

# Health Systems in Transition

Vol. 9 No. 6 2007

## Denmark

Health system review

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# Health Systems in Transition

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## Denmark: Health System Review

2007



The European Observatory on Health Systems and Policies is a partnership between the World Health Organization Regional Office for Europe, the Governments of Belgium, Finland, Greece, Norway, Slovenia, Spain and Sweden, the Veneto Region of Italy, the European Investment Bank, the Open Society Institute, the World Bank, the London School of Economics and Political Science, and the London School of Hygiene & Tropical Medicine.

## **Keywords:**

DELIVERY OF HEALTH CARE

EVALUATION STUDIES

FINANCING, HEALTH

HEALTH CARE REFORM

HEALTH SYSTEM PLANS – organization and administration

DENMARK

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Printed and bound in the United Kingdom by TJ International, Padstow, Cornwall.

## **Suggested citation:**

Strandberg-Larsen M, Nielsen MB, Vallgård S, Krasnik A, Vrangbæk K and Mossialos E. Denmark: Health system review. *Health Systems in Transition*, 2007; 9(6): 1–164.

# Contents

Preface.....	v
Acknowledgements.....	vii
List of abbreviations.....	ix
List of tables and figures.....	xi
Abstract.....	xiii
Executive summary.....	xv
1. Introduction.....	1
1.1 Overview of the health system.....	1
1.2 Geography and sociodemography.....	1
1.3 Economic context.....	4
1.4 Political context.....	5
1.5 Health status.....	6
2. Organizational structure.....	19
2.1 Historical background.....	19
2.2 Organizational overview.....	25
2.3 Decentralization and centralization.....	26
2.4 Population coverage.....	29
2.5 Entitlements, benefits and patient rights.....	30
3. Planning, regulation and management.....	39
3.1 Regulation.....	39
3.2 Planning and health information management.....	42
4. Financial resources.....	51
4.1 Revenue mobilization.....	53
4.2 Allocation to purchasers.....	59
4.3 Purchasing and purchaser–provider relations.....	60
4.4 Payment mechanisms.....	62
4.5 Health care expenditure.....	64

5.	Physical and human resources .....	69
	5.1 Physical resources .....	69
	5.2 Human resources .....	80
6.	Provision of services .....	93
	6.1 Public health .....	93
	6.2 Patient pathways .....	98
	6.3 Primary/ambulatory care .....	100
	6.4 Secondary/inpatient care .....	104
	6.5 Pharmaceutical care .....	105
	6.6 Rehabilitation/intermediate care .....	108
	6.7 Long-term care .....	109
	6.8 Services for informal carers .....	111
	6.9 Palliative care .....	112
	6.10 Mental health care .....	115
	6.11 Dental health care .....	120
	6.12 Alternative/complementary medicine .....	122
	6.13 Maternal and child health .....	124
	6.14 Health care for specific populations .....	125
7.	Principal health care reforms .....	127
	7.1 Analysis of recent reforms .....	127
	7.2 Recent developments .....	130
8.	Assessment of the health system .....	133
	8.1 Objectives of the health system .....	133
	8.2 Distribution of the health system's costs and benefits across the population .....	133
	8.3 Efficiency of resource allocation in health care .....	135
	8.4 Technical efficiency in the production of health care .....	136
	8.5 Accountability of payers and providers .....	137
	8.6 The contribution of the health system to health improvement ..	137
9.	Conclusions .....	139
10.	Appendices .....	143
	10.1 References .....	143
	10.2 Principal legislation .....	158
	10.3 Useful web sites .....	159
	10.4 HiT methodology and production process .....	160

## Preface

**T**he Health Systems in Transition (HiT) profiles are country-based reports that provide a detailed description of a health system and of reform and policy initiatives in progress or under development in a specific country. Each profile is produced by country experts in collaboration with the Observatory's research directors and staff. In order to facilitate comparisons between countries, the profiles are based on a template, which is revised periodically. The template provides detailed guidelines and specific questions, definitions and examples needed to compile a profile.

HiT profiles seek to provide relevant information to support policy-makers and analysts in the development of health systems in Europe. They are building blocks that can be used:

- to learn in detail about different approaches to the organization, financing and delivery of health services and the role of the main actors in health systems;
- to describe the institutional framework, the process, content and implementation of health care reform programmes;
- to highlight challenges and areas that require more in-depth analysis;
- to provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policy-makers and analysts in different countries.

Compiling the profiles poses a number of methodological problems. In many countries, there is relatively little information available on the health system and the impact of reforms. Due to the lack of a uniform data source, quantitative data on health services are based on a number of different sources, including the

World Health Organization (WHO) Regional Office for Europe Health for All database, national statistical offices, Eurostat, the Organisation for Economic Co-operation and Development (OECD) Health Data, the International Monetary Fund (IMF), the World Bank, and any other relevant sources considered useful by the authors. Data collection methods and definitions sometimes vary, but typically are consistent within each separate series.

A standardized profile has certain disadvantages because the financing and delivery of health care differ across countries. However, it also offers advantages, because it raises similar issues and questions. The HiT profiles can be used to inform policy-makers about experiences in other countries that may be relevant to their own national situation. They can also be used to inform comparative analysis of health systems. This series is an ongoing initiative and material is updated at regular intervals.

Comments and suggestions for the further development and improvement of the HiT series are most welcome and can be sent to: [info@obs.euro.who.int](mailto:info@obs.euro.who.int).

HiT profiles and HiT summaries are available on the Observatory's web site at [www.euro.who.int/observatory](http://www.euro.who.int/observatory). A glossary of terms used in the profiles can be found at the following web page: [www.euro.who.int/observatory/glossary/toppage](http://www.euro.who.int/observatory/glossary/toppage).

## Acknowledgements

The Health Systems in Transition profile on Denmark was written by Martin Strandberg-Larsen (PhD Fellow, Department of Public Health, University of Copenhagen), Mikkel Bernt Nielsen (Research Assistant, Department of Public Health, University of Copenhagen), Signild Vallgård (Associate Professor, Department of Public Health, University of Copenhagen), Allan Krasnik (Professor, Department of Public Health, University of Copenhagen) and Karsten Vrangbæk (Associate Professor, Department of Political Science, University of Copenhagen).

Hans Okkels Birk (Part-time Lecturer, Department of Public Health, University of Copenhagen) wrote the section on capital investments and provided critical input into Chapter 4 on financial resources. Ellen Westh Sørensen (Professor, Department of Pharmacology and Pharmacotherapy, University of Copenhagen) wrote the sections on pharmaceuticals and pharmaceutical care, which have been subsequently reviewed and commented on by Merete W Nielsen (Assistant Professor, Department of Pharmacology and Pharmacotherapy, University of Copenhagen) and Jørgen Clausen (Chief Economist, Department of Economics and Political Affairs, Danish Association of the Pharmaceutical Industry). The section on palliative care was commented on by Mogens Grønvold (Associate Professor, Department of Public Health, University of Copenhagen), and Christina Novinsky (London School of Economics and Political Science) helped with the editing and copy-editing of the first draft.

The current series of HiT profiles has been prepared by the staff of the European Observatory on Health Systems and Policies. The European Observatory on Health Systems and Policies is a partnership between the

WHO Regional Office for Europe, the Governments of Belgium, Finland, Greece, Norway, Slovenia, Spain and Sweden, the Veneto Region of Italy, the European Investment Bank, the Open Society Institute, the World Bank, the London School of Economics and Political Science, and the London School of Hygiene & Tropical Medicine.

The Observatory team is led by Josep Figueras, Director, and Elias Mossialos, Co-director, and by Martin McKee, Richard Saltman and Reinhard Busse, heads of the research hubs.

Jonathan North managed the production of the profile, with the support of Nicole Satterley (copy-editing), Shirley and Johannes Frederiksen (layout) and Aki Hedigan (proofreading). Administrative support for preparing the HiT profile on Denmark was undertaken by Caroline White.

Special thanks are extended to the WHO European Health for All database, from which data on health services were extracted; to the OECD for the data on health services in western Europe; and to the World Bank for the data on health expenditure in central and eastern European countries. Thanks are also due to national statistical offices which have provided national data.

The data used in this report are based on information publicly available in August 2007.

# List of abbreviations

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AIDS	Acquired immunodeficiency syndrome
BMI	Body mass index
CAM	Complementary and alternative medicine
CIS	Commonwealth of Independent States
COPD	Chronic obstructive pulmonary disease
CPR	Personal identification (register and number)
CT	Computed tomography
CVU	Centre(s) for Advanced Education
DACEHTA	Danish Centre for Evaluation and Health Technology Assessment
DALE	Disability-adjusted life expectancy
DDB	Demographic Database
DIHTA	Danish Institute for Health Technology Assessment
DKK	Danish krone (unit of currency)
DMFT	Decayed, missing and filled teeth
DRG	Diagnosis-related group(s)
DSI	Danish Institute of Health Services Research
EHR	Electronic health record(s)
EU	European Union
EU12	Countries that joined the EU in May 2004 and January 2007
EU15	European Union Member States before May 2004
FBR	Prevention Register
FTDB	Fertility Database
GDP	Gross domestic product
GNP	Gross national product
GP	General practitioner
HALE	Healthy life expectancy
HIV	Human immunodeficiency virus
HTA	Health technology assessment
ICD	(WHO) International Classification of Diseases
IMF	International Monetary Fund

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IT	Information technology
IVF	<i>In vitro</i> fertilization
LPR	National Patient Register
MMR	Immunization against measles, mumps and rubella
MRI	Magnetic resonance imaging
OECD	Organisation for Economic Co-operation and Development
OTC	Over-the-counter (pharmaceuticals)
PLO	Organisation of General Practitioners in Denmark
PPP	Purchasing power parity
SBR	Hospital Use Statistics Register
SIF	National Institute of Public Health
SSI	National Serum Institute
SUSY	Danish Health and Morbidity Survey
TB	Tuberculosis
VAT	Value-added tax
VHI	Voluntary health insurance
WHO	World Health Organization
WTO	World Trade Organization
XML	eXtensible Markup Language

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# List of tables and figures

## Tables

Table 1.1	Population/demographic indicators, 1970–2004 (selected years)	4
Table 1.2	Macroeconomic indicators, 1996–2006 (selected years)	5
Table 1.3	Average life expectancy at birth in Denmark, Norway, Sweden and the United Kingdom in 1970–1994 and 1995–2000	7
Table 1.4	Mortality and health indicators, 1960–2002 (selected years)	8
Table 1.5	Main causes of death, 1995, 1997 and 1999 (ICD 10 Classification)	10
Table 1.6	The 10 most common diagnoses on discharge from hospital, 2000	11
Table 1.7	Healthy life expectancy and disability-adjusted life expectancy (DALE), 2000–2002	12
Table 1.8	Decayed, missing and filled teeth (DMFT) at age 12 years, 1975–2003 (selected years)	17
Table 2.1	Trends in the evolution of the health care sector, 1936–2003 (selected years)	25
Table 2.2	Political bodies, administrative bodies and health care responsibilities	28
Table 4.1	Trends in health care expenditure, 1980–2003 (selected years)	64
Table 5.1	Activity in somatic hospitals, 1996–2005 (selected years)	70
Table 5.2	Activity in psychiatric hospitals, 1997–2003	70
Table 5.3	Pharmaceutical consumption in Europe, 2002	75
Table 5.4	Health care personnel per 1000 population, 1980–2003 (selected years)	86
Table 5.5	Intake of other health care personnel for 2001 and 2002	88
Table 6.1	Number of full-time specialist professionals involved in the delivery of mental health care, 2001–2003	119
Table 6.2	Reproductive health, 1991–2004 (selected years)	124
Table 7.1	Overview of major reforms and policy initiatives with a substantial impact on health care, 1970–2007	128

## Figures

Fig. 1.1	Overview chart of the health system	2
Fig. 1.2	Map of Denmark	3
Fig. 1.3	Average life expectancy (in years) for men and women, 1901–2003	7
Fig. 1.4	Mortality for different age groups, 1985–2005	10
Fig. 1.5	Number of men and women who are overweight or severely overweight, 1987, 1994, 2000	13
Fig. 1.6	Share of daily smokers as a percentage of the total population, 1953–2004 (selected years)	14
Fig. 1.7	Levels of immunization for measles in the WHO European Region, 2005	18
Fig. 2.1	Organizational chart of the statutory health system	27
Fig. 4.1	Financing flow chart	52
Fig. 4.2	Health care expenditure as a share (%) of GDP in the WHO European Region, 2004, WHO estimates	65
Fig. 4.3	Trends in health care expenditure as a percentage of GDP in Denmark and selected other countries, 1998–2004, WHO estimates	66
Fig. 4.4	Health care expenditure in US\$ PPP per capita in the WHO European Region, 2004, WHO estimates	67
Fig. 5.1	Beds in acute hospitals per 1000 population in Denmark, selected countries and EU averages, 1990–2005	71
Fig. 5.2	Internet access by the Danish population, 2004 (%)	73
Fig. 5.3	Number of people treated with prescribed medicinal products in the primary health care sector, by sex and age	76
Fig. 5.4	Price index for medicines, 2003	77
Fig. 5.5	Number of physicians per 1000 population in Denmark, selected countries and EU averages, 1990–2005	81
Fig. 5.6	Number of nurses per 1000 population in Denmark, selected countries and EU averages, 1990–2005	82
Fig. 5.7	Number of physicians and nurses per 1000 inhabitants in the WHO European Region, 2005 or latest available year (in parentheses)	83
Fig. 5.8	Number of dentists per 1000 inhabitants in Denmark, selected countries and EU averages, 1990–2005	84
Fig. 5.9	Number of pharmacists per 1000 population in Denmark, selected countries and EU averages, 1990–2005	86
Fig. 6.1	Group 1 patient pathway in the statutory health care system	98
Fig. 6.2	Organization of the distribution system for pharmaceuticals, 2006	106
Fig. 6.3	Percentage of the population having received different forms of alternative treatment in 2003	123

## Abstract

**T**he Health Systems in Transition (HiT) profiles are country-based reports that provide a detailed description of a health system and of policy initiatives in progress or under development. HiTs examine different approaches to the organization, financing and delivery of health services and the role of the main actors in health systems; describe the institutional framework, process, content and implementation of health and health care policies; and highlight challenges and areas that require more in-depth analysis.

Denmark is a small country with 5.4 million inhabitants; however, it is one of the wealthiest countries in the world. It is a monarchy with fairly autonomous local governments, consisting of 5 regions and 98 municipalities. Population health, as measured by life expectancy, is relatively low in comparison to other European countries, but it has recently increased. The Danish health care sector is dominated by the public sector and is financed by local and state taxes. Somatic and psychiatric health care, carried out at public hospitals, and primary health services, which are delivered by general practitioners (GPs) and other practising health professionals, are administered by the regions. The regions are financed by the State and to a certain extent by the municipalities. The regions own and run most hospitals, and practising health professionals are self-employed and reimbursed by the regions, mainly using a fee-for-service mechanism. The municipalities are responsible for elderly care, social psychiatry, prevention and health promotion, rehabilitation and other types of care that are not directly related to hospital inpatient care. Access to health care is fairly equal when health status is taken into account. For all citizens with residence permits, access to health care is free of charge at hospitals and from GPs, whereas access to pharmaceuticals, dentists and some other services require co-payment. During recent years, the focus of health care reforms has been on

patient choice, waiting times, quality assurance and coordination of care. A major structural reform in 2007 has changed the political and administrative landscape of health care, dramatically reducing the number of regional and local units and transferring health care responsibilities for prevention and rehabilitation from the regional to the local level.

## Executive summary

**D**enmark is a small country and relatively prosperous country in northern Europe. Like the other Scandinavian countries, Denmark is characterized by a strong welfare state tradition, with universal coverage of health services mainly financed via taxation. Access to the health system, including diagnostic and treatment services, is free for all citizens except for certain services such as dental care, physiotherapy and medicine requiring patient co-payment. Equity and solidarity are important underlying values in the system, and surveys show a persistently high level of patient satisfaction. The system has a relatively good track record in terms of controlling expenditure and introducing organizational and management changes, such as transition to ambulatory care, and introduction of activity-based payment.

The Danish health system is governed by a combination of national state institutions, regions and municipalities. All three levels have democratically elected assemblies and there is a tradition of decentralization of management and planning to the regions and municipalities. National-level institutions include the Parliament, the Government and various state bureaucratic institutions. The state level is responsible for the overall legal framework for health care, and for coordinating and supervising the regional and municipal delivery of services. Five regions are responsible for delivering both primary and secondary health services. Most hospitals are owned and operated by the regions, and hospital doctors are salaried employees of the regions. Practising doctors are private, rather than state practitioners, but receive almost all of their income from services paid by the regions.

Several current and future challenges can be identified. Danes have shorter life expectancy than many other Europeans. This has mostly been attributed to lifestyle issues, but health system performance has also been questioned, particularly in areas such as cancer care and cardiovascular disease. Coordination of care has also emerged as a general issue with potential for improvement, and waiting times have been a persistent political concern. More generally, the Danish system, like many other European health systems, faces challenges of guaranteeing access and quality while at the same time keeping costs under control. An ageing population and rising expectations regarding service are contributing factors in challenging the sustainability of the public health system.

Activity-based payments, performance management and benchmarking, elements of managed competition and administrative reforms are some of the general policy responses that have been introduced to meet the challenges. Free choice of hospital was introduced in 1993, partially in response to waiting time issues. More recent initiatives have been an administrative reform in 2007, the introduction of a 1-month general waiting time guarantee and guaranteed access to hospital specialists within 48 hours of cancer diagnosis.

The administrative reform of 2007 created larger regions and municipalities and changed the distribution of tasks and responsibilities. The underlying rationale was to facilitate centralization of service delivery at the hospital level and to give municipalities a stronger role in prevention and rehabilitation. Financing of regional health services was changed from predominantly regional taxation combined with some state grants, to a combination of state grants and municipal co-payments. The rationale behind this was to create more direct state control and to provide incentives for municipalities to step up their efforts in prevention, health promotion and rehabilitation.

## **Financing**

Until 2007, the Danish health system was financed through progressive general income taxes at the national level and through proportional income and property taxes at the regional and local levels. The national-level tax revenue was redistributed to the counties and municipalities via block grants, based on objective criteria and some activity-based financing for hospitals. The system was designed to support solidarity in financing and equity in coverage. Since 2007, financing has been obtained through earmarked proportional taxation at the national level. Most of this revenue (80%) is redistributed to the regions via block grants, based on objective criteria (social and demographic indicators), and 20% is redistributed to the new municipalities which will use these funds

to co-finance regional hospital services for their respective populations. The system remains based on the general principles of solidarity, combined with some redistribution across the population. The earmarking of health care taxes is a new feature in Denmark and is intended to create greater transparency within this sector. However, it reduces the potential for redistribution of funds across sector areas.

There is an increasing level of user payments for Danish health care, mostly involving payments for pharmaceuticals, dental care and physiotherapy, and it is related to a fast-growing private health insurance market, which has been partly established through labour market agreements for groups of employees. There is even some support for introducing more co-payments, such as patient fees for GP consultations, in order to reduce unnecessary utilization of services. These trends could lead to major changes in the health care financing patterns in Denmark over time, threatening the system's general principles of solidarity, equity and tax-based financing of health care services.

## **Principles of equity**

The current system is based on the principle of universal, free and equal access to health services. Although utilization patterns vary somewhat across regions, these objectives seem to be met to a fairly large extent. In practice, some groups, such as the homeless and mentally disabled, immigrants, and drug and alcohol abusers, appear to have a more unstable utilization pattern than other groups. The high individual costs for adult dental care seem to result in social inequity in the utilization of this kind of service, leading to social differences in dental health status. The use of private practising specialists shows a geographic and social bias as services are mostly offered in affluent urban areas. Patient choice appears to favour patients with a higher level of education and stable employment. There is some speculation that the increasing use of activity-based financing will divert investments and activity away from fields such as internal medicine and geriatrics to areas where increases in activity are easier to demonstrate. However, the evidence base for this is limited.

Current resource allocations for health care, by and large, seem to meet the needs of the population. The reduction in waiting times and the general waiting time guarantee, related to the "extended free choice", together ensure access to health care within relatively short periods. The waiting time guarantee ensures access to treatment within the public system or at private facilities in Denmark or abroad, in the event of expected waiting times exceeding 1–2 months. Patient satisfaction surveys continue to demonstrate remarkably high satisfaction figures for both GPs and hospital services. Equal access and utilization according

to need are likely to remain a strong focus in the Danish health sector in the future. However, ever increasing demands for new technology and expected changes in population age distribution and disease patterns might foster political initiatives to reduce access to publicly funded services through new financial and structural reforms.

## **Quality and efficiency of Danish health care**

International comparisons of survival rates among some patient groups (i.e. patients with lung cancer and ovarian tumours) seem to indicate that the quality of some diagnostic and curative services is not optimal. This may be due to a lack of staff, equipment or skills or to structural problems in the Danish health system related to scale, specialization and coordination. There is an ongoing process leading to fewer and larger hospitals and to centralization of highly specialized care. A recent reform has given more power to the National Board of Health regarding the planning of such highly specialized services. There are also some issues of personnel coverage in peripheral areas, but the regional authorities are seeking to remedy such issues through the use of non-native doctors and nurses. Recent years have seen special emphasis on psychiatric care and common life-threatening diseases such as cancer and cardiovascular problems. Psychiatric conditions are, however, fairly low priority, as is the treatment of musculoskeletal ailments, despite general statements to the contrary in national health policy. There is no evidence of significant shifts in the balance between primary, secondary and tertiary care. However, a stated objective of the current structural reform is to create incentives for the municipalities to place more emphasis on prevention, health promotion and rehabilitation outside of hospitals.

The health system is generally considered to provide good “value for money”. Consecutive government reports have indicated that the relationship between overall expenditure levels and service levels, including most available indicators on waiting times and quality, is acceptable in comparison to other European countries. This is a result of the many different initiatives aimed at controlling expenditure, raising productivity and improving quality. The use of global budgeting and hard budget constraints is a pervasive feature of the system. In recent years, this has been combined with internal contracts and some activity-based payments to encourage higher activity levels and stronger productivity. A recent government report points to gradually improving productivity within the sector and a 2.4% increase from 2003 to 2004. Hospitals are compared to average productivity at national and regional levels, showing only limited variation across the regions. There is limited information on the efficiency of the

primary sector, but it is assumed that combined per capita and fee-for-service payment provides incentives towards both the optimization of activity levels and composition. Doctors' fees are negotiated with the public authorities on a regular basis and activity profiles are monitored regularly. GP gatekeeping has been a significant feature of the Danish system for many years, along with the general principle of treating patients at the lowest effective care level as opposed to providing free access to more specialized units.

General policies are in place to promote the generic substitution of pharmaceuticals, and all regional authorities have implemented policies to monitor and influence the use of medicines in their health facilities. Efforts to reduce the general cost of pharmaceuticals have not been very successful, despite some positive results regarding drug pricing. Potential savings have been more than counterbalanced by the wider use of new and expensive pharmaceuticals and changes in indications for treatment of hypertension, high cholesterol, and so on. Some experiments with substituting doctors with nurses in selected areas have been carried out but the most important efficiency drive has been a massive and largely successful effort to convert inpatient treatment to outpatient or ambulatory treatment.

Accountability of payers and providers is mainly achieved through hierarchical control within the political-bureaucratic structures at national, regional and municipal levels. The budgeting and economic management processes include accountability assessments at all levels. Annual negotiations between the State and the regional and municipal authorities involve evaluation of needs, outputs and new activity areas. Regional and municipal public management is based on contracting, incentives and monitoring measures to control the performance of hospitals and other public organizations. The activities of practising primary and secondary care doctors are monitored by the regional authorities, which also fund the activities in accordance with nationally negotiated fee schedules. Quality is monitored via internal management procedures, national measures of patient satisfaction and various national and regional initiatives to develop standards, clinical guidelines, clinical databases, and so on. Since 2007 all hospitals have been included in the Danish model for quality assurance and external accreditation takes place at regular intervals. A national system for reporting unintended events has been established. Health technology assessments (HTAs) are performed at national, regional and local levels. The HTA practice has become institutionalized via a national institute and several regional resource centres. HTA is recommended for major decisions, but has not yet been implemented across the board. Patient rights have been extended and formalized during recent years, and there are mechanisms for sanctioning professional misconduct and abuse.

## Public health

As in other western European countries, mortality caused by heart diseases has declined remarkably during recent decades, partly due to better survival levels among patients with heart conditions. Survival of some types of cancer has increased due to better interventions. Denmark is, however, still lagging behind other Nordic countries as far as general mortality is concerned, as well as in relation to some cause-specific mortality rates. This is probably due to a combination of health care factors, environmental factors and lifestyle changes. It has been argued that the Danish population's functional ability and quality of life have improved as a consequence of more advanced treatments both through surgery and pharmaceuticals, but there is little evidence to support this assumption. A recent study analysing mortality amenable to health care in 19 industrialized countries indicates that the Danish system is performing at an average level. Its performance is not as good as that of other Scandinavian countries (namely Norway and Sweden) but better than some other countries, such as the United Kingdom, Portugal, Ireland, the United States, Austria, New Zealand and Greece. In spite of rather weak Danish public health intervention regarding tobacco consumption, there has been a gradual, but recently stagnating, decline in tobacco consumption. Alcohol consumption is also high, despite efforts to improve this aspect of public health through general campaigns. These efforts, however, have been counteracted by a reduction in alcohol taxes. The present increase in obesity and related diseases, such as diabetes, has become a public health issue, but there have not been any major policy interventions to this effect.

Health inequalities are increasing between educational and occupational groups in Denmark. However, there is no evidence indicating that these inequalities are due to unequal access to, or utilization of, health care services, except in specific services such as dental care, where high co-payments apply. Rather, they are caused by unfavourable social and environmental conditions and health behaviours among some population groups, which cannot be addressed by the current, ongoing public health interventions.

# 1 Introduction

## 1.1 Overview of the health system

**T**he defining feature of the Danish health system is decentralized responsibility for primary and secondary health care, as illustrated in Fig. 1.1.

At the state level the Ministry of Health has a governing role over municipal organization and management, as well as the supervision and partial financing of the municipalities and regions. In the field of health care, the Ministry is in charge of the administrative functions that are related to the organization and financing of the health system, psychiatry and health insurance as well as the market authorization of pharmaceuticals and supervision of the pharmacy sector. Prevention and health promotion are also part of the Ministry's remit. Figure 1.1 provides further details of the Ministry's responsibilities.

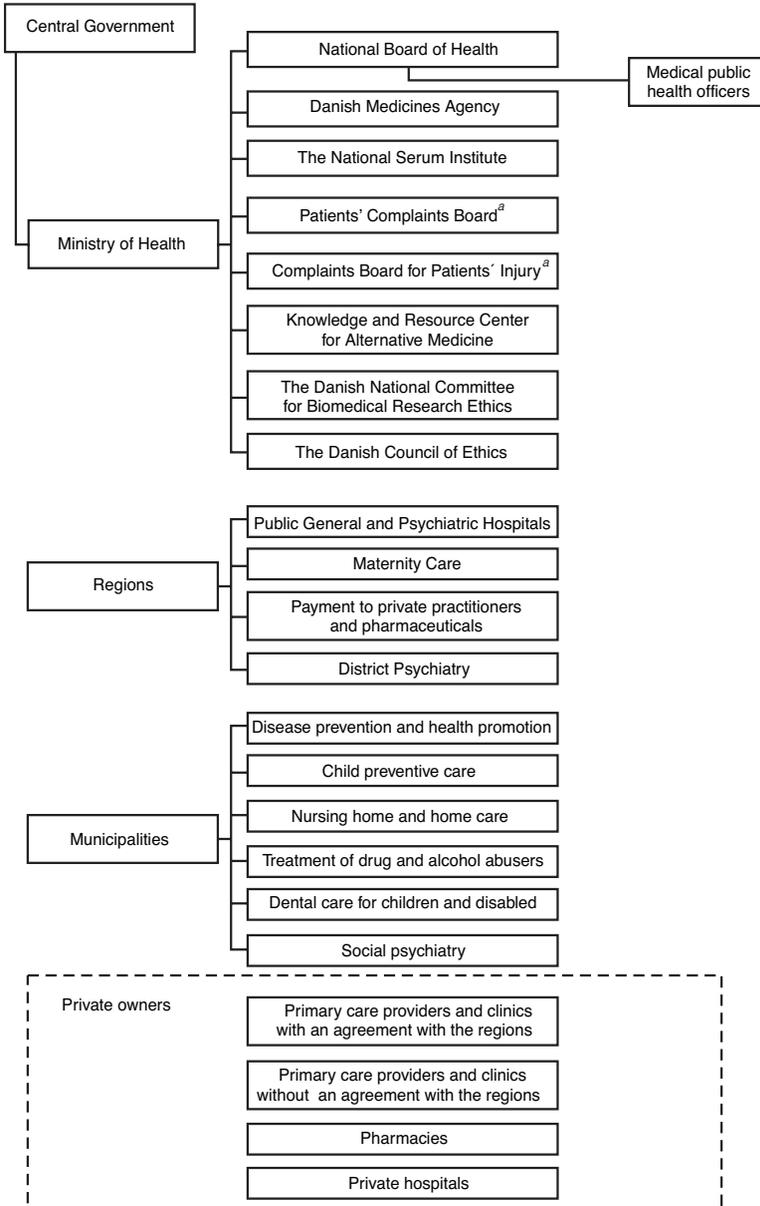
The regions own and run hospitals, and partly or fully finance private practitioners such as general practitioners (GPs), specialists, chiropractors and physiotherapists. They also provide reimbursement for pharmaceutical care.

At the local level, the municipalities are responsible for disease prevention, health promotion and rehabilitation outside hospitals, as well as other areas of health care, as illustrated in Fig. 1.1. For an expanded description of the structure of the health system, see Section 2.2 "Organizational overview".

## 1.2 Geography and sociodemography

Denmark is one of the Scandinavian countries. The mainland is located north of its only land neighbour, Germany, south-west of Sweden, and south of Norway. Denmark also encompasses two off-shore territories, Greenland and

**Fig. 1.1 Overview chart of the health system**



Source: Authors' composition.

Note: <sup>a</sup> The Patients' Complaints Board and the Complaints Board for Patients' Injury are two separate institutions. The Patients' Complaints Board is responsible for processing complaints regarding health professional activities in the health care system. The Complaints Board for Patients' Injury handles patients' applications for compensation regarding injuries caused by malpractice in the health care system.

the Faroe Islands, granted home rule in 1979 and 1948, respectively. It is a country consisting of a mainland peninsula and a number of islands (Fig. 1.2). The climate is temperate.

Denmark is a small country with few inhabitants, but with a high population density (Table 1.1). The demographic development is similar to other western European countries, with an increasing proportion of elderly people and a low birth rate.

**Fig. 1.2** Map of Denmark



Source: CIA, 2005.

**Table 1.1 Population/demographic indicators, 1970–2004 (selected years)**

	1970	1980	1990	2000	2004
Total population	4 920 966	5 122 065	5 135 409	5 330 020	5 397 640
Population, female (% of total)	50.28	50.62	50.72	50.58	50.53
Population, ages 0–14 (% of total)	23.36	21.11	17.15	18.41	18.85
Population, ages 65 and above (% of total)	12.15	14.34	15.59	14.83	14.91
Population growth (%)	–	4.09	0.26	3.79	1.27
Population density (people per km <sup>2</sup> )	114.6	118.9	119.2	123.7	125.2
Fertility rate, total (births per woman)	1.95	1.55	1.67 <sup>a</sup>	1.77	1.72 <sup>a</sup>
Birth rate, crude (per 1000 people)	14.39	11.19	12.35	12.59	12.46 <sup>b</sup>
Standardized death rate (per 1000 people)	9.58	9.22	8.74	7.52	7.49 <sup>c</sup>
Age dependency ratio (population aged 0–14 and 65+ divided by population aged 15–64 years x100)	0.55	0.55	0.49	0.50	0.51
Distribution of population (% urban)	–	84	85	85 <sup>c</sup>	–

Sources: European Union, 2005; Statistics Denmark, 2005; WHO, 2005.

Notes: <sup>a</sup> 2002; <sup>b</sup> 2003; <sup>c</sup> 2001.

