernisation of health care

In order to provide good, accessible, safe and cost-effective health care, information about the needs and contributions of patients and users must be able to track individuals regardless of caregiver. The Ministry of Health and Social Affairs, SALAR, National Board of Health and Welfare, Medical Products Agency and Apoteket AB have forged a national vision and strategy to synchronise data transmission. The effort will involve a number of different steps. Laws and regulations must be amended, a common information platform developed, the technology infrastructure upgraded, the user-friendliness of systems improved, access to necessary data ensured and accessibility for the general public increased.

Under the new Patient Data Act adopted on 1 July 2008, healthcare employees have access to electronic medical data from various caregivers after having obtained the patient's consent. As part of the IT strategy, the National Patient Summary programme will make patient data available to authorised healthcare personnel regardless of organisation. With the consent of patients, the new service will give authorised users the ability to find and look at key patient data that have been entered in the various healthcare systems of regions, local authorities and private caregivers. Diagnoses, test results, prescriptions, care plans and the like will be accessible to all participating principals by means of an online interface. The first participants were the Örebro County Council and Municipality, which are testing the service in a production environment in 2009. It will be the first national solution worldwide in this area.

Part 2: In-depth Comparisons of Quality and Cost-effectiveness

Health care is among the most knowledge-intensive of all sectors. New treatment methods are rapidly developed and adopted, and monitoring results for patients is essential to ensuring adaptations and improvements.

Knowledge management – a modern approach to development

The discussion in the healthcare sector about modern management has come to centre on the concept of knowledge management. The concept comprises a chain of various activities aimed at improving and modernising health care. Data, guidelines and care programmes are translated into concrete action by means of systematic, day-to-day improvement efforts. Various measures and indicators that are reported to quality registries enable the articulation and monitoring of goals. Open comparisons among hospitals and clinics support the initiative. This systematic approach has now been in place long enough to generate results in many areas demonstrating that the method promotes more rapid changes in clinical practice, as well as a decrease in the unwanted discrepancy between actual and optimal care.

The Swedish Council on Technology Assessment in Health Care (SBU) and other organisations compile research findings on the interventions and methods that have shown the best results in various areas. The National Board of Health and Welfare sets standards, determines what constitutes good care and puts together national guidelines. By means of adaptations and learning at the local level, the healthcare sector translates guidelines into clinical practice. Knowledge also emerges from the bottom up. Local health centres and clinics try new methods on a small scale, determine which ones are most effective and expand the use of those that work best.

National quality registries

A total of 69 national quality registries strive to systematically upgrade and improve health care by allowing providers to see their own results over time and compare them with those of others. The registries also generate aggregate data, permitting new treatments and methods to be quickly assessed in clinical practice. For areas in which the registries are well established and command high participation rates, systematic monitoring and comparisons have been shown to improve results for patients.

The registries, which are constantly evolving, are increasingly available to the general public by means of annual reports, online interfaces and the inclusion of various indicators in open comparisons.

National quality registries have not been developed in some areas. Efforts are under way to create useful registries for psychiatry, primary care and dental care. A particular challenge is to monitor patients as they enter a multilevel care process in order to follow the results generated by local healthcare systems. Senior Alert, which is a new quality registry based on that concept, permits entries at the individual level concerning bedsores, falls and nutrition. Both local authorities and regions can make entries for the same patient.

Registry of Information and Knowledge about Swedish Heart Intensive Care Admissions

Entries in the Registry of Information and Knowledge about Swedish Heart Intensive Care Admissions (RIKS-HIA) began at the national level in 1995. Approximately 20 000 entries regarding acute myocardial infarction are made each year. All 74 hospitals that admit patients with acute coronary disease now participate. Every patient hospitalised at a coronary intensive care unit is reported. The purpose of the registry is to reduce the occurrence and mortality rates of myocardial infarction. Systematic comparisons and discussions about variations among different units have improved compliance with national treatment recommendations. For instance, balloon dilatation, stent treatment and better antithrombotic agents have been adopted on a widespread basis. The introduction of primary percutaneous coronary intervention (PCI), which rose from 5 to 48 per cent during the period, drastically changed treatment of ST-segment elevation myocardial infarction. The gaps in treatment and results among regions and hospitals have narrowed. Due to these changes, the proportion of myocardial infarction patients who die within 30 days has declined by 50 per cent in recent years. The improvement has been observed in all ages.

RIKS-HIA is limited in that only measures taken when the patient is hospitalised are entered. An additional registry called SEPHIA has been set up to further improve coronary care. Entries in the registry concern secondary prevention following myocardial infarction. Moreover, the SCAAR quality registry monitors all PCIs. Research linked to the registries can provide the healthcare sector with valuable data. For instance, a large register-based study showed that patients treated with drug-coated stents ran an almost 20 per cent higher risk of

dying by 3-year follow-up than those with ordinary stents. The use of drug-coated stents rapidly decreased as a result.

