Chapter 1

Quality of care policies in Denmark

This chapter summarises the many policies and activities that are in place in Denmark to assure and improve quality of care, highlighting how policies to monitor and improve quality in the Danish health system should move from a focus on quality management of hospital services, towards quality improvement of the health care system as a whole. After describing the quality governance structure and the roles of the central government and its agencies, the regions and the municipalities, the chapter focuses on the assurance of the quality of professionals, pharmaceuticals and devices, and health care facilities. Safety policies are listed in a separate section, as are the various ways to shape the Danish information infrastructure to support the measurement and management of quality. Specific attention is given to policies aimed at strengthening the role and perspective of the patient. This chapter concludes that Denmark has a sophisticated and highly developed set of quality assurance mechanisms already in place, but that challenges remain to create more linkages and synergy between the many activities to realise quality of care not just for specific services but especially for the health care system as a whole

1.1. Introduction

Stakeholders in the Danish health care system have over the years developed and institutionalised a myriad of mechanisms to ascertain the effectiveness, safety and patient centeredness of health care. Compared with other OECD countries Denmark has a broad spectrum of quality policies and activities already in place. This chapter will explore how these various initiatives relate to one another, and whether they constitute a consistent framework for quality management and quality improvement for the health system as a whole.

The description and profiling of quality of care policies in this chapter are structured according to a framework that is detailed in Table 1.1. After providing some contextual information, this chapter will address:

- the legislative framework and governance for quality of care in Denmark;
- the quality assurance of respective inputs (health care professionals, technologies and physical infrastructure);
- policies for monitoring and standardising quality of care as well as safety policies;
- whether policies encourage health system improvement and patient involvement.

A short description of the Danish health care system is provided in Box 1.1. For more detailed information on the Danish health system, the European Observatory's *Health Systems in Transition* report on Denmark offers a useful source of information (Olejaz et al., 2012).

Box 1.1. Overview of the Danish health system

Denmark's health system is organised across three administrative levels, state, regional and municipal, with planning and regulation take place at both state and local levels. The state holds responsibility for overall regulatory, supervisory and fiscal functions but is also increasingly taking responsibility for more specific planning activities, such as quality monitoring and planning of the distribution of medical specialties at the hospital level. The five regions are, among other things, responsible for hospitals as well as for self-employed health care professionals. The municipalities are responsible for disease prevention and health promotion. Regulation takes place through national and regional guidelines, licensing systems for health professionals and national quality monitoring systems.

Box 1.1. Overview of the Danish health system *(cont.)*

A general process of "(re)centralisation" has been taking place in the recent years through a series of reforms and policy initiatives. The structural reform of 2007 merged the old counties into larger regions, and reducing the number of municipalities to 98. Furthermore, a more centralised approach to planning and regulation has been taking place over recent years. This is evident in the new national planning of medical specialties as well as the establishment of a nationwide accreditation system.

Access to a wide range of health services is largely free of charge for all residents. Health legislation formally provides residents with the right to easy and equal access to health care and entitles patients to choose treatment, after referral, at any hospital in the country. Financing of the health system is through taxation at the state level (progressive general income tax) and at the municipal level (proportional tax and property taxes). The municipalities are financed through taxes and direct transfers from the state, while the regions are financed through block grants from the state and the municipalities.

Total health care expenditure in Denmark is 11% of GDP, higher than the average 9% across other European OECD countries. Public expenditures account for 85% of total health expenditure, compared to an average of 73% across other European OECD countries. Out-of-pocket payments (OOP) account for much of the remaining financing (13% of total expenditure, compared to a 21% on average among other European OECD countries). The share of OOP spending in Denmark has decreased 1.5% over the past decade, compared to the 0.3% average increase seen across European OECD countries.

Since 2002, state-subsidised supplementary voluntary health insurance (VHI) has played a small but rapidly growing role in financing elective surgery and physiotherapy. The expansion of voluntary health insurance is motivated by population groups' desire to reduce co-payments, but also to ensure access to the small private hospital sector if needed.

The physical and organisational infrastructure of the hospital sector has been undergoing some changes in recent years. By 2010 the number of hospital beds was at 3.5 per 1 000 people, decreasing a 2% per year, from 2000 to 2010 (the number of hospital beds across EU member states shows a similar trend). Average length of stay in hospital has declined following an increase in outpatient treatment as well as a policy of de-institutionalisation in the psychiatric sector. Denmark is also merging smaller hospitals and centralising medical specialties, including a reorganisation of the acute care system, and the establishment of fewer, but also bigger and more specialised hospitals.

Relative to its population, Denmark has slightly more doctors than most European OECD countries, with 3.5 practicing doctors per 1 000 people, but there are some concerns about the rate of recruitment of physicians, especially in rural areas. General practitioners (GPs) are fairly well distributed throughout the country, but practicing specialists tend to be concentrated in the capital and other urban areas. Nurses constitute the largest group of health workers and the number of nurses has increased in recent decades. In 2010, the ratio of nurses to physicians was the highest among European OECD countries, at 4.4 nurses per doctor (compared to an average of 2.5 in European OECD countries).

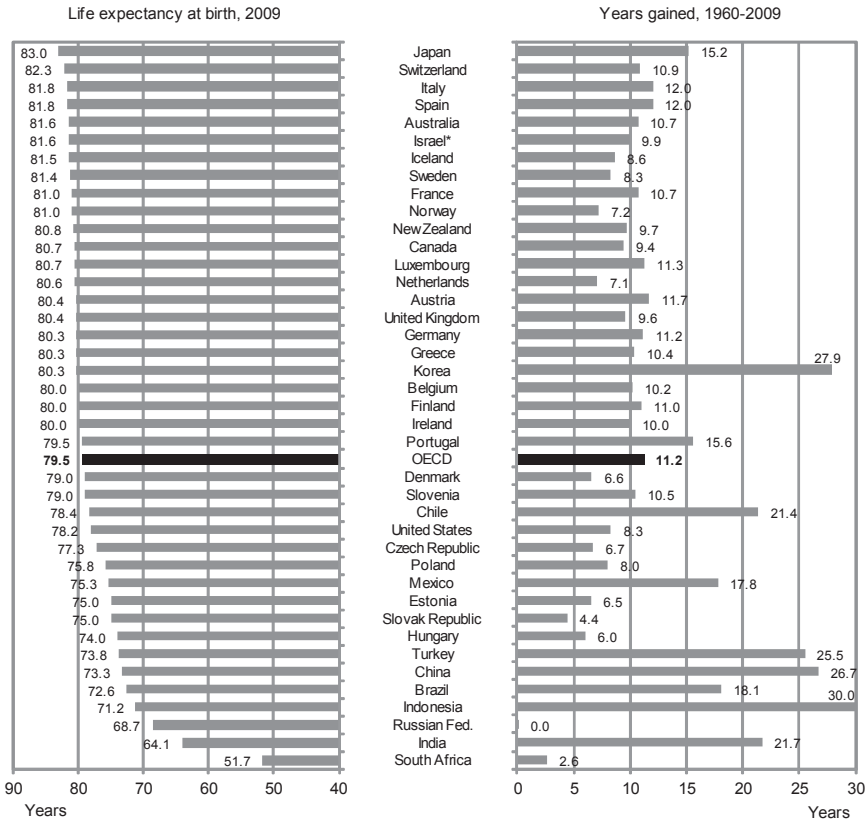
Source: Olejaz, M. et al. (2012), "Denmark Health System Review", *Health System in Transition,* Vol. 14, No. 2, pp. 1-192; OECD (2012), *Health at a Glance. Europe 2012,* OECD Publishing, doi: *10.1787/9789264183896-en*.

1.2. Context

Denmark has good quality indicators but some outcomes lag behind other Nordic countries

With an average life expectancy at birth of 79 years and an increase in life expectancy between 1960-2009 of 6.6 years, Denmark is close to the OECD average for life expectancy at birth of 79.5 (OECD, 2011, Figure 1). Four out of five people report being in good health. Mortality rates from heart disease are well below the OECD average and prevalence for diabetes in the adult population is also below the OECD average. Smoking rates, which used to be high, have been cut significantly in the past few years, now being below the OECD average, highlighting success in health prevention and promotion initiatives (OECD, 2011).