### 1.3 Economic context

Denmark is one of the richest countries in the world. It is characterized by a fairly equal distribution of income across the population (Table 1.2). Until the 1950s, agriculture provided the biggest share of export and national income; since then, industry and services have dominated, with the latter growing the most rapidly. Except for oil, natural gas and fertile soil, the country is poor in natural resources. The general level of education of the population is fairly high, with 32% and 18% of the population between 20 and 69 years having attended secondary and tertiary education, respectively. Unemployment has decreased since the mid-1990s; however, it is still high among some ethnic minority groups.

**Table 1.2 Macroeconomic indicators, 1996–2006 (selected years)**

	1996	1998	2000	2002	2004	2006
GDP, million US\$ at exchange rate	184.394	173.674	160.144	173.984	243.639	275.227
GDP per capita, US\$ at exchange rate	35.036	32.743	29.992	32.375	45.110	47.759*
Value added in industry (% of GDP)	–	–	27.2	26	25.5	–
Value added in agriculture (% of GDP)	–	–	2.9	2.6	2.2	–
Value added in services (% of GDP)	–	–	69.9	71	72.3	–
Labour force (thousands of persons)	2.822	2.848	2.853	2.849	2.883	2.875*
Unemployment, total (% of labour force)	6.9	5.4	4.6	4.7	5.7	5*
Gini coefficient	–	–	–	0.25	–	–

Sources: OECD, 2007; CIA, 2007.

Notes: GDP: Gross domestic product; \*2005, latest available.

## 1.4 Political context

Denmark is a constitutional monarchy and a parliamentary democracy. The Government is the executive body and the Parliament is the legislative body. Over the decades, the high court has dealt with what could be referred to as political issues, but plays a minor role in this sense. The minimum percentage of the votes necessary for a party to be represented in the Parliament is 2% and at the time of writing there are seven political parties, plus four representatives for Greenland and the Faeroe Islands. The three largest parties are the Liberal Party, the Social Democrats and the Danish People's Party. There is a long tradition in Denmark of minority governments consisting of two or three parties. The current Government, which has been in power since 2001, is made up of a coalition between the Liberal Party and the Conservative Party, and is supported by the Danish People's Party. It has replaced a coalition government consisting of the Social Democrats and the Social Liberals.

The regional political level includes five regions. One of the main responsibilities of this level of government is the health care sector. The local level consists of 98 municipalities. The municipalities are accountable for schools, social services, prevention and health promotion, as well as health care services.

Denmark has been a member of the European Union (EU) since 1973. It is also a member of the United Nations, the World Health Organization (WHO), the World Trade Organization (WTO) and the Council of Europe.

Denmark participates in the following international conventions: the Convention against Torture and Other Cruel, Inhuman and Degrading Treatment or Punishment; the International Covenant on Civil and Political Rights; the Convention on the Elimination of All Forms of Discrimination against Women; the International Convention on the Elimination of All Forms of Racial Discrimination; the International Covenant on Economic, Social and Cultural Rights; the International Convention on the Protection of the Rights of All Migrant Workers and Members of Their Families; and the Convention on the Rights of the Child, with the Optional Protocols on the involvement of children in armed conflict and on the sale of children, child prostitution and child pornography.

## 1.5 Health status

From an international perspective, health status in Denmark can generally be characterized as good in terms of morbidity and mortality indicators. However, over recent decades, the population health status has progressed at a lesser rate than in other European countries. Nevertheless, life expectancy trends show that there was a marked improvement in the population's health status during the latter half of the 1990s.

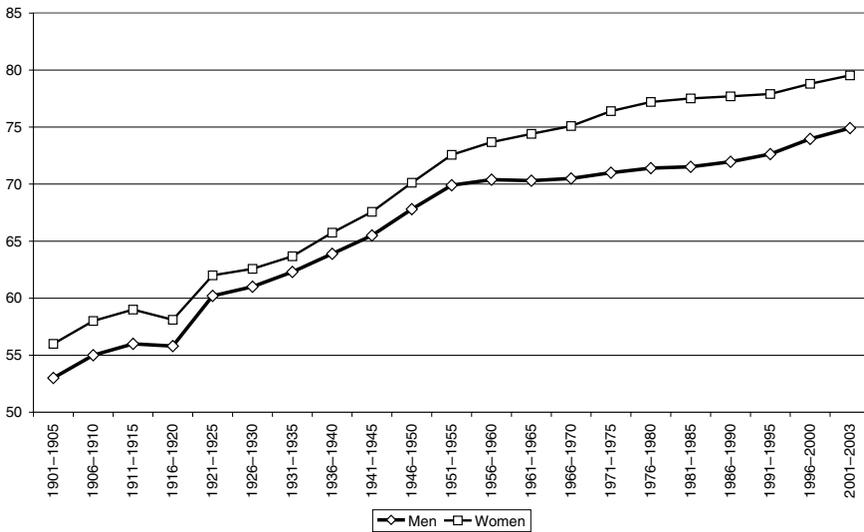
### **Life expectancy**

As Fig. 1.3 and Table 1.3 show, the average life expectancy in Denmark has increased substantially during the 20th century, albeit with somewhat different developments for men and women.

Historically, male life expectancy has remained almost stagnant since the early 1950s, only beginning to grow again during the 1990s. Female life expectancy, however, rose rapidly until the 1970s, with smaller increases from then on. Until 1995, the overall average life expectancy in Denmark increased at a slower pace than in other western European countries. However, from 1995 onwards, the average life expectancy increased significantly and at a higher pace than in most other western European countries.

Table 1.4 shows that, when including the whole period between 1995 and 2002, the average life expectancy increased by 1.7 years for women and by 2.1 years for men. During these eight years the increase in Danish life expectancy was equivalent to that experienced in the previous 25 years. The increase in life expectancy is mostly noticeable among men, which could be primarily attributed to a decline in the infant mortality rate over the same period of time (Ministry of the Interior and Health 2004c).

**Fig. 1.3 Average life expectancy (in years) for men and women, 1901–2003**



Sources: DIKE, 1997; Statistics Denmark, 2005.

**Table 1.3 Average life expectancy at birth in Denmark, Norway, Sweden and the United Kingdom in 1970–1994 and 1995–2000**

Country	1970	1994	Change	1995	2000	Change
Denmark	73.3	75.4	2.1	75.3	76.9	1.6
Norway	74.2	77.9	3.7	77.9	78.8	0.9
Sweden	74.8	79.0	4.2	79.1	79.9	0.8
United Kingdom	72.0	76.9	4.9	76.8	78.1	1.3
EU average	–	–	–	76.6	77.9	1.3

Sources: OECD, 2004; WHO, 2005.

Note: EU: European Union.

In 2000 the Ministry of the Interior and Health carried out an extensive survey to reveal the less favourable health developments in Denmark. The survey concluded that the health status of women is lagging. For example, mortality rates, especially among women aged 35–64, have been less favourable in Denmark. Middle-aged women in Denmark have, on average, a 40–50% higher mortality rate than women in other EU countries. In particular, the increase in the incidence of cancer in women (primarily that of the breast and the lung) gives cause for concern. However, cardiovascular diseases and

**Table 1.4 Mortality and health indicators, 1960–2002 (selected years)**

	1960	1970	1980	1990	1995	1997	1998	2000	2001	2002
Life expectancy at birth (female)	74.4	75.9	77.3	77.7	77.8	78.4	78.6	79.3	79.3	79.5
Life expectancy at birth (male)	70.4	70.7	71.2	72.0	72.7	73.3	73.7	74.5	74.7	74.8
Life expectancy at birth (total)	72.2	73.3	74.3	74.9	75.3	78.9	76.2	76.9	77.0	77.2
Mortality rate, adult female (per 1000 female adults)	-	-	9.9	11.4	12.0	11.4	10.9	10.9	11.0	-
Mortality rate, adult male (per 1000 male adults)	-	-	11.9	12.3	12.1	11.3	11.0	10.6	10.5	-
Mortality rate under 5 (per 1000 live births)	-	16.9	10.4	8.9	6.3	6.2	5.7	5.7	-	-
Infant mortality rate (per 1000 live births)	21.5	14.2	8.4	7.5	5.1	5.3	4.7	5.3	4.9	4.4

Sources: OECD, 2004; National Board of Health, 2005b.

alcohol-related diseases in women have also contributed to this lagging health status. By contrast, the evolution of the mortality rate amongst Danish men is parallel to that of men in other EU countries (Ministry of the Interior and Health 2004c).

### **Mortality and morbidity**

Most of the decline in Danish mortality rates during the 20th century has been among infants, children and young people. Infant mortality rates are now among the lowest in Europe. While life expectancy for a newborn boy has increased by 20 years over the last century, it rose by 4 years for a man aged 50 years or older. Declining mortality rates among children, young and middle-aged people are largely due to a decline in infectious diseases, including tuberculosis (TB). In the 1930s, 60% of those dying from TB were aged between 15 and 44 years. During the 1960s, people aged over 65 mainly died from cancer and cardiovascular diseases, which is still the case today. Causes of death have also differed according to gender, with mortality rates increasing among men due to cardiovascular diseases until the mid-1960s and decreasing among women since the early 1950s.

During the late 1980s, Denmark had a lower mortality rate caused by cardiovascular diseases than Norway and Sweden, although the rate was still high compared to the rest of the EU. Smoking, especially among women, is more common in Denmark than in many other EU countries and alcohol

consumption is higher than that of other Scandinavians, but lower than that of the French and the Austrians. Danes also have the highest calorie intake of all EU citizens (according to figures based on the amount of food sold) (Ministry of Health 1998). Taken together, however, these lifestyle factors still do not sufficiently explain Denmark's poor progress in increasing longevity.

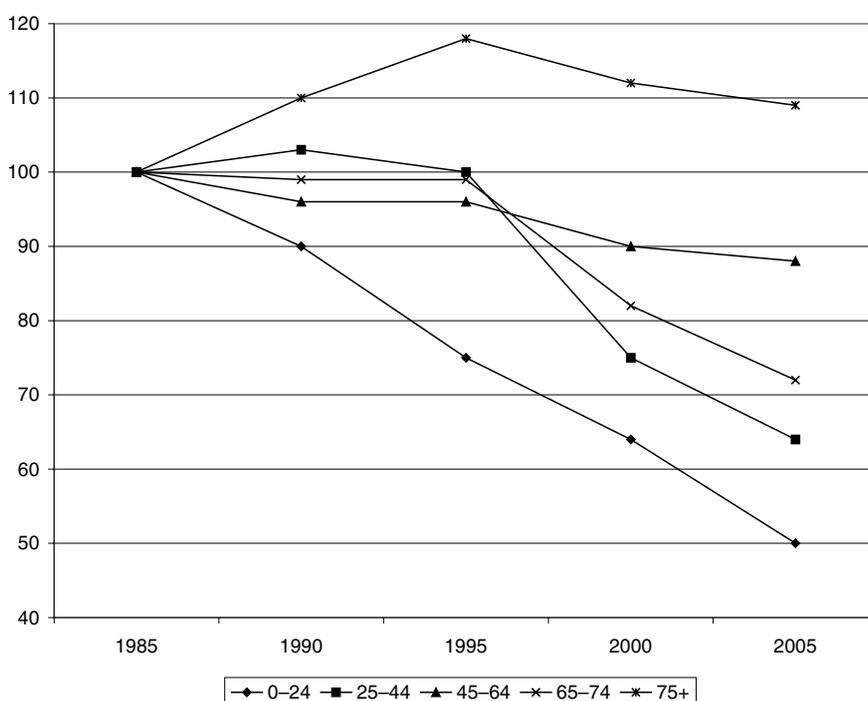
Figure 1.4 illustrates the mortality trends for five age groups during the period 1985–2005. Mortality for the age group under 24 years has decreased substantially during the 1990s. The number of deaths in this age group was reduced by almost a third during this period. Since 1995, the mortality rate for all age groups has decreased, including for those 70 years and older, which experienced a slight increase in the first half of the 1990s. In 1999, the mortality rate for this age group (70+) was very similar to that of 1990 and 6% lower than that in 1995. In the first half of the 1990s, the mortality rate was unchanged for the age group 30–49 years and thereafter began to decrease significantly – approximately 20% from 1995 to 2001. The mortality rate decreased by 23% over the entire period, and it decreased significantly in the last few years of the 1990s for the age group 50–69 years.

Mortality rate differences between social classes are much less pronounced among women. If the average mortality rate is 100, male mortality varies by occupational group from approximately 72 to 125 (with some outliers, such as merchant seamen and fishermen at approximately 2000), whereas the range of variation for women only lies between 90 and 110. In fact, female skilled workers and white collar workers have a lower mortality rate than women in the highest occupational groups (Ministry of Health 2000). See “Inequalities in health” later in this chapter for further elaboration on these findings.

Recent research into general morbidity amongst Danish citizens (see Table 1.5) shows a rise within the population in the last few years. This rise has been demonstrated in both women and men, and across all age groups. The percentage of the population reporting to be suffering from one or more long-standing illnesses is also increasing. The most common of the long-standing illnesses are musculoskeletal diseases, respiratory diseases, cardiovascular diseases, diseases of the nervous system and sensory diseases. The most common complaints and symptoms reported during a 14-day period are pains or aches in the neck, the shoulders, the back, the limbs, the hips or the joints, headaches, tiredness, and colds, including head colds or coughing (Ministry of the Interior and Health 2002b).

Two groups of illnesses stand out from the others. First, asthma, hay fever and other allergies and head colds, and, second, musculoskeletal diseases (Ministry of the Interior and Health 2002b). Regarding prevention, both of these

**Fig. 1.4 Mortality for different age groups, 1985–2005**



Source: National Board of Health, 2005b.

Notes: 2005 data are provisional; Index 1985=100.

**Table 1.5 Main causes of death, 1995, 1997 and 1999 (ICD 10 Classification)**

	1995	1997	1999
<b>I. All causes</b>	<b>62 815</b>	<b>59 606</b>	<b>58 722</b>
<b>II. Perinatal conditions (P00-P96, A33)</b>	<b>176</b>	<b>168</b>	<b>124</b>
<b>III. Communicable diseases</b>	<b>656</b>	<b>383</b>	<b>469</b>
Infectious and parasitic diseases (A00-B99)	637	376	465
Tuberculosis (A17-A19)	19	7	4
<b>IV. Noncommunicable conditions</b>	<b>46 045</b>	<b>42 945</b>	<b>43 122</b>
Circulatory diseases (I00-I99)	24 926	22 003	21 459
Malignant neoplasms (C00-C97)	15 701	15 254	15 444
Trachea/bronchus/lung cancers (C33-C34)	3 506	3 427	3 376
Mental disorders (F01-F99)	935	1 234	1 751
Other diseases of the digestive system (K00-K92)	977	1 027	1 092
<b>V. External causes (V01-Y88)</b>	<b>2 464</b>	<b>2 425</b>	<b>2 453</b>

Source: WHO, 2005.

Notes: ICD; WHO International Classification of Diseases.

**Table 1.6 The 10 most common diagnoses on discharge from hospital, 2000**

	<b>Diagnoses</b>	<b>Total</b>	<b>%</b>
1	Diseases of the circulatory system	141 926	12.7
2	Neoplasms	105 152	9.4
3	Injury, poisoning and other consequences of external causes	101 203	9.0
4	Pregnancy, childbirth and puerperal conditions	90 724	8.1
5	Diseases of the digestive system	88 167	7.9
6	Diseases of the respiratory system	85 647	7.6
7	Symptoms and other ill-defined conditions	68 833	6.1
8	Diseases of the musculoskeletal system	55 145	4.9
9	Diseases of the genitourinary system	54 566	4.9
10	Diseases of the nervous system and sense organs	25 928	2.3

Source: National Board of Health, 2005c.

groups have been given priority in recent years. The main diseases diagnosed in hospitals are cardiovascular diseases, tumours and injuries (see Table 1.6).

Morbidity rates were reported by the National Institute of Public Health in 1987, 1994 and 2000. The Danish Health and Morbidity Survey (SUSY) in 2000 was based on a representative sample of approximately 22 500 people over the age of 16. As many as 78% of those surveyed considered their individual health status to be “good” or “very good” (the top two grades in a 5-grade scale) (Kjøller & Rasmussen 2002). The earlier surveys show a similar trend, with a positive health response ranging from 78% to 80%. These figures are found to be greater in Denmark than in most other EU countries. Approximately 5% more men than women considered themselves to be in “good” or “very good” health. A pronounced difference was also found between individuals, depending on their level of education. A total of 60% of Danes with fewer than 10 years of formal education considered themselves to be in “good” or “very good” health, compared to 86% with 13 or more years of formal education. Almost 40% of Danes suffered from a long-standing illness in 2000, compared to 33% in 1987. In 2000 approximately 12% suffered to such an extent that the illness seriously restricted their daily activity. Approximately 20% reported experiencing emotional problems that adversely affected their daily routine in terms of work or leisure during the four weeks prior to the survey (National Institute of Public Health 2002). Table 1.7 shows details of the population’s healthy life expectancy (HALE) and disability-adjusted life expectancy (DALE) at the turn of the century.

**Table 1.7 Healthy life expectancy and disability-adjusted life expectancy, 2000–2002**

Indicator/Years	2000	2001	2002
Expectation of lost healthy years at birth (females)	8.4	8.7	8.4
Expectation of lost healthy years at birth (males)	5.3	5.5	6.3
HALE at birth (years, females)	70.1	70.8	71.1
HALE at birth (years, males)	68.9	69.3	68.6
HALE at birth (years, total population)	69.8	70.1	69.8
Percentage of total life expectancy lost (females)	10.7	70.9	10.5
Percentage of total life expectancy lost (males)	7.2	7.3	8.4
DALE (years)	69.8	70.1	69.8

Sources: WHO, 2005 ; WHO Regional Office for Europe, 2005.

Notes: HALE: Health-adjusted life expectancy; DALE: Disability-adjusted life expectancy.

### Factors affecting health status

Several factors affect the health status of the Danish population. Among these are diet and obesity, tobacco use, alcohol consumption and a lack of physical activity.

### Diet and obesity

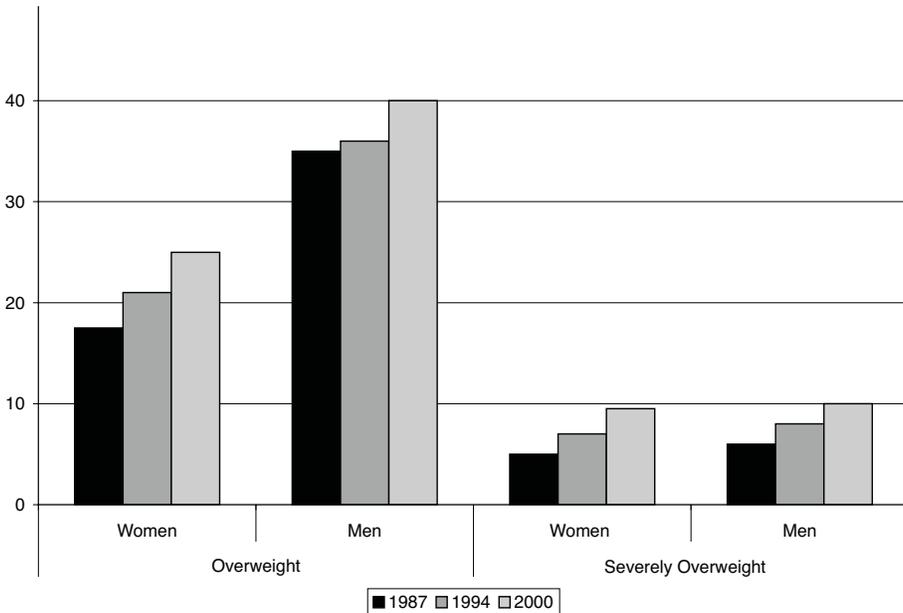
The 2000 SUSY survey shows differences in diet between age groups and gender (Kjøller & Rasmussen 2002). More women than men have a daily consumption of steamed vegetables, salad/raw vegetables and fruit, while more men than women include potatoes in their diet. Daily intake of salad is most common within the age group 45–66. The consumption of fish at least once a week is equally distributed between the sexes. The survey concludes that variety in diet is proportionally associated with age, that is, the older a person is the more variety they have in their diet.

Between 1955 and 1999 the amount of protein in the average Danish diet generally increased, and the consumption of carbohydrates and dietary fibre has decreased. The dietary fat content increased from 36% in 1955 to 43% in 1989 and then decreased to 38% in 1995. The dietary fat content is, however, still too high according to national dietary guidelines (National Institute of Public Health 2002).

Between 1987 and 2000 the proportion of people over the age of 16 who were severely obese (body mass index, BMI  $\geq 30$ ) increased from 6% to 9.5% (National Institute of Public Health 2002). As illustrated in Fig. 1.5, the share of people living in Denmark that are moderately overweight (BMI  $\geq 25$ ) has also increased, with 40% of men and 25% of women characterized as overweight in 2000. By comparison, only 35% of men and 17% of women were overweight in 1987. The increase in those who are severely overweight is especially high

amongst men between 16 and 24 years old and women between 25 and 44 years old. It has been shown that the level of education has an impact on obesity.

**Fig. 1.5** Number of men and women who are overweight or severely overweight, 1987, 1994, 2000



Source: Ministry of the Interior and Health, 2004b.

Notes: Overweight: BMI  $\geq 25$ ; Severely overweight: BMI  $\geq 30$ .

Those with a lower level of education are associated with a higher incidence of being severely overweight. Those who have less than 10 years of education are more than twice as likely to be severely overweight than those with a minimum of 15 years of education.

### Tobacco use

Tobacco use in Denmark is the cause of 12 000 deaths per year (Juel 2001). Approximately 4 500 people die from smoking-related cancer each year. This corresponds to approximately one third of all cancer deaths in Denmark per year (Peto, Lopez, Boreham, Thun 2006).

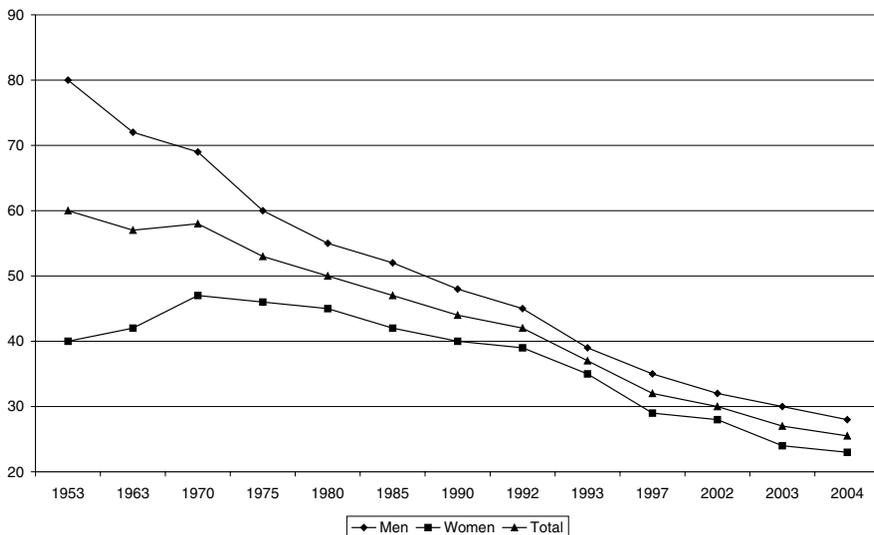
Figure 1.6 illustrates the evolution of daily smokers among men and women in Denmark from 1950 to 2004. In 2004, 25% of the Danish population above the age of 13 were daily smokers, with smokers accounting for 23% of females

and 28% of males. These figures have decreased in comparison to 1997 figures, where 29% of the population were female smokers and 35% were male smokers. Overall, a decrease is observed for both sexes throughout the entire period. However, from the 1950s until the 1970s the percentage of female smokers increased (PLS Rambøll 2004).

Approximately nine out of ten Danish smokers smoke on a daily basis. While Danish males smoke at a comparative rate to the EU average, Danish females have one of the highest proportions of daily smokers in the EU (Ministry of the Interior and Health 2004c). The share of daily smokers is largest in the age group 45–66 years, where 40.6% of the men and 36% of the women are smokers. The overall share of daily smokers is highest in groups with less education and lowest in groups with more education (National Institute of Public Health 2002).

The use of tobacco has not decreased at the same rate that the number of smokers has. Smokers with a low level of tobacco use, in particular, have given up smoking, and those with a high level of tobacco use (more than 15 cigarettes daily) continue to smoke. However, the number of heavy smokers has decreased in the period 1994–2000, especially for the age group 25–44 years.

**Fig. 1.6 Share of daily smokers as a percentage of the total population, 1953–2004 (selected years)**



Source: PLS Rambøll, 2004.

### **Alcohol consumption**

Statements based on sales have shown that the Danish population's average alcohol consumption increased rapidly through the 1960s. From the middle of the 1970s, the increase stagnated and, since then, the average alcohol consumption has stabilized. Since 1975, Danish men and women aged 14 and above drink, on average, 12 litres of pure alcohol per person per year. In 1999, the average intake was 11.3 litres of pure alcohol per person per year (National Institute of Public Health 2002; WHO 2005).

A large share of the Danish population drink alcohol on a regular basis. In a survey conducted by the National Institute of Public Health for the year 2000, almost eight out of ten (78.1%) adults reported drinking alcohol within the previous week. The weekly alcohol consumption among Danish men and women differs. A total of 85.1% of male respondents reported an intake of alcohol within the previous week, while only 71.8% of the females surveyed reported a similar intake (National Institute of Health 2002).

The recommended maximum level of alcohol units set by the National Board of Health (21 units per week for men and 14 for women) is exceeded by 14.8% of men and 8.7% of women. Compared to other age groups, both men and women in the 16–24 years age group have a relatively large percentage of alcohol intake beyond the recommended maximum level. The drinking pattern within this age group also differs from the other age groups because they consume three quarters of their alcohol at the weekend. The intake of alcohol on weekdays increases with age.

People with a higher level of education tend to drink more alcohol during the weekdays. The shares of people drinking on weekdays and exceeding the recommended maximum level of alcohol have generally increased compared to 1994 data, but a decrease has been observed among those who are 25–44 years old (National Institute of Health 2002).

### **Physical activity**

Among the Danish population, 16.3% have sedentary spare time activities and 23% reported being physically active at a moderate to hard level in 2000. It is primarily the older groups and those with the lower levels of education that take part in sedentary activities, and the younger and more highly educated that are more physically active. The share of people engaging in sedentary activities has, however, decreased among the elderly population and has not changed among the younger population. The percentage of the population engaging in moderate to hard physical activity in 2000 remains unchanged compared to that of 1994 but is slightly higher than that of 1987. Among the working population, the percentage of the population with sedentary work as their main occupation

has increased by 36.9% from 1987 to 2000, while the share engaging in hard physical work has decreased by 32.3% during the same period. This decrease is reported strictly for men only (National Institute of Public Health 2002).

### **Inequalities in health**

Inequalities in health have received increasing attention in Denmark in recent years. A comprehensive national study of mortality and life expectancy between 1987 and 1998 found that Danes with no vocational training had a mortality rate that was almost 80% higher than that of Danes with a higher level of education. Even when smoking, drinking and lack of exercise were adjusted for, the mortality rate of those with no vocational training was still 50% higher. This is largely due to less favourable living conditions, unhealthier work environments and a much higher mortality rate for permanently unemployed people (Juel 1999).

Surveys of the expected number of years lived without long-standing illness reveal a similar trend to that found with mortality and education. A comprehensive study of illness patterns among Danes aged 30–64 was carried out between 1986 and 1991. Among women, managers (typically office personnel in key positions) can expect to spend as much as 83% of their working life without long-standing illness. Women who are salaried employees, white-collar workers, the self-employed and unskilled workers can all expect to spend between 72% and 74% of their working lives without a long-standing illness. The percentage for unemployed women is only 45%. Male managers can expect to be without a long-standing illness for 76% of their working life, salaried employees and white-collar workers between 72% and 74%, and skilled and unskilled workers for 62%. The percentage for unemployed men is as low as 39%. The proportion of working life spent without a long-standing illness, therefore, varies significantly with occupational status, across occupational groups and according to gender, whereby women experience good health for a longer time than their male colleagues (Ministry of Health 2000).

### **Decayed, missing and filled teeth at age 12 years**

The trend of decayed, missing and filled teeth (DMFT) at the age of 12 years has decreased steadily since 1975, as illustrated in Table 1.8. In 2003, the share of children of 12 years of age with DMFT was 0.9% compared to 5.2% in 1975. The relatively small percentage of DMFT, compared to international figures, is partly explained by free access to dental care for those aged 18 years or younger (either at a Municipal Dental Health Service or at a private practice dentist on a fee-for-service basis, paid by the municipalities). The effort to promote health education has also strengthened the daily use of a toothbrush

**Table 1.8** Decayed, missing and filled teeth (DMFT) at age 12 years, 1975–2003 (selected years)

	1975	1980	1985	1995	2000	2003
DMFT (%)	5.2	5.0	2.1	1.2	1.0	0.9

Sources: von der Fehr, 1994; National Board of Health, 2005a.

Note: DMFT: Decayed, missing and filled teeth.

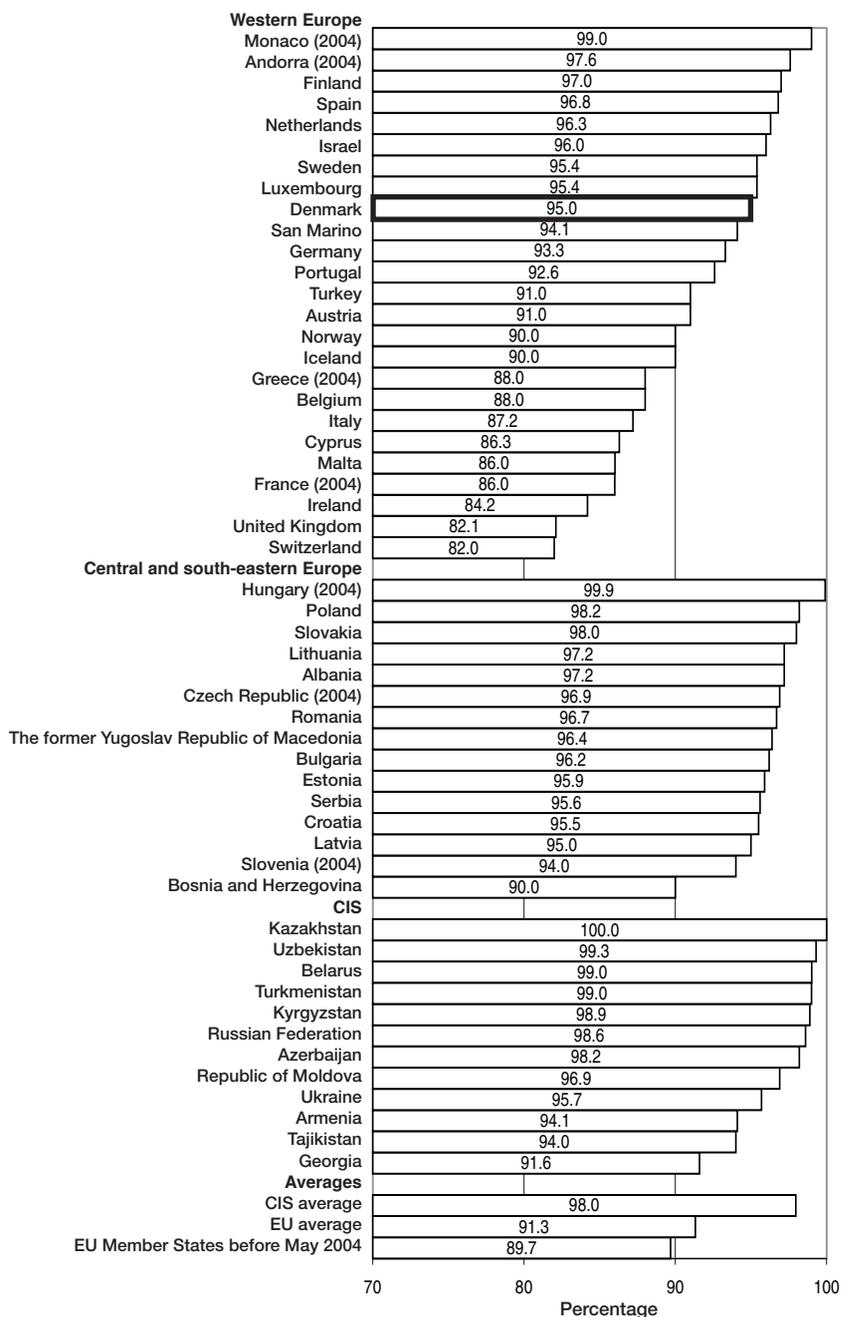
and fluoride toothpaste in children. Surveys have shown that good oral hygiene habits in childhood are retained in adolescence (Lissau, Holst & Friis-Hasche 1990). For more information on Dental health care see Section 6.11.