Swedish Hernia Registry

Every year, approximately 17 000 adult males are operated on for inguinal hernia, more than for any other condition. A total of 92 clinics participate in the registry, and approximately 95 per cent of all inguinal hernia surgery is reported. Inguinal hernia surgery has changed significantly since the 1992 launch of the registry. Day-case surgery is more common, and laparoscopy with some kind of mesh technique is the predominant method. The registry's website (www.incanet.se/Svenskt-Brackregister) has been adapted to provide the public with better information. Recurrence, the frequency with which reoperations are required, declined substantially from 16 per cent in 1992 to 9 per cent in 2007.

Swedish National Hip Arthroplasty Registry

Having started in 1970, the Swedish Hip Replacement Registry is the country's second oldest medical quality registry. The registry includes all Swedish hospitals that perform hip replacement surgery and approximately 98 percent of each year's more than 20 000 operations. Its database is the largest in the world for this type of surgery.

The treatment plan for hip fractures has changed over the past few years in Sweden. Many patients now receive emergency hip replacement surgery following a fracture. Hemiarthroplasty, the preferred method in such cases, has been entered in the registry since 2005.

The registry, which is fully web-based, includes continual measurement of patient-reported outcomes (health-related quality of life, pain relief and satisfaction) among everyone who is treated. Hip replacement surgery improves health-related quality of life for many people who have lived with pain and disability due to hip disease or injury. The registry has affected the choice of prosthesis and the poor ones have been discarded. The result has less prosthesis loosening and a reduced need for reoperation. Due to a systematic improvement effort supported by the registry, Sweden has the lowest reported frequency of reoperations in the world.

National Quality Registry for Stroke

Approximately 30 000 Swedes have a stroke every year. Most of them are over 65. Stroke accounts for more bed-days (almost a million) at hospital than any other somatic disease. Municipal assisted living facilities and home help services also

demand heavy utilisation of care and resources. Total annual socioeconomic costs are an estimated SEK 14 billion or more. Stroke is the most common cause of neurological disability in adults and the third most common cause of death after myocardial infarction and cancer. The National Board of Health and Welfare issued updated national guidelines for stroke care in early 2006. The National Stroke Registry started in 1994. Since 1998, all hospitals that care for stroke patients have participated in the registry. Approximately 90 per cent of all strokes are reported. The entries demonstrate that care at stroke units with access to multiprofessional teams is a key success factor. Patients who appear in the registry tend to exhibit better function, including less dependence on assistance with activities of daily living and greater ability to live at home with the support of municipal home help services.

Swedish Rheumatoid Arthritis Registry

Started in 1995, this registry is used systematically in daily clinical practice and permits rheumatic patients to participate in monitoring their disease. That sets the stage to take advantage of doctor's appointments in a new way, focusing on involving patients in treatment and thereby improving results.

A special registry (Artis) started in 1999 to monitor the efficacy and side-effects of the new antirheumatic drugs. That allows rheumatologists throughout the country to quickly gain experience of the greatest possible benefits that the drugs can provide while minimising side-effects.

The Swedish National Registry of Palliative Care

Approximately 1 per cent of the Swedish population dies every year, and an estimated 80 per cent of these people would benefit from access to palliative care interventions. The purpose of the Swedish National Registry of Palliative Care is to steadily improve end-of-life care. Because the target group consists of every terminally ill patient regardless of provider, all local authorities and regions participate. After starting in 2005, the registry has seen its total entries double each year and is still in its expansionary phase. Its state-of-the-art technology platform enables all participants to continually monitor their results.

The Swedish National Diabetes Registry

Diabetes has assumed virtually epidemic proportions worldwide. The National Diabetes Registry (NDR), which started in 1996, attracts broad participation from primary care clinics. All caregivers have immediate online access to their

own results and comparative national statistics. The NDR has put together a quality index based on national diabetes care guidelines. In collaboration with SALAR and Qulturum in Jönköping, the project has now been linked to a systematic improvement effort. The registry has shown that good diabetes care is cost-effective and counteracts the development of long-term complications such as amputation, renal failure, visual changes and myocardial infarction.