Figure 1.1. Life expectancy at birth, 2009 (or nearest year), and years gained since 1960



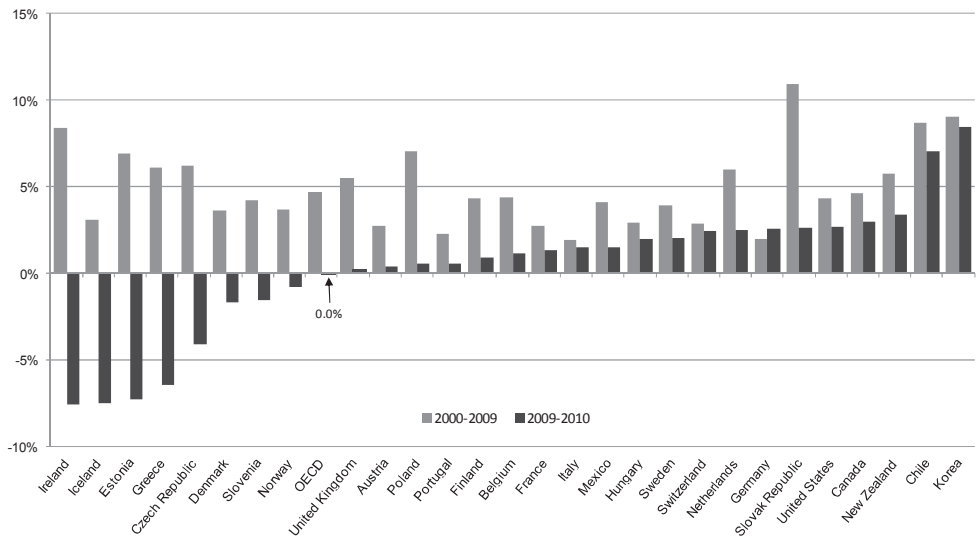
* Information on data for Israel: *http//dx.doi.org/10.1787/888932315602*.

Source: OECD Health Data 2011; World Bank and national sources for non-OECD countries.

However, some key health status indicators still lag behind other Nordic countries. For example, life expectancy in Denmark is lower than in Sweden (81.4 years), Norway (81 years) or Finland (80 years). Denmark also has high disease-specific mortality from several cancers, relative to the OECD average.

As a share of GDP, Denmark spent 11.5% on health in 2009, the fifth highest level of spending in the OECD, and 11.1% in 2010. Total health expenditure per capita was USD PPP 4 348 in 2009, above both the OECD average of USD 3 233, and neighbour countries such as Sweden (USD PPP 3 722) and Finland (USD PPP 3 226), but below Norway (USD PPP 5 352). Denmark's per capita spending is higher than other countries with comparable level of GPD per capita, such as Finland. Denmark experienced growth in spending on health care in the period 2000-10 of around 4% per year, but, similarly to other OECD countries hit by the economic and financial crisis, most recent OECD data show a decline in spending (2009-10) (Figure 1.2).

Figure 1.2. Average annual growth in health spending across OECD countries, 2000-10

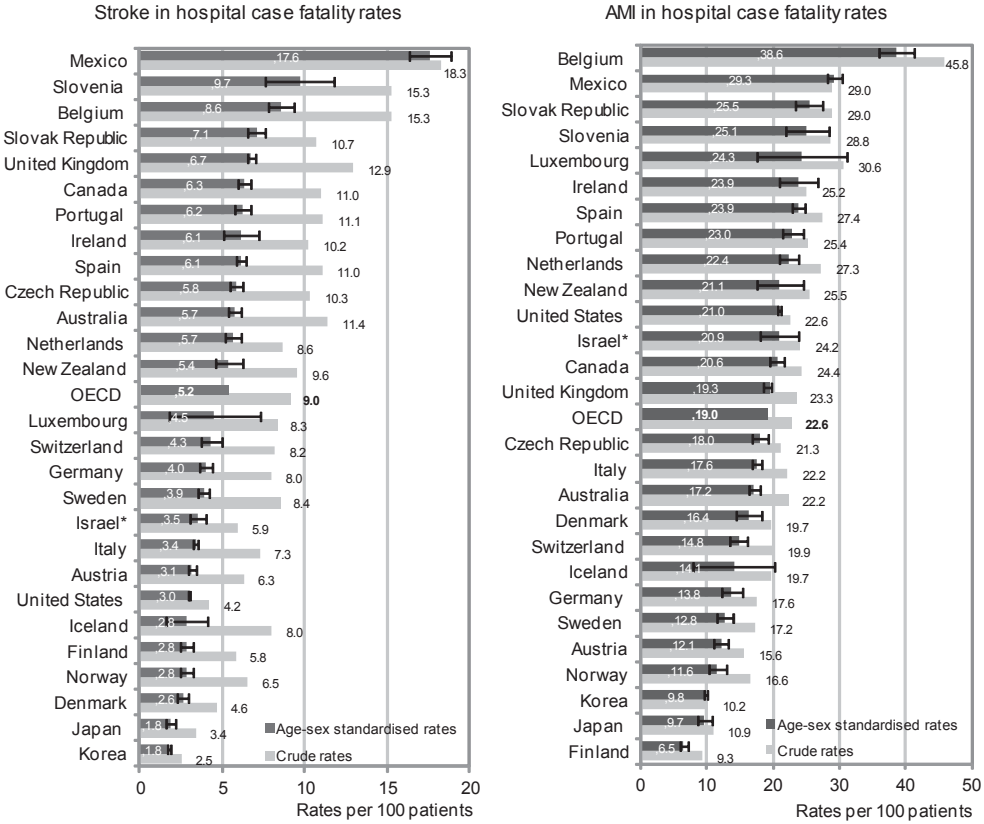


Source: OECD Health Data 2012.

Quality indicators for acute care and cancer care in Denmark show a mixed picture

These broad indicators say little about quality of care in Denmark. When looking at the most recent indicators on quality of care, the picture for Denmark is mixed. On some indicators of acute care, Denmark appears to be doing well, for example 30-day mortality for acute myocardial infarction (Figure 3.7) and stroke (Figure 1.3) are below the OECD average.

Figure 1.3. Ischemic stroke (left) and hemorrhagic stroke (right) in hospital case fatality rates in Denmark rank among the lowest in OECD countries



* Information on data for Israel: *http//dx.doi.org/10.1787/888932315602*.

Source: OECD Health Data 2011; IS-GBE, 2011.

However, Denmark has worse rates than Norway, Sweden and Finland on other quality indicators such as five-year survival rates for breast, cervical and colon cancer (Figure 1.4). Indicators on potential preventable hospital admissions, which offer a measure of the functioning of the primary care system, display a mixed picture for Denmark, with relatively high admissions for COPD, around average for diabetes and below the OECD average for asthma and chronic heart failure (see Chapter 2).

1.3. Profiling policies on quality of health care and their impact

Quality issues have gained importance across OECD countries in recent years as governments and the public increasingly focus on what is being delivered in exchange for major public investments in health care. Policies to address quality of care help improve patient outcomes. This chapter seeks to profile the key policies and strategies that Denmark has used to encourage improvements in the quality of health care. The description of policies in this chapter is structured according to a framework for categorising quality policies detailed in Table 1.1 below.

Table 1.1. A typology of health care policies that influence health care quality

Policy	Examples
Health system design	Accountability of actors, allocation of responsibilities, legislation
Health system input (professionals, organisations, technologies)	Professional licensing, accreditation of health care organisations, quality assurance of drugs and medical devices
Health system monitoring and standardisation of practice	Measurement of quality of care, national standards and guidelines, national audit studies and reports on performance
Improvement (national programmes, hospital programmes and incentives)	National programmes on quality and safety, pay for performance in hospital care, examples of improvement programmes within institutions

Source: Authors' elaboration for the OECD.

1.4. Health system design

Quality has a long history in Danish health care, which is reflected in legislation, and a series of national quality policies that were developed over the past 20 years. The Danish governance model, of a national government, regions and municipalities has advantages, especially related to developing

tailor made local services, but also poses challenges for aligning the management and improvement of quality of care in hospitals, primary care, rehabilitation, prevention and long-term care.

A national strategy on quality of care was developed in 1993 and was followed by a second national strategy in 2002. More recently, quality of care played an important role in hospital reforms (see Chapter 3), reforms to limit the number of regions, and the decentralisation of responsibilities for home care and rehabilitation to municipalities. Denmark's previous 13 counties and three municipalities with county functions were rationalised to five regions in 2007. The former counties' responsibilities for social and environmental policy were shifted to municipalities and responsibility for high schools was moved to the central government. The combination of these changes saw a narrowing of the breadth of the regions' responsibilities such that they are now principally responsible for running hospitals and contracting with GPs. The thrust is that due to their larger size and capacities, regional governments would be able to perform better than smaller government units in managing hospitals and driving further quality and efficiency (Andersen and Jensen, 2009).

At the same time, the 271 municipalities were consolidated into 98 municipalities, who also gained responsibilities in health, in particular on health promotion, primary prevention, rehabilitation and long-term care. To drive co-ordination between regional and municipal governments, it was legislated that municipalities and regions are obliged to agree (as stated in so-called health agreements) on how they share and co-operate, particularly on "boundary" issues such as health care for the elderly.

These three layers – state level, five regions and 98 municipalities – characterise the design of the Danish Health System and are at present considered the best fit between a top-down and bottom-up approach. Nevertheless, they pose a challenge when seeking to aligning the management and improvement of quality of care in hospitals, primary care, rehabilitation, prevention and long-term care.