### National vaccination programmes and levels of immunization

General vaccination programmes are carried out by GPs and financed by the regions on a fee-for-service basis. Primary vaccinations for children are given in conjunction with health examinations, which are offered as part of the prevention programme for children. These vaccinations are financed by the regions and are free of charge for children between five weeks and five years of age. Coverage for diphtheria, tetanus, pertussis, polio and Hib-infection (*Haemophilus influenzae* type b) is relatively high in Denmark. However, there have been problems with the measles, mumps and rubella (MMR) vaccination due to parents' doubts about adverse effects and complications as a result of the vaccine. In 1996, 85% of all children aged 15 months received the MMR vaccination in Denmark, but this figure was less than 80% in the City of Copenhagen. In 2003, the percentage of children receiving the combined vaccination reached 96% in Denmark as a whole and 95% in the City of Copenhagen (National Serum Institute 2005). This improved coverage can be explained by the fact that half of the Danish counties have taken initiatives to increase coverage since the mid-1990s, including public information programmes and postal invitations to parents from GPs.

In 1997, 16% of children in Denmark were not immunized against measles (see Fig. 1.7 for further details). By international standards, this is a high proportion, and was a cause of concern for the Danish health authorities. In 2005, however, only 5% were not immunized against measles, which is a relatively small proportion by international standards.

Fig. 1.7 Levels of immunization for measles in the WHO European Region, 2005



Source: WHO Regional Office for Europe, January 2007.

Notes: CIS: Commonwealth of Independent States; EU: European Union.

## 2 Organizational structure

**M**ost of the activities carried out by authorized health professionals are organized and financed by the public sector, with free access to health services for all residents in the country. A large part of the public health care system is organized and financed by the regions, which are responsible for hospitals and health care professionals that are self-employed but mainly financed through taxes. The central State's role is almost exclusively regulatory, supervisory and fiscal. The municipalities are responsible for health and social care, including dental care for children and the disabled; and, from 2007, for a large share of rehabilitation, disease prevention, health promotion and treatment of alcoholism and drug users. Besides the self-employed health professionals, who are reimbursed by taxes and user charges, there are a few private hospitals and clinics, which are reimbursed by taxes, private insurance and user charges, and pharmacies licensed by the State. The activities of the non-authorized health sector are not well documented.

### 2.1 Historical background

In Denmark there is a long tradition of public welfare politics (Vallgård 1989; Vallgård 1999b; Vallgård 1999a). This also applies to a decentralized management of welfare tasks. Before the 18th century, landlords, or the artisan masters, were responsible for providing care for their subordinates when they were ill or in need of help in other respects. However, this did not mean that help was always given. Gradually, changes in societal behaviour occurred as a result of the dissolution of the feudal social relations and the increasing power of the central State. A new political ideology, namely cameralism, which stressed the importance of a big and industrious population, gained ground in

the 18th century and created an impetus towards improving the health of the population. Most of the tasks aimed at health care and relief for the poor were taken over or established in the 18th and 19th centuries by towns and counties, not the central State. The central State laid down the guiding principles, but most welfare measures were carried out by the local authorities, and this is still the case. The Danish health care sector was financed mainly by taxes, which were raised by parishes, towns and counties and governed by the same authorities. Philanthropy and charity, organized through the church, only played a relatively minor role in welfare provision in Denmark and the other Nordic countries, compared to many other European countries. The fact that the public authorities also played the role of benefactors is probably one of the reasons why people's attitudes toward the State are much more positive in Scandinavia than in other western European societies. The roots of the Danish welfare state date back to the 18th century, long before the establishment of the social democrats and other pro-welfare state parties, and the rise of organized philanthropy.

With the introduction of public relief for the poor at the end of the 18th century, limiting the number of citizens entitled to help due to poor health became an issue. Improving the population's health was considered both to improve the national economy in general and to reduce public spending. A number of measures were implemented to improve the population's health, such as the education of midwives; inoculation for smallpox; the improved education of physicians and surgeons; and the undertaking of public health and the treatment of poor people by state-employed district doctors. The first hospitals were built by counties and towns. The hospitals were very small and their purpose was to provide the sick (mainly patients with venereal and other contagious diseases) with care and shelter. An exception was the state hospital, Frederiks Hospital, in Copenhagen (300 beds) where patients with contagious diseases were not admitted. It was established in 1757 as a teaching hospital for surgeons and physicians.

During the 19th century, the number of private medical practitioners increased. Everyone who could afford it was treated by doctors in their homes, and even extensive surgery was performed in private homes. Trained midwives were employed all over the country and they helped the poor, free of charge. Public health measures were taken, such as improving sewerage and water supply, housing improvements, food control and control of working conditions. Public health boards were set up from the middle of the 19th century. From that point on the state regulation of health care increased and in 1803 the predecessor of *Sundhedsstyrelsen* (the National Board of Health) was established.

From 1838, all Danish doctors were educated in both surgery and medicine, which previously had been separate entities. Thus, all doctors were trained in the same way and by the same teachers, creating a unified and homogeneous

profession, where all were educated at the University of Copenhagen. In 1936, a medical school was opened in Århus and in 1966 another one was established in Odense. In 1857, the Danish Medical Association was founded, and the proportion of doctors enrolled soon increased. Approximately 60% of medical doctors were members of the Association in 1900 and practically all doctors were members by 1920. Since GPs constituted the largest section of the profession until the late 1930s, they did so as part of the Association as well. However, the influence of the GPs in the Association has been smaller than their numbers would indicate. The Association has been increasingly influential over time and, until the 1980s, it participated in almost all governmental committees on health care. With politicians becoming increasingly interested in, and having different opinions on, health care politics, the Danish Medical Association lost some of its influence (Vallgård 1992). Many doctors working on the National Board of Health also held posts within the Association, thus strengthening the link between the Association and the Government. Nurses have been an organized entity since 1899 and have often been represented in committees, too. The Danish medical profession has been a part of the State, rather than a policy-making body outside of it. Several measures developed by the profession have since been taken over by the State, such as the system of approving medical specialties.

Public hospitals were built during the 19th century in almost all Danish towns by the towns and counties themselves and financed primarily by real estate (property) taxes and, to a lesser extent, charity and use charges (which were sometimes paid by the patients themselves but more often by their employers or the authorities for relief for the poor). Originally, the hospitals were intended for and used by the poor, but this gradually changed at the end of the 19th century. While the lower social classes still constitute the majority of hospital patients, it seems that currently this is mainly due to poorer health among the lower social classes (Steensen & Juel 1990). Specialized hospitals have been rare in Denmark, with the exception of psychiatric, fever and TB hospitals. From the 1930s onwards, the State has subsidized hospitals to an increasing degree. Yet, county councils continued to be responsible for the hospitals and to make decisions on hospital policy. The State has exerted only little formal influence in this area.

Of the private hospitals, a few Catholic hospitals existed on a non-profit-making basis; however, they have been gradually taken over by the counties. During recent decades, a few private hospitals have been established on a profit-making basis. The presence of this new type of private hospital and clinic has increased since the beginning of the 1990s. There are less than 500 beds in private hospitals; approximately 2% of the hospital beds are private. The private hospitals, however, have caused political conflict and been discussed numerous

times in the Danish Parliament. They are considered by some to be a threat to the equity principles of the Danish health system, while others claim that they offer a good supplement and provide an innovative element to it.

Health insurance developed during the second half of the 19th century. Health insurance organizations were created by a combination of artisans and other groups. The artisans organized their own help funds as a continuation of the guilds funds, which were established by members to provide mutual help. Other groups organized health insurance funds for the poorer people within the population, established either by themselves or by those who were financially better off. Philanthropic activities were motivated by the desire to prevent illness and thereby prevent labourers and crofters becoming dependent on relief for the poor. State subsidies were given to insurance schemes from 1892. However, detractors maintained that state subsidies would reduce the motivation for philanthropic support. The late 19th century in Denmark was characterized by the establishment of associations, consisting of workers organizing themselves into labour unions and the social democratic party; farmers establishing co-operatives; and smallholders and day labourers organizing themselves into groups.

Health insurance schemes covered the insured and their children. Married women were independent, contributing members from the start. Members of the insurance schemes were initially required to pay half of their hospital user charges; however, this payment was later reimbursed by the insurance scheme. Accordingly, for insurance scheme members, hospital admissions were free at the point of use. User charges were only a small part of hospital expenditure, with the rest financed by taxes. The insurance schemes also paid for the care provided by GPs, which is one of the reasons for the high number and equal distribution of GPs in Denmark. Historically, there were more doctors in Denmark per 1000 inhabitants than in any other Scandinavian country. In fact, in 1930, there were twice as many doctors in Denmark than in Sweden. It was not until the late 1960s and 1970s that Norway and Sweden reached the Danish level.

Initially, membership of the health insurance schemes was taken up exclusively by the lower income classes. In 1900, these schemes only covered 20% of the population, whereas in 1925 they covered 42%. In 1973, however, when the insurance schemes were abolished, the coverage was at 90%. What is more, contributions to the schemes could be considered an earmarked tax. Social insurance schemes of this type did not exist in other public service areas, such as social security and pensions, as they did in Germany. From 1973 onwards, health care was financed by taxes, with the exception of those services or products paid by the patients themselves; these included dentist bills (in part), optical lenses and a share of the costs of prescription drugs.

During the 1930s and 1940s – not least as a reaction to the falling birth rate – free health examinations were introduced for pregnant women, infants and pre-school children. School medical services, which had previously only existed in cities and towns, were implemented throughout the country. Today, all of these examinations still exist. General health examinations have not been introduced for other groups; however, some specific examinations, such as systematic screening for cervical and breast cancer, are offered in most regions.

Danish welfare politics in general, and especially health care policies, have been characterized by a consensus regarding the basic institutional structure (Vallgård 1999b). Since the 1940s, there has been an agreement among the political parties that access to health care should be independent of where one lives and of economic resources. From 1945 to 1970, health care policy was characterized by a strong medical influence and consensus. Health care matters were discussed in technical rather than political terms. Since the 1970s, however, controversies have been much more frequent, as in several other countries over this period. Differences between the political parties also became more visible in this area, as they began to include specific health policies in their programmes. Thus, the authority of the medical profession was weakened. The 1970 reform of the political and administrative structure reduced the number of counties and municipalities. It also placed the responsibility for the largest part of the health care sector on the counties, whereas previously this responsibility had been divided between the towns, counties, the State and the health insurance schemes. In 2007, a reform has been implemented reducing the number of municipalities to 98 and establishing five regions with the responsibility for providing hospital and outpatient care for citizens. The acts on health care mainly set out the general legislative framework, letting the local and regional authorities decide on matters relating to actual performance. Ensuring local self-governance has for a long time, and in many different respects, been given a higher priority in formal legislation than ensuring an equal level of quality and provision of health care. This, however, has changed with this most recent reform, which holds equal standards of care throughout the country as one of its main priorities.

In the 1970s public awareness of rising public expenditures began to increase (Vallgård 1992). Public expenditure as a share of gross national product (GNP) rose from 28% to 42% between 1960 and 1971, a period when general economic growth was rapid. Concern about the increase in public expenditure promoted a reorientation of health care politics, where more attention was subsequently given to primary health care, disease prevention and health promotion. The effect of health care on mortality was questioned as well. From the middle of the 1970s, cost-containment became a political issue and the increase in health care expenditure slowed. New management methods were introduced

in hospitals and, with them, more nonmedically trained managers were hired, which reduced the influence of the increasing number of doctors to some extent. From the 1980s, the politics of care for the diseased and disabled elderly changed from an institutional system to a home care-based one. The number of home nurses and other facilities increased substantially, while beds in nursing homes decreased, in spite of a rising number of elderly inhabitants in Denmark. Then, a slower increase in resources to health care led to an intensified debate about prioritizing. No national model or priority plan has ever been discussed, but different counties elaborated their own prioritizing criteria during the 1990s. During the same period, health technology assessment (HTA) and, largely, quality assurance were taken up in the health care sector and supported by the national authorities. Gradually, disease prevention and health promotion have received more political focus at both the central government level – with government programmes in 1989, 1999 and 2002 – and at local levels, in counties and local communities, which have launched campaigns against heart disease and employed people with the task of promoting prevention activities. For more information on the 2002 government health programme, see Section 6.1 on Public health.

Since the 1990s, health care expenditure has risen again. Also, the debate on prioritization has subsided and the focus has shifted to efficiency and quality. Since the early 1990s, more economic incentives have been gradually introduced into the hospital sector. In 1993, free choice of hospital was introduced and in 1998 it was decided that hospitals should be reimbursed according to diagnosis-related groups (DRGs) for patients living in other counties. Since 1973, hospitals have received resources according to their budgets; however, in 1999 it was decided that only 10% of resources would be allocated in relation to activities based on DRGs and from 2004 this figure changed to 20% (Ankjær-Jensen & Rath 2004). Quality assurance methods and accreditation have played an increasing role in hospital management. Patient rights have also been strengthened through legislation on rights and complaint systems (see Subsection 2.5.2 on Patient rights and empowerment). Additionally, waiting times have been a big political issue since the mid-1990s. As such, a maximum 2-month waiting guarantee was introduced in 2002 and then reduced to one month in 2007. Thus, if the patient cannot be guaranteed treatment within one month, he/she may choose to be treated at another hospital, including privately and in other countries.

Table 2.1 shows some trends of the health care sector, including a decrease in the number of hospitals and hospital beds and in the length of stay; an increase in the number of doctors and nurses; a slight increase in admissions; and a steep increase in outpatient visits, both to hospital outpatient departments and

**Table 2.1 Trends in the evolution of the health care sector, 1936–2003 (selected years)**

Indicator	1936	1960	1981	2003
Number of general hospitals	160	142	113	57
Number of psychiatric hospitals	–	17	16	10
Number of doctors per 1000	0.8	1.2	2.2	3.6
Number of hospital nurses per 1000	1.1	2.0	3.2	5.6
Number of hospital beds per 1000 (general hospitals)	6.0	6.0	6.0	3.7
Number of hospital beds per 1000 (psychiatric hospitals)	–	–	–	0.3
Hospital admissions per 1000 (general hospitals)	69	114	178	218
Outpatient visits per 1000 (general hospitals)	–	–	656	1 025
Average length of stay in days (general hospitals)	28	16	10	5.5
Number of GP consultations per 1000	–	–	4 500	6 500

Sources: Ministry of the Interior and Health, 2004a; National Board of Health, 2005d; Vallgård, 1992.

Note: GP: General practitioner.

GPs. Overall, these trends indicate a change in the role of hospitals towards one providing more diagnosis and treatment and less care.

The purpose of the 2007 reform was to ensure greater equality in hospital treatment across the country, by increasing the influence of the National Board of Health on hospital planning. The number of regional authorities was reduced from 14 counties to 5 regions, which do not have the right to levy taxes. The municipalities received more responsibility for rehabilitation, disease prevention and health promotion, as well as the care and treatment for disabled people, and alcohol and drug users. Communities contribute to the regions through payments both per capita and by activity, the latter according to citizens' utilization of the regional health services.

## 2.2 Organizational overview

The defining feature of the Danish health system is its decentralized responsibility for primary and secondary health care. However, important negotiation and coordination channels exist between the State, regions and municipalities, and the political focus on controlling health care costs has encouraged a trend towards more formal cooperation. See Fig. 2.1 and Table 2.2 for an overview of the organization of the system.

**State level**

Responsibility for preparing legislation and providing overall guidelines for the health sector lies with the Ministry of Health. Each year the Ministry of Health, the Ministry of Finance and the regional and municipal councils – represented by the Danish Regions and the National Association of Local Authorities – take part in a national budget negotiation to set targets for health care expenditure. These targets are not legally binding. The National Board of Health, a central body established in 1803 and now connected to the Ministry of Health, is responsible for supervising health personnel and institutions, and for advising different ministries, regions and municipalities on health issues.

**Regional level**

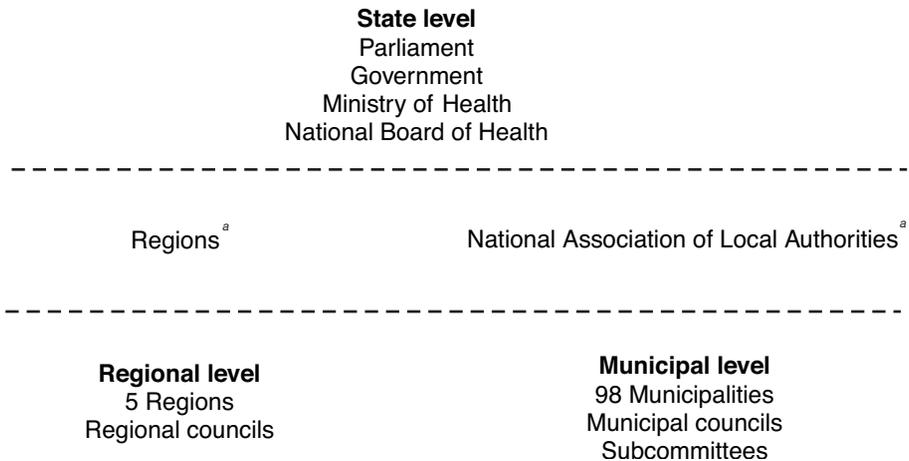
The five regions are governed by councils, which are elected every four years. They are financed by the State and the municipalities. The regions own and run hospitals and prenatal care centres, and they also finance GPs, specialists, physiotherapists, dentists and pharmaceuticals. Reimbursements for private practitioners and salaries for employed health professionals are agreed through negotiations between the Danish Regions and the different professional organizations. The Ministry of Health, the Ministry of Finance and the National Association of Local Authorities also participate in these negotiations.

**Municipal level**

The 98 municipalities are also governed by councils elected every four years (at the same time as regional council elections). They are responsible for providing services such as nursing homes, home nurses, health visitors, municipal dentists, prevention and health promotion, and institutions for people with special needs (i.e. people with disabilities, treatment for drug- and alcohol-related problems and school health services). These activities are financed by taxes, with funds distributed through global budgets, and carried out by salaried health professionals. Salaries and working conditions are negotiated by the National Association of Local Authorities and the different professional organizations.

## **2.3 Decentralization and centralization**

With the exception of a few central state hospitals, health care in Denmark has been the responsibility of the towns and counties since the beginning of the 18th century, so there is a long tradition of decentralized administration in the health sector (see Section 2.1 on Historical background). The 1970 reform

**Fig. 2.1 Organizational chart of the statutory health system**

Sources: National Association of Local Authorities, 2005; Vallgård & Krasnik, 2007.

Note: <sup>a</sup> The Danish regions and the National Association of Local Authorities are not part of the formal political and administrative system. The associations provide counselling for their members and negotiate with professional organizations and the central Government.

of the public administrative structure, which reduced the number of counties from 24 to 14 and the number of municipalities from over 1300 to 275, led to both centralization and decentralization of responsibilities. While many state tasks were transferred to the counties, responsibility for the hospitals moved from local hospital boards to the county councils. Ironically, though, since this reform, the State's tendency to intervene in the administration of the health care sector has increased over time. Consequently, tension has been rising with regard to the counties' autonomy. The 2007 reform allocated new tasks and responsibilities to both the State and the municipalities, and thereby involved a certain level of both centralization and decentralization.

In 1976, responsibility for psychiatric hospitals and care for disabled people was decentralized from the State to the counties as part of an effort to develop closer coordination between somatic and psychiatric care, and, more generally, to establish smaller units that would be closer to the population. The counties also developed closer coordination with municipal social services, which gradually led to their handling the special needs of psychiatric patients. The process of decentralizing psychiatric treatment is continuing today, with the aim of delivering flexible and well-coordinated services. Deconcentration of state functions in health care is rare. One of the few examples of this is the case of public health officers, who have been employed by the State from the beginning of the 18th century and who work at the regional level. GPs were initially

**Table 2.2 Political bodies, administrative bodies and health care responsibilities**

	State	Regions	Municipalities	Private
<b>Political bodies</b>	Parliament and its health committee	5 regional councils with committees	98 municipal councils with subcommittees	
	Government represented by Ministers of Health, Finance, Welfare and Labour			
<b>Administrative bodies</b>	Ministry of Health	Hospital administration	Social and health administration	
	National Board of Health and a number of other boards and institutions	Administration for the reimbursement of private practitioners		
	Ministry of Finance			
	Ministry of Welfare			
	Ministry of Labour			
<b>Activities</b>	Regulation and legislation	Hospitals	Nursing homes	General practitioners
		Prenatal centres	Home nurses	Specialists
	Surveillance of the health sector and health hazards	Special institutions for disabled people	Health visitors	Physiotherapists
	Public health officers	District psychiatry	Children's dentists	Dentists
	Annual budget negotiations with the Danish Regions and the National Association of Local Authorities		Home dental service for the physically/mentally disabled	Pharmacies
			School health services	Chiropractors
			Home help	Private hospitals
				Occupational health units

Source: Vallgård & Krasnik, 2007.

paid through the many local health insurance schemes; these were, however, gradually centralized and finally taken over by the counties in 1973.

A serious consequence of decentralization is the unequal access to health care across the different counties. Danish politicians appear to consider local self-governance (and its potential for innovation) to be more important than geographical equity. Decentralization in Denmark has been shown to lead to differences in waiting times, in the availability of medical technology and in the rates of specific diagnostic and curative activities, such as systematic screening for breast cancer or the use of expensive drugs for ovarian cancer. One of the goals of the 2007 reform is to ensure equal standards of care throughout the country by increasing the power of the state bodies in planning and quality management.

## 2.4 Population coverage

Denmark has a tax-based, decentralized health care system providing universal coverage for all residents in the country. However, to be entitled to free access to health care an individual must be registered as a resident for more than six weeks. All those who have the right to tax-financed health care receive a health certificate card. The right to health care services is regulated by law with no option of opting out of the publicly funded system. People over the age of 16 who have the right to tax-financed services can choose between Group 1 and Group 2 coverage (see Subsection 2.5.2 on Patient choice). With regard to many services, a person's rights depends on which group they have chosen (see Section 2.5 on Entitlements, benefits and patient rights). Children under the age of 16 are covered by the same form of coverage as their parents. A considerable proportion of the Danish population is covered by additional voluntary health insurance (VHI) (see Subsection 4.1.4 on Voluntary health insurance).

Special rules for accessing health services apply for tourists, foreigners, legal immigrants, asylum seekers and illegal immigrants. Tourists and foreigners temporarily staying in Denmark must pay for health care services on a fee-for-service basis. To receive reimbursement, a European Health Insurance Card or evidence of private health insurance must be shown at the point of use (Ministry of the Interior and Health 2004d). Legal immigrants are covered by the tax-financed system and they have the same rights as residents with Danish citizenship. Asylum seekers are not residents and do not have these entitlements; they may be treated by basic primary services and emergency hospital services, but they would have to apply for specialized treatment in the case of life-threatening and painful chronic diseases, which are all financed by the Danish

Immigration Service. Illegal immigrants are only entitled to acute treatment and are not otherwise covered by the tax-financed system (see Section 6.14 on Health care for specific populations).

## **2.5 Entitlements, benefits and patient rights**

### **2.5.1 Entitlements and benefits**

All Danish residents have free access to GPs, ophthalmologists, ear, nose and throat specialists, and emergency wards. Access to specialists and hospital care is free at the point of use with a referral from a GP. Free access includes ambulance transport and palliative care. In Denmark, treatment is left up to medical judgement and there is no minimum package of care. There have been some efforts to establish a list of priorities but an explicit priority-setting system has not been implemented. Formal restrictions on access are decided by the Parliament and the individual hospitals, and they only exist for a few treatments (i.e. infertility treatments). Entitlement to some vaccinations, health examinations for children and pregnant women, and health visits to elderly residents are also regulated by law.

Co-payments exist for long-term nursing home care, dentists, physiotherapists, pharmaceuticals, and so on. Eyesight tests and glasses are paid for by patients; however, hearing tests and aids are free. People with low income may be reimbursed for co-payments by the social security system. An increasing number of Danes buy private insurance to cover these co-payments, to gain access to private hospitals and clinics and as an extra financial safeguard in case of sickness. Many employers offer private insurance to their employees, which is a contributing factor to the overall increase in private insurance (see Subsection 4.1.4 on Voluntary health insurance).

Treatments not authorized by the National Board of Health are not reimbursed by the public system or by most private insurance companies.

Sickness pay is the responsibility of the employer during the first two weeks of absence and the responsibility of the municipality thereafter. Many employees have a collective agreement which entitles them to their salary for a longer period, although sickness pay from the municipality generally stops after 54 weeks. It is more common for salaried people to have an agreement with their employer that entitles them to their salary during sickness and maternity leave, than wage earners.

All pregnant women are entitled to maternity benefits from the municipality for four weeks before the expected birth and 14 weeks after the birth. The

following 32 weeks of benefit may be shared between the father and the mother. For maternity leave, many employees have an agreement to be paid their salary for 26 weeks or more.

Relatives of chronically or terminally ill patients are entitled to salary or compensation from the community. In the case of disability and reduced working capability, a national supplementary disability pension is granted. This type of pension may be temporary or permanent and it is co-financed by the State and the municipalities.

Insurance bodies and pension funds often offer their members supplementary benefits in case of disability and acute serious disease. Health checks are often required before taking out insurance or entering a pension fund and membership may be denied. Insurance companies are not allowed to ask for or to see predictive genetic testing. However, they are allowed to ask and should be informed about serious diseases in the family, including those that are hereditary. They cannot request HIV testing, but if the HIV status is known the person must inform the insurance body about it.

Currently, there are no plans for changing the entitlements and coverage of publicly financed health care and benefits. The rules about entitlement are decided by the Government and their implementation is decided by health care institutions and individual health professionals. The role of HTA and other forms of evidence guiding these decisions are not regulated by the authorities. When it comes to health care, it is principally a medical judgement that decides entitlement. Private insurance coverage is decided through contracts between the companies and the policy-holders.

## **2.5.2 Patient rights and empowerment**

### **Patient rights**

In 1998, the Danish Government agreed on an act regarding a patient's legal position. The act set out comprehensive legislation, regulating the fundamental and general principles for the individual patient's rights (Legal Information 1998). The aims of the act are to help ensure that the patient's dignity, integrity and self-determination are respected; and to support the trust relationships between the patient, the health system and the various personnel involved. The act also contains rules on information about consent and life testimonials, and information regarding patient cases and professional confidentiality, along with access to health information (Vallgård & Krasnik 2004).

### **Patient choice**

Since 1973 residents over the age of 16 have been able to choose between two coverage options known as Group 1 and Group 2. The default is Group 1 and approximately 99% of the Danish population were in this group in 2004 (Association of County Councils 2005). In Group 1, members are registered with a GP of their own choice, practising within 10 km of their home (5 km in the Copenhagen area); otherwise, a GP's written acceptance of their willingness to carry out home visits during the day is needed. Group 1 members have free access to general preventive, diagnostic and curative services. Patients may consult emergency wards, dentists, chiropractors, ear, nose and throat specialists or ophthalmologists without prior referral, but their GP must refer them for access to all other medical specialties, physiotherapy and hospital treatments. Consultation with a GP or specialist is free of charge, while dental care, podiatry, psychology consultations, chiropractice and physiotherapy are subsidized. Patients seeking care from specialists other than ear, nose and throat specialists or ophthalmologists, and without a GP referral, are liable to pay the full fee. An individual in Group 1 has the possibility to change GPs after six months and after contacting the local authority.

In Group 2, individuals are free to consult any GP and any specialist without referral. The region will subsidize the expenses up to the cost of the corresponding treatment for a patient in Group 1. The same rules apply to treatment by podiatrists, psychologists, dentists, chiropractors and physiotherapists. Hospital treatments are free. Only a minority of the population (1%) chooses this group, probably due to the level of general satisfaction with the referral system. Changing group is possible once an individual has been in either Group 1 or 2 for 12 months (Association of County Councils 2005).

The majority of hospitals in Denmark are general hospitals. There are very few specialized hospitals other than psychiatric hospitals. A legislative reform in 1993 gave patients the freedom to choose to be treated at any hospital in the country as long as treatment takes place at the same level of specialization. This is in accordance with the fundamental principle that health services should be provided at the most appropriate level of specialization (i.e. less specialized cases should not be referred to more highly specialized units). This legislative reform was a key step towards allowing patients more influence over their care and treatment. However, according to a national study, which assessed the impact of the reform, patients prefer treatment close to their place of residence, which contradicts the original intention of the reform (Birk & Henriksen 2003).

In 2002, a new piece of legislation regarding waiting time guarantees was implemented. Patients who are not offered treatment at public hospitals within two months of referral are free to choose treatment at private hospitals or clinics anywhere in the country and at hospitals abroad. In 2007, this guarantee was

changed to one month as of 1 October. The non-public treatment expenses are paid by the patient's region. As a precondition for the use of the extended free choice, the chosen non-public hospital or clinic has to have an agreement with the region (Association of County Councils 2005). In the case of cancer and certain other diseases (i.e. coronary heart disease), waiting time guarantees are defined for specific procedures, and, if the hospital is not able to treat the patient locally within the case time limits, it is obliged to look nationally or even internationally for alternative hospitals. If the hospital is unable to do this, then the case is referred to the National Board of Health for assistance in seeking alternative solutions within the case time limits, which are defined by the waiting time guarantees. However, due to heavy public and political criticism of the lack of fulfilment of these procedures, the Director of the National Board of Health resigned from his post in November 2006.

Since 2003, referral to highly specialized services can be carried out on a direct referral basis by a medical doctor, independent of his/her place of work. The new legislation states that the patient must be referred to a highly specialized health service, if a qualified medical judgement is carried out and considers accordingly that the patient needs such treatment. Before this legislation, the county was required to produce an economic guarantee prior to referral to a highly specialized health service, including a secondary examination of the case by the county's own hospital service. Currently, only patients with strictly defined needs for specialized treatment are accepted at the highly specialized health services.

### **Information for patients**

Patients are informed about the age and gender of GPs before choosing a doctor, but other than this, no information is available.

A patient that needs hospital treatment has a few different options available for them to obtain information about hospital characteristics (e.g. waiting lists). When the patient is referred to a hospital, the hospital is obliged to send a notice letter to the patient. This letter should inform the patient of his/her specific examination and treatment and of the hospital's possibility to examine and treat the patient within one month. If the waiting time exceeds one month, then the hospital provides patients with information about the option of choosing another hospital, including those that are private or based abroad. Patients can also obtain information and guidance on hospital choice and waiting times through their GP and through patient offices, which exist in every region. A number of web sites have been established by the National Board of Health, the Danish Regions and the Ministry of Health in order to give patients further access to information. The sites provide information regarding public and

private hospitals, specialists and clinics as well as selected hospitals abroad, which have existing arrangements with the regions. The typical content of the information includes waiting times in weeks to examination, treatment and after-care in the different hospitals and the number of operations conducted at specific hospitals (Ministry of the Interior and Health 2007). Information on quality aspects of hospitals has been published on the home page of the Ministry of Health since November 2006. This information includes ratings (1–5 stars) based on patient satisfaction, and standards of hygiene, safety, and so on. This rating system, however, has been criticized for its limited scope, unclear weighting of the different elements, and its ratings of hospitals as a single unit rather than as individual departments.