Regional comparisons

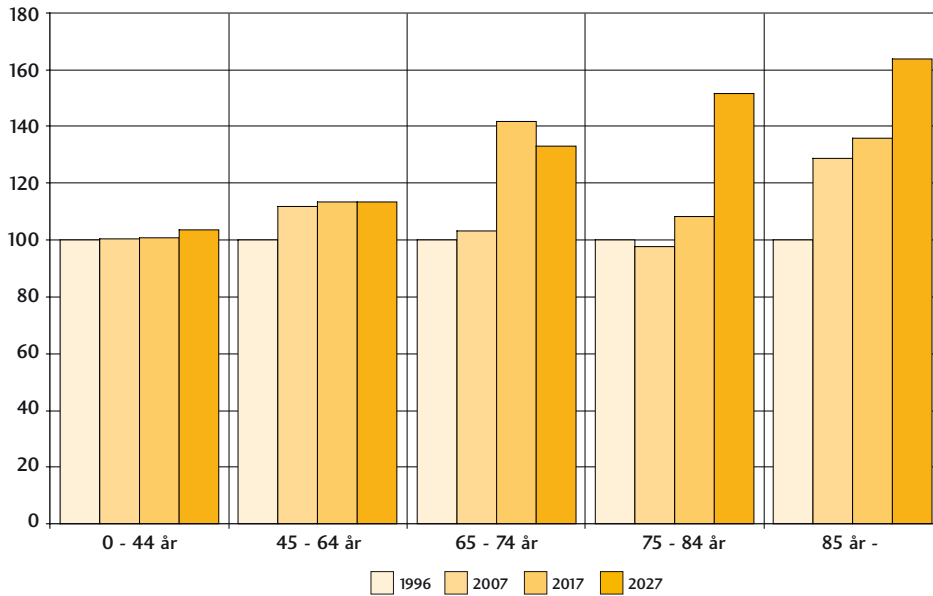
SALAR and the National Board of Health and Welfare publish annual regional comparisons for the Swedish health-care sector. The performance of regions, as well as individual hospitals for some indicators, is compared on the basis of three qualitative dimensions: medical results, accessibility and patient assessments. The results are correlated with costs to determine cost-effectiveness.

The purpose of regional comparisons is to inform the general public, which ultimately pays for health care, of the results achieved by the regions and the associated costs. The comparisons will eventually include hospitals and local health centres to a greater extent, while being designed to provide data that can help people choose their care providers.

Another objective of regional comparisons is to spur further improvement of results. The vision is that a person who visits a hospital or local health centre can feel confident that employees are aware of and follow the results that have been achieved for various patient groups, and that they compare themselves with (and learn from) the units that perform best. In other words, the regional comparisons encourage an atmosphere in which all caregivers take an interest in the results produced by their own units, as well as the degree to which they have solved the problems of patients with heart failure, diabetes, depression and other diseases.