The legal context

The Danish Health Care Act forms the main legislative framework for health care and contains a number of quality requirements. It stipulates a general obligation for the state, regions and municipalities to ensure the development of quality of care through education, research, planning and co-operation. Furthermore, it holds articles on the organisation of highly specialised treatment, patient safety and national clinical databases. In a law on authorisation of health care persons and health care provision, general requirements, responsibilities, overall requirements for education, and

conditions for authorisation are laid down for each of the 16 public authorised health care professions (among them physicians and nurses). The Danish Medicines Act regulates the authorisation and control of medicinal products and companies' manufacturing, storing and otherwise handling of medicinal products. It also establishes rules on the reporting of adverse reactions to medical products. Authorisation for clinical trials on humans is also regulated by the Act.

In general, legislation on quality of care in Denmark is not very detailed. The Danish Health Care Act states that the regions should continuously improve quality of care. However, some areas have, over the years, become the focus of more specific legislation, such as upper limits on waiting times for certain life-threatening diseases, safety of medical devices and pharmaceuticals and a no-blame reporting system regarding adverse events which is mandatory for all health care professionals.

More detailed regulation is carried out through the agreement between the national level, the regions, and the municipalities. Although the agreement system is primarily focused on budgets, it is increasingly used to set quality targets. For example, the economic agreement on the regional budget for 2013 stipulates a 10% decrease in hospital standardised mortality rate (HSMR) and a 20% decrease in patient harm for the next three years. Although the agreement system is not legally binding, it is considered by the stakeholders as an important mechanism to govern the Danish health care system, whilst leaving sufficient room for regional and local adaptations according to needs. A trend to link economic agreements to health system performance goals is still under development and at present there is no clear relation between the quality targets set in agreements so far and overall population health objectives.

From the system-governance perspective, there could be a stronger and more coherent alignment of public health and health care performance targets at national, regional, municipal and individual health care provider level. Current performance requirements in the agreements with the regions and municipalities, and between regions and specific providers, do not seem to be coherently linked to health system performance improvement. For areas such as cardio-vascular care, diabetes and cancer, there are opportunities to more strongly align existing quality measures to process and outcomes of care delivery, addressing the whole health system care continuum from prevention, identification and addressing of individual risk factors, to treatment in primary care, admission to hospitals, hospital performance and performance of home care, rehabilitation and long-term care.

Institutions responsible for quality of care in Denmark at the national level

At national level, the main actors involved in quality policies are the Ministry of Health, the Danish Health and Medicines Authority (DHMA) and the National Institute for Health Data and Disease Control.

The Ministry of Health

The Ministry of Health is the principal health authority, responsible for legislation on health care provisions, personnel, hospitals and pharmacies, medical products, vaccinations, pregnancy, child health care and patients' rights. This legislation specifies the tasks of the regions and municipalities in the health sector. The ministry also sets standards for running health care services, although the Danish Health and Medicines Authority is responsible for operationaling standard settings. The Ministry of Health supports efforts to improve quality through the dissemination of experiences and through economic incentives.

Danish Health and Medicines Authority (DHMA)

On March1, 2012 the Danish National Board of Health and the Danish Medicines Agency merged, forming a new and larger organisation, under the name "Danish Health and Medicines Authority" (DHMA).The Danish Health and Medicines Authority is the supreme authority for health care and regulatory control of medicines. DHMA's overarching area of responsibility is to create a coherent health care sector with integrated care pathways for patients and to ensure and develop the quality of health care. DHMA assists and advises the Ministry of Health as well as other authorities (regions and municipalities) with the administration of health care services, and informs Danish citizens on health care issues. It is also responsible for the availability of effective and safe medicines, medical devices and new therapies and should promote their proper use. DHMA is, for example, in charge of planning and allocating specialised treatments, the authorisation of health care professionals, certification of foreign doctors to ensure their ability to perform as physicians according to Danish standards, inspection, and whether treatments are conducted in a safe way, in accordance with the legislation by health care professionals and health care institutions (for instance hospitals and nursing homes).

DHMA is also responsible for a number of registries related to side effects of pharmaceuticals and medical devices. In addition DHMA should define the framework of integrated care pathways for patients. Functions embedded in DHMA are a mixture of development, support, standard setting and control/supervision. For some areas the standard setting and

control/supervision function seems to dominate (pharmaceuticals, devices, professionals), whilst for others the development and support role seems to be more prominent (for example disease management initiatives). When it comes to patient safety all functions seem to get more or less equal attention. For much of its work the DHMA is partnering actively with other stakeholders in the Danish health care system. It is advisable to keep closely monitoring how the balance of each of the four functions evolves for the various parts of the Danish health care system.

National Institute for Health Data and Disease Control (SSI)

The SSI is a public enterprise under the Danish Ministry of Health, and the Institute's duties are partly integrated in the national Danish health services. The SSI works to prevent and control infectious diseases, biological threats and congenital disorders. However, the division called National Health Surveillance and Research at SSI is responsible for collecting all health documentation within the Danish health care system, including overall monitoring of quality based on quality indicators. The SSI can therefore play a leading role in the co-ordination of the further development of the Danish information infrastructure. The challenge will be to align the e-health agenda with the positioning and further development of the various clinical registries. Another priority is making better use of individual health care providers data for driving quality improvement of provider and for management purposes.

The role of the Danish regions

The main task of the regions is to manage hospitals, although they are additionally responsible for various aspects of the social sector and regional development. The governing bodies of the regions are the Regional Councils with 41 elected members, elected for four-year terms. At the head of the Regional Council stands a Regional Chairman. The most recent elections for Regional Councils were in 2009. On national level the regions are organised in a corporate organisation called The Danish regions that represents the interests of the five regions both nationally and internationally. This corporate body is also involved in negotiations around budgets, pay and working conditions. Compared with health care systems in other countries The Danish regions can be considered the executive branch of the health care system. The regions are the employers of staff employed in the health care services. Each region has its own economy with a budget that is adopted by regional politicians. Health and regional development are mainly financed through government grants, but also partly by the municipalities, while social services are financed solely by municipalities. The regions are

also responsible for psychiatric services, services for vulnerable groups and people with special needs.

Regional Health Quality Agenda

The Danish regions have formed a "quality agenda" with the overall objective to improve the quality of care in the Danish health care system. The agenda states that quality improvement is part of the solution to the financial challenges that health care is facing. Six values have been stated that must guide the quality work: effectiveness, safety, cost-effectiveness, patient-centeredness, and timeliness and equality. Each region has its own staff is in charge of monitoring quality of care in the health services in the region and initiating programmes for quality improvement. Also, there are three Knowledge Centres for Quality of Care that support all regions. Programmatic efforts are at present aimed at preventing pressure-ulcers, the use of the safe-surgery checklists and the use of the sepsis bundle. New programmatic initiatives on blood management, quality in mental health care and prevention of resistance to antibiotics are in the pipeline. Policies and programmatic initiatives seem to have been inspired by initiatives in the United States (Institute of Medicine and Institute of Health Care Improvement). The various regional initiatives aim to link quality improvement to waste reduction and cost containment.

Overall the quality assurance and improvement function seems to be well embedded in the managerial functions of the regions and both the monitoring function (performance measures) and support function (specific programmes and projects) are in place. What could be strengthened is the focus on the performance of the integrated health care service delivery system of each region as a whole. Compared with, for example, Sweden, where systematic comparisons of counties have been in place for several years, inter-regional comparisons in Denmark seem to be less common. The topics chosen in the regional action programmes are relevant but a direct link with local and regional public health challenges was sometimes less clear.

The role of the municipalities

The 98 municipalities are local administrative bodies. The municipalities have a number of tasks, of which health represents one part. In the health field, the municipalities are responsible for home care, public health, school health services, child dental treatment, prevention and rehabilitation. The municipalities are also responsible for the majority of social services, some of which (subsidised housing for older people in the form of non-profit housing, including homes for elderly people with care

needs) have important intersections with the health care service. There is strong intertwinement of health care services and services delivered as part of social care, especially related to long-term care provision. The municipalities are themselves responsible for assuring quality of the care for the services they provide or contract, although standards set by the DHMA have to be met and guidance is provided by the Ministry of Health.

Local Government Denmark (LGDK) is the member authority of Danish municipalities. Although membership of LGDK is voluntary, all 98 municipalities are currently members. The mission of LGDK is to safeguard common interests of the municipalities, assist the individual municipality with consultancy services and, in addition, ensure that local authorities are provided with up-to-date and relevant information – also on how to assure quality in the care tasks that the municipalities provide. As health care is only one of several responsibilities of LGDK, policy plans and programmatic activities are less developed. Guidance on quality of care for long-term care services and home care is comparatively limited, although it should be noted that DHMA has detailed regulations related to the supervision of nursing homes. Development, support and standard-setting work in the area of long-term care could be strengthened and should be complemented with the necessary monitoring and control mechanisms as are already in place for hospital care, i.e., DKKM model.