A number of initiatives have been introduced to strengthen patient rights in the health system. The National Board of Health is in charge of securing the patients' dignity, integrity and right of self-determination (National Board of Health 2005a). In 1992, a law was passed on patient rights, which obliges doctors to inform patients of their condition, treatment options, and the risk of complications. It also prohibits doctors from initiating, or proceeding with, any given treatment that is against the will of the patient (unless mandated by law). In addition, the patient has the right not to receive information. This law was extended in 1998, regulating the basic and general principles of the individual patient's right of self-determination and public security related to the health system and regarding medical examination, treatment and care. Issues covered are the patient's right to continuous information, which is adapted according to age and the disease(s), given throughout examinations and treatment and communicated with respect to the patient. Furthermore, the rules also determine doctors' rights to share information with third parties, to give patients right of access to documents, to hold case records and to have total professional confidentiality (Legal Information 2005a).

### **Complaint procedures**

A complaint system has been established regarding professional treatment in the health service: the Patients' Complaints Board is a public authority that has the role of expressing patient criticism about the professional conduct of medical staff and submitting particularly serious cases to the public prosecutor with the purpose of taking such cases to court. The board deals with complaints about treatment and care, information and enquiries about consent, the drawing up of medical certificates, the compiling of case records, decisions about the right of access to documents and violations of professional confidentiality rules. The board also attends to the reports about professional activities from such agencies as the National Board of Health and the Danish Medicines Agency.

Finally, the board deals with complaints made about previous decisions by the local psychiatric patient's board of complaints regarding grievances other than the loss of liberty (Patients' Complaints Board 2005).

For decisions based on criticism, the Patients' Complaints Board assesses whether the individual health personnel have fulfilled the commonly acknowledged professional standards. In 2003, the Patients' Complaints Board received 2850 complaints, compared to 2949 in 2002 and 2721 in 2001. Compared to the number of patient contacts in the health care system, these are relatively few complaints. In round figures, there are more than 1.1 million discharges from hospitals per year, more than 4 million outpatient treatments and more than 34 million patient contacts in public practices. A large proportion of complaints are concerned with doctors, corresponding to 85% in 2003. The board settled 2219 cases in 2003, of which every fourth case ended with criticism of one or more health professionals. Ten cases were sent to the prosecution with the request to charge for a criminal offence (Patients' Complaints Board 2003).

### **Patient safety and compensation**

In June 2003, an Act on Patient Safety was agreed on, with effect from January 2004. The Act aims at promoting patient safety by establishing a system of reporting adverse events. The system was at first based on three types of occurrence: (1) serious occurrences; (2) surgical and invasive operations; and (3) use of medicine (Danish Society for Patient Safety 2007). However, this has been changed, and all occurrences are now to be reported. It is quite an extensive process to develop and there are still many challenges to be overcome.

Patients can receive compensation for health care-related harm from treatment at public hospitals through the Patient Insurance Scheme, which was set up in 1992. The insurance provides compensation to patients or a patient's relatives as well as subjects or donors for somatic damages and some psychiatric damages caused during treatment in the health care system. In 1995, this insurance was expanded to include damages caused by biomedical experiments in the primary health care sector. In 1999, the insurance was extended again, to cover treatment at all public and private hospitals (but not private profit-making hospitals) as well as specialists and selected hospitals abroad, which the regions use in accordance with the Law on Health of 2005 (Legal Information 2005a).

The Patient Insurance Scheme is based on the following principles.

- A patient's right to compensation does not depend on a doctor or any other health person to incur personal responsibility for the damage.

- Compensation is provided through an obligatory insurance scheme, which is financed by the hospital owners.
- The size of compensation is regulated through the Law of access to complaint and compensation within the health services (Legal Information 2005b).

Other compensation schemes include the Danish Dentist Society Insurance Schemes and the Danish Chiropractor Society Insurance Schemes.

The Council for Adverse Drug Reactions offers general guidance to the Danish Medicines Agency and proposes recommendations and solutions to the Agency for improving the prevention and monitoring of adverse reactions. The main task of the Council is to monitor and assess the reporting of adverse reactions in practice. Further, it proposes recommendations and inspires the Danish Medicines Agency's information and communication tasks with regard to adverse reactions for consumers, patients and health care professionals. The most important source of information on adverse drug reactions is spontaneous reports. The Agency recommends that all patients who experience adverse drug reactions not mentioned on the package leaflet should contact their GP. GPs are then required to report all presumably serious or unexpected adverse drug reactions or reactions to medical products to the Danish Medicines Agency. Moreover, GPs are obligated to report any known and non-serious adverse drug reactions for the duration of the first two years a medicinal product is on the market. It is also possible for the patient or the patient's relatives to report adverse drug reactions directly to the Agency.

In Denmark, direct-to-consumer advertising of prescription drugs is permitted under strict legislation. In an announcement in 2003, it was stressed among a long list of restrictions that advertising of drugs should not give the impression that it is not necessary to consult a GP; that there are no side-effects; that the product is better than another drug; that it is recommended by scientists; that it mainly or solely addresses children; that it contains references to examinations; or that a person's well-being depends on their use of the drug. These advertising restrictions do not include advertising for vaccination campaigns, which are approved by the Danish Medicines Agency (Danish Medicines Agency 2005b).

### **Patient participation/involvement**

Patients' participation takes place in three ways in Denmark: (1) through organized patient groups, nationally, regionally or locally; (2) through patient counsellors; and (3) indirectly, through feedback from national surveys.

A number of patient groups exist, which were formed around concerns about particular diseases or health problems, such as heart disease, cancer, arthritis, diabetes, or sclerosis. Since the mid-1990s, many of these groups

have explicitly taken on policy advocacy as an important function. The groups are very active and they influence public debate. Approximately 200 active patient groups exist in Denmark. They act as the patients' voices in the media towards the authorities and politicians, frequently giving input on the health debate so that patients' views are not neglected. They also provide information, help and support related to health and sickness, and dialogue with the relevant authorities at all levels. The largest, best-known and most well-funded groups have a strong track record of involvement in health policy. This is often achieved through the formation of coalitions with doctors or across patient groups. Patient organizations that are entirely at the grassroots level and work independently of the health care professional sector tend to be much smaller, with non-paid volunteer staff. It is therefore a far greater challenge for them to navigate the different decision-making structures at the national, regional and municipal levels, and to have a greater influence. The larger groups are backed by larger membership numbers and operating budgets, which enable them to maintain a professional staff. These organizations are generally invited to participate in parliamentary hearings that are relevant to their causes and concerns, while this is quite rare for the smaller organizations.

In every region, a patient guidance system exists. The system's primary task is patient guidance on provider and treatment choice, complaint and compensation rules, and waiting lists, and so on. Patient guidance also assists in clearing up misunderstandings, which in many cases could otherwise lead to a complaint being filed. Nurses primarily act as guidance counsellors and function as problem solvers in a close dialogue with patients, relatives and the hospital personnel. Guidance counsellors are obligated to be neutral and impartial (Association of County Councils 2005).

A survey conducted by the Danish Ministry of Finance in 2000 analysed the population's view of the public sector, including satisfaction with health care services. In general, Danish citizens are mostly satisfied with GPs (4.2 on a scale from 1 (very dissatisfied) to 5 (very satisfied)) and less satisfied with emergency medical services (3.5) (Ministry of Finance 2001). This survey is carried out every second year. Results from the 2004 survey show that 90% of patients are satisfied with their stay in hospital, 93% are satisfied with doctors and 95% are satisfied with the health personnel. This is a small increase compared to results from 2000 and 2002. Patients report great trust towards the doctors and health personnel professionalism, good communication between the patient and health personnel and there is evidence of a strengthened dialogue between hospitals and GPs since previous surveys. Other results have shown changes that are even more significant. From 2000 to 2004, there was a significant increase in patients' evaluation of the content of written materials: 96% of the patients receiving the written material evaluated the content to be "very good"

or “good” in 2004, compared to 87% in 2000. Furthermore, patients answered more positively in 2004, compared to 2000 and 2002, to questions regarding the waiting times (which prolonged the hospital stay) between referral and admission and during admission. Patients also increasingly believe that their GPs are informed to a “very good” or “good” level by the hospital regarding their admission. There was an increase of 6.7%, from 71% in 2000 to 77.7% in 2004. More specifically, the only statistically significant decline (from 60.2% to 58.0% (The Counties, Copenhagen Hospital Co-operation (H:S) & Ministry of the Interior and Health 2005)) between 2000 and 2004 was found in the responses to the question on whether patients were told whom to contact with any questions during admission.

## **3 Planning, regulation and management**

**P**olicy development takes place at central, regional and local levels. The 2007 reform implies a more important role for the central level. With the reform, the influence of the National Board of Health on hospital planning was strengthened with the purpose of ensuring more equal treatment across the country. Implementation of policies and provision of services still take place at the regional and local levels.

The National Board of Health has an advisory function over the political bodies at all levels, and it has a supervisory function over all authorized health professionals and institutions, except practitioners of complementary and alternative medicine (CAM). The Parliament and the Government, with few exceptions, outline the general policies, and make decisions on the overall organizational structure, financial framework of activities and responsibilities of the health care sector.

Most health care institutions, hospitals, nursing homes and school health clinics are owned and managed by the regions or municipalities. GPs, specialists, dentists and physiotherapists are self-employed and reimbursed by the regions based on taxation. Pharmacies are privately owned but strictly regulated, and pharmaceuticals are subsidized by the regions.

### **3.1 Regulation**

There is no national health plan for the development of the health care sector.

#### **3.1.1 Regulation and governance of third-party payers**

The main financing of the health care sector comes from municipal and central state taxation. The central State subsidizes the regions and municipalities and

does not act as a purchaser or directly finance the providers. The municipalities contribute taxes comprising 20% of the overall regional income. The subsidies, and a counterbalancing system that transfers money from richer to poorer municipalities, are calculated according to formulas, which are based on allocated resources and needs. The role of the central State is mainly to regulate and contain expenditure and to provide some general guidelines for the health care sector.

An increasing number of citizens take out private health insurance, which is organized by profit-making companies, in order to receive reimbursement for medical expenses, such as their utilization of private clinics. A rising number of companies offer private health insurance with variable coverage and the market is not particularly transparent for the average consumer. The private profit-making health insurance market is unregulated.

### **3.1.2 Regulation and governance of providers**

In terms of organization, the five regions are responsible for providing hospital, somatic and psychiatric care, and for financing private practitioners (such as GPs, practising specialists, dentists, physiotherapists, chiropractors, and so on) for their public sector work. Private practitioners are self-employed but reimbursed for their services by the regions. However, only those who have a prior agreement with the regions are reimbursed, based on a negotiated number of doctors per 1000 inhabitants. Very few doctors work without such an agreement. A few private profit-making clinics and small hospitals are also paid by the regions for attending to patients, according to contracts or waiting time guarantees. Furthermore, the municipalities employ health care providers, who mainly take care of children and the elderly.

Regarding stewardship and regulation, the central Government sets the overall direction of health care and increasingly – but still only to a limited extent – defines specific targets for the health care sector. For some decades it has tried to regulate the establishment of highly specialized departments and functions (such as heart transplants), and during recent years has set targets for waiting times, introduced screening programmes, improved treatment for cancer patients, and so on. With the recent reform, the central authorities have been given the means to govern these activities more efficiently.

The Ministry of Finance negotiates the level of taxation with the municipalities, thus setting the financial framework of the activities. It also participates in negotiations between professional organizations and unions about salaries, working conditions, fees and the number of practitioners with regional contracts.

There is a licensing system for health care professionals but not for health care facilities. Instead, health care facilities are supervised by the National Board of Health. The National Board of Health has a system of locally based medical officers, which supervise health professionals. Medical doctors (physicians and surgeons) have been licensed since the 17th century, midwives since the early 18th century, and nurses since 1933. During recent decades, a number of new health provider groups have achieved authorization such as laboratory technicians, physiotherapists, opticians, surgical appliance makers, and so on. The National Board of Health grants the licences and, in case of malpractice or other undesired behaviour, has the authority to withdraw them. There is no relicensing system.

Education of doctors, specialists, nurses and other health professionals is regulated and supervised by the central State as a means to secure high-quality care. Undergraduate education of medical doctors, psychologists, pharmacists and other academic staff is the responsibility of the Ministry of Science, Technology and Innovation. Postgraduate training of doctors is the responsibility of the National Board of Health. Education of most other health professionals is the responsibility of the Ministry of Education (see Section 5.2 on Human resources).

Drugs are licensed by the Danish Medicines Agency. This body also supervises pharmacies and is responsible for licensing medical equipment, according to the EU regulations.

A number of state agencies are responsible for securing the safety of the citizens. The National Institute of Radiation Hygiene under the National Board of Health is responsible for supervising utilization of X-ray machinery and radioactive substances. The Danish Working Environment Authority is responsible for supervising the working environment and prevention of occupational hazards. The Danish Environmental Protection Agency is responsible for environmental safety. Finally, the Danish Veterinary and Food Administration is responsible for supervising food safety.

A national model for quality assessment and improvement, the Danish Health Care Quality Assessment Programme, was established in 2002. Its main objective is to monitor all publicly financed health care activities. In 2005, it was established as an independent institution. Its principal task is to provide ongoing feedback to individual health care institutions, including processed indicator data. The programme also promotes periodic accreditation, publication and benchmarking of assessments and indicators. National strategies for quality improvement have been published since 1993.

The 2004 Law of authorization of health professionals and of health care activities made the reporting of adverse events compulsory, with the purpose

of preventing consequential events. These reports do not allow the sanctioning of health care personnel or institutions.

According to a 2004 law, organizations of CAM providers may – provided they fulfil certain requirements – obtain permission from the Minister of the Interior and Health to let their members describe themselves as registered CAM providers. Otherwise, the activities of CAM providers are regulated by the Law of authorization of health professionals and of health care activities, which forbids anyone other than authorized doctors to perform a number of activities.

### **3.1.3 Regulation and governance of the purchasing process**

There is practically no division between purchasers and providers in hospitals. Hospitals receive 80% of their funding from budgets and 20% from activity-based remuneration according to a DRG system. The Government is planning to increase the activity-based proportion to 50% over the coming years. Thus, the regional councils influence hospital activities through budgets and direct political decisions concerning the establishment of activities, departments or hospitals. Self-employed private practitioners are reimbursed according to their activities and GPs are also reimbursed through capitation. The levels of reimbursement and capitation are negotiated between the practitioners' organizations and the Danish Regions. The regions limit the number of providers through an agreement, but cannot generally limit the activities of providers.

## **3.2 Planning and health information management**

Planning is an integrated part of the Danish health system. The planning system reflects the decentralized nature of the Danish health system, with the regions and municipalities as planners and providers of health care services and the State as the provider of the overall framework of the system.

Decisions regarding the supply of different health services are mainly made at the regional level but with State involvement in certain areas. For example, services such as health examinations for children and pregnant women along with the provision of highly specialized services are determined by the State, whereas the supply of other hospital facilities in various areas is determined at the regional level. Further, the number of GPs practising in each region is agreed on between the regions and the Organisation of General Practitioners in Denmark (PLO) through annual negotiations.

As health care is largely a regional responsibility, most national legislation concerning the health sector does not specify how the system should be organized or which services should be provided. Legislation concerning health care at the local level is slightly more specific. The more specific rules given by the central Government pertain mostly to preventive activities such as vaccination schemes and health check-ups for children and pregnant women.

The decentralized structure requires careful coordination between the municipalities, the regions and the State in order to secure coherence in the long term and to strengthen prevention and health promotion as well as quality development within the health care sector. The goal of coherence was formalized through legislation enacted in 1994, which required counties and municipalities to develop a joint health plan every four years for the coordination of all preventive and curative health care activities within the health care sector, and, to some extent, between the health care sector and other public sectors (e.g. the social sector) (National Board of Health 2005a). The health plans were required to include a statement on the health status of the population, a description of the available services and an indication of the nature and extent of cooperation with municipalities and with other counties. The coordination process varied from county to county, but was often based on meetings, seminars and joint-committee work, and focused on specific subjects, such as children, the elderly and mental health. All health plans should be submitted to the National Board of Health for comments. The plans have contributed to an increased awareness of intra- and intersectoral coordination and to the establishment of new relations within the sector. However, the health plans have been criticized for being solely an administrative task, and disconnected from functional levels (Seemann 2003; Strandberg-Larsen, Nielsen & Krasnik 2007). With the recent structural reform and redrawing of geographical and administrative boundaries within the Danish health system, the risk of unintended fragmentation of the system is present. Furthermore, the post-reform organizational structure increases the demand for careful coordination between the municipalities and the regions since the responsibilities for providing health services have been divided to an even greater extent than before. Fragmentation is thought to be avoided mainly by strengthening the principal agent's obligation to cooperate through mandatory health agreements. Following the reform, the Health Act was revised. A statutory cooperation between municipalities and regions was established in the form of mandatory regional health care agreements to try to ensure the required coherence between treatment, prevention and care. The obligatory health care agreements include arrangements regarding hospital discharges for weak and elderly patients, on the social service available for people with mental disorders, and on prevention and rehabilitation. The health care agreements are anchored in the regional consultative committees consisting of representatives from the

region, the municipalities within the region, and private practices. The regional consultative committees can be used to resolve disputes (e.g. about the service level, professional indications and referral criteria in the area of training) and to create the basis for a continuous dialogue about planning. The health care agreements should comply with centrally defined requirements, and tangible proof that the cooperation lives up to the requirements should be made publicly available. Overall, there have been substantial improvements with the new health agreements in terms of formalizing a more coordinated care system. Moreover, the health agreements have been planned to a greater degree, treating the process as one of continuous learning and adaptation. However, the same pitfalls from the previously used health plans can not be said to have been avoided with the new system (Strandberg-Larsen, Nielsen & Krasnik 2007).

Economic management and planning of the health sector take place within a framework of negotiation between the different political and administrative levels. The annual national budget negotiation results in agreement on resource allocations, such as the recommended maximum level of municipal taxes, the level of state subsidies to the regions and municipalities, the level of redistribution or financial equalization between municipalities, and the size of additional grants earmarked for specific areas that need additional resources (see Chapter 4 on Financial resources).

The annual national budget negotiation has been increasingly used by the central Government as a means of reaching an agreement on the development of the health sector and setting the overall economic framework. The central Government has some influence over the direction of the health sector by highlighting priority areas, such as heart surgery, cancer treatment and waiting lists, and making earmarked grants available to assist the regions and municipalities in achieving targets, such as reducing waiting times for surgery, increasing the number of heart bypass operations and expanding psychiatric services. Although these targets are not legally binding, the practice of earmarking funds reduces local autonomy to set priorities. The regions have, therefore, frequently expressed dissatisfaction with this practice, claiming that it contradicts the fundamental principle of decentralized health care in Denmark.

The decentralized structure of the health system allows the regions to influence the planning and management of the system in a way that reflects local preferences. The regions can broadly influence the provision of health care in three ways.

First, the regions collectively regulate the number of people employed by hospitals and the number of private practitioners entitled to reimbursement from the regions. The agreements arising from negotiations between the regions

and GPs contain detailed rules regarding the number of doctors per 1000 inhabitants. In this way, the regions are able to limit access to practitioners and exert some control over expenditure. The Danish Regions, further, act as one body in negotiations for hospital management, thus limiting the influence of any individual regional council. Hospital management has changed in recent years following the appointment of more professional managers such as economists, lawyers and other university-educated administrators. This has affected hospital power structures and it is claimed to have reduced the influence of clinical practitioners. Economic rationale plays a more prominent role in the system today, both as a result of the focus on cost-containment and the introduction of new managers.

Second, the regions' collective negotiations with professional organizations are a key means of controlling the activities of private practitioners. Giving priority to an activity by associating it with a fee appears to be an effective incentive. An example of this is the recent introduction of special fees for preventive advisory talks.

Third, the regions can determine the size, content and costs of hospital activities through detailed budgets. These budgets enable them to specify which treatments should be offered and which technical equipment should be bought. The regions' planning capacity is reduced by: (1) choice, which allows hospital patients access to treatment in other regions; (2) waiting list guarantees, which force them to prioritize these goals; and (3) various initiatives, which have been introduced by centrally conceived legislation or agreements (Vrangbæk 1999).

### **3.2.1 Health technology assessment**

HTA in Denmark is oriented toward public opinion, in that various public interest groups have participated in the development of the HTA over the years and, particularly, in formulating the 1996 national HTA strategy. Statements from Danish consensus conferences are directed mainly towards the public and decision-makers in politics and administration. In Denmark, HTA is decentralized. This corresponds with the national strategy for HTA, which explicitly states that HTA should be applied at all levels of the health service as a systematic process in planning and operational policy, and as an underlying process for the routine clinical decisions of health professionals (National Board of Health 1996).

The purpose of HTA is to obtain a relevant basis for decision-making – from politics to clinical practice – regarding the use of new technologies in the health

system. Decisions for the general use of technologies in the health system should be made with a broad-based, systematic and well-documented information.

Staff at all levels of the health service are responsible for identifying and drawing attention to areas where HTA is needed. This responsibility includes the need for new technology assessments as well as the evaluation of existing technologies. In areas where an independent national intervention is necessary, HTA projects are to be undertaken as a basis for planning and operational decision-making. Implementation of independent national projects should take place in cooperation with research councils, health authorities and professional organizations (Jorgensen, Hvenegaard, Kristensen 2000).

On 1 April 2001, the Danish Institute for Health Technology Assessment (DIHTA) and the Danish Hospital Evaluation Centre merged to form the Danish Centre for Evaluation and Health Technology Assessment (DACEHTA) (National Board of Health 2005a). The Centre is situated as a separate entity within the framework of the National Board of Health, and receives advice from two boards. The Centre's Advisory Board is made up of 23 members representing the main stakeholders of the Danish health system at political, administrative and industry levels. The Scientific Advisory Board, which has 12 members, gives multidisciplinary advice to the Centre. The DIHTA annual budget of DKK 25 million is part of the Ministry of Health's budget framework.

The key aims of DACEHTA include: (1) to carry out HTAs and evaluations of public health services with the aim of improving quality, standards and value for money; (2) to integrate HTA principles into the running and planning of the public health service at all levels; (3) to realize the intentions behind the National Strategy for Health Technology Assessment which was issued by the National Board of Health; and (4) to follow the strategic plans within the field of evaluation. DACEHTA has created a strategic plan, which describes the overall visions and guidelines for the work carried out by the Centre (Danish Centre for Health Technology Assessment 2005).

DACEHTA collaborates with the health authorities at regional level in evaluating and analysing medical equipment, pharmaceutical products, investigations, treatment and care methods, methods for rehabilitation, health education and prevention. The Centre initiates and carries out HTA in cooperation with clinical departments, GPs, health administrators, clinical scientists, health services researchers and representatives from the medical industry.

DACEHTA has a small multidisciplinary staff of 11 full-time experts and 8 external part-time experts, who are mainly occupied with advising, administration and coordination of projects. Between 1997 and 2003, DACEHTA (DIHTA before 2001) published 48 reports or assessments, 21 external reports,

6 PhDs, 3 graduate theses, 38 scientific articles, and 44 articles, letters and other materials (National Board of Health 2005a). The reports cover topics including beta-interferon treatment for multiple sclerosis; incidence, treatment and prevention of back pain; influenza vaccination of elderly people; colorectal cancer; arthritis; and the treatment of gallstones. Several of these reports have helped to create an ongoing and lively public debate on priorities in health care.

There is no regulatory mechanism in the Danish health service requiring the use of HTA in policy decisions, planning or administrative procedures. At the national level, however, a number of comprehensive assessments of health technology have formed the basis for health policy decisions. However, the conclusions of HTAs are often disregarded due to political or an individual health professional's priorities. A primary concern regarding HTAs is that assessments are time-consuming and thorough tasks, which can be difficult to fit into a short-term political process that often demands quick decisions.

### **3.2.2 Information systems**

A number of public registers exist within the health care field concerning the population's use of health care benefits, disease incidence and prevalence, causes of death, and so on. The registers are mainly compiled for administrative purposes and the information regarding individuals is used for treatment and statistical research purposes. More specifically, the data can be used for the management of health expenses or the planning of activities within the health system. The registers and their data are very important for both epidemiological and health services research in Denmark.

The most commonly used registers are labelled according to a personal identification number (CPR) and contain information on individuals, including their family relations, education and income status (Vallgård & Krasnik 2007). This provides researchers with the opportunity to collect and combine information at an individual level from different registers for the analysis of statistical associations. Such coupling of registers is under strict regulation, due to data sensitivity.

Data validity in the major registers is generally high; however, problems can occur when, for example, health professionals have to register diagnosis or treatment codes. The key registers that can be identified in Denmark are listed here.

(a) Registers based on contact with the hospital system are the National Patient Register (LPR), the Psychiatric Central Register, the Medical Birth Register and the National Board of Health Register for Legal Abortions. The LPR is a

unique register containing all hospital admissions, outpatient treatments, and casualty department visits across all of the public and private hospitals in the country (National Board of Health 2005a).

(b) Specific disease registers are the Cancer Register, the Malformation Register and the Artificial Insemination Register (for *in vitro* fertilization (IVF)).

(c) Registers concerning the population's health status in general are the Causes of Death Register and the Work Accident Register.

(d) Administrative registers with relevance to the health sector are the CPR Register, the Health Reimbursement Register and the Sickness Benefit Register. The Health Reimbursement Register contains information about health services that are provided by GPs, practising specialists, dentists, physiotherapists, psychologists, and so on. However, it does not include information about symptoms or diagnoses of patients. All information in the registry is connected to the citizens' unique CPR numbers, which makes it possible to link information from this registry with information from the LPR and the Causes of Death Register. In this way, it is possible to analyse complex health-related matters relating to specific population groups (Vallgård & Krasnik 2007).

(e) Other registers of importance for public health science include: the Demographic Database (DDB), the Prevention Register (FBR), the Hospital Use Statistics Register (SBR) and the Fertility Database (FTDB). The DDB is focused on registering when changes take place, for example, moving home, marriage or migration. The FBR is established in coordination with Statistics Denmark, the Ministry of Health and the National Board of Health with the aim of highlighting the health conditions in Denmark. This information is gathered from several different registers, such as the LPR, the Causes of Death Register and the Health Insurance Statistics Register from Statistics Denmark. The SBR contains information regarding people who have been admitted to somatic hospital departments. This information is also coupled with information on social conditions. Finally, the FTDB includes information regarding demographic and social data of the population during their fertile years (12–49 years for women and 12–64 years for men) (Statistics Denmark 2005). See [www.dst.dk](http://www.dst.dk), [www.im.dk](http://www.im.dk), [www.sst.dk](http://www.sst.dk) and [www.regioner.dk](http://www.regioner.dk) for further information on registers.

To conduct research projects based on register data, permission from the Scientific Ethical Committee and the Data Protection Agency is required. The Danish Law of a scientific ethical committee system and biomedical research projects (Legal Information 2003) sets out the legal framework for the scientific ethical assessment of research projects in overall terms. Consent is required and is fundamental to the rules governing the scientific ethical assessment of research projects and to the committee system. The implementation of the

Law on professional confidentiality and handling of personal information, etc. (Law on Health of 2005) is monitored by the Data Protection Agency. It is the Agency's task to ensure that data are used in agreement with the Act and with the rules issued in pursuance of the Act. Therefore, data collected in relation to a project must be reported to the Data Protection Agency when the project involves handling of sensitive personal information. According to the Act this entails collection, registration, systematization, storage, adjusting, selecting, searching, use of data, passing on, promoting or coordinating without blocking, erasing or terminating data.

### 3.2.3 Research and development

Denmark has a rich tradition of medical research. Training for researchers has been formalized and the funding system includes the growing use of independent quality assessments. However, the Government encourages more international partnerships, broader research cooperation and extended information technology (IT) networks.

A number of public institutions carry out research in Denmark. There are nine universities, which occupy a central position in the research system and whose tasks include carrying out research, providing higher education, responsibility for training PhD students as well as disseminating knowledge. Government research institutions, including a broad, varied group of institutions placed under nine ministries, comprise another element of public research. During the period 2006–2007, the number of such institutions has been reduced dramatically due to a governmental plan to fuse these types of institutions with the universities. The State finances 75% of public sector research. The rest is financed by private organizations, regional and local governments and international sources, such as the EU (Danish Council for Research Policy 2005). Research is also conducted at university hospitals. Denmark, however, is still lagging behind in terms of the objectives of the Barcelona Declaration regarding the total share of the country's GDP to be invested in research.

Some of the most important governmental research institutions involved in health-related research are listed here.

- *Statens Serum Institut (SSI)* (National Serum Institute) is a research organization partly integrated within the Danish health service and involved in prevention and control of infectious diseases and congenital disorders (National Serum Institute 2005).
- *The National Institute of Public Health (SIF)* has become part of the University of Southern Denmark. Its primary purpose is to research the health

and morbidity of the Danish population and the functioning of the health system, as well as to educate (National Institute of Public Health 2005).

- *The Danish National Centre for Social Research* conducts research and carries out commissioned projects in the area of welfare state policies, and disseminates the results (Danish National Centre for Social Research 2005).
- *The Danish Institute of Health Services Research (DSI)* is an independent non-profit-making research institute. It aims at providing an improved basis for the planning and management authorities within the health services. This is achieved through collection, examination and dissemination of information, by carrying out research and development tasks, and through theoretical and practical counselling (DSI 2005).

Besides these national research institutions, some smaller institutions are financed by individual regions in order to carry out health research at regional level. One example is the Research Centre for Prevention and Health in Glostrup.

In 2007 there were more than 27 000 academically trained researchers in Denmark. Since the mid-1990s the number of researchers, including PhD students, has increased by approximately 7000. The reform of researcher training was an important factor behind these increased numbers. Researcher training in Denmark is a 3-year postgraduate programme, leading to a PhD Degree. Universities have formal responsibility for researcher training, but training can also be carried out in cooperation with a government research institution or a hospital. The number of enrolled PhD students has tripled to more than 5000 since the mid-1990s. Approximately one third of all university research is carried out by research students. The reform of researcher training has made a decisive contribution to the internationalization and renewal of Danish research (Ministry of Science, Technology and Innovation 2005).

The number of peer-reviewed journal articles is not registered and gathered by a single institution. The Regional Councils and the National Board of Health have requested the establishment of such an institution but this has not yet been implemented. However, each university and governmental research institution records its own publications.

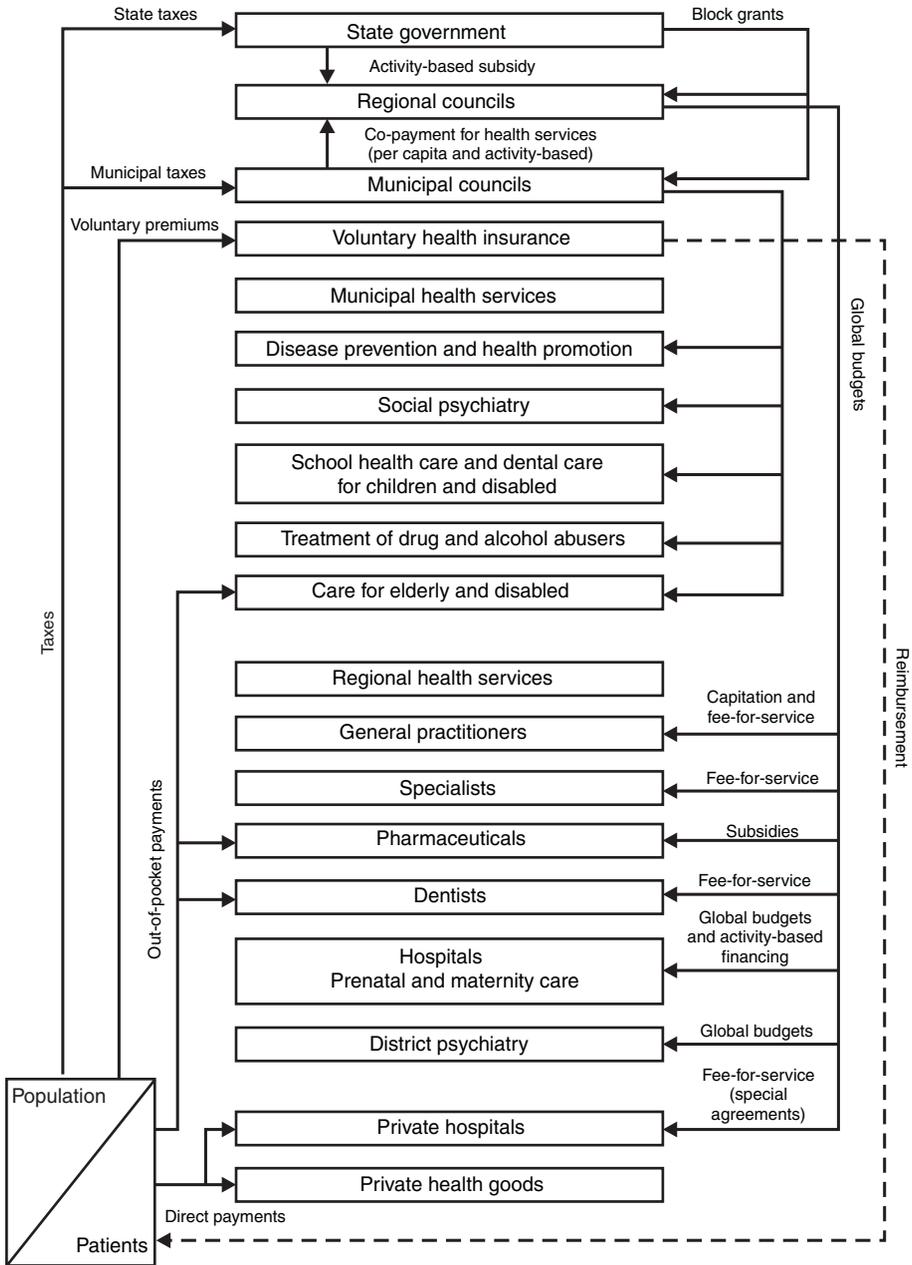
## 4 Financial resources

The Danish health system is mainly financed by state and municipal taxes. Other sources of finance include user charges for some health goods and services and VHI, which is taken out to partially cover user charges. Figure 4.1 gives an overview of the system's financing arrangements. The most significant resource allocation mechanisms are listed here.