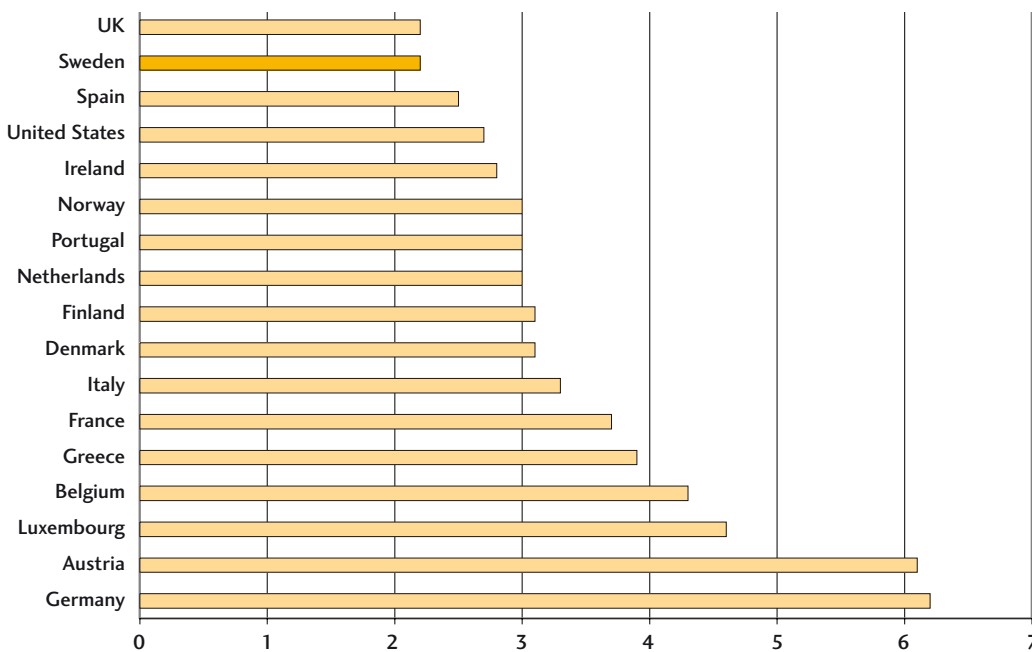
Figures

1. Breakdown of Swedish population by age group, 1996 & 2007, and forecasts for 2017 & 2027. Index: 1996=100



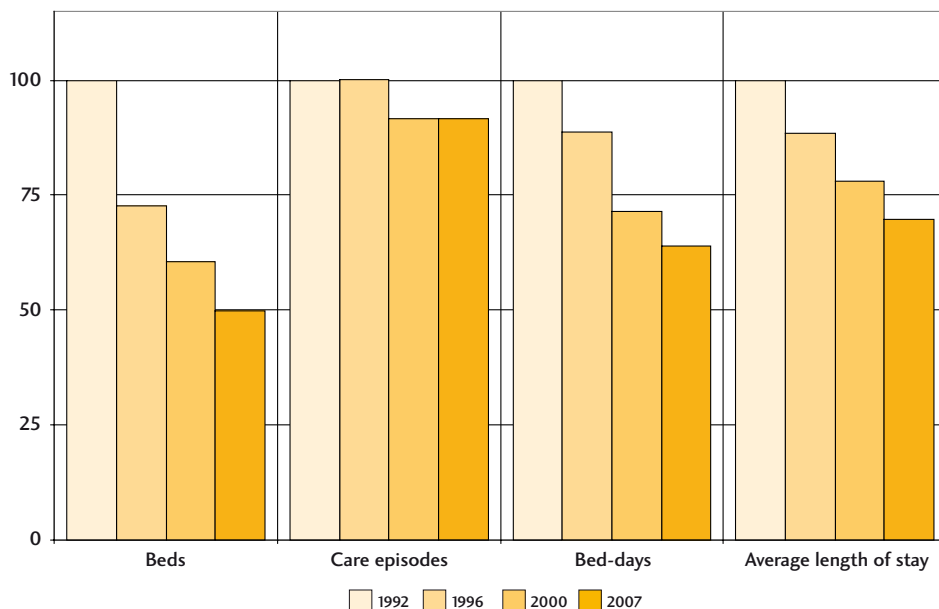
The Swedish population is ageing. While people age 85 and older currently represent the fastest growing group, Statistics Sweden projects that the entire 65 and older group will increase sharply in 10-15 years. The biggest increase among 75-84 year-olds will occur after 2020.

2. Beds per 1 000 inhabitants in 2006



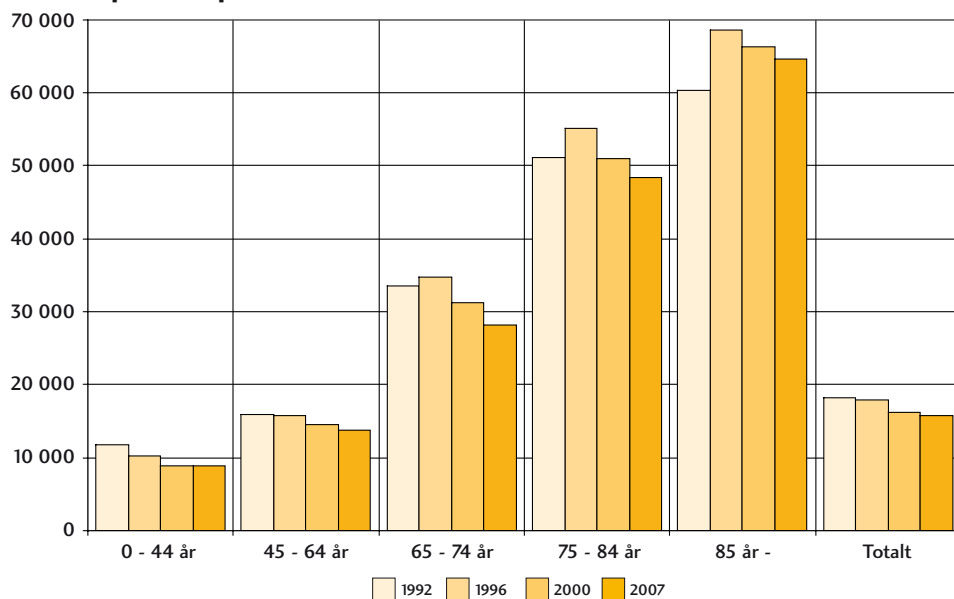
Sweden and the UK had the fewest beds per 1 000 inhabitants (2.2) among the 17 countries compared in the OECD in 2008. Only Austria and Germany had more than 6 beds per 1 000 inhabitants.

3. Beds, care episodes, bed-days and average length of stay, 1992-2007. Index: 1992=100



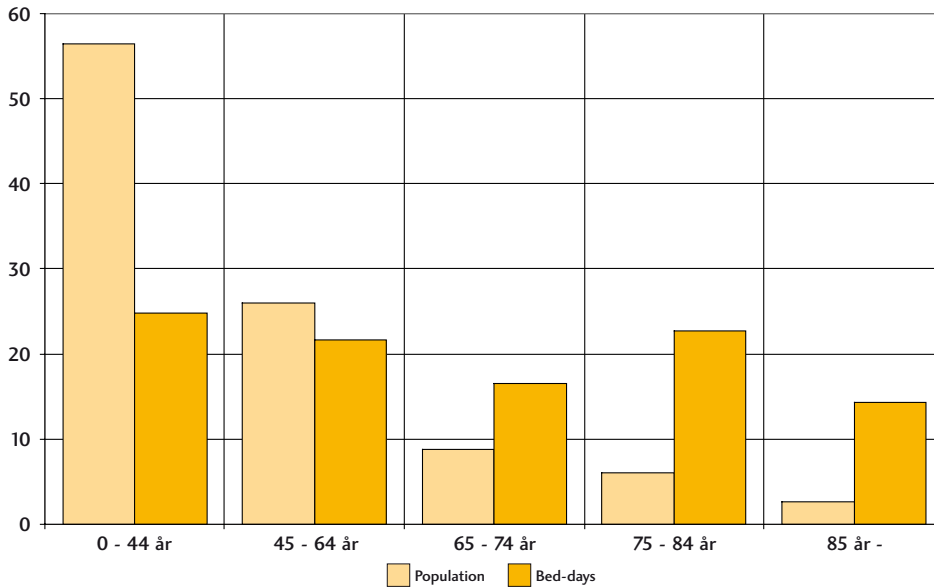
The number of beds decreased sharply in the 1990s. The decline is still continuing but more slowly. The number of bed-days has not decreased as much, and the number of care episodes has decreased only slightly. The average length of stay at hospital has declined. Flow-through has risen almost as rapidly as the number of short-stay patients in fewer beds than during the 1990s. Thus, each bed is being used more efficiently.