1.5. Assuring the quality of inputs to the Danish health care system

Denmark has a sophisticated and highly developed series of quality assurance mechanism. However, the main challenge is to create more linkages and synergy between many activities of the health system in order to realise quality of care not just for specific services but for the system as a whole.

Professional certification and CME/CPD of doctors and nurses

A crucial factor in assuring quality of care is the competences, skills and attitudes of health care professionals. An adequately skilled and motivated workforce is essential for delivering high-quality care and in addition to assuring the necessary numbers of professionals it is essential that mechanism are in place to guarantee adequate training and continuous improvement of the performance of health care professionals.

Like all other countries, Denmark has several of these mechanisms in place. Diplomas of professionals and professional training are assured via a system of certification executed by the Danish Health and Medicine Agency covering a total of 16 publicly authorised health care professions (among

them physician and nurses). In addition, 38 medical specialties are presently recognised. Authorisation is given by the Danish Health and Medicines Authority based on reports on graduates from the recognised educational institutions. License to practice is linked to this authorisation; however, for doctors, dentists and chiropractors, the right to practice independently (full registration) is earned after a further one year approved basic clinical training. Danish medical education and subsequent specialist training meet the requirements in Directive 2005/36/EC and education of nurses is in accordance with the directives requirement for nurses responsible for general care.

Danish law and departmental regulations do not require re-certification, which in other countries is linked to mandatory continuous medical education or continuous professional development (CME/CPD). Danish authorities and organisations like the Danish Medical Association question the effectiveness of re-registration models and see continuous performance evaluation of individual health professionals as part of the annual evaluation by employers. On the basis of the evaluation, professional development is planned in a dialogue between the employee and the management at department or hospital level. Doctors employed in hospitals are guaranteed a minimum of ten days a year financed by the regions, for activities related to professional development. Similarly, GP's and practising specialists have access to funding by the regions reserved for professional development. The right to practice expires at 75 years old, but can be extended by application. Temporary or permanent restriction or removal of authorisation can be caused by criminal offence, malpractice, physical or mental disability, in cases of abuse, or voluntarily by application.

Contrary to some other OECD countries, CME and CPD for health care providers in Denmark are not regulated by law. Every health care professional is expected to take responsibility for the quality of their work, including personal CME and CPD. In a small country like Denmark, in which the vast majority of doctors and nurses are employed in public hospitals, and where municipal health care services are publicly licensed and billed to the national health care system, the need for CME/CPD is enforced by the regions in their capacity as employers, chief executives, collegial networks, scientific societies and medical association/unions. In single GP and specialist offices, CME courses are actively encouraged by respective scientific societies. Main stakeholders in providing CME are the Health Care Regions, the Danish Medical Association and related unions, national and international scientific societies and private companies. Pharmaceutical companies can be sponsors of scientific meetings and courses (without marketing influence of the scientific agenda). As CME is voluntary,

CME credits are not provided, but CME courses are mostly documented through the issuing of a certificate of attendance.

In Denmark quality control of the performance of individual health care professionals lies for a large part in the domain of self-regulation of the profession with complementary signalling and supervision tasks of the DHMA. At the same time there is a responsibility of the employers to ensure that their employees have the knowledge and skills necessary for the tasks they perform. Compared with the existing mechanisms for ensuring the performance of health care institutes and safety of drugs and devices, strengthening the control function of individual professionals, for example through a more systematic individual performance assessment based on registry data and linkage of individual CME port-folio's to performance, seems advisable.

Safety of pharmaceuticals and devices

Before a pharmaceutical product can be sold in Denmark it must be authorised by either the Danish Health and Medicines Authority or the European Commission. This is also the case for herbal medicines and strong vitamins and minerals. In special circumstances the DHMA may withdraw the marketing authorisation for a product. Standards applying to the Danish market are published in the Danish Drug Standards, an extended version of the European pharmacopoeia which is updated three times a year. A detailed system of registration and monitoring of adverse reactions is in place at the DHMA. A list of medicines subject to stricter reporting requirements is available and reporting of serious adverse reactions should be done within 15 days. Notification requirements to the European Medicines Agency and authorities in other EU and EEA countries are in place. Companies marketing a product must regularly submit a safety update report and DHMA can decide to act upon that. New EU legislation on pharmacovigilance has been implemented in Denmark since July 21, 2012.

Danish regulation on medical devices includes two acts, nine executive orders, one guideline and one circular. The Danish Health and Medicines Authority (DHMA) is the competent authority and administrate the regulation on medical devices. DHMA's work activities include:

- implementation and enforcement of the regulations for medical devices;
- investigation of adverse/serious incident reports from manufacturers and users;

- operating the vigilance system for notifications affecting medical devices on the market;
- designating and monitoring of the notified bodies in Denmark;
- contributing to the European work programmes for the safety and quality of medical devices;
- provision of advice to users, manufacturers and interested parties;
- maintaining the register of Danish manufacturers of Class I, custom made devices and procedure packs;
- issuing export certificates to Danish manufacturers of medical devices.

The DHMA monitors medical devices on the Danish market, which includes assessment of accidents with medical devices and inspection of Danish device manufacturers. Hospitals, other health care establishments and manufacturers have a duty to report accidents that involve medical devices. The medical device manufacturer is responsible for the safety and performance of the device once it is on the market. By law, the device manufacturer must report to the DHMA any device malfunction or deterioration in the function or performance of the device. The Danish language is required for labelling and the instructions for use for all medical devices. This is regardless of the intended user's skills or profession. Therefore, the information necessary for the correct and safe use of devices must be in Danish. Compared to other OECD countries, Denmark seems to have better regulation mechanisms for the quality of medical devices. Further strengthening of links with guideline programmes and programmatic activities to increase the role of users/patients should be considered.

Quality assurance of health care facilities

Over a relatively short period of time a sophisticated accreditation system has been put in place in Denmark. It has helped to describe and assess the processes in Danish health care services in a standardised way. *Den Danske Kvalitetsmodel* (DDKM, the Danish Health Quality Programme) is a national and interdisciplinary quality system for the health care system. The introduction of the model in 2005 was one of the initiatives taken as part of the second national quality strategy plan of 2002. The Danish quality model has helped to make care processes explicit and hence is considered to have helped to "organise" the provision of health care. The

model has been implemented in all public hospitals, pharmacies and pre-hospital units. In primary care, some municipalities are adapting the model and the same goes for most private hospitals. It is expected that primary care practices should adapt the model as part of an agreement between the doctors and the regions, and the regions strive to have the same agreement with the GPs (see also Chapter 2). The goal for the Danish Health Quality Programme is to cover all publicly financed health care services and its aim is to operate also across different services thus enhancing co-operation and integration. The objectives of DDKM are to ensure the on-going development of quality in all publicly funded health services, to create better and more coherent patient pathways, and to prevent errors and unintended events in the health care system.

The *Danish Institute for Quality and Accreditation* (IKAS) in health care was founded in 2005. The initial purpose of the organisation was to develop a joint Danish model for quality in health care. Today, IKAS develops, plans and manages the Danish Health Quality Programme (DDKM). The development of accreditation standards is carried out in collaboration with health care professionals across the country. In addition, IKAS manages the operation of DDKM. In practice, this means that IKAS supplies the material to all stakeholders encompassed by the programme and provides counselling and supportive services. IKAS also manages the recruitment and training of the Danish corps of surveyors and acts as a secretariat for the Accreditation Committee, which will eventually approve the accreditation of the individual institutions and services. The IKAS standards have not been developed in a way that makes them explicitly compatible with ISO norms. An exploration of how this could be done in a pragmatic way to increase alignment of quality assurance of health care services in Denmark with international quality standards used in other industries and several of the quality models in other OECD countries might be considered.

The DDKM programme aims to include indicators on structure and processes but also on disease-specific indicators. DDKM was initially heavily criticised for overwhelming collecting data requests, with a proposed 120 standards and 700 indicators. The programme then underwent a revision, ending with a hospital model based on generic disease standards, having 104 standards and 455 indicators. DDKM was implemented in 2010 and in 2012 all public hospitals were accredited for the first time, valid for a three-year period.

After initial accreditation of a few hospitals in Copenhagen through the American Joint Commission International model in 2002 and accreditation of hospitals in Southern Jutland in 2004 by the British Health Quality Services (HQS), the Danish health care system now only uses one

accreditation programme based on one set of standards and indicator data. The programme has a uniform scoring system. The scoring system only varies between different sectors such as the hospitals and general practise. Current programmes are mostly mandatory as public hospitals, pharmacies, and pre-hospital units are obliged to participate in accreditation processes. The municipalities can voluntarily decide if they wish to participate in the programmes. IKAS employs approximately 30 persons and is governed by a board with representatives from the National Board of Health, the Ministry of Health, the Danish regions, LGDK (the National Association of Municipalities), the Danish Organisation of Private Hospitals and the Association of Danish Pharmacies.