- National level: the national budget negotiation takes place once a year between the Ministry of Health, the Ministry of Finance and the regional and municipal councils, which are represented by the Danish Regions and the National Association of Local Authorities.
- Regional/local level: political budget negotiations take place within the regional and municipal councils within nationally specified ceilings.

In 2003, the total health expenditure per capita was US\$ 2763 in purchasing power parity (PPP), of which 83% was public expenditure. The main portion of health-related public expenditure is spent on hospitals. The average growth rate of the total expenditure on health between 1998 and 2003 was 2.8%. Total health expenditure as a percentage of GDP has risen moderately during the period 1995–2003, corresponding to an average yearly increase of 0.1%. This rise was preceded by a decline in total health expenditure as a percentage of GDP during the period 1980–1995. The public proportion of total health expenditure was fairly stable between 1995 and 2003 (OECD 2006).

**Fig. 4.1 Financing flow chart**



Source: Authors' compilation.

## 4.1 Revenue mobilization

The historical evolution of public and private expenditure on Danish health care is described in Section 2.1 on Historical background. The current revenue mobilization is dominated by public taxation at both state and municipal levels.

The Local Government Reform and the Financing Reform, which came into effect on 1 January 2007, had some important implications regarding income tax distribution between the municipalities and the central Government. Most significantly, the number of taxation levels was reduced from three to two; this is because the previous 14 counties were merged into 5 new regions, which were not given power to levy taxes. As of 1 January 2007, the municipalities took over the portion of the county revenue that does not correspond to the new state health contribution of 8% of income. This means that the municipalities have been allowed to raise their tax revenue by four percentage points.

State taxes are henceforth a combination of personal income tax, value-added tax (VAT) (a single rate of 25%), energy and excise duties, labour market contributions (8% on all personal income), corporate income tax and the above-mentioned health contribution (8%). Personal income tax accounts for almost half of the State's total tax revenue and is payable on wages and almost all other forms of income, including profits from personally owned businesses. It is calculated according to a progressive scale, with a basic rate of 5.5%. The medium and top rates (6% and 15%, respectively) are levied on earned and capital income. A tax ceiling ensures that income taxes collected at state and municipal levels cannot exceed 59% of income. Aside from the state health contribution, some taxes are partly motivated by health concerns (e.g. excise duty on motor vehicles, energy, spirits and tobacco products). In the 1990s, the national Government introduced a green excise duty that is levied on pollution and the consumption of scarce goods, such as water, oil, petrol and electricity. In 2007, the average municipal tax rate was 24.6%.

Municipal taxes are levied proportionately on income and real estate (property). Every year, the central Government agrees on maximum municipal taxation rates with the National Association of Local Authorities. The central Government also distributes additional resources to the municipalities through block grants, if municipalities raise their service level or take over tasks from the state subsidies based on the size of their tax revenue. Because the population's income and need for public services vary from area to area, a certain amount of redistribution or financial equalization is necessary to compensate for discrepancies and to make sure the tax rate is associated with the municipal council's chosen service level and not the tax base or the population's need for

public services. Redistribution between municipalities is devised according to a formula, which accounts for the following objective criteria: age distribution; the number of children in single parent families; the number of rented flats; the rate of unemployment; the number of people with only basic or no education; the number of immigrants from non-EU countries; the number of people living in socially deprived areas; and the proportion of elderly people living alone. Likewise, the size of the State's block grant to each region depends on sociodemographic criteria. In 2001, the Government introduced a tax freeze as a central part of its economic policy.

#### **4.1.1 Main source of finance**

See Section 4.1 on Revenue mobilization.

#### **4.1.2 Second most important source of finance**

State and municipal taxes are the main sources of health care financing in Denmark, but patients also make substantial out-of-pocket payments at the point of use. Private expenditure mainly covers the costs of pharmaceuticals, vitamins, dentists, spectacles, unauthorized or alternative treatments, VHI and accident insurance.

#### **4.1.3 Out-of-pocket payments**

Patients pay out-of-pocket payments for part of the cost of dental care and physiotherapy. For dental care, the reimbursable amount depends on the procedure performed, but it is usually only a small part of the total cost. High co-payments for dental care have caused some controversy in Denmark, as it is claimed that they are reducing equity of access to these services.

Expenditure on pharmaceuticals in hospitals is reimbursed in full, whereas pharmaceutical expenditure in the primary health care sector is subject to different levels of co-payment. Under the new reimbursement system, an individual's annual pharmaceutical expenditure is reimbursed at the following levels: below DKK 520 – no reimbursement; DKK 520–1260, 50% reimbursement; DKK 1260–2950, 75% reimbursement; above DKK 2950, 85% reimbursement (Danish Medicines Agency 2005a). Chronically ill patients with permanent or high drug utilization levels can apply for full reimbursement for any expenditure above an annual ceiling of DKK 3805 (Danish Medicines Agency 2005a). Special rules for pensioners have been abolished, although

pensioners who find it difficult to pay for pharmaceuticals can apply to their municipality for financial assistance. Patients with very low income can receive partial reimbursement, on a case-by-case basis, under the Ministerial order of Law on social security pension (Legal Information 2007a) and the Ministerial order of Law on social service (Legal Information 2007b). In addition, many individuals purchase VHI to cover the cost of paying for pharmaceuticals (see Subsection 4.1.4 on Voluntary health insurance). Pharmacists are required to substitute the most inexpensive, or close to the most inexpensive, generic medicine for the medicine prescribed by the physician to help reduce the burden of out-of-pocket payments (and the burden on public expenditure) related to pharmaceuticals. This should take place if the prescriber has not clearly stated to the contrary.

It is not known how much is spent on unauthorized or alternative treatments and pharmaceuticals in Denmark. According to a national survey carried out in the year 2000, 21% of respondents had used unauthorized or alternative treatments during the previous year; women aged between 25–44 and 45–66 were the most frequent users of alternative treatment, and zone therapy, massage, herbal medicine and acupuncture were the most frequently used treatments (National Institute of Public Health 2003) (see Section 6.12 on Alternative/complementary medicine).

User charges for GP and hospital visits have been discussed as a means of reducing unnecessary utilization of health services, but they have so far been rejected for fear of reducing utilization by poor individuals who are most in need of health care. Out-of-pocket payments are not tax deductible.

#### **4.1.4 Voluntary health insurance**

For the past century, a large proportion of health care in Denmark has been financed through a system of VHI schemes (see Section 2.1 on Historical background). The counties took over these schemes in 1973 and, since then, most health care has been financed through taxation. However, a small VHI scheme still exists, which covers treatments that are only partially reimbursable or not publicly reimbursable at all. The purchase of such VHI is becoming increasingly popular. In 2002, the contribution of VHI to total expenditure on health was 1.6%: a 0.2% increase from 1998. Private (out-of-pocket) expenditure on health care accounted for 17% of total health expenditure in 2002, compared to 16.6% in 1998 (OECD 2004). Since opting out of the tax-based financing of the public health care services is not possible, VHI is mainly used as a complementary or supplementary scheme alongside the statutory health care system in Denmark.

Complementary VHI provides full or partial coverage for services that are excluded or only partially covered by the statutory health care system. For example, it provides coverage for the reimbursement of pharmaceuticals, dental care, physiotherapy and corrective lens co-payments. Approximately 28% of the population purchased complementary VHI in 1999, making complementary VHI the most common type of VHI in Denmark (Thomson & Mossialos 2004).

The purpose of supplementary VHI is to increase consumer choice and access to different health services. Traditionally, this means guaranteeing superior accommodation and amenities in hospital – rather than improved quality of care – and faster access to treatment that generally has long waiting times, such as elective surgery. This type of VHI is of growing importance in Denmark and mainly covers access to private hospitals in Denmark and abroad. The demand for supplementary VHI in Denmark is fuelled by general conditions in the Danish labour market (including strong competition for employees and high levels of personal income tax) and the fact that companies benefit from tax deductions when purchasing VHI for employees (Mossialos & Thomson 2002). Over the past few years, demand may also have been fuelled by the critical tone of public debate on the statutory health care system. Quality and waiting times are perceived to be problems in Denmark and, although these perceptions are not always accurate or evidence based, insurers have been able to benefit from these concerns. Supplementary VHI in Denmark favours those who are employed, as many policies are tied to job contracts. In general, supplementary VHI has less significance for children, unemployed people, students, the elderly and those with pre-existing conditions or chronic illnesses. For these reasons, supplementary VHI introduces greater inequality into the health system (which is, otherwise, unacceptable in Denmark) and stimulates the demand for private health care, which has generally been very limited (Mossialos & Thomson 2002).

The VHI market is dominated by Health Insurance “denmark”, a mutual (non-profit-making) association that covers approximately 29% of the total population and had a 99% share of the VHI market in 2004 (Health Insurance “denmark” 2007). Health Insurance “denmark” offers individual insurance policies; however, premiums are not tax deductible. The role of Health Insurance “denmark” is primarily to cover co-payments, and, in some cases, it pays for non-publicly reimbursed health care. Four different types of coverage are offered (Health Insurance “denmark” 2007). The first type of coverage, Group 1, provides coverage for expenses related to private hospital care, medication, medical aids, chiropractice, chiropody, physiotherapy, dental treatment, eye care, glasses, contact lenses, funeral aid and visits to sanatoria. Approximately 7.1% of the total Danish population were covered in Group 1 in 2004. Group 2 is designed for people who choose to pay a greater amount of their health expenses

in exchange for a freer choice of both GPs and specialists. Group 2 members are reimbursed for expenses relating to GPs and specialists, in addition to receiving Group 1 coverage. Only 0.8% of the total Danish population were covered by this scheme in 2004. The third type is called Group 5. It covers medication, dental care, glasses and contact lenses. This group is mainly aimed at young people, who generally have less need for coverage. Thus, the coverage and the premium are lower compared to the two types already mentioned. Group 5 is by far the largest, comprising 22.6% of the total Danish population in 2004. The fourth type is a basic insurance, designed for people with no acute need for medical care. As a member of the Basic Insurance group, medical costs will not be refunded; however, members may switch to one of the other types of coverage whenever necessary, without having to requalify. A total of 3.6% of the Danish population are members of this type (Health Insurance “denmark” 2005). VHI is provided through annual or long-term contracts and benefits are paid in cash. Applications for coverage may be rejected if applicants do not fulfil the requirements, which mainly regard health status and are set out by Health Insurance Denmark.

In recent years, private profit-making insurance companies have gained access to the market. Similar to Health Insurance “denmark”, these companies offer coverage for private hospital care in Denmark or abroad. According to the trade organization, Insurance & Pension, the number of private insurance contracts more than doubled from approximately 120 000 in 2002 to almost 300 000 in 2004 (Mandag Morgen 2005).

Private health insurance is primarily distributed through company agreements in the form of group insurance. Schemes that provide a lump sum in case of “critical illness” have been the biggest successes for these insurance companies. Such schemes can be used for private hospital care or any other purpose and often form part of collective and business arrangements between employers and employees. Interest in private insurance comes from a combination of the employees pressuring employers for an agreement and companies seeing it as a modern personnel and pension policy. Insurance varies depending on the company, according to the content and degree of coverage. The typical minimum coverage includes some private hospital treatments plus preliminary examinations and after-care. If treatment cannot be conducted in a private hospital in Denmark, then it is offered abroad.

The five largest private profit-making insurance companies in Denmark are Codan Care, Danica, PFA, Topdanmark and Tryg (Danish Association of the Pharmaceutical Industry 2005).

Three types of private health insurance exist in Denmark: user-payment insurance, critical illness insurance and hospital insurance. User-payment

insurance is individual insurance offered by Health Insurance “denmark”. Critical illness insurance is accident insurance, which can be subscribed to with Health Insurance “denmark” but it is also a part of several collective agreements between employers and employees. Hospital insurance is usually paid by employers. Several commercial insurance companies offer this kind of insurance. Generally, it covers all hospital treatment expenses.

The premiums of VHI policies, which are sold by the dominant mutual association Health Insurance “denmark”, are usually group-rated and vary according to the level of coverage chosen. Commercial premiums are based on age and employment status. The maximum age limit for coverage is 60 and pre-existing conditions are excluded from the coverage. There is no regulation of premiums and no tax relief for policies purchased by individuals. Employers purchasing policies on behalf of their employees may deduct the cost of these premiums from their taxes. Almost all policies sold by Health Insurance “denmark” are purchased by individuals, while over 80% of the commercial policies are purchased by employers or groups (Thomson & Mossialos 2004). Employer tax relief for employer-paid insurance policies is likely to fuel demand for VHI in future. There are no cross-subsidies with the statutory health care system.

Generally, the Danish population is not concerned with the growth of private health insurance. Approximately two thirds of the population find the act of companies offering health insurance to their employees to be positive. Only one third of the population finds it troubling and sees it as a potential risk for privatization to damage the Danish welfare model in the long run. The part of the population in favour of private health insurance is equally distributed in gender, age, education and type of work. People in the age group 15–29 years, people with less education and people earning yearly wages that are greater than DKK 500 000 are, in particular, *very positive* towards the growth of private health insurance (Mandag Morgen 2005).

Although the level of private insurance coverage in Denmark is relatively low today, the market for VHI is expected to grow in the long run. This may undermine people’s willingness to contribute to the public health care system and it may increase inequity in access to health care, especially if the poor or unemployed cannot afford to subscribe to VHI schemes.

## 4.2 Allocation to purchasers

Resource allocation decisions are made at several levels. The most significant resource allocation mechanism at national level is the national budget negotiation that takes place once a year between the Ministry of Health, the Ministry of Finance and the regional and municipal councils, which are represented by the Danish Regions and the National Association of Local Authorities. At this annual negotiation, the following allocations are decided upon:

- the recommended maximum level for municipal taxes;
- the level of state subsidies to the regions and municipalities, in the form of general block grants, whose size depend on several objective factors, with the most important factors being the population's demographic characteristics (regions and municipalities) and the size of municipal tax revenues (the municipalities only) (a minor part of the grants is distributed between the regions, based on the productivity of their hospitals, which is measured in DRG-points produced).
- the level of redistribution or financial equalization between municipalities, which compensates for variations in the tax base of different areas;
- the size of the one-off or permanent grants, which are earmarked for specific initiatives that require additional resources (e.g. the Second National Cancer Programme or other initiatives including heart surgery and mental illnesses).

Although the regions and municipalities are responsible for providing the majority of health services in Denmark, they must stay within the health care expenditure limits that were agreed on during annual negotiations. Since most regional and municipal health care spending is financed through income taxes (81%) or real estate (property) (6%) taxes, the central Government's strongest economic control instrument over the municipalities is their opportunity to limit or extend these revenues. If expenditure exceeds the limits – even though the municipalities are not legally bound by the annual negotiations – the national Government may penalize individual or all municipalities or regions by withholding grants, which account for 13% of total municipal health care financing. In practice, however, there are few instances of significant tax increases beyond agreed levels. Room for negotiation during the annual negotiations has been very limited since the introduction of the tax freeze on all taxation levels in 2001.

### 4.3 Purchasing and purchaser–provider relations

Financial resource allocation between the integrated purchasers and providers in the hospital sector of the Danish health care system has been subject to major changes.

In the past, many county politicians and managers were very sceptical of activity-based financing, probably because their counties experienced massive deficits before the introduction of global budgeting in the 1970s. Another possible reason for this scepticism is the combination of unlimited demand for health care (which is provided free at the point of delivery) and very limited extra tax revenue (which is provided to the counties for treating a greater number of patients). However, activity-based financing was eventually introduced in the 1990s.

Since the counties experienced massive deficits in the 1970s, the predominant method for allocating resources to hospitals has been prospective global budgets, which were fixed by the county councils. These budgets were based on past performance and modified when new activities were introduced, which included changes in tasks and areas of specific need.

During the 1980s and 1990s, counties developed their budgetary process by increasingly including non-economic measures, such as activities (e.g. discharges, bed-days and the number of ambulatory visits) and service levels (e.g. standards for various gauges of waiting time). Some counties also wanted to include clinical quality and performance measurement management in this target, but did not succeed as the proposed measures were considered too simple. These performance measures supplemented global budgets, which continued to make up the main component, and were mostly intended to raise awareness of the relationship between costs and activity, and to create incentives for increased activity and improvement in hospital services. They were not intended to introduce competition between hospitals, and little emphasis was placed on publishing the hospitals' results to the public. This was probably due to the fear that hospital administrations might manipulate performance data or that below-standard performances might create anxiety among voters and encourage patients to choose hospitals in other counties. Performance measures varied from county to county and, in some cases, even from hospital to hospital.

Although hospital budgets are “soft” in the sense that they are not legally binding and do not include specific sanctions if targets are not achieved, persistent failure to fulfil a budget may result in replacement of managers.

Another initiative to improve effectiveness has been to delegate management and financial responsibility to lower levels (e.g. from hospital to department

level). It is hoped that this will increase cost-awareness and allow the better utilization of information at each organizational level. Department-level budgets are fixed through annual negotiations between the regions, hospital administrators and departments. The procedure varies across the regional level. Individual hospitals may make contracts with each department.

If an inhabitant has utilized regional services such as heart transplants, or exercised his/her right to a free choice of hospital, the county or region where these services were delivered is reimbursed by the inhabitant's own region. Before the introduction of activity-based financing, this reimbursement was passed on to the hospitals involved or, more often, kept by the regions as part of their general income. For this reason, hospitals usually did not regard reimbursement for treatment of patients from other counties as an incentive.

The system of politically controlled global budgeting and contracts, combined with cost-containment efforts at the regional level, has proven to be an effective way of controlling expenditure on hospital services. However, the system provides limited economic incentives to increase efficiency at the point of service delivery and limited general incentives to increase activity if demand rises, which possibly contributes to waiting list problems for some treatment types (Pallesen 1997). Finally, global budgeting encourages hospitals and departments to view their economic budget as a "right". It also makes it difficult to establish whether the current resource allocation mechanism is efficient or not, and to reallocate resources between hospitals and departments. A number of different initiatives, at both state and regional levels, have been introduced to counter the negative consequences of global budgeting. These initiatives are characterized by adding increasingly more performance measures in hospital budgets or by gradually introducing more market-oriented steering mechanisms into the health care sector.

Activity-based financing has been gradually introduced as a resource allocation mechanism in Denmark. In 1997, extra funds were allocated to the counties so that they could experiment with activity-based financing. As part of the budget agreement for 1999, and in conjunction with the "free choice of hospital" scheme introduced in 1993, full DRG payments for patients treated at hospitals outside their home region were introduced. This has increased the incentive for regions to treat patients from other regions since, in many cases, DRG rates are higher than the deliberately low rates that were initially applied to the "free choice" scheme. At first, only marginal rates were used, for fear that this element of activity-based financing may lead to increases in health care costs; however, this has turned out not to be the case. It is still not clear to what extent this change has led to greater competition between regions. However, a survey conducted in 2002 concluded that 70% of hospitals reported having

launched initiatives to attract patients from other regions to their services. The survey also showed that the share of patients from other regions that were treated in hospital departments increased by 32% between 1996 and 2000 (Ankjær-Jensen & Rath 2004). Since 2004, the global financing system, which is based on an adaptation of the DRG system, has been combined with negotiated activity targets for each hospital. Under this system, each hospital receives an upfront budget corresponding to 80% of the DRG rates related to the case mix in the negotiated activity target (the “baseline”), with the remaining 20% being allocated according to actual activity. Hospitals and departments that produce less DRGs than their baseline will thus receive less funds. Departments and hospitals that produce more DRGs than their baseline will experience a rise in income; however, there is a limit as to how much the extra income can exceed the baseline. This thereby combines the advantages of global budgeting with the advantages of activity-based financing. Implementation of the new scheme has varied between counties (Ankjær-Jensen & Rath 2004). The Government is planning an increase in the activity-based financing from 20% to 50% of the hospital budgets during the coming years. This increase means that the economic consequences of producing less DRGs than the baseline will become stronger for the individual hospital or department.

In order to avoid hospitals and departments from discriminating against patients on the basis of their place of living, their activity is measured in DRGs independent of where patients live.

## **4.4 Payment mechanisms**

### **4.4.1 Paying health care personnel**

Salaries for staff employed by hospitals, nursing homes and municipal health schemes are fixed through negotiation between trade unions, professional organizations, the Danish Regions and the National Association of Local Authorities.

Approximately 60% of Danish doctors work in hospitals as salaried employees. A further 10% are involved in nonclinical work such as administration, teaching and research. Approximately 23% of doctors work as GPs (Ministry of the Interior and Health 2005b). GPs licensed by a region derive almost all of their income from that region, according to a scale of fees that is agreed on by the Organisation of General Practitioners and the Danish Regions. Their remuneration is a mixture of capitation, which makes up on

average a third of their income, and fee-for-service payments for services rendered (per consultation, examination, operation, etc.), including special fees for out-of-hours consultations, telephone consultations and home visits. This combined fee system has been developed over the last century. Its objective is to create incentives for the GPs to treat patients by themselves rather than to refer those who could be treated in general practice to hospital. At the same time, it provides economic security and remuneration for general services, for which fees are not paid otherwise. While the fee-for-service mechanism should increase GPs' productivity, capitation aims at preventing GPs from providing unnecessary treatment. In 1987, the city of Copenhagen changed from an area using a mostly capitation-based system to one using the combined fee system used in the rest of the country. As a result of this change, the volume of activities which were specifically remunerated increased and referrals to specialists decreased (Krasnik et al. 1990). Priority setting also influences the contract between the GPs and Danish Regions. For example, a comparatively high fee for preventive consultations is supposed to encourage GPs to offer longer consultations focusing on broader health and prevention activities such as education regarding smoking or dietary habits, weight control, and so on. Before the introduction of this quite high fee, GPs who used extra time to discuss such topics with their patients were "punished" compared with GPs who stuck to a quick examination of each patient.

Practising specialists licensed by the regions are also remunerated by region, although they only receive fee-for-service payments. In order to visit a specialist a patient must be referred by a GP; that is, unless the patient is willing to pay for the treatment on their own. Almost all specialists' income is paid by the region. Very few doctors are employed in the private profit-making sector, but those that are work either at clinics or small hospitals or in the pharmaceutical industry. Paying providers a fee for the services rendered is intended to promote productivity, but there is little evidence concerning the efficiency of this payment mechanism. It has proven very difficult to control the regional expenditure for these services and it has, during some periods, even increased more rapidly than hospital expenditure – probably due to the strong activity-based financing element. There are limits on GPs' and specialists' income from the counties, but these limits are much weaker than those in the hospital sector. Health care personnel employed by the municipalities (nursing home staff, home nurses, health visitors and municipal dentists) are paid a fixed salary.

Public health professionals are employed at public (at both state and municipal levels, and within research institutions) and private institutions involved in the administration, planning and provision of health care. Public health professionals are mainly paid on the basis of fixed salaries. For details

of the payment of dentists and dental auxiliaries, see Section 6.11 on Dental health care.

## 4.5 Health care expenditure

The national data on health care expenditure differ from the approach applied by the Organisation for Economic Co-operation and Development (OECD) in terms of method of measurement and the extent of services included. In this section, OECD data are primarily used to improve the possibility of cross-country comparison, and despite recognition of the methodological difficulties that are also embedded in this approach.

Danish health care expenditure as a percentage of GDP is slightly lower than the EU average for the Member States belonging to the EU before May 2004 (see Fig. 4.2, Fig. 4.3 and Fig. 4.4).

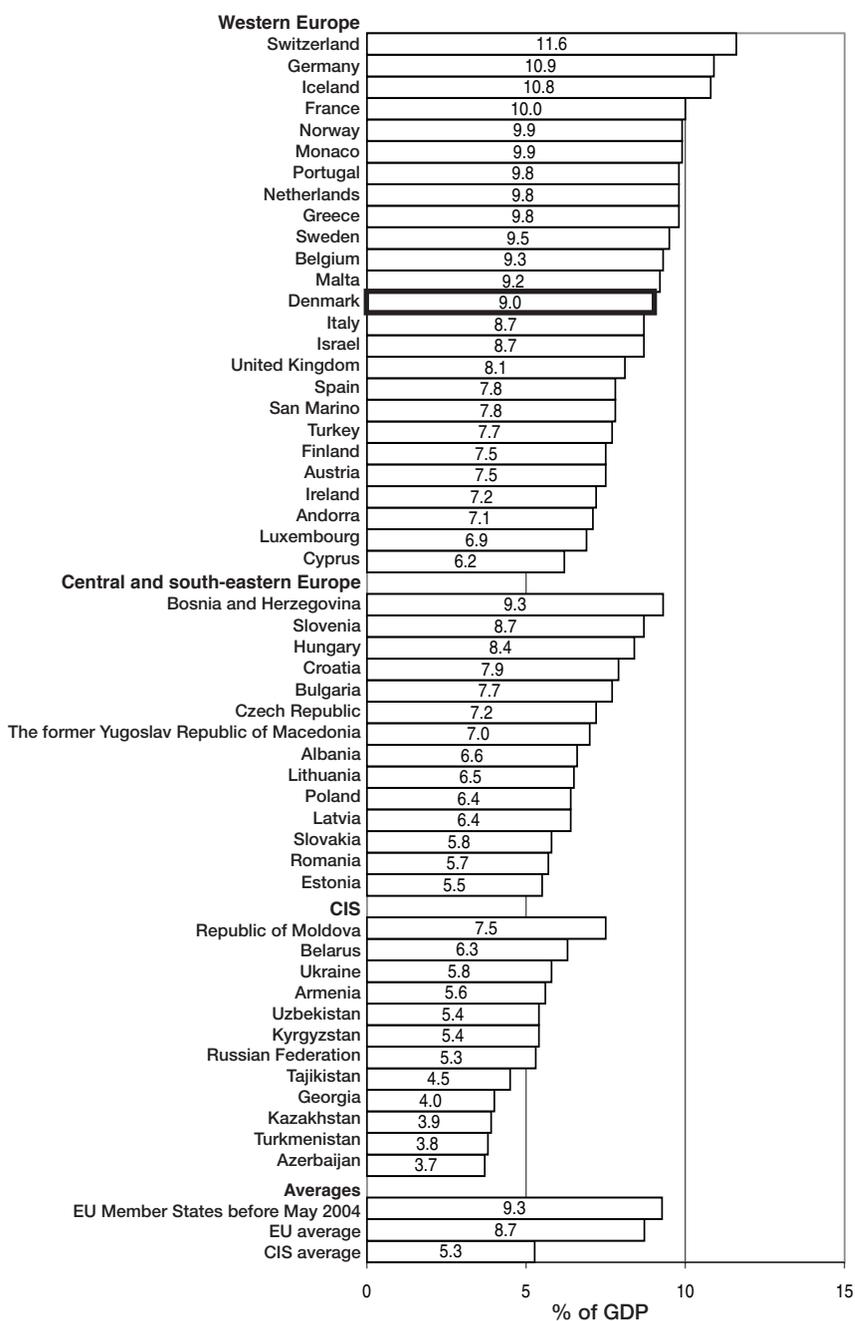
**Table 4.1 Trends in health care expenditure, 1980–2003 (selected years)**

	1980	1985	1990	1995	2000	2002	2003
Total health expenditure, US\$ PPP per capita	943	1 275	1 554	1 843	2 353	2 583	–
Total health expenditure as a % of GDP	9.1	8.7	8.5	8.2	8.4	8.8	9.0
Public expenditure on health as a % of total expenditure on health	87.8	85.6	82.7	82.5	82.4	82.9	8.0
Private expenditure on health as a % of total expenditure on health	12.2	14.4	17.3	17.5	17.6	17.1	17.0
Out-of-pocket payments, US\$ PPP per capita	107	173	249	300	373	396	–
Out-of-pocket payments as a % of total expenditure on health	11.4	13.6	16.0	16.3	15.9	15.3	–
Private insurance – % of total expenditure on health	0.8	0.8	1.3	1.2	1.6	1.6	–
Mean annual real growth rate in total health expenditure <sup>a</sup>	–	–	–	2.3	4.3	2.0	–
Mean annual real growth rate in GDP	–	–	1.0	2.8	3.0	1.7	2.3

Sources: Ministry of Finance, 2001; Ministry of the Interior and Health, 2005b; OECD, 2004.

Notes: <sup>a</sup> 2003 prices; PPP: purchasing power parity; GDP: gross domestic product.

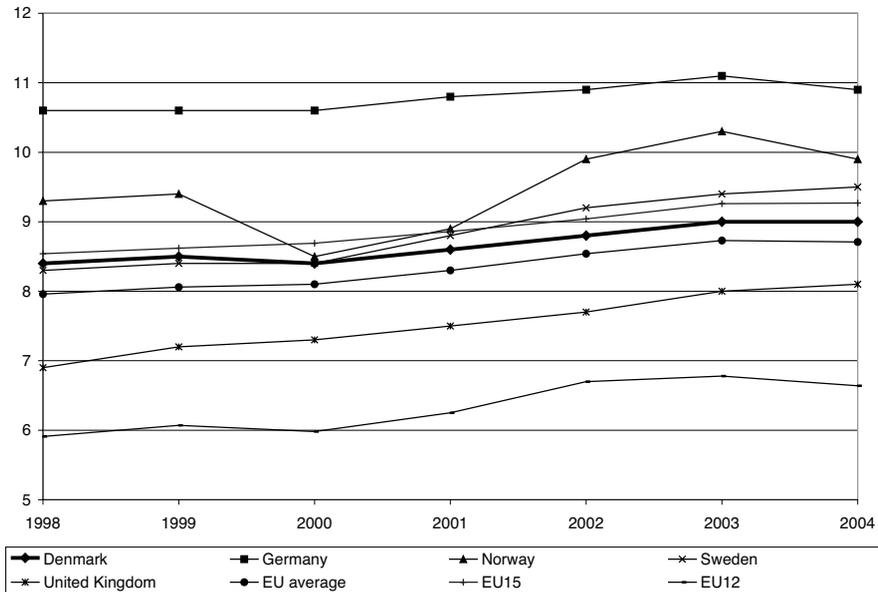
**Fig. 4.2 Health care expenditure as a share (%) of GDP in the WHO European Region, 2004, WHO estimates**



Source: WHO Regional Office for Europe, January 2007.

Notes: CIS: Commonwealth of Independent States; EU: European Union.