4. Care episodes per 100 000 inhabitants, 1992-2007



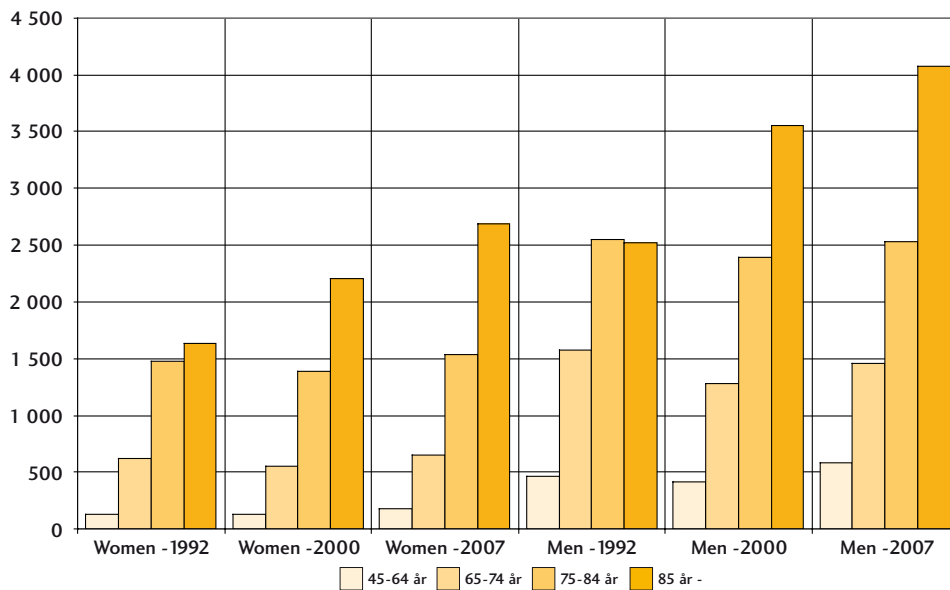
The number of care episodes increases with age. The number of episodes per 100 000 inhabitants has decreased among all age groups during the 2000s. In other words, the risk that an individual will be hospitalised has declined.

5. Percentage of population and bed-days among various age groups in 2007



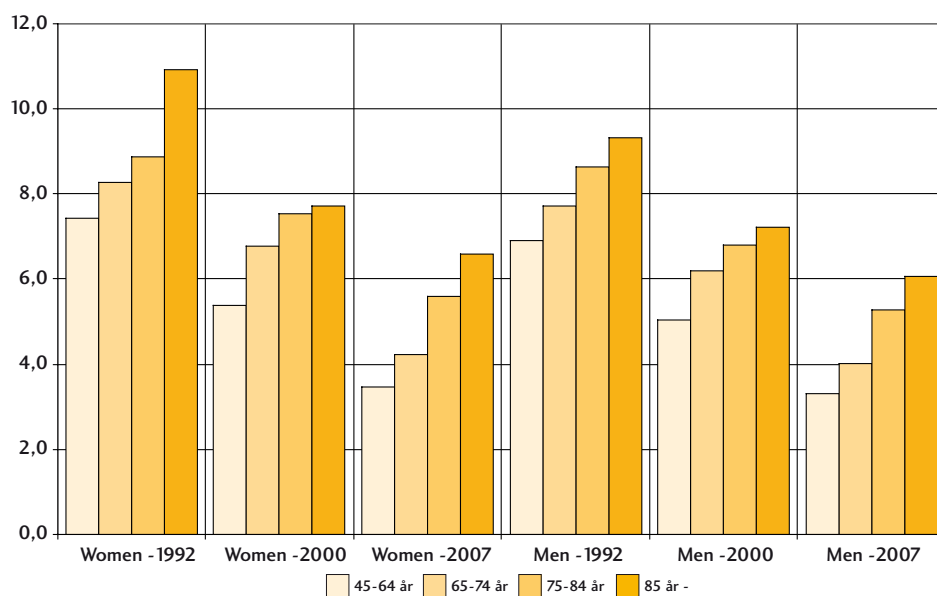
People age 75-84 account for most bed-days at hospital. Although the consumption of bed-days is greatest after age 85, the 75-84 age group has more of an impact by virtue of being so much larger.