To date, the DDKM programme and its accreditation system do not systematically include primary care practices, home care and long-term care facilities. If the original aim to assure co-ordinated and integrated care delivery is going to be met, strengthening of the model to a broader set of health care services seems warranted. Having one model surely has advantages. The main challenge will be to broaden the model to other services, and as important, local and regional integrated care delivery systems. Initiatives such as that seen in Germany, where disease management programmes can also be accredited as a pre-requisite for financing, have not been identified in Denmark yet. As with the hospitals, this broadening agenda within the DDKM programme should be based on standards and quality measures for, for example, primary care, home-care and nursing home care. Active co-operation with actors involved in standard setting and indicator development work in these areas is therefore necessary.

1.6. Patient safety policies

Denmark has an impressive series of patient safety initiatives that might be even stronger with focus on health care activities outside the hospital. The past decade has seen a lot of activities related to patient safety, often initiated by the Danish Patient Safety Association. With these policies Denmark has positioned itself as one of the world leaders in patient safety and many of its policies can serve as an example for other countries. Danish patient safety initiatives started through a national study on adverse events in hospitals in 2001, and are developed and governed through an association in which all main stakeholders in the Danish health care field participate, the Danish Society for Patient Safety, which initiated various national programmes such as the Danish Safer Hospital programme, and are backed up by a patient safety legislation and institutionalised adverse event reporting system. Hence, all necessary functions around patient safety, such as development, standard setting, monitoring and control and support for safety improvements in practice, seem to be in place.

The Danish Adverse Event Study in 2001

In the year 2000, the Danish Institute for Health Services Research together with the Ministry of Health and the Danish Counties carried out the first Danish prospective study on patient safety: "The Incidence of Adverse Events in Hospitals". The study aimed at determining the extent and nature of harmful adverse events during hospital admissions in Denmark. The Danish Adverse Event Study was published in September 2001. Based on review of 1 097 patient records the study found that 9% of patients admitted to a Danish hospital were involved in an adverse event. Of these adverse events, 40% were preventable and the remaining 60% were classified as complications. The adverse events prolonged the hospital stay by an average of seven days.

The study led to several national initiatives. The Danish Act on Patient Safety passed parliament in June 2003 and was put into force in January 1, 2004. The Act on Patient Safety was later integrated into the Danish Health Care Act on 1 January 2007. The Act on Patient Safety was finally expanded in 2010, including the primary care sector as well as formalising the role of patients and relatives in the reporting system. Regional organisations were established to handle patient safety and to act on the reports that are entered into the reporting system.

The Danish Society for Patient Safety (DSFP)

The Danish Society for Patient Safety (DSFP) was established in December 2001 and is a non-profit organisation. The aim of the Society is to ensure that patient safety aspects are a part of all decisions made in Danish health care. The board of the Society consists of representatives from a wide range of stakeholders in Danish health care: the health care professionals, patient and research organisations, the pharmaceutical and medical device industry, the hospital owners and Local Government Denmark. This corporatist composition offers possibilities for all parties to work together for the common patient safety interest. Examples include the Danish version of the US "saving 100 000 lives" campaign, the Danish Safer Hospital initiative and the Danish National reporting system for adverse events.

Patientsikkert Sygehus (the Danish Safer Hospital Programme)

TrygFonden, Danish regions and the Danish Society for Patient Safety are working together on the Danish Safer Hospital Programme 2010-13 with expert assistance from the US Institute for Health care Improvement. The programme is a demonstration project designed to prevent errors, injuries, and deaths, aiming at a 15% reduction in in-patient mortality and a 30 % reduction in patient harm. The programme is built around five work streams

(critical rare, perioperative care, leadership, medicines management, general ward), each consisting of a number of care bundles, and comprehensive series of evidence-based protocols. The care bundles are designed around recognised and accepted best practices. The programme uses well proven improvement methodologies. Five hospitals were chosen after an application procedure to participate in the programme. Results are planned to be spread by an active effort to hospitals in the rest of the country.

National reporting system for adverse events

In January 2004, a national reporting system for adverse events was established. The purpose of the system is to improve patient safety in health care. In September 2010 the reporting system was expanded to cover adverse events occurring in the primary health care sector, including general practitioners and pharmacies. In September 2011 the reporting system was expanded further in order to give patients and their relatives the possibility of reporting adverse events as well.

The reporting system aims to collect, analyse and communicate knowledge of adverse events in order to reduce the number of adverse events in the health care system. This requires health care professionals to report any adverse events they become aware of in connection with patients' treatment. The system is designed as a bottom up process, where the majority of the work is locally rooted. This is based on the idea that adverse events which occur locally should be analysed and corrected locally. This is also thought to have a positive impact on the development of a safety culture. Therefore, the responsible authorities – the regions or the municipalities – are obliged to receive and analyse reports of adverse events and afterwards forward the information to the National Agency for Patients' Rights and Complaints.

On the basis of information from the local authorities, the National Agency for Patients' Rights and Complaints advises other stakeholders in the health care system concerning patient safety, thus supporting the development of learning from adverse events nationally. It is important to note that health care professionals reporting an adverse event will not, as a result of the reporting, be subject to disciplinary investigations or measures by their employer, supervisory reaction by the DHMA, or criminal sanction by the courts. The reporting system is sanction-free and the no-blame reporting system regarding adverse events is mandatory for all health care professionals. The National Agency for Patient Rights and Complaints is at present an independent, stand-alone agency. Strong links with the DHMA seem functional given the similar role and position in the Danish health care system.

With strong patient safety policies in place, the challenge for Denmark will be to keep the present activities in place and try to expand them to other sectors beyond the hospitals. Standardisation as well as monitoring through patient safety indicators could be further enhanced in primary care and long-term care settings. At the same time, with patient safety developing its own dynamics, Danish policy makers should be careful to assure that new initiatives on patient safety are aligned with already existing quality improvement initiatives. Both on a programmatic and institutional level quality and safety policies are in essence two sides of the same coin.

1.7. Health system monitoring: building an information infrastructure for measuring quality

Denmark has very good databases on quality of care; however, this goldmine is only partly exploited. The data-infrastructure for primary care is, compared to the clinical and hospital sector, less developed and the data-infrastructure for home care and nursing home care is still weak.

Denmark has made remarkable progress in the development of the measuring of quality of care through clinical registries, although the hospital sector is better served through this initiative than primary care and long-term care. In the beginning the databases were created in single departments by motivated physicians, but they quickly spread to include surgical specialties or treatments. Initial databases focused on outcomes and additional information on co-morbidities to allow risk-adjustment. The first national database is the one for treatment of breast cancer, initiated in 1976. In 1999, the Danish National Indicator Project (NIP) was established as a mandatory disease-specific quality system for all hospitals.

From the year 2000, quality standards, indicators and prognostic factors were developed on ten diseases: acute abdominal surgery (bleeding gastro-duodenal ulcer and perforated peptic ulcer), Birth, chronic obstructive pulmonary disease (COPD), depression, diabetes, heart failure, hip fracture, lung cancer, schizophrenia and stroke. Around the year 2000 the number of national clinical databases was as high as 60 – a unique number in comparison with other countries. Alongside the NIP, the Danish society for Internal Medicine started in 2000 the "Good Medical Department" initiative. This programme has a similar goal as the clinical databases, but with different methods and indicators. Instead of focussing on continuous indicators on disease specific results and complications, this initiative used cross-sectional analyses of predefined generic indicators on processes in several areas, such as referral, screening for dietary needs, diagnostic and treatment continuity and co-ordination. DGMA was closed in 2006 and embedded in the Danish accreditation system (DDKM).

A national Quality Improvement Programme (RKKP) was established late 2010 to provide a framework for strengthening the infrastructure around the clinical quality databases with the planned standardisation of the conditions for the operation of the about 60 national clinical databases in Denmark. The databases were established separately, and also evolved differently over time. Standardisation would secure efficient data collection and the rational use of data from the databases, and provide a good basis for improving the quality of care.

The main objectives of the clinical databases – with the structured collection of patient-level clinical data – are:

- To improve care by providing health care providers with information on the quality of care with regard to prevention, diagnostics, treatment and rehabilitation;
- To provide documentation for clinical governance and organisational priority setting;
- To provide information on the quality in health care for citizens and patients.

Twenty-four databases covering cancer are organised within established multidisciplinary cancer groups, with the added objectives of securing a research infrastructure on cancer and providing practice data that inform continuous update of clinical guidelines. For each database quality indicators are developed and maintained by health care professionals based on standards in the international literature. All databases are required to provide continuous feedback on indicator to participating hospitals as well as producing and publicly disclosing annual reports on results.