**Fig. 4.3 Trends in health care expenditure as a percentage of GDP in Denmark and selected other countries, 1998–2004, WHO estimates**

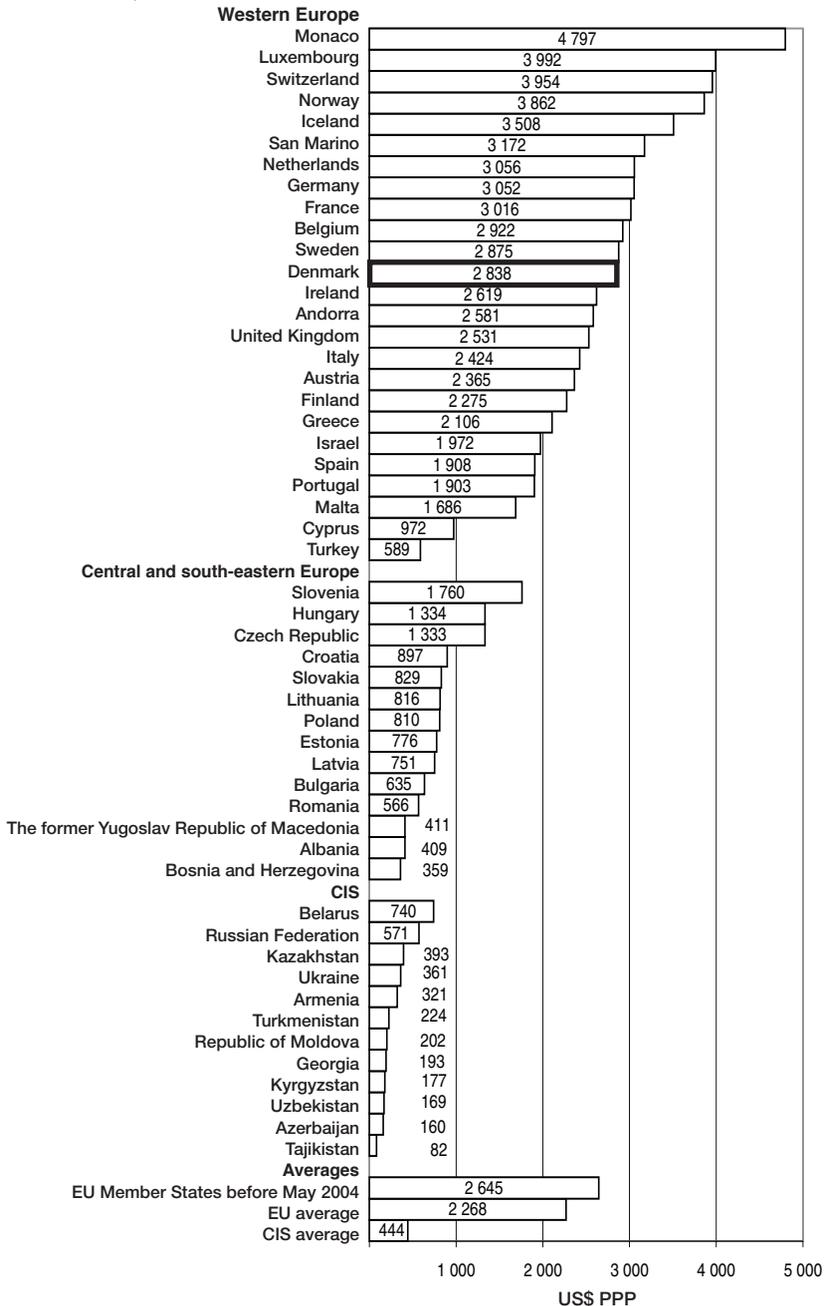


Source: WHO Regional Office for Europe, January 2007.

Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

In Denmark, health care expenditure as a percentage of GDP fell in the 1980s; however, it has slowly risen since 1995 (see Table 4.1). The relatively high health care expenditure as a percentage of GDP in 1980 was largely due to a change in the definition and calculation of health care expenditure to include expenditure on nursing homes. In the 1980s, there was a trend towards rising private expenditure as well, which was driven by a political effort to contain public expenditure (see Section 2.1 on Historical background). The public proportion of total health expenditure, however, has been fairly stable during the period 1995–2003 (OECD 2004).

**Fig. 4.4 Health care expenditure in US\$ PPP per capita in the WHO European Region, 2004, WHO estimates**



Source: WHO Regional Office for Europe, January 2007.

Notes: PPP: Purchasing power parity; CIS: Commonwealth of Independent States; EU: European Union.



## 5 Physical and human resources

### 5.1 Physical resources

#### 5.1.1 Infrastructure and capital investment

The regions are responsible for providing hospital care and they own and run hospitals and prenatal care centres. They also finance GPs, specialists, physiotherapists, dentists and pharmaceuticals. Health care is largely a regional responsibility, and most national legislation concerning the health care sector does not specify how it should be organized or which services should be provided (see Section 3.2 on Planning and health information management).

The number of beds in somatic and psychiatric hospitals in Denmark has declined substantially since the 1990s (see Tables 5.1 and 5.2), reflecting a trend in almost all western European countries (see Fig. 5.1). Somatic activity has increased since the mid-1990s, parallel with a reduction in the number of hospitals. The number of discharges increased from 1996 to 2005, with an average yearly rise of 1.3%. This should be looked at along with the average length of stay, which has decreased by 1.6 days during the same period. There has been a fall in the number of bed-days from approximately 6 million in 1996 to approximately 5 million in 2005, which corresponds to an average annual fall of 2% (Ministry of the Interior and Health 2006).

The number of discharges from psychiatric hospitals increased during the period 1997–2003, with an average yearly rise of 2.2%. The number of psychiatric hospitals was stable from 1997 until 2001, where it began to vary noticeably; from 2000 to 2001, the number of psychiatric hospitals was reduced from 12 to 9 and then subsequently increased to 10 and 14 hospitals in 2002 and 2003, respectively (Ministry of the Interior and Health 2006).

**Table 5.1 Activity in somatic hospitals, 1996–2005 (selected years)**

	1996	1998	2000	2002	2004	2005
Hospitals	79	76	61	58	52	–
Discharges	980 000	996 000	1 029 000	1 062 000	1 089 000	1 102 000
Bed days	5 990 000	5 738 000	5 567 000	5 471 000	5 111 000	4 998 000
Beds	20 476	19 472	18 484	18 166	16 668	16 410
Average length of stay (days)	6.1	5.8	5.4	5.2	4.7	4.5
Bed occupancy rate (%)	80.1	79.5	81.7	79.0	82.2	83.5

Sources: Ministry of the Interior and Health, 2004b; Ministry of the Interior and Health, 2006.

**Table 5.2 Activity in psychiatric hospitals, 1997–2003**

	1997	1998	1999	2000	2001	2002	2003
Hospitals	12	12	12	12	9	10	14
Discharges	35 526	36 769	38 626	38 982	40 691	40 815	40 423
Bed days	1 440 000	1 433 000	1 442 000	1 406 000	1 373 000	1 330 000	1 280 000
Beds	4 029	3 999	4 022	3 894	3 886	3 799	3 676
Bed occupancy rate (%)	97.9	98.3	98.2	98.9	96.8	95.9	95.4
Outpatient visits	450 000	483 000	532 000	564 000	567 000	746 000	643 000

Source: Ministry of the Interior and Health, 2006.

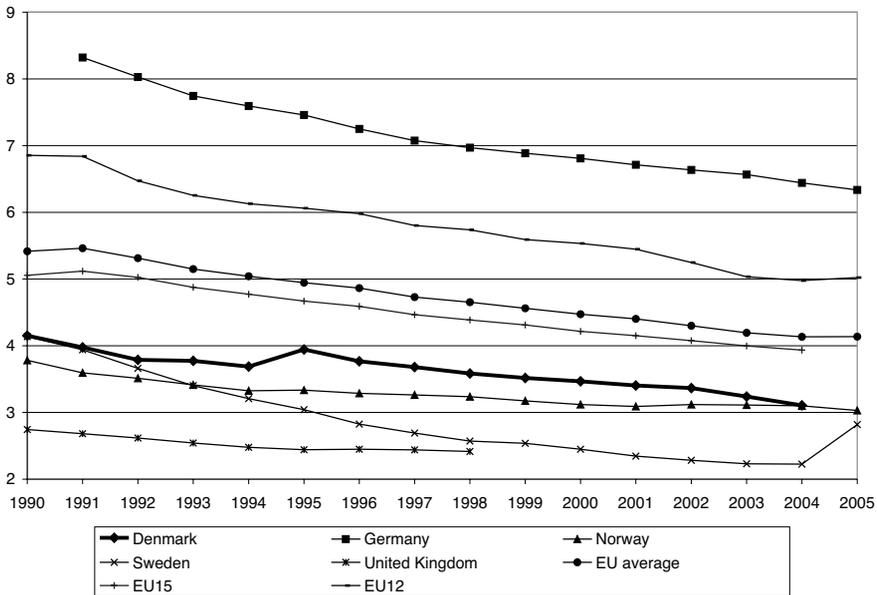
The relative reduction in the number of beds is most significant in psychiatry, largely due to a policy of deinstitutionalization. During the period 1980–1990, the number of psychiatric beds was dramatically reduced from 8182 to 4906.

The general decline in the number of beds in both somatic and psychiatric hospitals is associated with a large increase in the number of outpatient visits. Many diagnostic and therapeutic procedures can take place without inpatient admission, or before and after an inpatient stay.

### Capital investment

The regional and local authorities are responsible for conducting estate condition surveys. There is no central assessment of overall estate conditions. In the primary health care sector, the GPs and practising specialists own or rent their practice as independent contractors. No central or regional estate condition surveys are conducted at this level.

**Fig. 5.1 Beds in acute hospitals per 1000 population in Denmark, selected countries and EU averages, 1990–2005**



Source: WHO Regional Office for Europe, January 2007.

Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

The task of ensuring functional sustainability and appropriate space utilization of existing buildings is the responsibility of the decentralized levels and the State is rarely involved. Supervision over fire and safety compliance in hospitals lies with the local authorities.

Regional capital investments are funded through general revenue with the exception of occasional grants, which are provided as direct transfers from the central Government to earmarked investments in health areas with special political focus, such as medical equipment to improve cancer care services. The financing of large-scale buildings is accomplished through a combination of general revenue, savings and loans. However, the central administration sets limitations on the economic activities of the regions, regarding the level of expenditure and borrowings. These limitations vary over time and they are generally based on political considerations. From 2007, the Ministry of Health must approve investments above a certain level. A redistribution of funds between municipalities has been implemented to ensure equitable geographic distribution of capital. The redistribution is devised according to a formula that accounts for the following factors: age distribution; the number of children in

single parent families; the number of rented flats; the rate of unemployment; the number of people with a low level of education; the number of immigrants from non-EU countries; the number of people living in socially deprived areas; and the proportion of elderly people living alone. The influence of the private health care sector is marginal and its size is not regulated.

### 5.1.2 Information technology

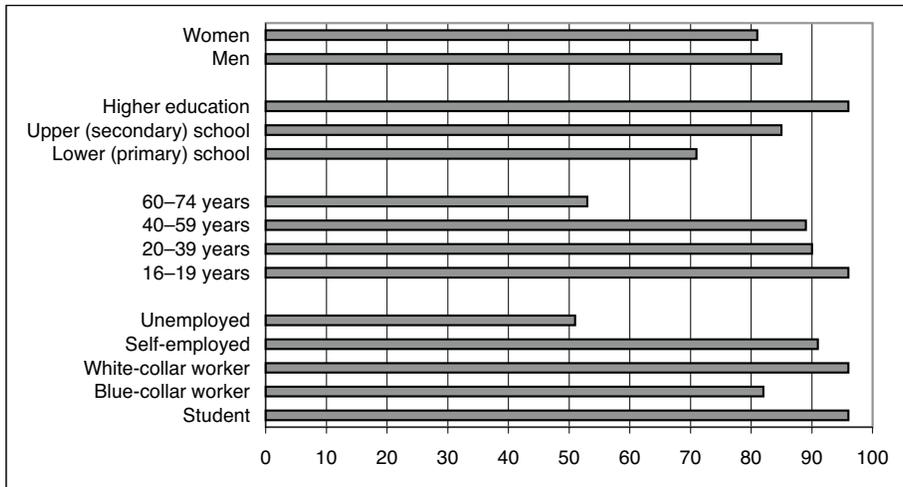
Denmark, with 22 fast Internet connections per 100 inhabitants in 2005, was among the countries in Europe with the highest number of fast Internet connections, despite the relatively high user costs (Ministry of Science, Technology and Innovation 2005).

In 2002, within a 3-month study period, 55% of the population had made contact with the public administration services using the Internet. Most commonly, people sought information from a public sector web site (40%), or engaged in other activities, such as downloading forms (16%) and sending information to authorities (13%) (Statistics Denmark 2004).

In recent years, access to the Internet has generally increased. In 2004, 83% of the population had access to the Internet from home and/or work compared to 73% in 2001. The increase in home-based connections was particularly significant, reaching 70% of the population in 2004 compared to 59% in 2001. Access to the Internet from work was at 58% in 2004, compared to 53% in 2003 (Statistics Denmark 2004).

Access to the Internet has increased for all age groups during the period 2001–2004. The most significant increase was among those aged 60–74 years, from 31% in 2001 to 53% in 2004 (Fig. 5.2). However, those in the group aged 16–39 years continue to have the highest percentage of access, with 96% in 2004. Concerning educational status, access to the Internet increases with the level of education. In the group with “higher education”, 96% had access compared to 71% within the group with “basic school” education. Students, white-collar workers and self-employed individuals all have a high degree of access to the Internet, with 96% for the first two groups and 91% for the latter. The unemployed group has significantly less access to the Internet (51%) compared to the other groups (Statistics Denmark 2004; Ministry of Science, Technology and Innovation 2005).

In Denmark, a National Strategy Group has been established for the development of an IT strategy in health. This group is made up of the Ministry of Health, the National Board of Health, the Danish Regions and the National Association of Local Authorities. A National Strategy (2000–2002) for implementing IT in the hospital system was first published in 1999 and

**Fig. 5.2** Internet access by the Danish population, 2004 (%)

Sources: Statistics Denmark, 2004; Ministry of Science, Technology and Innovation, 2005.

then subjected to hearings. Subsequent revisions of this document produced a National IT Strategy for the Danish health care service, which provided a common framework for the full computerization of the health sector during the period 2003–2007 (Ministry of the Interior and Health 2003b). These initiatives included the implementation of electronic health records (EHRs) in the Danish health care sector, and the spread of EHRs within the health system has taken place in recent years. However, the implementation process of the full strategy has not been very successful and available information suggests that the objectives have not been met so far.

Exploiting the possibility of sharing data among systems that are already in use in the health care sector, through integrated information systems and EHRs and using common standards, is a major priority of the IT strategy.

In 1998, the Danish Electronic Health Record Observatory was launched by the Ministry of Health, with the purpose of supporting the national health IT strategy by monitoring and assessing the development, implementation and application of EHRs in hospitals. The EHR Observatory is also part of the National IT Strategy 2003–2007. Explicit goals of the Strategy were: to install EHRs in all hospitals by January 2006; to ensure EHRs are based on the national information model for EHRs; to implement large-scale national eXtensible Markup Language (XML) communication between and within hospitals by 2005; and to establish an Internet-based secure health network by 2005 (Brunn-Rasmussen, Bernstein, Vingtoft, Andersen & Nohr 2003). Health professionals

and IT experts have criticized the fact that the former counties have established different EHR systems and approaches, which they regard as a serious drawback, due to waste of resources and lack of coordination. Considering the complexity of the problems and the decentralized approaches that have been taken during the initial phases, full and functional EHR coverage of the Danish health care sector is not expected any time in the near future.

A central initiative of the National IT Strategy is the creation of a common public health portal. Such a portal is intended to provide a common basis for communication and information in a cooperating health care sector. In addition, it is meant to provide citizens with an electronic access point to the health care sector (Lippert & Kverneland 2003).

Currently, IT has been introduced to and, to some extent, used in all parts of the health care sector. Denmark ranks among the countries with the most widespread use of electronic communication within the health care sector. This is particularly attributable to collaboration between the central and regional health authorities on the establishment of the Danish health care data network for the communication of clinical messages, such as medical prescriptions from a GP to the pharmacy and referrals from a GP to the hospital. In 2002, approximately 2.4 million messages per month were exchanged among more than 2500 parties including hospitals, pharmacies, laboratories, GPs, and so on. Furthermore, IT is expanding within each part of the health care sector. In 2002, more than 87% of GPs used electronic medical patient records (Ministry of the Interior and Health 2003b). Within hospitals, IT systems are used to register patient data such as patient files, patient administrative systems, laboratory systems, blood bank systems and diagnostic imaging and booking systems.

The patient administrative systems, which are extended throughout the entire health system, deliver data to central registers (such as the National Patient Registry). More than half of the local authorities have introduced electronic care systems, supporting the tasks of health recording, administration of drugs, and documentation and planning.

### **5.1.3 Medical equipment, devices and aids**

There is very limited national information available from hospitals and primary care facilities on existing medical equipment and its use in the Danish health system. The only available data include the number of magnetic resonance imaging (MRI) units, computed tomography scanners (CT), and radiation therapy equipment. The number of MRI units increased from 13 units in 1990 to 55 units in 2004, corresponding to a 423% increase. During the same period, the number of CT scanners increased from 22 to 79 scanners corresponding

to a 359% increase. Finally, from 1981 to 2004 radiation therapy equipment increased from 25 to 35 units (OECD 2006).

## 5.1.4 Pharmaceuticals

### Pharmaceutical expenditure

Pharmaceutical expenditures for Denmark and selected European countries are illustrated in Table 5.3.

As shown, Denmark's per capita consumption of pharmaceuticals is well below that of other western European countries (measured as sales in ex-factory prices and including both prescription and non-prescription medicines and in both the primary care and hospital sectors). Pharmaceutical consumption in Denmark is lower than in any other western European country as well, at only 0.4% of the country's GDP.

Pharmaceutical expenditure in the primary health care sector in 2005 was DKK 11 935 million (calculated in terms of pharmacy retail price, including prescription charge and VAT) and in the hospital sector this was DKK 4398 million (calculated in terms of hospital pharmacy settling price, including VAT). Expenditure on over-the-counter (OTC) pharmaceuticals was DKK 1876 million. OTC pharmaceuticals are also sold through authorized retail outlets (DKK 205 million) (Danish Medicines Agency 2006).

**Table 5.3 Pharmaceutical consumption in Europe, 2002**

Country	Pharmaceutical expenditure per inhabitant, US\$ (PPP)	Share of public health care expenditure on medicine, %	Public health expenditure on medicine as a % of GDP	Public sector's share of medicine expenditure (reimbursement share), %
Austria	358	17.3	0.9	74.9
Denmark	239	5.8	0.4	52.5
Finland	309	11.1	0.6	53.0
France	570	18.4	1.4	67.0
Germany	408	18.8	1.2	74.8
Greece	278	20.7	1.0	71.5
Ireland	259	12.3	0.7	84.2
Italy	484	15.4	1.0	52.1
Luxembourg	355	11.2	0.6	82.5
Spain	354	22.2	1.2	73.6
Sweden	329	10.6	0.8	69.3

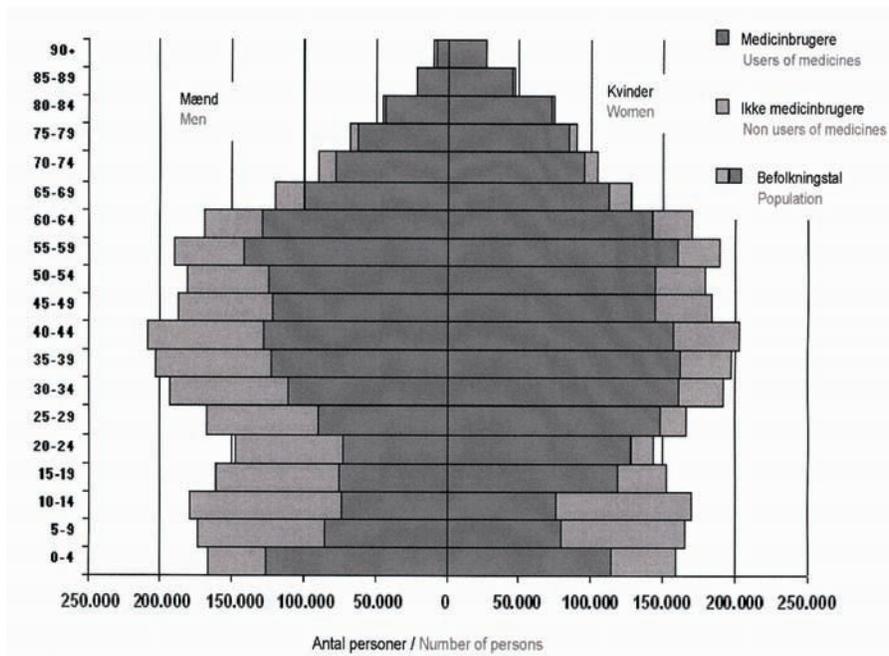
Source: OECD, 2004.

Notes: PPP: Purchasing power parity; GDP: Gross domestic product.

In 2005, sales of medicinal products in the hospital sector accounted for 27% of total sales. In the primary care sector, pharmaceutical expenditure was financed by the regional health authorities (56%), patient co-payments (39%) and municipalities (4%). Pharmaceutical consumption was DKK 1137 per 1000 inhabitants per day in 2003 (DKK 1092 from the primary health care sector and DKK 45 from the hospital sector). Figure 5.3 shows the number of people being treated with prescribed medicinal products in the primary health sector (by sex and age).

The constant increase in pharmaceutical consumption, which was observed throughout the 1990s, is still prevalent in Denmark today. This is partly due to the growing elderly population. During the last decade of the 20th century, a considerable number of new medicines were marketed; of these, most were either modifications of existing drugs, or pharmaceuticals for the treatment of previously untreatable ailments. This has attracted new consumer groups. Furthermore, it is increasingly common to use a combination of several drugs instead of single substances in the treatment of many diseases (e.g. hypertension, rheumatoid arthritis and gastric ulcers).

**Fig. 5.3** Number of people treated with prescribed medicinal products in the primary health care sector, by sex and age<sup>a</sup>



Source: Personal communication from Ellen Westh Sørensen (Department of Social Pharmacy, University of Copenhagen), 2006.

Note: <sup>a</sup> Population as of 1 January 2006.

The steady rise in the level of pharmaceutical expenditure has focused political attention on the pharmaceutical market for many decades, but particularly since the late 1980s. In spite of several initiatives to control costs (such as price freezes, price cuts, generic substitution and reference pricing), the level of pharmaceutical expenditure continues to rise today.

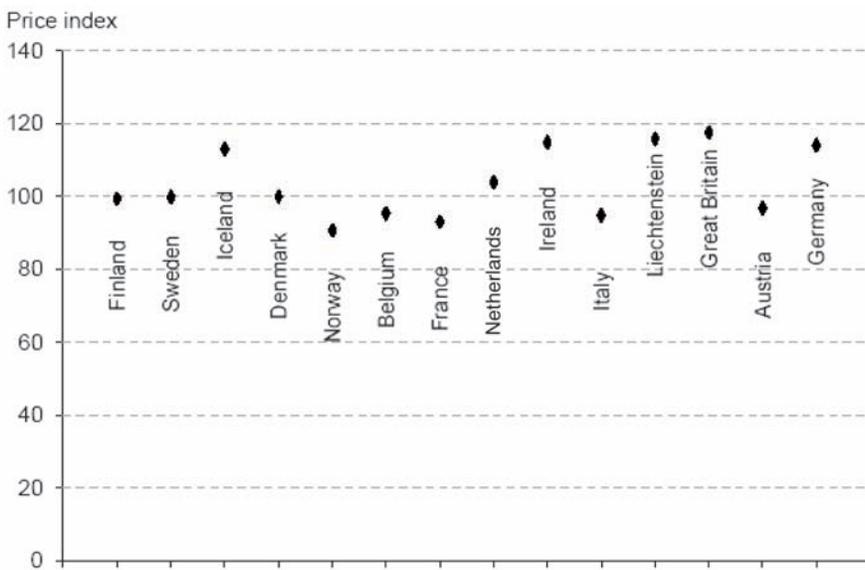
**Price levels**

In Denmark, the pricing of medicinal products is not controlled. Figure 5.4 shows the price index for medicines in some European countries in 2003. These indexes were calculated based on an assortment of Danish medicines, by comparing the package prices of a medicine in Denmark to those in another country where the same packages were available. Denmark, Finland and Sweden all have the same level, whereas Italy and Norway’s price indexes are lower. Iceland, together with Ireland, Great Britain, Germany and Liechtenstein, all pay a higher price than Denmark for the same medicines.

**Pharmaceutical cost–containment methods**

Generic substitution is one of the tools used to contain the growth of pharmaceutical expenses. Pharmacists are required to substitute the least expensive, or close to the least expensive, generic medicine for the medicine

**Fig. 5.4 Price index for medicines, 2003**



Source: Jørgensen & Keiding, 2004.

Note: Index: Denmark=100.

prescribed by the physician, when that the prescriber has not clearly stated to the contrary or the patient has not refused the substitution. Generic substitution slows down increasing drug costs 2-fold: by the actual change to a less expensive generic drug; and by stimulating price competition among interchangeable medicines. Generic substitution is possible among products containing the same quantity of the same active substance, if their biological equivalence has been proven and marketing authorizations granted. During recent years, some important medicines (including citalopram, simvastatin, omeprazol and felodipin) have lost their patent protection. This, along with generic substitution, has led to heavily decreased prices and a relatively small increase in pharmaceutical expenditure. Another approach to controlling pharmaceutical expenditure is parallel imports of pharmaceuticals, which has been practised since the beginning of the 1990s.

Denmark has a high proportion of generic and parallel import products on the market. Parallel importing of pharmaceuticals has been permitted since 1990. Generics (including leading brand name (original) products make up 10–11% of the total pharmaceutical market. In 2003, the number of packages prescribed with generic competition was 27% of the total number of packages. In 1999, this figure was 23%.

The use of generic and parallel-imported products was promoted from 1993 through a reference pricing system for reimbursement. Under this system, reimbursement was based on the average price of the two least expensive versions of a specific product. In 2005, the basis for reimbursement was changed to the lowest price paid in the EU.

In 1999, the Institute for Rational Pharmacotherapy was founded to guide doctors in rational prescribing. It also has the function of elaborating treatment guidelines with respect to cost. Each region employs local groups of pharmacists and GPs to monitor prescription patterns and advise GPs on rational prescribing.

The Institute for Rational Pharmacotherapy coordinates educational activities for local-level groups as well. It also established a national formulary for medical doctors for rational choice of treatments in 2003. Practice guidelines are produced by the medical colleges for various specialties and by the Danish College of General Practice.

The Institute for Rational Pharmacotherapy aims to provide objective information and guidelines on the rational use of pharmaceuticals, both in pharmacological and economic terms. However, marketing authorization is based on chemical, pharmaceutical, clinical and safety criteria, without any assessment of need or cost-effectiveness; this means that there is no essential

drugs list in the Danish pharmaceutical sector. Instead, consumption is partly regulated through the reimbursement system.

### **Reimbursement**

In Denmark, reimbursement for an individual medicine is based on its main indication; however, other secondary indications also warrant reimbursement. Some pharmaceutical products are only reimbursed for certain diseases. The medicine's therapeutic effect, value added, and side-effects are also factors considered when deciding on reimbursement. Price comparisons and economic evaluations also form part of the decision-making process.

The Danish Medicines Agency decides on the reimbursement status of each pharmaceutical product. The Danish Medicines Agency is a parallel board to the National Board of Health under the Ministry of Health. It is responsible for legislation concerning pharmaceuticals and medical devices, the approval of new products, clinical trials, deciding which drugs should be reimbursed, and licensing companies that produce and distribute pharmaceuticals. The regional health authorities advise the Danish Medicines Agency before they make any decision on whether or not to reimburse a particular drug. In general, reimbursement is granted for drugs that have a definite and valuable therapeutic effect and when they are used for a well-defined indication.

The total trade of medicinal products assigned reimbursement in 2005 equalled DKK 9.3 million (Danish Medicines Agency 2006). For pharmaceutical products without general reimbursement, an individually based subsidy may be obtainable by submitting an application, through a patient's own physician, to the Danish Medicines Agency. The cost of public reimbursement for medicines in the primary health sector has increased steadily over the years.

Complementary VHI covering the cost of medication is quite common in Denmark: approximately 1.9 million Danish citizens (29% of the population) are members of the non-profit mutual insurance company Health Insurance "denmark" (Health Insurance "denmark" 2007).

Usually, only pharmaceuticals subject to prescription are eligible for reimbursement. Drugs available without a prescription may be included in the list of reimbursable pharmaceuticals, but in such cases reimbursement is only granted to pensioners and patients suffering from a chronic illness that requires continuous treatment with the drug. A prescription would have to be issued for the pharmaceutical in question as well. Even if a drug meets the criteria for reimbursement, certain characteristics of the pharmaceutical, its specific use or the way in which it is prescribed may lead to a non-reimbursement decision.

There are no fixed percentages for the reimbursement of medicines but reimbursement relates to the patient's annual pharmaceutical expenses. From

April 2005 reimbursement is calculated according to the least expensive generic product. Patients with high pharmaceutical expenses are reimbursed for a higher percentage of their expenses. As of 2006, percentage groups were 0%, 50%, 75% and 85%. Expenses below DKK 520 per year are not reimbursed. If the patient's payment exceeds approximately DKK 3900, the patient can apply for 100% reimbursement for the rest of the year.

## 5.2 Human resources

### 5.2.1 Trends in health care personnel

#### **Public health professionals**

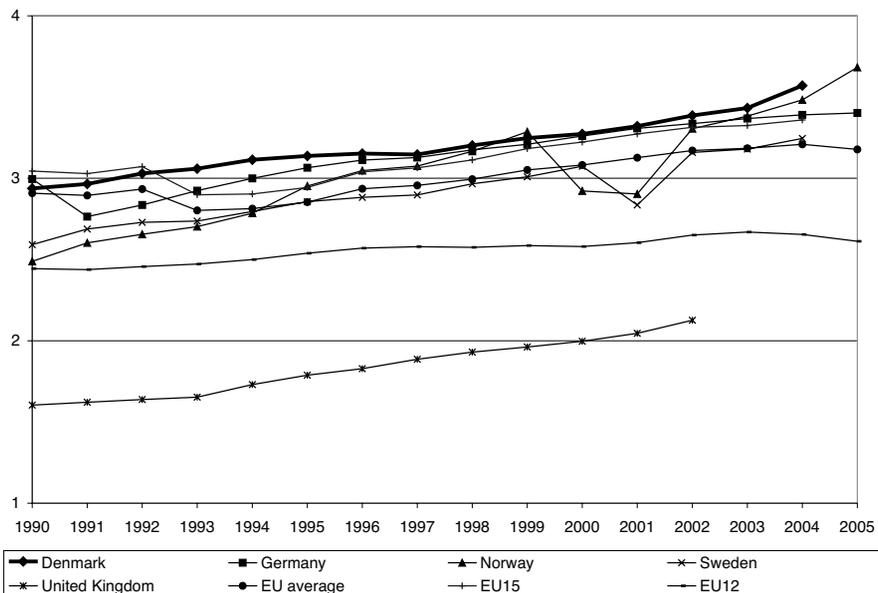
In Denmark, public health was established during the 1980s as a separate medical specialty with a standardized theoretical and practical training programme, including health management, occupational medicine and social medicine. In 1996, the first Danish postgraduate Master of Public Health programme was established and, in 1999, the University of Copenhagen launched a 5-year university programme in public health (Bachelor/Master (*Candidatus*) Education in Public Health Sciences). This was followed by the University of Southern Denmark in 2001. The first Masters of Science in Public Health from the University of Copenhagen graduated in 2004. Masters of Science in Public Health are qualified to work in public and private companies in the areas of health service planning, administration and case processing as well as in health care analysis, development, guidance, training and research that focuses on disease prevention and health promotion. Private employers include consulting firms working in the areas of social welfare and health, and companies in the pharmaceutical industry. To this may be added national and international organizations such as the Danish Cancer Society, the Danish Heart Foundation, the Red Cross, WHO, the OECD and the World Bank. Universities and institutes of higher education are also employers of Masters of Science in Public Health. The Danish Graduate School in Public Health offers a national PhD education within public health sciences. The Graduate School involves cooperation between 13 institutions comprising the University of Copenhagen, University of Southern Denmark, University of Aarhus, government research institutes, hospital research units, and private research organizations. The Graduate School is organizationally anchored in the Institute of Public Health of the University of Copenhagen.