6. Acute myocardial infarction. Care episodes per 100 000 inhabitants among women and men in various age groups, 1992-2007



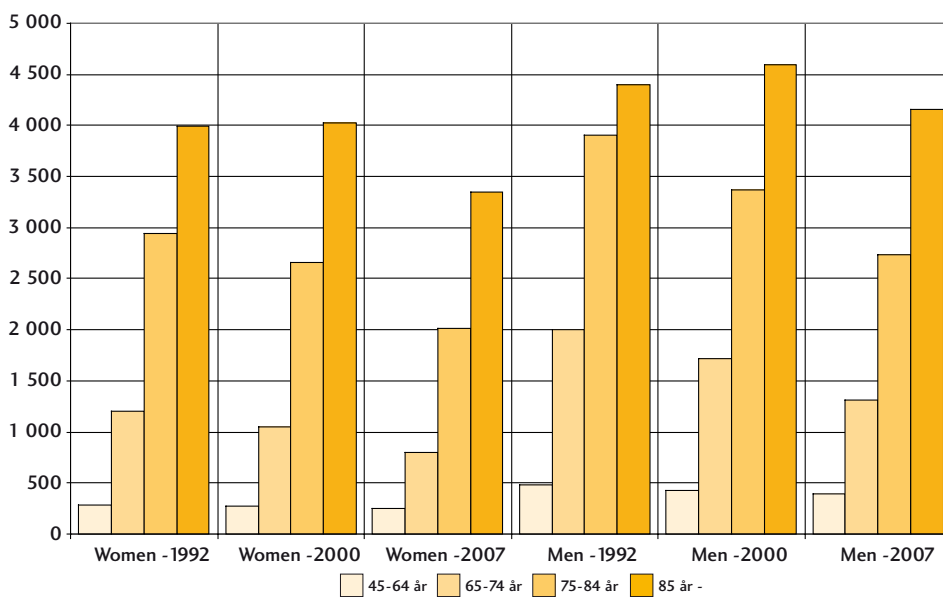
Men run a higher risk for myocardial infarction than women. The percentage of care episodes due to myocardial infarction among both women and men age 85 and older has risen sharply.

7. Acute myocardial infarction. Average length of stay for women and men in various age groups, 1992-2007



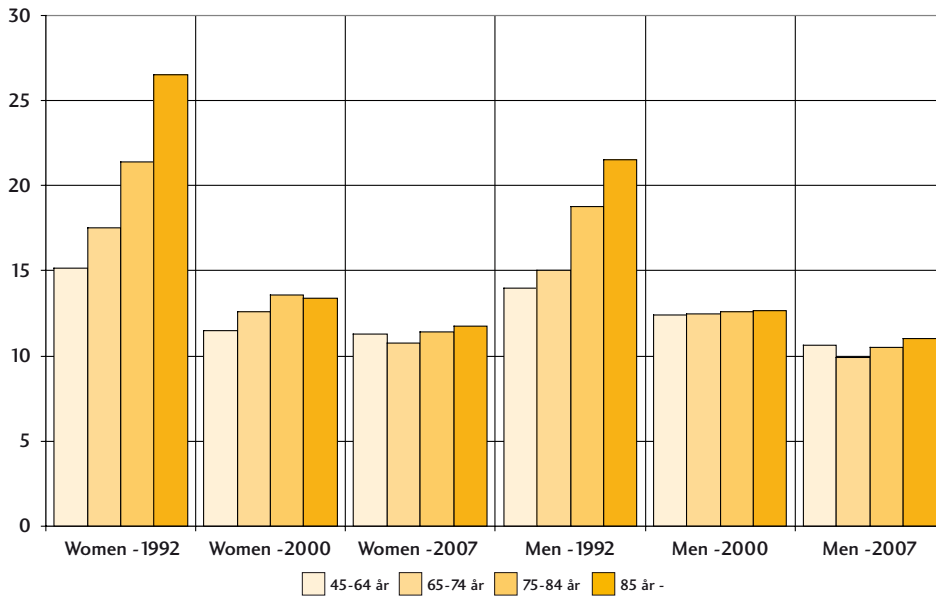
The average length of stay for acute myocardial infarction has declined sharply among both women and men in all age groups.