All registries include patient-level data using the patients' unique patient identifier. The national clinical registries are increasingly based on data from national administrative registers (national histopathology register, national patient register). These central registries increasingly supplement the use of dedicated collection systems in the older registries. Data collection in the primary sector is done exclusively via the electronic health record (EHR). In the secondary sector experiments with data collection to the clinical registers directly via the EHR are on-going just as projects trying to include laboratory data and prescription data. Seven registries at present include patient outcome measures based on data collected from patients using either online or paper-based surveys.

Several methods are applied systematically to ensure that the data collected in the clinical registries are used actively for quality improvement.

Among them are an annual clinical audit at national level (all national clinical databases publish an annual report), annual qualitative audits at regional and local level, ad hoc in-depth national clinical audits on specific items (for example reports on regional variation in survival on lung cancer) and feedback of results to decision makers and public reporting.

In addition to the reporting of indicators based on clinical registries Denmark has over the past years also gained experience with the reporting of the hospital standardised mortality rate (HSMR). HSMR is the number of deaths at a hospital as a percentage of the expected number of deaths calculated from the national average.

HSMR = (number of observed deaths / number of expected deaths) x 100%

HSMR is an overall measure of mortality after hospitalisation and is considered as an indicator that signals potential problems with quality of care. HSMR is an overall measure of the quality of hospital care, which not only includes medical treatment, but also the organisation of patient pathways, internal delays in medical examinations, and co-operation between departments. This tool is in Denmark only used at regional/hospital level. The results are made public on "sundhed.dk". Recently, reduction of HSMR has been included in agreements between the Ministry of Health and the regions.

Regional information systems

Results from ten national clinical registries are sent monthly to the regional online information systems accessible to clinicians, administrators, management, and politicians in the regions. This is done using a generic information sharing model developed by the regions, the competence centres and the DHMA, allowing all five regions to access the results and the relevant clinicians to access the patient data. By the end of 2013 it is expected that results from 40 clinical registries will be made accessible this way. Box 1.2 provides an overview of the status of the health care information systems in the five Danish regions.

Box 1.2. Regional information systems and other buildings blocks of the Danish National Information Infrastructure

The Region of Southern Denmark

The Region of Southern Denmark collects all relevant data on quality, activities, finance, payroll and personnel in SydLIS. SydLIS is aimed at all organisational levels: politicians, health directors, hospital managers, department managers, clinicians and others. The system provides various reports designed specifically for different audiences. The information in SydLIS is included in the management's decision making, but is also working as a common basis for dialogue between the various organisational levels. To increase transparency, the performance of a hospital ward is displayed alongside academic targets, which the ward should

strive to attain. It also shows the development of its performance over time and for benchmarking; the performance compared to the results of comparable wards in the region. It is possible to decompose a given result to partial results on the underlying organisational levels, and in time breaking down the results to the individual level should be possible.

Central Denmark Region

Central Denmark Region is using the common management information system InfoRM, which also is a portal for the NIP databases and the quality databases of Competence Centre Nord (external portal: RMInfo). Overall, the strategy for the region's management information system is that data is fed into one place (PAS/MidtEPJ) and made visible in InfoRM. InfoRM should thus be the main platform for monitoring and following up on quality in health care in the Central Denmark Region. In addition to data on quality of treatment, InfoRM also contains key figures regarding economy, DRG records, and data concerning absence, occupancy and politically agreed service levels. Additionally specific MID-Electronic Health Records reports are compiled to the clinical management regarding process statistics, diagnostic statistics, hospital statistics bed-day consumption and hourly load.

The North Denmark Region

The North Denmark Region's management information system KonceRN collects The North Denmark Region's data analysis and management information for all regional areas (health, psychiatric and regional development) in one system. In the hospital area, the system contains data about activity and finance as well as links to data on achievement of service aims. In 2011 the North Denmark Region launched a project where they presented a series of quality data in KonceRN. Initially, the system must include data from e.g., previous NIP databases. Then data from other nationwide clinical quality databases.

Region Zealand

In Region Zealand, a single system of management-information is under construction. The work will be finished by the end of 2012. The focus is on key figures, such as activities, service aims, economy, and salaries; quality data will be added to the system in a subsequent phase. Psychiatric care and the two somatic hospitals have already developed management information systems. Region Zealand has decided to make a strategic move to gather all information in a joined system. Some hospitals are already actively using reports of quality data, accessible by clinical department managers and based on data collected through RKKP (the NIP databases) and eHealth (the Danish Health and Medicine Authority). For psychiatric care, there is a portal of information for their disease-groups, where key figures concerning activity, service aims, economy, salaries, personnel and quality are gathered. The same management information system is used at both Hospital South and Hospital North.

The Capital Region of Denmark

The Capital Region of Denmark currently has a new shared management information system under construction. The new system will replace the existing local management information systems. The shared system – FLIS – will be implemented in a preliminary version at two hospitals during early autumn 2012. When fully implemented the system will cover finance, activity, salaries/Human Resources, capacity and quality.

Much ongoing development work aims to ensure that the Danish health care information infrastructure can be further strengthened, harnessing the e-health potential. Box 1.3 lists some of the core elements of the Danish e-health agenda.

Box 1.3. Core initiatives in Denmark in relation to the e-health agenda

Medcom

Medcom was established in 1994 with the purpose of developing nationwide communication standards for the most common messages between public hospitals and general practitioners as well as private companies linked to the health care sector. The messages cover the most frequent text-based clinical messages in the Danish health care system such as discharge letters, referrals, laboratory test orders, e-prescriptions and reimbursement from the public health insurance. From a rather slow start with less than 4 000 documents in the first year, the exchange of health care documents is now almost fully electronic with more than 60 million messages sent in 2011. This implies that the vast majority of documents between professionals are exchanged electronically. The focus is now on digitising messages sent between hospitals and home nursing on municipality level including discharge letters and home nurse care plans. MedCom is financed and owned by the Ministry of Health, Danish regions and Local Government Denmark.

E-journal/e-records

The e-records project is about creating access to electronic record data supplied by Danish hospitals. The aim is to provide hospitals and GPs with access to relevant information regarding the patient's previous treatments, test results and information about allergies, medication intolerances, etc., as a supplement to the existing available information. At the same time, the aim is to provide citizens with a better view of their own patient record and, thus, increased awareness of their own illness and a basis for active participation in treatment and self-care. Alongside the establishment of access to record data there is the intention of creating a technical solution whereby clinicians will only be able to access record data where they have a treatment provider-patient relationship. In addition, citizens should also be able to monitor the clinicians' access to the citizen's own record data. The e-records project is being accomplished through close collaboration between MedCom, the Danish regions, *sundhed.dk* and the five regions.

Currently the e-records project is being expanded to a National Health Record ("sundhedsjournalen'"). The National Health Record will display data from various data sources including:

- Information from EHR systems of hospitals and HER systems from GP's;
- Data from laboratories;
- Data on vaccination from the Danish Vaccination Register;
- Material from an interregional radiology information system/picture archiving communication system.

Box 1.3. Core initiatives in Denmark in relation to the e-health agenda *(cont.)*

The system is expected to be fully implemented across all public hospitals by the end of 2013.

Shared Medication Record

The Shared Medication Record ("Faelles Medicinkort") is being implemented across the Danish health system. The system consists of a central database containing information on all Danish citizens' medicine dispensed during the previous two years as well as an updated list of every patient's current medication. Once the implementation is completed citizens, doctors, emergency physicians and other health professionals will have digital access to updated information on medication prescribed to the patient. Patients can also access their own record.

Telemedicin

In August 2012, the Danish government, Danish regions and Local Government Denmark launched a national action plan for the further distribution of telemedicine solutions in Denmark. The plan of action has numerous goals. First of all it contributes to making telemedicine more used in the health care sector. Secondly, the action plan has an evaluating function. Based on five specific initiatives the action plan delivers information evaluation, later to be used as a base for decisions on possible national use of telemedicine. The five initiatives include clinical integrated home monitoring, telemedical in-home monitoring of KOL patients, telemedical assessment of ulcers, tele-psychiatry and internet-based behavioral therapy. The national plan of action is an initiative in the shared public strategy of digitisation.

The work with telemedicine in Denmark focuses a great deal on large-scale projects. As part of the action plan, telemedical assessment of ulcers is going to be implemented nationwide. 35 000 to 40 000 persons in Denmark are estimated to have foot ulcers due to diabetes. By using telemedicine the municipal nurse together with the doctors at the hospital can optimise wound care. Another large-scale project currently being implemented as part of the action plan is the "Tele Care North Project" in the North Denmark Region. The purpose of the project is to monitor and treat patients with KOL. The treatment is conducted in co-operation between the hospital, municipal home care and general practice. The project has 1 450 participating patients.

It can be stated that Denmark is well advanced in establishing a health care information infrastructure that will help it to address the continuous monitoring and improvement of quality of care. Based on the clinical registries, and with enhanced capabilities for linkages between databases and the potential of secondary data use of data in electronic health records, quality management becomes more and more feasible. The necessary data security and privacy conditions seem to be in place.