### Doctors

Approximately 11 000 doctors were employed at hospitals in 2003, which is 600 more doctors than in 2001. The average yearly growth rate of doctors employed full time at hospitals increased by 2.8% for the entire country during the period 2000–2003. Approximately 45% of doctors employed in hospitals have permanent positions (Danish Medical Association 2005). The rest are employed in temporary positions as part of their postgraduate educational programme. Temporary positions are set up in specific hospitals and departments by the National Board of Health in an attempt to distribute newly qualified doctors between specialties and geographic areas, according to need and capacity. In this way, the National Board of Health is able to control the number of doctors trained in different specialties.

Approximately 3680 doctors are GPs, which corresponds to one per 1575 inhabitants. Recruitment of young doctors into general practice has been supported by an increasing recognition of general practice as a formalized specialty with growing scientific activity, improved social and professional environments (with group practices) and a fair income compared to hospital doctors. Whereas GPs are fairly well distributed across the country, the 1387

**Fig. 5.5** Number of physicians per 1000 population in Denmark, selected countries and EU averages, 1990–2005



Source: WHO Regional Office for Europe, January 2007.

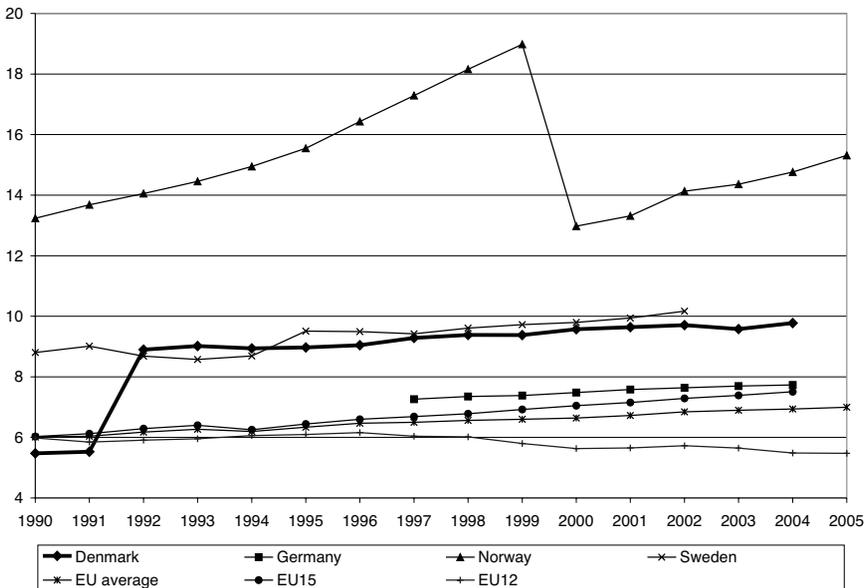
Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

full-time practising specialists are concentrated in the capital and other large urban areas (Danish Medical Association 2005).

Approximately 1100 doctors do not work in a clinical setting but they are fully employed as medical public health officers or researchers and teachers at public and private institutions. Medical public health officers are responsible for monitoring health conditions in their respective regions and for supporting public authorities by counselling, along with the supervision of health care professionals on behalf of the National Board of Health.

The number of doctors in Denmark is increasing, albeit at a slightly lower rate than in other EU countries. This can be attributed to the limited access to medical training programmes in Denmark during the 1970s and 1980s (see Fig. 5.5 and Fig. 5.7). At the time of writing, the recruitment of doctors is becoming increasingly difficult, especially in rural areas that are far from the urban centres.

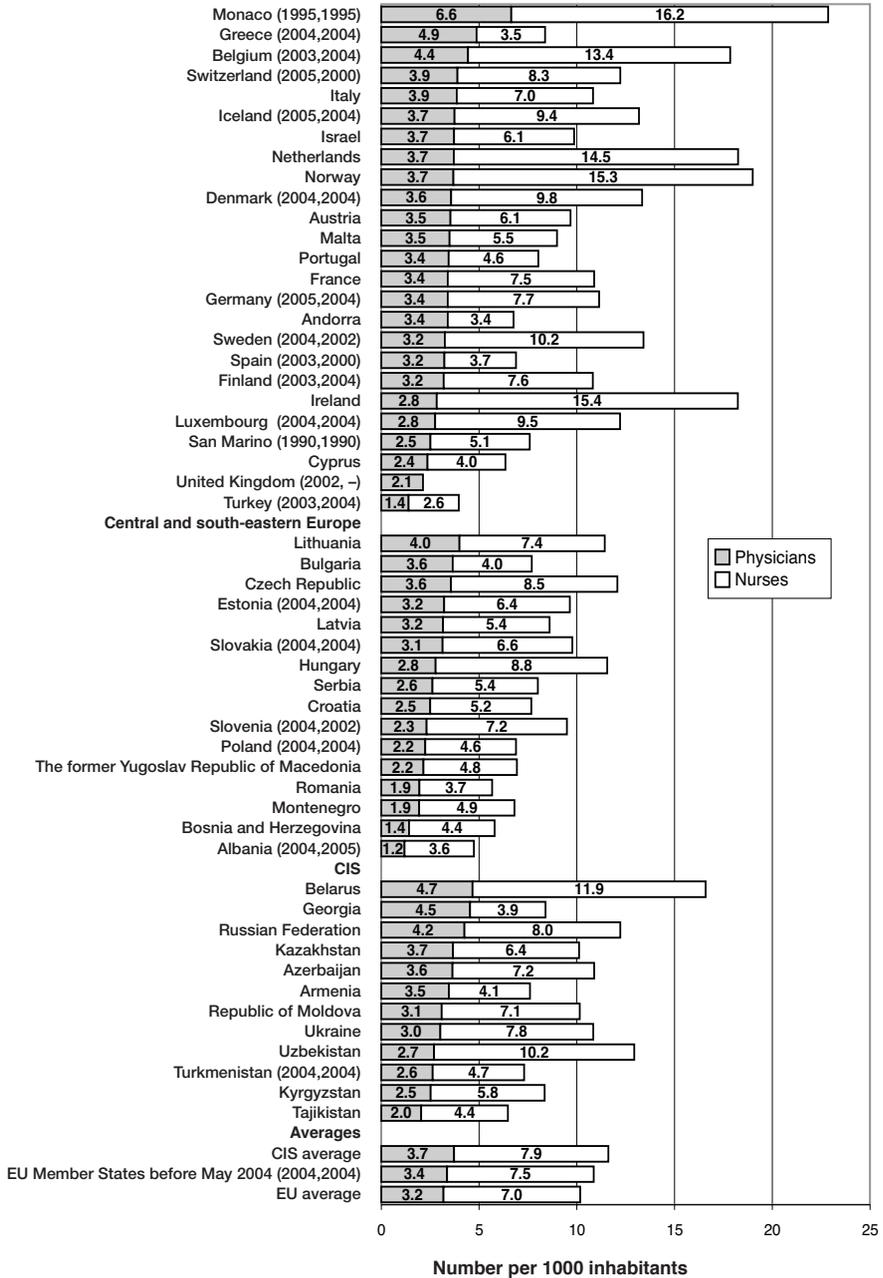
**Fig. 5.6** Number of nurses per 1000 population in Denmark, selected countries and EU averages, 1990–2005



Source: WHO Regional Office for Europe, January 2007.

Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

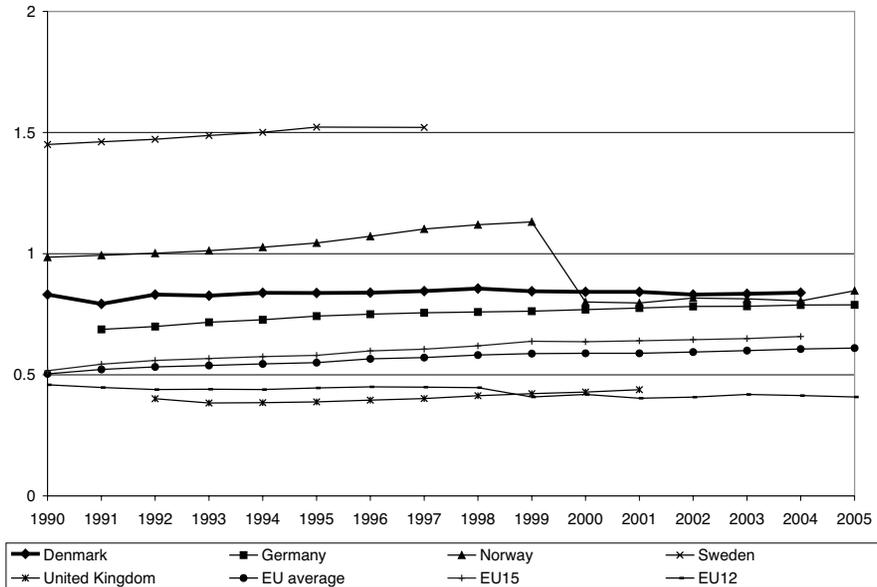
**Fig. 5.7** Number of physicians and nurses per 1000 inhabitants in the WHO European Region, 2005 or latest available year (in parentheses)



Source: WHO Regional Office for Europe, January 2007.

Notes: CIS: Commonwealth of Independent States; EU: European Union.

**Fig. 5.8** Number of dentists per 1000 inhabitants in Denmark, selected countries and EU averages, 1990–2005



Source: WHO Regional Office for Europe, January 2007.

Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

### Nurses

In Denmark, the total number of nurses was 59 055 in 2003, which is 6578 more than in 1994, corresponding to a 12.5% increase during the period 1994–2003. In 2003, 35 281 nurses worked in full-time positions at hospitals, which is 5666 more than in 1994. The share of nurses working at hospitals has steadily increased during the period 1994–2003. In 2003, 11 210 nurses worked in the outpatient care sector (that is, not in hospitals) and in the social sector and 4209 worked at nursing homes and other institutions (Ministry of the Interior and Health 2005b).

According to WHO data (see Fig. 5.6 and Fig. 5.7), the number of nurses in Denmark is relatively small compared to those in neighbouring countries (namely, Sweden and Norway). National data show that there are approximately 750 nurses per 100 000 inhabitants compared to approximately 1440 nurses per 100 000 inhabitants in Norway. Such comparisons, however, are not straightforward due to differences in the classification systems of nurses and other groups of caregiving personnel.

### **Dentists and dental auxiliaries**

In 2004, two thirds of Denmark's 5272 dentists worked in private practice, while the other third were employed by the municipalities. There was a decline (-2.6%) in the number of dentists during the period 1995–2004 (Fig. 5.8). 1537 dental auxiliaries were employed or available for the labour market in 2004, which corresponds to a 47.9% increase from 1995 figures. Dental auxiliaries now perform some of the tasks previously carried out by dentists (Ministry of the Interior and Health 2006).

### **Psychologists**

In 1993, psychologists gained public professional authorization from the former Ministry of Social Affairs and a special committee was set up to evaluate psychologist qualifications. This authorization gave private practice psychologists access to public reimbursement for referred patients suffering from mental disorders related to serious illness, violence, attempted suicide, bereavement, and so on. The Danish Association of Psychologists had 7315 members in 2004, of whom 6064 were registered psychologists and the rest students (Danish Association of Psychologists 2005).

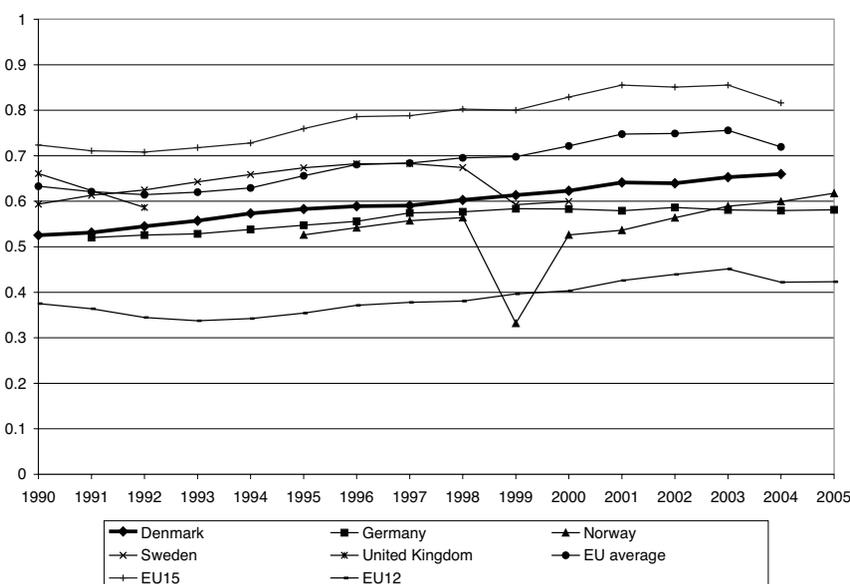
### **Physiotherapists, chiropractors, pharmacists and midwives**

Physiotherapists are either private practitioners, who are partly reimbursed by the regions, or public employees at hospitals and other public health institutions. In 2004, 7580 physiotherapists were employed or available for the labour market, corresponding to a 48.9% increase during the period 1995–2004 (Ministry of the Interior and Health 2006). The Association of Danish Physiotherapists had approximately 8000 members (as reported in 2005), up from 7000 in 2001 (Association of Danish Physiotherapists 2005).

Chiropractors have had public authorization since 1992. They are primarily self-employed in the primary health care sector; however, in the last couple of years, they have also been employed at hospitals and as consultants within the regions. Members of the Danish Chiropractors' Association can also receive partial reimbursement from the regions. In 2004, 380 chiropractors were employed or available for the labour market, corresponding to an increase of 43.4% during the period 1995–2004 (Ministry of the Interior and Health 2006). The Association had 507 members (as reported in 2005), compared to 337 in 2001 (Danish Chiropractors' Association 2005).

Most pharmacists work in private pharmacies under strict government regulation. In 2004, there were 3574 pharmacists (Fig. 5.9). Since 1995, this group has increased by 17.4% (Ministry of the Interior and Health 2006) (see Section 6.5 on Pharmaceutical care).

**Fig. 5.9** Number of pharmacists per 1000 population in Denmark, selected countries and EU averages, 1990–2005



Source: WHO Regional Office for Europe, January 2007.

Notes: EU: European Union; EU15: European Union Member States before May 2004; EU12: countries that joined the EU in May 2004 and January 2007.

Midwives in Denmark are mainly employed by obstetric departments in hospitals, including decentralized outpatient clinics. In 2004, there were 1463 midwives compared to 1095 in 1995 (Ministry of the Interior and Health 2006).

**Table 5.4** Health care personnel per 1000 population, 1980–2003 (selected years)

	1980	1985	1990	1995	2000	2001	2002	2003
Active doctors <sup>a</sup>	1.8	2.3	2.5	2.6	2.8	2.8	2.9	3.0
Active nurses <sup>b</sup>	4.9	6.2	5.7	6.4	6.9	7.0	7.1	7.0
Active dentists	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8
Active pharmacists	0.3	–	–	0.5	0.5	0.5	0.5	–
Active midwives	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Sources: WHO, 2005; WHO Regional Office for Europe, 2005.

Notes: <sup>a</sup> The number of physicians at the end of the year includes all active physicians working in health services (public or private), including health services under ministries other than the Ministry of Health. Interns and residents (i.e. physicians in postgraduate training) are also included. The number of physicians excludes: physicians working outside the country; physicians on the retired list and not practising or unemployed; physicians working outside health services (e.g. employed in industry, research institutes, etc.); dentists (stomatologists), who should be defined as a separate group; <sup>b</sup> The number of nurses includes: qualified nurses; first- and second-level nurses; fieldshers; midwives; and nurse specialists. It excludes nursing auxiliaries and other personnel, who do not have formal education in nursing.

The number of health personnel in 2004 was estimated at 122 651, which is 17 000 more than in 1995, corresponding to a 16% increase. Table 5.4 provides further details of health care personnel numbers since 1980. In 2004 there were 86 914 full-time employed individuals working at Danish hospitals, compared to 83 691 in 1995. Approximately 80% of these had a formal health-related education. Nurses comprised the largest group, with 35% of the total personnel, while doctors comprised 13%. There was a 1.8% increase in full-time employed health personnel during the period 2001–2004 (Ministry of the Interior and Health 2006).

## 5.2.2 Planning of health care personnel

As it is difficult to foresee the future need for health care personnel, periods of unemployment among doctors in Denmark have been followed by periods of staff shortage. The number of doctors increased dramatically during the 1960s and 1970s due to a large intake of medical students. This led to temporary unemployment among doctors during the 1980s, although expansion of the health sector and a reduction in working hours made it possible for the system to absorb most doctors. At present, there is a shortage of nurses and doctors, particularly in rural areas, which is forcing some regions to recruit doctors from neighbouring countries. To meet the shortages of doctors, the procedure for authorization of doctors not born or raised in Denmark (non-native) has been made more effective. In 2002 and 2003, 215 non-native doctors were granted authorization. However, the intake of medical students is rising, which is in turn increasing concern about the health system's capacity to ensure an adequate number of postgraduate training posts in the coming years. The intake of medical students has been increasing throughout the 1990s. In 2003, the intake of students was 1139, which corresponds to an average yearly increase of 3.3% from 1995 to 2003. Further, the number of educated doctors in the entire health system is expected to increase by 18% during the period 2000–2025 (Ministry of the Interior and Health 2004b).

The recruitment of nurses is currently the most serious staffing problem in the Danish health sector. The lack of nurses is mainly due to low salary levels and heavy workloads. However, this trend is changing and the number of nursing students increased from 2334 in 2001 to 2565 in 2002 (Ministry of Education 2005a).

The number of students admitted for dental education in 2003 was 163, which is very similar to the number admitted in 2002. In 2002, only 37 dentists were unemployed. Only 142 dental auxiliaries attended educational programmes in 2002, compared to 153 in 2001, with 33 unemployed (National Board of Health 2005a).

In Table 5.5, the intake of pharmacists, psychologists, physiotherapists, chiropractors and midwives is illustrated for the years 2001 and 2002. For all five types of health education, the number of students accepted has been relatively stable.

The State has an element of control over the supply of health professionals, since the training of authorized health professionals (with a few exceptions) is public. This is the case when there are applicants for all places, which has not always been the case for nurses. The State can also influence health professionals' qualifications by determining the content of their training. The National Board of Health has particular influence over postgraduate training. The State also decides which professions are to be reimbursed by the regions. There are certain quotas, for example for physiotherapists, and in order to buy a general practice, authorization as a GP is required from the National Board of Health, along with a licence from the regions. Dentists, however, can establish a practice wherever they choose and still be reimbursed by the regions.

**Table 5.5 Intake of other health care personnel for 2001 and 2002**

<b>Education</b>	<b>2001</b>	<b>2002</b>
Pharmacists	204	213
Psychologists	452	461
Physiotherapists	609	642
Chiropractors	50	53
Midwives	90	102

*Source: Ministry of Education, 2005.*

### **5.2.3 Training of health care personnel**

Training is regulated centrally by the Ministry of Science, Technology and Innovation, together with a number of councils, such as the Health Training Council and the Social and Health Training Council, which work in cooperation with the Ministry of Health, the National Board of Health and others. Further training in the health sector for specialists is the responsibility of the Ministry

of Health, and it is adjusted continually to meet the needs of the health sector as regards subjects, content and capacity.

Undergraduate medical education takes place at the Faculty of Health Sciences at the Universities of Copenhagen, Århus and Southern Denmark. The training programme is six years long. Training takes place at the three universities and hospitals. After completing the final medical examination, medical doctors have to undergo 1.5 years of practical clinical education to obtain permission to practise independently. This consists of six months in both medical and surgical departments and six months in general practice. From 2008 a reform of medical education will reduce the length of the practical clinical education to one year.

Postgraduate training programmes for medical specialties, including general practice, are defined by the Ministry of Health based on advice from the National Board of Health and the National Council for Postgraduate Education of Physicians, which replaced the former Danish Board of Medical Specialties in 2001. Members of the National Council represent the regions, the professional associations and colleges, the universities and the regional Councils for Postgraduate Education of Physicians. The Councils are responsible for the regional planning and coordination of physicians' clinical training. The National Council gives advice on the number and type of specialties, the number of students admitted to postgraduate training programmes, the proportion of students studying each specialty, the duration and content of postgraduate training programmes, and international collaboration programmes. At the time of writing there are 37 specialties in Denmark compared to 42 in 2001. Each specialty has its own specific requirements and objectives, including practical training in hospitals and general practice. The medical colleges and the National Board of Health also run training courses. Because the quality of clinical training, particularly regarding surgical skills, has been heavily criticized, the National Board of Health has set up an inspection system including surveillance and the advising of the individual departments responsible for training (Ministry of Education 2005b).

Basic nurse training takes 3.5 years, and training is carried out at public schools of nursing in collaboration with hospitals. The training alternates between theoretical and clinical education. Clinical education is located at hospitals and in municipalities. Two shorter theoretical education courses for health and social helpers (14 months) and health and social assistants (extra 18 months) have been established to provide training for basic nursing care functions in hospitals and nursing homes.

The Centres for Advanced Education (CVUs) offer a number of mid-range training education programmes such as, nursing, midwifery and physiotherapy.

CVUs offer basic, supplementary and advanced education as well as development activities, which have become an obligation for every CVU. The main objectives of the CVU's health care education programmes are to educate people with secondary school education to a professional or Bachelor's Degree level and to provide further training within the health care fields up to diploma level (University College Øresund 2005).

In 2000, a new act regarding mid-range training introduced the "professional-bachelor" level and related "professional-bachelor" title at the mid-range training universities and institutions. The aim was to create a common framework for the mid-range training education programmes and to add to the qualitative development of health education by strengthening the professional level and by placing mid-range education more clearly in the overall picture. Nurses and physiotherapists are only two of the groups that can now obtain a professional Bachelor title (Ministry of Education 2005b).

In recent years there has been an increase in Master's-level education within the field of health, as a supplement to the advanced education system. Among these types of education programmes are the Master of Public Health, Master of International Health, Master of Industrial Medicine Development, Master of Health Pedagogy and the Master of Rehabilitation. These educational training programmes are offered at the Universities of Copenhagen, Århus, Southern Denmark, and the University of Education in Denmark. Several Masters' courses have also been developed within the field of management and administration in the health system. These are, for example, the Master of Public Administration, the Master of Business Administration and the Master of Hospital Management, and they are offered at the University of Ålborg and Copenhagen Business School.

Dentists and dental auxiliaries are trained at the Faculty of Health Sciences at the universities of Copenhagen and Århus. Dentists are offered a 5-year independent undergraduate training programme, while dental auxiliaries are trained in two and half years. Pharmacists and psychologists are all trained at universities.

#### **5.2.4 Registration/licensing**

The National Board of Health registers and supervises qualified practitioners and other health care personnel. It is in charge of granting and, if necessary, removing authorization. The Board addresses questions regarding authorization revocation and activity reduction, according to the Law of authorization of health professionals and of health care activities passed by central Government. The Act states that authorization can be revoked or activity can be reduced,

if a qualified health care worker takes an unnecessary risk regarding the patient's health or has shown serious or repeated unsafe professional activity (see Subsection 3.1.2 on Regulation and governance of providers). The final licence withdrawal occurs in court. This system of authorization helps protect health care professions, while at the same time reassuring the population and the responsible health authorities by ensuring minimum qualifications for health personnel. Further, through regulation of the capacity available for education, it is possible, to a certain degree, to control the number of authorized personnel within the different professional categories and specialties. During recent years an increasing number of professional groups have obtained authorization/licensing by the National Board of Health. The groups that are able to obtain authorization/licensing today are doctors, nurses, dentists, dental auxiliaries, clinical dental technicians, physiotherapists, chiropractors, midwives, prosthetists/orthotists, radiographers, opticians and contact lens optometrists, clinical dieticians, occupational therapists, medical laboratory technologists, and chiropodists.

The regions limit the number of GPs entitled to receive reimbursement as a means of controlling costs. The number of GPs, measured per 1000 population, is negotiated by the regions and the Organisation of General Practitioners.

Training for nurses in the Danish education system conforms to EU standards and there is mutual recognition of nurses' education. The standards are meant to ensure that all nurses in the EU have a certain level of knowledge and experience in medical health care, surgical health care, psychiatric health care, paediatrics and obstetrics health care, health care for the elderly and home health care. Authorization is generally applied for in the country of work.

Nurses' education has been internationalized in order to meet with standards set by the Higher Education Area in the Bologna process. More English language teaching has been introduced in nursing schools and students now have the opportunity to complete some of the requirements of their educational curriculum abroad. Nursing schools in Denmark receive exchange students as well: previously, most students came from Nordic countries but more recently there has been an increase in students of other nationalities (e.g. Chinese students). The number of full-time non-native students, however, is limited due to Danish language demands. Efforts are being made to be able to offer complete entire nursing education in English for Chinese students, but currently only certain modules, or one full semester, are offered in English. However, these gradual changes are not expected to have a significant influence on the number of full-time non-native students in Denmark in the foreseeable future.

At the time of writing, an EU project, “Tuning Educational Structures in Europe”, is being developed. The project is intended to increase transparency and understanding in nursing education across Member States, to strengthen qualifications and to increase mobility. The project is not meant for the harmonization of nursing education across Europe.

Since the 1980s it has been increasingly recognized that management and public health skills are lacking in the Danish health sector. As such, an increasing number of economists, professional managers and lawyers have been employed in health administration. Health professionals with postgraduate management training are also increasingly employed in health administration, which perhaps reflects a tendency towards the diminishing status and influence of the medical profession. Many health professionals have criticized this trend, claiming that economics and management targets are becoming more important than quality of care. Administrative expenses in the Danish health system are moderate compared to health systems that are based on VHI or other, more complex systems of health care organization.

## 6 Provision of services

### 6.1 Public health

Public health services are partly integrated with curative services and partly organized as separate activities run by special institutions. The main responsibility for surveillance and control of communicable diseases rests with medical public health officers employed by the Ministry of Health. Public health medicine officers work at the regional level, and they must be notified when instances of certain communicable diseases occur. GPs who treat patients for communicable diseases are obliged to report these incidences. Public health medicine officers are also in charge of individual and community interventions to control communicable diseases. While their function is largely advisory, they do have the power to prevent infected children from entering institutions or even to close institutions to avoid the spread of infection. Other measures to prevent epidemics are in the hands of a special regional commission for epidemic diseases or, in the case of infectious foodborne diseases, local food control agencies. For information on immunization services and national vaccination programmes, see Section 1.5 on Health status.

Schools provide sex education, including the use of contraceptives, as part of their general education programme. This education often includes a visit to a special clinic offering advice on family planning. Since 1973, all women have had access to free-of-charge pregnancy terminations on request within the first 12 weeks.

All pregnant women have direct access to antenatal services provided by GPs, midwives and obstetricians in hospital obstetric departments. Rates of utilization of these antenatal services are very high overall, although some social and ethnic differences have been detected, indicating a lower utilization rate among lower socioeconomic groups and immigrants. Women can choose

to give birth at home or in hospital, free of charge. Almost 99% of deliveries take place in hospital.

In 1986, the National Board of Health issued guidelines for the screening of cervical cancer. These guidelines are still implemented at the time of writing. In 2001, 94% of Danish women in the age group 25–59 years were covered by the programme. Systematic breast cancer screening (mammography) has been recommended for women aged 50–69 years by the National Board of Health, but only introduced in some parts of the country. While no other general screening programmes have been launched, local programmes, such as colon cancer screening, have been established on an experimental basis.

A key principle of Denmark's AIDS policy is that prevention should be carried out without compulsory measures and, if necessary, based on anonymity. The AIDS prevention programme involves close collaboration between the National Board of Health, the regions, the municipalities and private organizations, such as the National Danish Organisation for Gays and Lesbians. The main elements of this programme are general information campaigns on safe sex, psychological assistance to those who are HIV positive and information targeting specific risk groups. From January 2005 a new and more effective HIV surveillance system, called SOUNDEX, was implemented. This new system decodes last names to letters or numbers and helps to prevent duplicate information. This, thereby, allows better information to be obtained on the incidence of HIV and the spread of infection in Denmark. The number of infected people has increased during recent years, which could indicate that the population and particularly the groups at greater risk have been paying less attention to the issue.

National responsibility for the prevention of drug abuse lies with the National Board of Health, which develops information and educational material and carries out national campaigns against drug abuse. Local activity is considered more effective, however, and the State therefore provides financial support for local initiatives that are carried out by health, social and educational authorities as well as private organizations. The National Board of Health runs training programmes for key local people involved in tackling drug abuse.

A special state agency, the National Working Environment Authority, is responsible for surveillance of, and control and maintenance standards of, occupational health and safety. The Authority provides advice, sets standards and inspects work sites.

In 2003, the National Board of Health launched a national action programme aimed at severe obesity. During the period 2005–2008, DKK 83 million has been allocated towards this effort. Further, in 2003 the Government presented a programme called “Better Health for Children and Adolescents”, which is

intended to ensure a greater focus on a healthy children culture (Ministry of the Interior and Health 2003a).

A network of health promoting hospitals has been established as a platform for developing preventive activities related to hospital services. This network has developed a health strategy, which includes a number of targets and elements aiming to improve the health status of its citizens. The members of the WHO Healthy Cities Programme include the city of Copenhagen and the smaller city of Horsens in Jutland.

A number of institutions regularly perform safety inspections of workplaces, food provision services, and the condition of roads and accommodation, among other things. The most common institutions performing these inspections are the National Food Agency, the Ministry of Housing and Urban Affairs, the Ministry of Transport and Energy, the Ministry of the Environment and the Danish Working Environment Authority. These inspections are largely environmental interventions, but they help to prevent diseases by reducing health risks and by making sure that these places or items are not damaging the health of citizens.

Over the past few decades, Denmark has seen the development of unfavourable trends in average life expectancy in comparison to other OECD countries (see Section 1.5 on Health status). These trends became a major health policy issue in 1993. Although it is not possible to explain fully these trends, there are at least three contributing factors. First, unhealthy lifestyles, as major determinants of premature death, are partly responsible: there is a high prevalence of smoking and alcohol consumption, an intake of too many calories and fatty foods and a lack of physical activity. Second, a low investment in health care development such as technology for cancer treatment and heart disease rehabilitation may also be to blame: evidence to support this, however, is not very strong. Finally, socioeconomic factors are likely contributors, and they may explain the very low life expectancy in the city of Copenhagen, and the large socioeconomic inequalities in health and lifestyle factors affecting health status.

In response to a low increase in average life expectancy, the Government initiated a 10-year national target-oriented programme of public health and health promotion in 1999. This programme has many similarities to WHO's target-based strategy for the 21st century (Ministry of Health 1999). It is the second of its kind and the result of close cooperation between the Ministry of Health, other relevant ministries and experts in public health, epidemiology and prevention. The overall aim of this programme is to improve public health and reduce social inequality in health in Denmark. It has 17 targets, which are based on the following criteria: they must concern the dominant health problems in

Denmark; there should be reasonable evidence concerning causes, risk factors and the effectiveness of interventions; and there should be a need to strengthen the effort beyond existing activities. The 17 targets concern specific risk factors (e.g. tobacco, alcohol, nutrition, exercise, obesity and traffic accidents); age groups (e.g. children, young people, elderly people); health promoting environments (e.g. primary schools, places of work, local communities, health facilities); and structural elements (e.g. intersectoral cooperation, research and education). The goals of this initiative are to increase average life expectancy by at least two years, for both males and females, and to extend the number of healthy life years through a reduction in chronic diseases.

In autumn 2002, the new Government launched the health care programme “Healthy throughout life 2002–2010”. “Healthy throughout life” retains important goals and target groups from the Government Programme on Public Health and Health Promotion 1999–2008. Nevertheless, “Healthy throughout life”, in contrast to the 1999–2008 Programme, specifically focuses on reducing the major preventable diseases and disorders. It also targets improving the quality of life of the population through more systematic efforts in terms of counselling, support, rehabilitation and other patient-oriented measures. A key aspect of the new programme is to provide individuals with the necessary knowledge and tools to be able to promote their own health status and health care.