8. Stroke. Care episodes per 100 000 inhabitants among women and men in various age groups, 1992-2007



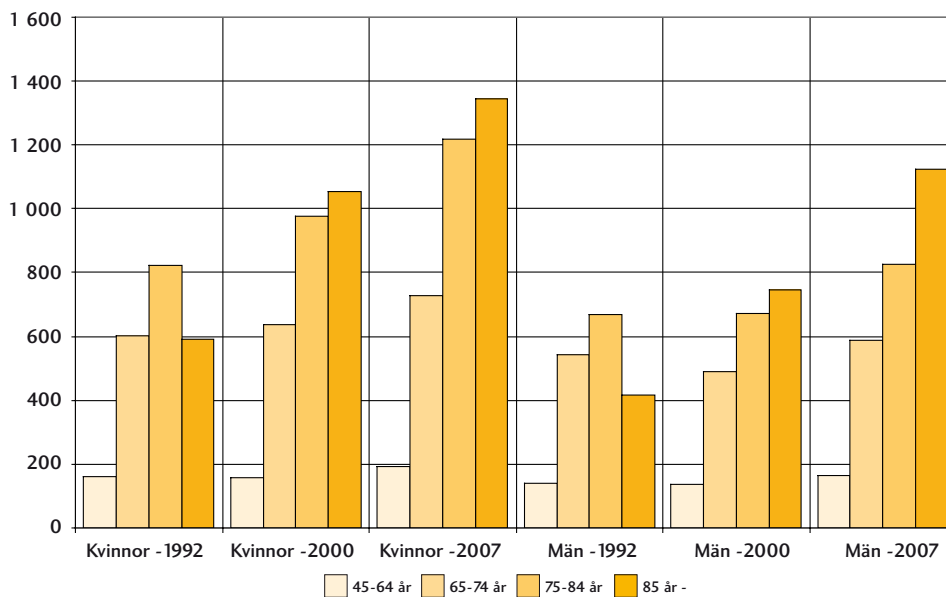
Men have more strokes than women. The number of care episodes due to stroke has decreased among both women and men in all age groups.

9. Stroke. Average length of stay for women and men in various age groups, 1992-2007



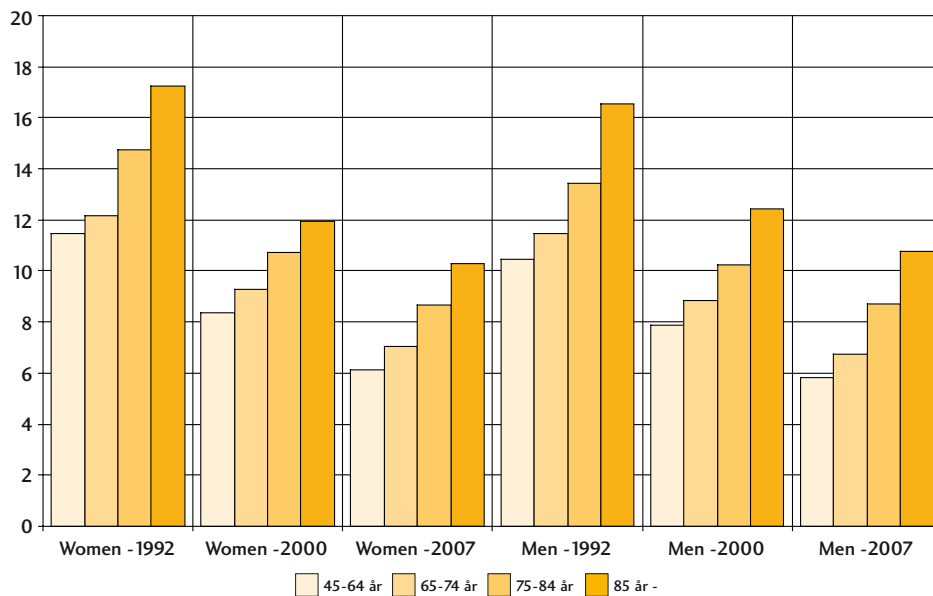
The average length of stay for stroke has decreased among both women and men in all age groups. In the 2000s, the average length of stay for stroke has stabilised at a lower level, the same regardless of age or gender.

10. Total hip replacement surgery. Care episodes per 100 000 inhabitants among women and men in various age groups, 1992-2007



Total hip replacement surgery is more common among women than men. The number of care episodes has increased most rapidly among both women and men in the upper age groups.

11. Total hip replacement. Average length of stay for women and men in various age groups, 1992-2007



The average length of stay for total hip replacement surgery has decreased sharply among all age groups. While there are no gender differences, the average length of stay increases with age.

Appendix

Swedish Hospitals – a Snapshot from Spring 2009

This table represents a snapshot of the services provided by Swedish hospitals in spring 2009. The table is based on a questionnaire among Swedish healthcare directors, along with data taken from the websites of the various regions.

The National Board of Health and Welfare list of terms does not define the word hospital. The services provided by different hospitals vary widely. The word has great symbolic value and creates a sense of security among the general population. The selection process for this table proceeded broadly from how the hospitals present themselves online.

The table shows that the services offered by Swedish hospitals are undergoing a process of change. The changes are advancing at different paces depending on the part of the country in which the hospital is located. A total of 13 regions from Skåne to Norrbotten now have special concepts for elective surgery. Skåne and Västra Götaland, the two regions in which the changes have been most rapid, have implemented planned modernisation of extended primary care and elective surgery

in a structured and systematic manner. Stockholm is the region with the greatest range of private care providers.