Despite these achievements several main challenges remain. The present information infrastructure is strong on the hospital side, but still relatively weak in primary care and long-term care, although initiatives have been taken in primary care (such as the DAK-E system described in Chapter 2).

Governance responsibility for the further development of the Danish Information Infrastructure in health care are divided across a broad set of stakeholders. Recent initiatives to give SSI a stronger co-ordinating role and agreements between the central authorities on common goals on better data use address this but co-ordination of the various registries and administrative databases used for generating quality measures remains necessary and asks for increased standardisation and inter-consecutiveness. Furthermore, although data accessibility is improving, possibilities for health care providers and patients to use the databases actively for monitoring their own practice or assessing the quality of providers in their region are limited.

Access and timeliness of data is a key factor. The managerial capability of the data infrastructure can be further improved and should be balanced with the scientific rigor of data collection and reporting. Annual reports are at present presented by the various clinical registries. Like in other countries, the release of national, regional and/or local performance reports summarising quality indicators on various domains and disease categories might be useful also in Denmark to get a more comprehensive picture on quality of care on a regular basis. Such comprehensive reporting on quality of care might also help to strengthen the whole system perspective in assessing and improving quality of care.

1.8. Health system standards and guidelines

This section of the chapter discusses how to move from building disease-specific, evidence-based clinical guidelines towards pathway-oriented, care-delivery standards for patients with multiple chronic conditions and varying care needs.

The initial initiatives around standards and guidelines in the Danish health care system have been clinical guidelines developed by the medical profession. Based on notions of evidence-based medicine and experience with clinical registries, clinical guidelines have traditionally been developed along the lines of specialties, specific diseases and procedures. Only more recently has attention been shifting to the standardisation of the organisation of service delivery (a responsibility of the DHMA) and guidelines addressing multi-morbidity.

The Organisation of Danish Medical Societies (LVS) organises 117 scientific societies within the field of biomedicine in Denmark. The total membership of these societies is 23 061 predominantly medically qualified persons. The general aim is to promote the interests of the member societies. The Organisation is engaged in post-graduate medical education and the development of clinical quality in the Danish health care system by initiating and developing clinical guideline.

Alongside clinical guidelines, standardisation of health care practice also takes place via the development of disease management programmes and patient pathways. The three types of activities (guidelines, disease management programmes and pathways) try to standardise the delivery of health care by describing in explicit terms what should be done in which situation. Practice guidelines have their roots in (profession-led) consensus conferences during the 1980s and have gradually been focusing on evidence-based medicine. Guidelines today are commonly based on systematic literature reviews and weighing of available evidence, complemented by systematic local empirical knowledge. Most guidelines are disease or specialty based and they usually describe "what" should be done. The terms "disease management" and "patient pathways" have their roots in attempts to describe systematically the steps that a patient should go though when confronted with a specific disease or medical problem. Disease management and pathways are usually anchored in clinical guidelines but in addition to describing "what should be done", they tend to describe "who should do what, when and where".

National clinical guidelines

Clinical guidelines have until now predominantly been developed at a non-governmental level by the different professional societies and the regions. With the 2012 government annual budget, the development of clinical guidelines was undertaken at national level (with an investment of DKK 80 million (USD PPP 10.2 million) over a four-year period). Approximately 50 clinical guidelines are to be developed in 2012-15. These guidelines should be multidisciplinary and applicable across health care services boundaries.

The Danish Health and Medicines Authority (DHMA) will be responsible for developing the national clinical guidelines in close corporation with medical and other health professional societies and the regions and municipalities. The main objective of the national clinical guidelines is to ensure that health practice at all levels of the Danish health sector follows the principles of evidence-based medicine. Furthermore, national clinical guidelines will ensure that medical treatment is carried out at the same high standard nationwide, thus reducing the variation in health practice and in the quality of treatment.

Regional clinical guidelines

The 2004 decision to develop the Danish Health Quality Programme, DDKM, also boosted the development of clinical guidelines in hospitals. When the first version of the DDKM was implemented in 2009 every region

had prepared clinical guidelines for all the disease areas included in the quality model. Given this, the forthcoming national guidelines build upon a number of the guides already in use as a part of DDKM. Other national initiatives that have an impact on the standardisation of health care in Denmark are the national disease management programme and various pathway initiatives.

Disease management programmes

The Danish government launched a programme for patients with chronic diseases based on pool funds from the Ministry of Health from 2010 to 2012. Most of the funding is distributed to municipalities and regions, following requests for project funding for initiatives related to disease management programmes for chronic obstructive pulmonary disease (COPD), diabetes, heart diseases and musculoskeletal diseases as well as projects dealing with patient education. Simultaneously, the Danish Health and Medicines Authority (DHMA) carried out several projects on the development of generic models for disease management programmes for chronic disease, establishing national register-based monitoring of chronic diseases, recommendations on wider use of patient self-treatment (self-medication), recommendations regarding the quality assurance of patient education programmes, an overall evaluation of the projects regarding chronic diseases in municipalities and regions, and on-going nationwide sharing of knowledge about chronic disease management and patient education facilitated by DHMA (see also Chapter 2).

These simultaneous activities – funding of regional and local initiatives whilst providing national guidance through the DHMA – were an attempt to develop and implement standards for patients with chronic conditions locally, whilst assuring national agreement on standards and facilitating mutual learning. The implementation of the disease management programmes as well as other local initiatives that require cross-sectorial co-operation are supported by the four-year health care agreements between regions and the municipalities, and include general practitioners.

Pathway initiatives

In the Danish health care system patient pathways have been developed at a national level in the areas of cancer and heart disease. On a regional level, they have also been developed in the field of psychiatry (Box 1.4). The core of the political decision to establish these pathways as a national and regional initiative was to increase the quality through developing integrated pathways covering both organisational and clinical standards for the diagnoses and treatment.

Box 1.4. Examples of pathways initiatives

Cancer pathways

As waiting times for cancer patients were unacceptable and the survival rates for cancer were poor in Denmark compared to other Nordic countries, an improvement initiative was developed. In October 2007 an agreement was reached between the Danish government and the Danish regions on acute action and accurate data collection for all cancer patients. By January 2009, 34 integrated cancer pathways were implemented in the Danish health care system. Since then, pathways have been updated based on new evidence and broadened to areas such as rehabilitation and palliative care.

Pathways for heart diseases

Based on the experiences with cancer pathways and the wish to improve the quality and efficiency of treatment, four pathways were constructed in 2010. The pathways were established for life-threatening, but non-acute, heart diseases. It was a general political initiative on both national and regional level.

Pathways in psychiatry

These pathways are a part of a regional initiative about quality, which sets some new standards for better quality in psychiatry and for better life expectancy for psychiatric patients. The regions are now implementing pathways for nine areas related to psychiatric care including paediatric psychiatry. National pathways focus on "the journey of the patient through the health care system".

The aim of the pathways on the field of cancer and heart diseases are to reduce processing-times, in particular to reduce referral time, obtain faster diagnoses and quick onset of treatment. Furthermore, the main objective is to ensure that all patients are treated according to the national clinical guidelines. For cancer and heart diseases working groups supervised by DHMA were established, each including representatives from the specific medical specialities, the five regions, general practitioners, and when relevant, pathologists, radiologists etc. Founded on national evidence-based clinical guidelines, pathways were developed as organisational standards for the diagnoses and treatment. The cancer pathways have recently been updated and new elements on rehabilitation and palliation have been included.

Clinical guidelines are used in disease management programmes and pathways and are as such essential for these programmes that both try to address not only the clinical questions what should be done but also the organisational challenge how to do it. The disease management programme describes the combined interdisciplinary, intersectional and co-ordinated

effort for a specific chronic condition. It ensures the use of evidence-based recommendations, a precise description of the distribution of tasks and the co-ordination and communication between the health care providers involved. A disease management programme also describes the monitoring and evaluation of the programme as mandatory, as well as regular, systematic updates of the programme.

The extent to which the process of developing local disease management programmes has resulted in standardised and sustainable approaches cannot is yet be established. The experience does, however, illustrate the complexities of standardising both the content and context of the organisation of health care in a multi-level health care system. Furthermore, it should be noted that disease management programmes focusing on a single disease are not adapted to the health care needs of an ageing and multi-morbid population. Although clinical guidelines are in place, and seem to be well grounded in evidence, national (service) standards, particularly on long-term care, seem scarcer. Consideration might be given to focusing the recently launched national guideline initiative on areas that have been less the focus of guidelines and standards so far, and build on the realities of multi-morbidity in the Danish elderly population. A link with the specialisation agenda and striving to deliver the right care by the right person at the right place could be sought.