Practical solutions for extended primary care based on local conditions are being developed in many places. Among the parameters to consider during the planning process are demographics, geographic location, access to staff and previous experience of collaboration and various solutions. Rosengården in Sandviken, where the local authority and region run a nursing ward for rehabilitation and follow-up care, is an excellent example of successful collaboration. Söderhamn can boast of close cooperation between primary caregivers and the local authority that provides beds under the auspices of short-stay municipal care. In other places, such as Fagersta and Sala, the region is wholly responsible for rehabilitation beds at hospitals. Among the average-size regions, only Jönköping and Västernorrland currently have three maternity wards. Some regions have introduced hospital emergency wards that close at night.

Region	Hospital	Emergency surgery, night	Elective (non-emergency) surgery	Open at night, emergency	Maternity ward	Beds*
Stockholm	Karolinska, Solna	x		x	x	
	Karolinska, Huddinge	x		x	x	
	Stockholm South General	x		x	x	
	St. Görans	x		x		
	Danderyd	x		x	x	
	Södertälje	x		x	x	
	Norrtälje	x		x		
	Ersta		x			
	Sabbatsberg		x			
	Täby Local		day-case surgery			beds lacking
Uppsala	Nacka		x			
	Löwenströmska		day-case surgery			beds lacking
	Uppsala	x		x	x	
Sörmland	Enköping		x and emergency during the day	x		
	Eskilstuna	x		x	x	
	Nyköping	x		x	x	
Östergötland	Katrineholm		x	x		
	Linköping	x		x	x	
	Norrköping	x		x	x	
	Motala		x	x		
Jönköping	Finspång		day-case surgery			beds available
	Jönköping	x		x	x	
	Eksjö	x		x	x	
Värnamo	Värnamo	x		x	x	

*Notations for hospitals that do not provide inpatient surgical services

Region	Hospital	Emergency surgery, night	Elective (non-emergency) surgery	Open at night, emergency	Maternity ward	Beds
Kronoberg	Växjö	x		x	x	
	Ljungby	x		x		
Kalmar	Kalmar	x		x	x	
	Västervik	x		x	x	
	Oskarshamn		x	x		
Gotland	Visby	x		x	x	
Blekinge	Karlskrona	x		x	x	
	Karlshamn		x	x		
Skåne	Malmö	x		x	x	
	Lund	x		x	x	
	Helsingborg	x		x	x	
	Kristianstad	x		x	x	
	Ystad	x		x	x	
	Hässleholm		x			
	Trelleborg		x			
	Ängelholm		x			
	Landskrona		x			
	Simrishamn					beds lacking
Halland	Halmstad	x		x	x	
	Varberg	x		x	x	
	Kungsbacka		x			
Västra Götaland						
Göteborg						
	Sahlgrenska	x		x		
	Östra	x		x	x	
	Mölndal	x		x	x	
	Kungälv	x		x		
	Alingsås		x			
	Frölunda Specialist		x			
	Angered					under construction
Fyrbodalen						
	NU/Trollhättan	x		x	x	
	NU/Uddevalla		x	x		
	Lysekil					beds lacking
	Strömstad					beds lacking
	Dalsland					beds lacking
Southern Älvsborg						
	Borås	x		x	x	
	Skene		x			
Skaraborg						
	Skövde	x		x	x	
	Lidköping	x		x		
	Falköping		x			

Region	Hospital	Emergency surgery, night	Elective (non-emergency) surgery	Open at night, emergency	Maternity ward	Beds
Värmland	Karlstad	x		x	x	
	Arvika	x		x		
	Torsby	x		x		
Örebro	Örebro	x		x	x	
	Karlskoga	x		x	x	
	Lindesberg	x		x		
Västmanland	Västerås	x		x	x	
	Köping		x	x		
	Fagersta					beds available
	Sala					beds available
Dalarna	Falun	x		x	x	
	Mora	x		x	x	
	Borlänge					geriatric beds
	Ludvika		day-case surgery	x		medical and geriatric beds
	Avesta			x		medical and geriatric beds
Gävleborg	Gävle	x		x	x	
	Sandviken		day-case surgery			geriatric beds available**
	Hudiksvall	x		x	x	
	Bollnäs		x	x		
	Ljusdal					geriatric beds available**
	Söderhamn					beds lacking
Västernorrland	Sundsvall	x		x	x	
	Härnösand					
	Örnsköldsvik	x		x	x	
	Sollefteå	x		x	x	
Jämtland	Östersund	x		x	x	
Västerbotten	Umeå			x	x	
	Skellefteå	x		x	x	
	Lycksele	x		x		
Norrbotten	Sunderbyn	x		x	x	
	Piteå		x	x		
	Kalix		x	x		
	Gällivare	x		x	x	
	Kiruna	emergency	x	x		

**Beds provided jointly with the local authority

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The Swedish Association of Local Authorities and Regions (SALAR) publishes regular reports and data to assess cost-effectiveness in the areas for which its members are responsible. This report describes regional efforts to improve the quality and cost-effectiveness of health care. Restructuring initiatives, as well as management and methodological changes, are covered.

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