1.9. Managing health system improvement

The various national programmes on quality improvement described in the previous paragraphs, and the on-going work in the regions and municipalities, illustrate how quality features high on the Danish health care agenda. However, the extent to which the various initiatives result in population health improvements that would otherwise not have been achieved remains a matter of debate. Denmark is shifting its focus from a governance model based on pure cost-control and planning towards a governance model that tries to steer population health and quality of care for individual patients, alongside cost containment.

However, to reach this goal for the health care system as a whole, quality targets, population health targets and cost targets should also be linked, and regional and national targets should be related to the performance of individual health care institutions and health care professionals. Although the governance model – with agreements between the national level, regions and municipalities – is shifting towards quality governance, a more comprehensive and consistent set of health system performance measures would be helpful. The present quality management initiatives are very much focused on the clinical sector, and on hospitals in

particular. With the implementation of the specialisation plan and the reforms that allocated responsibilities for home care and rehabilitation at municipalities, the performance of integrated delivery systems at local and regional level will be important for guiding quality improvement at national health system level. Denmark has a well-developed information infrastructure and despite shortcomings in quality measurement in primary care and long-term care, measures can be developed to monitor quality of care focused on local health systems. Experiences gained from national initiatives on disease management and care pathways have shown how national development and support and evidence-based practice can be married with addressing local challenges.

Far more than a system-design issue, this is an improvement process that needs managing and adaptation to cultural and contextual factors. The work done on patient safety demonstrates that such efforts can be successful in the Danish health care system once key stakeholders agree on common goals and values. To make the shift from quality management of hospital services towards quality improvement of the whole health care system, a sharp focus on the needs and goals of the system as a whole is needed. Further implementation of quality targets in the agreements between national, regional and local level, broadening of quality measurement to primary care and long-term care, regular reporting on local and regional system performance and consideration of economic incentives to support this agenda can be the way forward.

1.10. Strengthening the role and perspective of the patient

Overall, the Danish health care system has been responsive to the needs of its citizens, and several mechanisms to assure and strengthen the position of the patient in the health care system are in place. Apart from legislation that ensures patient rights, the Danish health care system has a formalised and modern system for handling complaints.

The National Agency for Patients' Rights and Complaints

The National Agency for Patients' Rights and Complaints functions as a single point of access for patients wishing to file a complaint about professional treatments they received. The agency also deals with complaints about the disregard of patient rights and complaints about the Patient Insurance Association's decisions over compensation. In addition, The National Agency for Patients' Rights and Complaints is responsible for the administration of the system for reporting adverse events within the health service, and helps to make sure that the knowledge gained from these incidents and patient and liability suits is used preventatively. Moreover,

The National Agency for Patients' Rights and Complaints offers guidance on rights to health care in other countries in accordance with Danish legislation, EU regulations and other international agreements. When a patient submits a complaint, the patient is offered a dialogue with the hospital. After this local dialogue, the patient decides whether to keep the complaint and have it put on a trail at the National Agency.

Denmark has an advanced system for public reporting on quality: sundhed.dk

Sundhed.dk, the Danish e-health portal, is the official portal for the public Danish health care services and enables patients and health care professionals to find information and communicate. Denmark has been at the forefront on many IT initiatives within health services. *Sundhed.dk* is a public, internet-based portal that collects and distributes health care information among citizens and health care professionals. In a secure part of the portal the patient has access to:

- Personal health data on treatments and notes from hospital records, information about medication and visits to the GP;
- Various e-services including making appointments with GP's, prescription renewals and electronic communication with the GP;
- Information on waiting times at all public hospitals and ratings of hospitals in terms of patient experienced quality;
- Patient networks and the sundhed.dk handbook for patients.

It is unique in bringing the entire Danish health care sector together on the Internet and providing an accessible setting for citizens and health care professionals to meet and efficiently exchange information. By servicing both the citizens and the health professionals, the portals aim is to enable the two to achieve co-operation based on the same data. This should empower the citizen and gives the health professionals better tools to improve quality in care.

Also, in the patient safety initiatives (see Section 1.5), there is a strong focus and involvement of patients and patients are asked to report adverse events. One of the initiatives of the Danish Patient Safety Society is the release of a handbook aimed at patients to increase their involvement in assuring safe care.

Another patient-centered feature of the Danish health care system is the contact person programme. According to the Danish Health Care Act all

patients admitted to hospital shall be offered a contact person if their treatment takes more than two days. Patients with special needs – for instance chronically ill patients or patients suffering from cancer – shall be offered a contact person at an earlier stage even if they stay in hospital for less than two days. The purpose of the contact person scheme is to contribute to increasing quality and co-ordination in the hospital sector.

The National Danish Survey of Patient Experiences (LUP)

A key quality of care policy consists of measuring and reporting on patient experiences. It is of critical importance that the patients' experiences with their illnesses and the treatment and care efforts of the health care system are taken into consideration if the health care system is to further develop services for the benefit of patients. Asking patients about their experiences of the Danish health care system provides valuable knowledge, which is an important contribution to the on-going improvement of the quality of health care in Denmark. The National Danish Survey of Patient Experiences (LUP) is a questionnaire survey for assessing patients' experiences with the Danish health care system.

LUP is conducted on behalf of the five regions in Denmark and the Ministry of Health. A steering group consisting of representatives from the regions, and the Ministry of Health, are responsible for the survey. Two regional organisations specialising in patient experiences and surveys have developed the survey concept and work together carrying out the survey. This organisation has existed since 2000, when the first national survey was conducted. Since then the concept behind the surveys has been further developed and is continuously adjusted in line with general developments in health care. As a result of this process the concept behind LUP currently includes somatic health, psychiatry and child delivery.

LUP is carried out as an annual, nationwide survey, investigating the experiences of both inpatients and outpatients in Danish hospitals. The survey presents the results at five distinct levels: unit, hospital, medical speciality regional and national level. The main objective of LUP is to provide an input for improving patients' experiences. This is done by collecting data on patient experiences on specific topics, benchmarking results among comparable units and systematically monitoring the development in patient experiences and evaluations over time. Every year approximately 240 000 questionnaires are distributed to patients subsequent to their discharge or the end of treatment. The response rate was 60% in the latest survey in 2011. Depending on the field in which the survey is carried out the questionnaire have approximately 30-50 questions. In an effort to make sure that the public has access to the results from the surveys and consequently has the opportunity to check the results from any relevant unit

or hospital in any given part of the country, the results from new surveys are published at *sundhed.dk*, which is the public's main point of contact and of information about the health care system in Denmark.

The systematic efforts of LUP are a positive achievement. However, with the questionnaire being mainly focused on hospital care, there is still the challenge of broadening the systematic measurement of patient experiences to other areas, notably long-term care and primary care. Another area were the measurement of patient experiences could be expanded is the collection of data on patients' reported outcomes. Given the data available in the clinical registries and the existing LUP data, a data collection effort focused on PROMs might provide additional insight in the quality of care as perceived by the users.

Danish patient organisations

Several patient organisations exist in Denmark. One major one is Danish Patients, an umbrella organisation for 16 patient associations in Denmark representing 850 000 members. Danish Patients works to ensure the patients the best possible conditions in the health care system, develops policy based on documented knowledge and acts as ambassador for patients in relation to authorities and the public. Danish Patients co-operates with authorities, research institutions and other health care organisations in developing the health care system of the future based on the interests of the patients.

Although patients are organised in Denmark, their formal involvement in policy making is limited. Decentralised decision making through regional councils assures citizen involvement that in other countries is channelled through participation in national patient associations. Patient councils, as well as representation on hospitals boards, home for the elderly and nursing homes, are not compulsory like in some other OECD countries. Given the desire to enhance the role of users in the Danish health care system, the creation of mandatory client- and patient councils, especially for long-term care facilities, might be considered.

1.11. Conclusions

Denmark has a sophisticated and highly developed series of quality assurance mechanisms. However, the main challenge is to create more linkages and synergy between many ongoing activities and initiatives, with the aim of improving quality of care not just for specific services but for the health care system as a whole.

The Danish governance model of a national government, regions and municipalities poses challenges when seeking to align the management and

improvement of quality of care in hospitals, primary care, rehabilitation, prevention and long-term care. Denmark has very good databases on quality of care and a strong agenda to strengthen its information infrastructure, but this goldmine is only partly exploited. More could be done, for example, to make data accessible in a timely way for managers, health care professionals and the public. The data infrastructure for primary care is, compared to the clinical and hospital sector, less developed, and the data infrastructure for home care and nursing home care is still weak.

Although Denmark has a lot of local clinical guidelines, national guidelines and standards developed as part of disease management programmes and pathways, standard development for care outside the hospital could be strengthened; this should take into account the realities of patients with multi-morbid conditions, link the standards to quality measures and improve measurement of patient/client experiences.

Denmark is a breeding ground for innovative quality improvement initiatives but wider distribution, and the national learning potential, of these initiatives should be optimised through more systematic links between outputs of innovative projects and ongoing programmes on quality of care; through enhanced links between quality and safety initiatives and the training of professionals; and strengthening of patient involvement.

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