The programme focuses on eight preventable diseases and disorders, namely: type 2 diabetes; cancer; heart disease; osteoporosis; musculoskeletal diseases; allergy diseases; psychological diseases; and chronic obstructive pulmonary disease (COPD). The aim is to rehabilitate people who are already sick, so that further loss of function is reduced. Important elements of the programme are prevention and health promotion, the individuals’ own contribution, and patient guidance, support and rehabilitation. The health care programme has set goals for each of the eight public diseases, and briefly runs through the causes, the opportunities for prevention and the actual status. The Danish programme differs from other Scandinavian programmes in that it focuses strongly on health-related behaviour and less on social and structural factors that influence health. Political responsibility for the health of the population is also less pronounced in the new programme, as compared to previous Danish programmes and to those of Norway and Sweden (Vallgård 2006; Vallgård 2001; Vallgård 2007).

A list of indicators has been developed in connection with the “Healthy throughout life” programme. The purpose of this list is to ensure regular monitoring and documentation of trends in the population’s health status and health behaviour, and efforts to promote health and prevent disease. The programme is based on the following key indicators:

- life expectancy;
- the number of healthy life years lost;
- infant mortality;
- self-rated health;
- social differences in mortality;
- social differences in the quality of life;
- the prevalence of heavy smoking among children, adolescents and adults;
- the proportion of the population exceeding the recommended alcohol consumption (based on weekly standards) among children, adolescents and adults;
- the prevalence of fat intake, which exceeds 40% of total energy intake;
- the level of physical activity at leisure and at work among children, adolescents and adults;
- the prevalence of BMI exceeding 30 among children, adolescents and adults;
- road, home and leisure accidents among children, adolescents and adults;
- serious occupational accidents, including fatal ones;
- the prevalence of the use of controlled substances (among young people).

The indicator programme was created on the basis of existing data sources. It is to be developed as the data improve, as the strategy comes into effect for the eight major preventable diseases and disorders progresses and as new or alternative targets are given a higher priority in the efforts to improve public health (Ministry of the Interior and Health 2002b).

The 2007 reform gave rise to a large number of health prevention and promotion tasks and the responsibility for these belongs to the municipalities. The municipalities are responsible for the aspects of prevention, care and rehabilitation that do not fall under hospital admission, and they are supposed to establish new service solutions for the aspects of prevention and rehabilitation, such as community health centres. The municipalities and the regions are obliged by law to cooperate with each other regarding treatment, training, prevention and care. Obligatory health agreements should also contain accords on prevention and rehabilitation methods as well as on the appropriate hospital discharge for elderly patients.

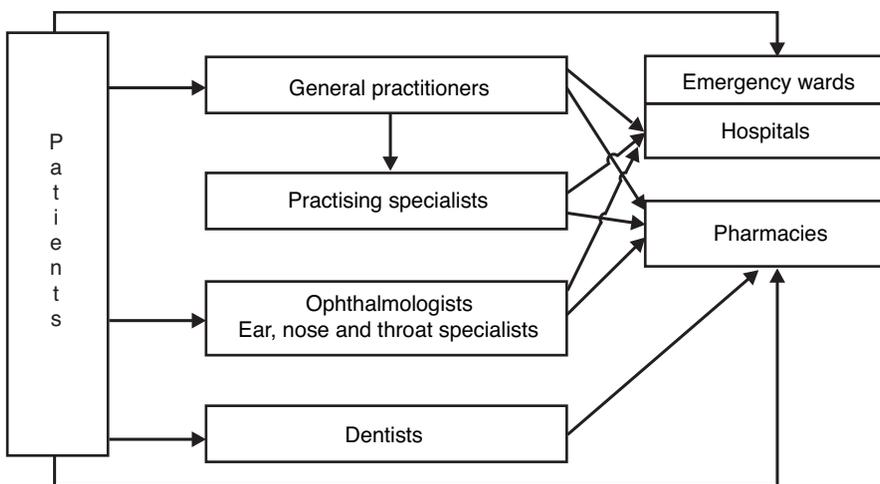
## 6.2 Patient pathways

The pathways for Group 1 patients in the Danish health system are illustrated in Fig. 6.1. Depending on the type of examination or treatment needed, the patient has the following five options available: (1) GPs; (2) open specialties (ophthalmologists, and ear, nose and throat specialists); (3) dentists; (4) emergency wards; and (5) pharmacies. The pathway does not differ across the country.

In the Danish health care system, GPs act as gatekeepers with regard to hospital and specialist treatment for Group 1 coverage (see Subsection 2.5.2 on Patient rights and empowerment). This means that patients usually start the process of seeking health care by consulting their GP, whose job it is to ensure that they are offered the treatment they need and that they will not be treated at a higher specialization level than necessary. It is usually necessary to be referred to a hospital by a GP, for medical examination and treatment, unless the patient has suffered an accident or has an acute illness. Referral to a specialist for treatment is also necessary by a GP. GPs and specialists are the ones who prescribe medication in the health system. The prescribed medication can subsequently be bought at pharmacies.

If referral is necessary, patients are free to choose among any public hospital in Denmark, provided that it offers the necessary services and is at the same

**Fig. 6.1** Group 1 patient pathway in the statutory health care system



Source: Author's compilation.

level of specialization considered relevant by the referring physician. This is according to the Act on free choice of hospital (Law on Health of 2005) (see Subsection 2.5.2 on Patient rights and empowerment). The GP may advise the patient on which hospital to attend based on information such as waiting time, quality and special needs. The patient can also choose to be treated at a private hospital on a fee-for-service basis; however, he/she will not be publicly reimbursed for these fees. Some people have VHI, which may cover part or all of these fees (see Subsection 4.1.4 on Voluntary health insurance). If the waiting time for either examination or treatment exceeds one month, the patient is entitled to choose to receive these services at private hospitals or clinics and hospitals abroad. As a precondition for the use of the extended free choice, the chosen hospital or clinic must have an agreement with the regions regarding the necessary treatment. The regions also pay for the expenses involved. If the patient needs surgery, rehabilitation is established and it is assessed whether there is a need for additional home care. If rehabilitation or home care are prescribed by the GP or the hospital, they will be provided free of charge by the municipality. GPs are to receive a discharge summary for each patient from the hospital and are responsible for further follow-up, such as referral to physiotherapist. Finally, the patient often has a follow-up hospital visit to check on the outcome of the treatment.

Besides referring patients to a hospital or a specialist, GPs refer patients to other health professionals, working within a health care service agreement, and arrange for home nursing to be provided.

Patients are called in once or twice a year for regular dental examinations and check-ups, or they may choose to make an appointment when necessary. Dentists who provide services that are reimbursed by the regions are paid a fee-for-service payment to cover part of the expenses. Necessary medicines are prescribed by the dentist and obtained at the pharmacy by the patient.

Patients that have had an accident or an acute illness can attend, without referral, open emergency wards, which are often situated at hospitals. Depending on the severity of the injury or illness, patients are examined, treated and medicated or admitted for further examination and treatment and/or operation. If an accident occurs, the patient must attend an emergency ward within 24 hours; otherwise, a referral is needed from a GP. Emergency wards are open 24 hours a day and are free of charge. The necessity of open emergency wards without referral is often debated; and, in recent years, several wards have been closed or changed, so that referral is necessary.

Patients may go to pharmacies if they need non-prescription medicines or guidance regarding minor health problems such as coughing, tenderness or

pain in muscles, and so on. Otherwise, they must have a prescription from a GP or specialist.

The patient pathways in the Danish health care system are not always free from problems. Lack of coordination regarding the primary/secondary care interface can harm the delivery of integrated care, with unnecessary delays and complications possibly leading to a suboptimal clinical outcome for vulnerable groups, such as the elderly and the chronically ill. Some problems have been identified, such as an unsettled responsibility and lack of mutual understanding between providers, and inadequate communication systems. Seen from the patient's point of view, this reflects a fragmented health system that is inefficient in terms of continuity, coordination and information exchange (Strandberg-Larsen & Krasnik 2006).

The Danish Health Care Quality Assessment Programme was established to strengthen the patient pathway. The Programme intends to support a higher level of transparency regarding quality and to promote continuous quality improvement in the patient pathways within the Danish health care service. Its overall aims are to promote good patient pathways, ensuring that patients experience improved quality, and to improve the continuous clinical, professional and organizational quality of the patient pathways. Quality assessment through the programme is mandatory and covers, in principle, all providers of publicly financed health care services in Denmark (National Board of Health 2005a).

Private profit-making organizations are also examining the market for providing patient guidance for the strengthening of patient pathways. Such initiatives aim to guide, inform and lead the patient through the health care system via the optimal pathway and health services. The current initiative is especially targeted towards patient groups with severe and chronic illnesses (Dagens Medicin 2005).

### 6.3 Primary/ambulatory care

The Danish health system can be described as a tripartite health care delivery system consisting of:

- *private (self-employed) practitioners* – GPs, specialists, physiotherapists, dentists, chiropractors and pharmacists, who are financed by the regions through capitation and/or fee-for-service payment, including various levels of patient co-payments for dentists, physiotherapists and GPs, and for specialists who treat Group 2 patients;

- *hospitals* – primarily managed and financed by the regions (with the exception of a few private hospitals);
- *municipal health services* – nursing homes, home nurses, health visitors and municipal dentists are mainly managed and financed by 98 municipalities (Vallgård & Krasnik 2007).

Primary health care in Denmark is provided by private practitioners and municipal services (Vallgård & Krasnik 2007).

### **General practitioners**

GPs play a key role in the Danish health system as the first point of contact for patients and as the gatekeepers to hospitals, specialists, physiotherapists and others. It is up to GPs to decide whether their own competence or practice, given the necessary technology, is sufficient to diagnose and treat the patient. Since 1993, referred patients are entitled to undergo treatment at any hospital (at the same level of specialization) in the country. GPs, therefore, serve an important function in advising patients on which hospital they should choose (Vrangbæk 1999). After referral, GPs have no further influence on the treatment and care of the patient, although hospitals or specialists are required to inform them of patient discharges.

The number of patients registered with each GP is limited and fixed through negotiations between the Organisation of General Practitioners, which is part of the Danish Medical Association, and the Danish Regions. For further information on the patient's choice of GP, see Subsection 2.5.2 on Patient rights and empowerment.

In principle, GPs run private practices, either on their own as solo practitioners (approximately a third of all GPs) or in collaboration with other GPs. The trend at the time of writing shows a decreasing number of solo practitioners and an increasing number of group practices. The Ministry of Health is generally encouraging this trend in order to strengthen the potential for teamwork, learning and quality improvement in primary health care. However, in some rural areas, this trend has resulted in patients having to travel greater distances to see a GP. Due to this collaboration between GPs, services are usually available 24 hours a day, as required by the health authorities. Many hospitals also provide open 24-hour emergency services, although some regions have restricted access to these services to only those cases, which have been referred by a GP or brought in by special emergency services.

GPs derive their income from the regions, according to a fee scale that is agreed on by the Organisation of General Practitioners and the Danish Regions. They are responsible for the costs of their practice, including building (rented or owned) and staff. These costs are generally covered by their fee structure.

Remuneration for GPs is a mixture of capitation (without risk adjustment), which makes up between a third and half of their income, and fees for services rendered (per consultation, examination, operation, etc.). The fee-for-service payments include special fees for after-hours consultations, telephone consultations and home visits. For more detailed information on the remuneration of GPs and on the way in which remuneration influences their activities (see Subsection 4.4.1 on Paying health care personnel).

GPs must have an agreement with the region in order to receive fees from them. The regions may limit the number of practising GPs as a means of cost-containment. The number of practising GPs per region is negotiated by the regions and the Organisation of General Practitioners. There is an even distribution of doctors across the country, with very little variation in the number of inhabitants per GP across regions. In 2003 there were between 1480 and 1651 inhabitants per GP (excluding the island of Bornholm, which formed a so-called regional municipality with only 1332 inhabitants per GP). In this way, the Danish health system has succeeded in achieving relatively short travel distances to GPs and reasonable equity in access to GP services. However, recently, the recruitment of doctors into general practice has again started to become more problematic and some regions are facing difficulties when having to replace retiring GPs, especially in rural areas.

### **Specialists**

Privately practising specialists that have an agreement with the region are also remunerated by the regions according to specific fees paid for services provided. In 2004, a total of 1387 privately practising specialists – mainly those specializing in dermatology, eye, and ear, nose and throat diseases – were working full-time, primarily in Copenhagen and other urbanized areas (Danish Medical Association 2005). Another 262 specialists were working part-time, privately; of these, most were also employed full-time by a public hospital. A small group of consultants employed by public hospitals are allowed to provide three hours of care per week at the hospital and are paid additional fees for their services from the regions. Previously, these consultants were much more common, but the counties have tried to reduce these types of agreements in order to maximize hospital-based specialist services and to contain costs. A few specialists work on a fully private basis, without a regional licence, and are, therefore, wholly dependent on direct payments from patients. There are no restrictions as to how much private work specialists employed by public hospitals are permitted to undertake. This is probably because only a very small number of specialists choose to engage in such activity.

The regions also reimburse parts of certain services provided by physiotherapists, privately practising dentists, psychologists and chiropractors, for which there are varying levels of patient co-payment.

### **Outpatient visits**

According to WHO data, the number of outpatient visits in Danish hospitals is relatively close to the EU average (WHO Regional Office for Europe 2005). National figures show that visits to outpatient clinics amount to 0.9 per inhabitant per year; visits to GPs 6.5 per inhabitant per year; and visits to specialists 0.5 per inhabitant per year (Danish Medical Association 2005; Dagens Medicin 2005). Outpatient activity has increased substantially during recent decades as a result of initiatives to increase the efficiency of patient hospital stays. The average length of stay is now shorter than in past decades, and more diagnosis and treatment takes place in outpatient clinics. Visits to GPs and specialists have also increased.

### **Municipal services**

The municipalities are responsible for nursing homes, home nurses, health visitors, municipal dentists (children's dentists and home dental services for the physically and/or mentally disabled), school health services, people carrying out home help services, and the treatment of alcohol and drug users. Professionals involved in delivering these services are paid a fixed salary.

Nursing homes are actually categorized as a social service. The number of nursing homes has decreased dramatically in recent years. Nursing homes provide both day care and residential services. It is possible for many chronically and terminally ill patients to stay in their homes and to avoid or delay institutionalization because of the combination of day care services, an increased number of home nurses, extensive home help and GP support. Home help is an offer for citizens who, due to health-related conditions, are not capable of performing daily living activities (e.g. personal care and hygiene, cleaning, and nutritional guidance).

Visiting public health nurses call on children several times during their first year, according to individual needs. Public health nurses and school physicians or municipal physicians with special preventive responsibilities provide health examinations for all children when they start school. Public health nurses also offer health examinations once a year or every other year to schoolchildren. Municipal dentists provide free preventive and curative dental care for children and young people under the age of 18 as well as for people with special disabilities.

## 6.4 Secondary/inpatient care

Most secondary and tertiary care takes place in general hospitals owned and operated by the regions. Doctors and other health professionals are employed at hospitals on a salaried basis. Hospitals have both inpatient and outpatient clinics as well as 24-hour emergency wards. Outpatient clinics are often used for pre- or post-hospitalization diagnosis and treatments. Many of the open emergency wards, however, have been closed in recent years and patients with minor emergency problems are encouraged to seek after-hours services with the GP instead. Patients without a referral from a GP or a private specialist are generally only accepted at hospitals in emergency situations.

Specialist doctors, like the GPs, work on a private basis and are reimbursed by the regions. They must have an agreement with the region, however, to receive reimbursement. Free access to private specialists, except for eye, and ear, nose and throat specialists, requires a referral from a GP. Like GPs, practising specialists can refer patients to public hospitals. Approximately 1% of the population has chosen Group 2 access under other conditions (see Subsection 2.5.2 on Patient rights and empowerment).

There are a few, private profit-making clinics and hospitals where patients may go without referral and pay for the care themselves or with the help of private health insurance. In some cases, the regions have made agreements with private hospitals; generally, so that they may fulfil the waiting time guarantee or have some treatments performed by the private hospital. In such cases, care is free for the patients. In 2003, the number of beds in privately owned hospitals was 281, and there were 155 beds in other hospitals – also privately owned – treating patients with rheumatic or sclerotic diseases.

Most public hospitals are general hospitals with different specialization levels. There is no official classification of hospitals according to the level of specialization, technological equipment or performance. There are 14 psychiatric hospitals and a few other “single specialty” hospitals.

Contracting is used to a limited extent by the regions. Contracts are entered into either with public hospitals, in the region or in another region, or with private hospitals. There are usually contracts for a number of specific interventions, such as elective surgery. Since Denmark is a small country with good transportation facilities, the location of very specialized services in just a few hospitals does not present a problem.

One of the purposes of the 2007 reform is to encourage municipalities to take on more responsibility for disease prevention and rehabilitation. A means to do so, suggested by nurses and allied professions, is to establish health centres in the municipalities to take care of minor health problems. The proposal has

been contested, not least by medical doctors. However, it does form a part of the 2007 reform as a possible way of reorganizing health care. Funds from the Ministry of Health have been allocated to the municipalities for pilot projects based around health centres.

A general trend since the 1940s has been to reduce the length of stay at hospitals by making care more efficient, changing routines, improving home nursing, and increasing outpatient activities pre- and post-hospitalizations. On some occasions, the regions have billed the municipalities for patients who were ready to be discharged from hospital but could not be discharged because the municipalities were not ready to provide them with the necessary outpatient care services; this thereby forced the hospital to prolong the patient's stay more than should have been necessary. Since the mid-1980s, municipalities have increased the number of home nurses and decreased the number of nursing homes.

Efforts are being made to improve cooperation between GPs and hospitals by appointing coordinators to work closely with hospital departments and report back to the local GPs. The free choice of hospital also seems to have encouraged hospitals to better inform GPs about discharges and about services in general.

## 6.5 Pharmaceutical care

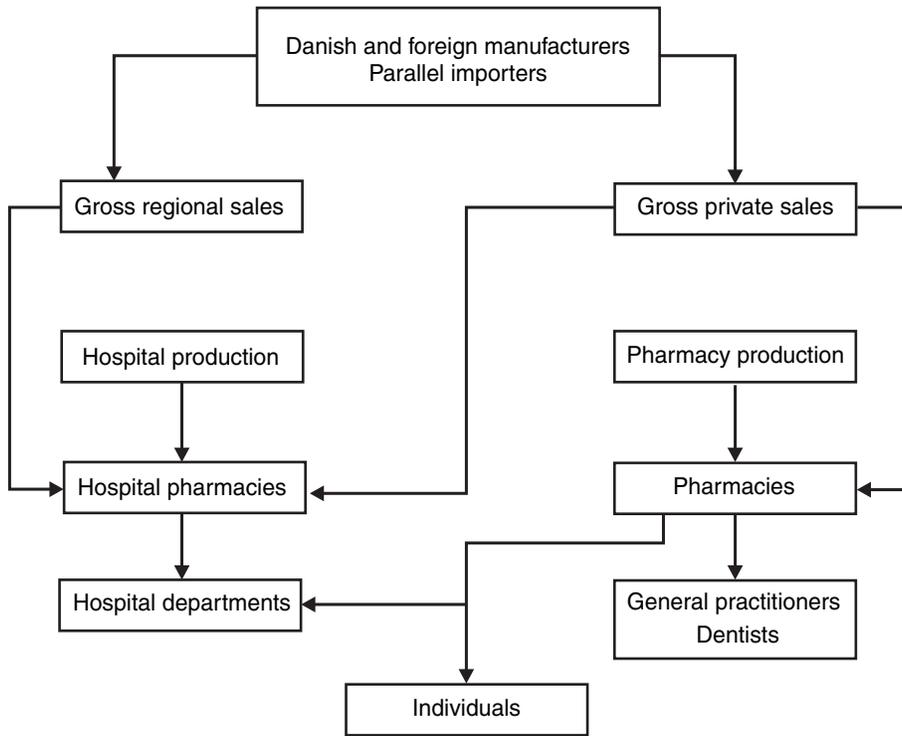
### **Distribution of pharmaceuticals**

Any pharmaceutical product that has marketing approval from the Danish Medicines Agency can be distributed by community and hospital pharmacies. See Fig. 6.2 for the organization of the distribution system for pharmaceuticals.

Denmark has three wholesalers distributing drugs to private pharmacies, in addition to some wholesalers that only distribute drugs for veterinary use. Wholesale profits are fixed through individual negotiations between the manufacturers or importers and the wholesalers; the profit level generally is determined through competition.

Community pharmacies are organized as a liberal profession but subject to comprehensive state regulation on price and location. Pharmacies are organized in such a way as to ensure that everybody has reasonable access to a pharmacy, even in rural areas where pharmacies may not be profitable. A collective financial equalization system is in place, with which pharmacies with above-average turnovers contribute to pharmacies with below-average turnovers. Pharmacy services are provided by the pharmacy owner and the staff. The staff are composed of pharmacists and pharmaconomists. Their competence includes

**Fig. 6.2 Organization of the distribution system for pharmaceuticals, 2006**



Source: Personal communication from Ellen Westh Sørensen (Department of Social Pharmacy, University of Copenhagen), 2006.

handling and checking prescriptions, dispensing medicines and the provision of information regarding the pharmaceuticals. Pharmacy owners must ensure that their staff have the basic education and continuing training to enable them to properly carry out their tasks. The average number of full-time employees (including the owner) per pharmacy was 14.2; in total this is 578 pharmacists, 2597 pharmacoconomists (pharmacy assistants), 456 trainees and 667 others. The number of prescriptions handled per pharmacy (or branch of a pharmacy) was 167 000 in 2005, corresponding to 630 prescriptions per pharmacy per day. The number of pharmacies and employed pharmacists is decreasing, while the number of pharmacy assistants is increasing. The number of pharmacies in Denmark has also decreased since the mid-1970s (Danish Pharmaceutical Association 2006).

Community pharmacies are comparatively large; in 2006 there were 322 pharmacies in Denmark, of which 55 were branch pharmacies. Pharmaceuticals may also be sold in other types of outlet without pharmacists. Pharmacy outlets

(138) are served only by pharmaconomists. In rural or scarcely populated areas, shops under the supervision of a pharmacy are allowed to act as OTC outlets or delivery facilities (Danish Pharmaceutical Association 2006).

The total gross profits of community pharmacies are fixed by the Ministry of Health and the Danish Association of Pharmacists every two years on the basis of current figures and forecasts. In 2005, the total gross profit of the pharmacies was DKK 11.4 billion, exclusive of VAT. The average total gross profit per pharmacy was DKK 43.0 million (Danish Pharmaceutical Association 2006).

All community pharmacies provide advice about medicine use, dose dispensing, generic substitution and the administration of individual reimbursement registers. Except for very simple processes, compounding of pharmaceutical materials is centralized at three pharmacies (Herborg, Sørensen & Frøkjær 2007).

Many pharmacies offer BMI, blood sugar, blood pressure and cholesterol measurements, and 60% offer inhalation counselling; however, only inhalation services are reimbursed. Extending services in clinical pharmacy is a priority for all Danish pharmacy organizations. The professional strategy is to use the competence of the pharmacy to take co-responsibility for the pharmaceutical treatment of the patient and for patient safety.

The 2007 structural reform shifted the responsibility of a major part of primary health care from the regional authorities to the local authorities. This change might result in new services being provided by community pharmacies. In 2006, a few local authorities had made preliminary contracts with pharmacies regarding nursing home services.

Research in pharmacy practice and pharmaceutical care is well established. Research trends tend to focus on collaborative health care, on developing and documenting the value of community pharmacy services, and on optimizing services and strengthening implementation (Herborg, Sørensen & Frøkjær 2007).

Hospitals can choose to buy drugs from the private pharmacies or through hospital pharmacies. Hospitals buy approximately 90% of their drugs from hospital pharmacies. Where hospitals buy drugs from private pharmacies, the retail price is based on the hospital's drug purchases in the preceding year. Some hospital pharmacies have established AMGROS, a wholesaler that invites tenders for pharmaceutical contracts. Most hospital pharmacies buy drugs through AMGROS and thereby make use of the opportunity to benefit from lower prices on the basis of large, joint contracts.

Since October 2001, other outlets, such as supermarkets and kiosks, have been permitted to sell a selection of non-prescription drugs. The total consumption of OTC drugs has not changed despite this increased number of

outlets. The pharmacies' share of OTC pharmaceuticals was approximately 90% in 2005 (Herborg, Sørensen & Frøkjær 2007).

The issue of price liberalization has been subject to conflicting political interests and lobbying by strong interest groups in the pharmaceutical sector. With the exception of a minor liberalization of the sale of non-prescription drugs in October 2001, there are no further plans to liberalize this sector.

## **6.6 Rehabilitation/intermediate care**

Many actors across different sectors in Denmark are involved in rehabilitation work. Rehabilitation occurs within the health care sector, the social sector, the occupational sector and the educational sector; however, each sector carries out a different aspect of rehabilitation, for example, training or the development of competences, and so on.

Rehabilitation is partly provided by public hospitals, which are the responsibility of the regions. Municipalities have the responsibility of providing training and rehabilitation that are not offered in connection with hospital treatment. A few private clinics provide rehabilitation in the form of physiotherapy, occupational therapy and chiropractic therapy. An act passed in January 2004 states that hospitals must appoint a regular contact person to ensure better cooperation between the hospitals and municipalities (Law on Health of 2005) (National Association of Local Authorities 2005). Rehabilitation is provided free of charge at hospitals and in the municipalities.

Increasingly, geriatric departments for rehabilitation of elderly people are being set up in regional hospitals. If patients cannot be placed in municipal care as soon as they are discharged because of waiting lists, then the municipalities are liable for any extra hospital expenses incurred. It is hoped that this liability will encourage municipalities to provide care as quickly as possible.

Municipalities offer different kinds of rehabilitation settings, such as training in the patient's home, in a care centre or in the municipality rehabilitation centres. Some municipalities have, in addition to their own rehabilitation centres, an agreement with the regions to provide rehabilitation services as a partnership with joint financing. Training can therefore be conducted at a regional rehabilitation centre, a rehabilitation hospital or within a hospital department. This type of partnership enables service provision in a professional environment with a group of competent professionals, such as doctors and physiotherapists (National Association of Local Authorities 2005).

## 6.7 Long-term care

Long-term care facilities are varied and numerous in Denmark. For example, in addition to conventional nursing homes, there are psychiatric nursing homes, small apartments (providing basic medical care and located adjacent to nursing homes), group homes and foster homes.

To initiate long-term placement, the caregiver or community nurse contacts the GP, who in turn visits the patient at home or at the social services office. Upon completion of the assessment, the physician refers the case to a social worker, whose job it is to ensure that the appropriate forms are completed (including a section completed by the family) and then to forward the forms to the social services authorities. In addition to facilitating the application process, the social worker provides information regarding fees for long-term care. If the patient is in the hospital at the time of application, the family contacts the GP, who in turn contacts the appropriate professionals within the hospital. Between 80% and 90% of total placements costs are covered by the Government, with a small contribution made by the individuals concerned. The total cost of care depends on the types of service that a patient decides to use. It takes an average of two weeks to complete an assessment of a patient's placement needs, and the waiting period ranges from a few weeks to six months (Payne, Wilson, Caro & O'Brien 1999).

### **Municipal level**

The municipalities deliver social services including social welfare allowances (sickness allowances and disability pensions), care for elderly people, and care for disabled people and people with chronic diseases, including those with mental disorders. They deliver care both outside of hospitals and in community mental health centres. Municipalities are also responsible for providing housing for mentally disabled and homeless people. Such municipal services are financed through taxes and run primarily by salaried professionals employed by the municipal health authorities. Contracting with private non-profit-making agencies, however, is becoming increasingly common, in an attempt to provide services that are more efficient. Privately contracted services include long-term inpatient care in nursing homes, care in day care centres and social services for chronically ill and/or elderly people. Some additional services, such as catering and cleaning, have been contracted out to private profit-making firms.

### **Cooperation between municipalities and regions**

The distribution of authority and operational health-related tasks between the regions and municipalities is based on the principle that the municipalities

have the responsibility for care and rehabilitation outside of hospitals, disease prevention and health promotion. Since 1994, joint health planning has been a tool for coordination and cooperation between the regions and municipalities. Under the provisions of joint health planning, the regions are obliged to produce health plans covering a 4-year period (see Section 3.2 on Planning and health information management). From 2007, the health plan procedures have been replaced by the so-called health agreements, which define the specific collaboration between the municipalities and the regions (Strandberg-Larsen, Nielsen & Krasnik 2007).

### **Nursing homes**

Since 1987, nursing homes have been considered as ordinary housing. The rights and duties of nursing home inhabitants, therefore, closely resemble those of the rest of the population. However, following this legislation, no new nursing homes have been set up, and protected housing now provides services according to individual needs. Consequently, the number of people in nursing homes has fallen dramatically, from approximately 51 000 in 1987 to 40 000 in 1996 and then again to 31 500 in 2003 (Statistics Denmark 2005). This has been accompanied by a large increase in the number of home nurses and people carrying out home help services employed by municipalities. Many municipalities provide home care around the clock. Nursing home inhabitants are now individually registered with a GP, whereas in the past each nursing home was assigned its own doctor. Nursing homes and protected housing are financed by their inhabitants, according to complex computations of their financial situation. The expenses of low-income inhabitants are paid using a proportion of their old-age pension allowance.

### **Elderly people**

The demographic development of a proportionally increasing number of elderly people over the total population in Denmark is expected to pose a serious challenge for municipalities. In order to reduce the financial cost of care for elderly people, health and social authorities are attempting to place more and more emphasis on self-care, increased support for people to remain in their homes for as long as possible, and effective preventive and health promoting activities. However, it seems likely that patient co-payments and contracting services to private non-profit-making agencies will become increasingly popular tools for reducing costs and raising revenue in the future.

Municipalities have developed a wide range of services to accommodate the preference of senior citizens to remain independent for as long as possible in their own homes. These services include care and assistance with cleaning,

shopping, washing, the preparation of meals, and personal hygiene. Home care can be used to assist or relieve family members, who are caring for a sick or disabled person. Two forms of home care are available: long-term and temporary help. Long-term care is provided free of charge, whereas temporary home care visits may warrant individual payment, depending on the income of the recipient (Jarden & Jarden 2002).

Public health nurses offer day and night services such as patient education, care and treatment, and help in filling out applications for various needs. These services include a change of residence, aid, emergency help, senior centres and senior day care facilities, and they are provided free of charge. All disabled or ill individuals can have an emergency or safety phone system installed in their home, which provides them with direct 24-hour contact to their public health nurse.

When elderly people are in need of another living arrangement due to health reasons, a more suitable residence is offered. There is an array of possibilities available for this, based on the individual's needs and desires. Senior citizen residences, gated communities, assisted living units and nursing homes are all designed specially for the elderly and the disabled, offering a one- or two-room apartment, elevator services, emergency and contact systems, and social activities. These residences often differ in their management and administration, and some are associated with nursing homes that supply health aides as well. Resident councils provide representation of the residents' needs in these senior citizen units.

A day care centre is offered as an option for those who do not wish to move permanently but who still require extra care. Transportation to and from the day care centre is arranged. There is also the option of using a nursing home for a shorter period as a respite for the family (Jarden & Jarden 2002).

## **6.8 Services for informal carers**

A number of services are available for the informal care of a person with reduced functional capability due to a severe physical or mental condition or a radically chronic or long-term illness. Someone who wishes to be an informal carer for a close relative may be employed by the municipality. However, the following preconditions must be fulfilled to do so: (1) the alternative to home care is day and night care outside the home or the quantity of care needed corresponds to a full-time position; (2) there is an agreement between the parties concerning the care arrangement; and (3) the municipality has approved the suitability of the person in question as an informal carer. The informal carer can be employed

for up to six months with a monthly salary of DKK 14 875 (Danish National Centre for Employment Initiatives 2005), which is approximately three quarters of the average Danish monthly income of DKK 20 072 in 2005 (Statistics Denmark 2005).

A person who takes care of a close relative with terminal illness can apply for a compensation of lost earnings. The application should be sent to the municipality. The preconditions of the compensation are: (1) that a doctor assesses the close relative and deems further hospital treatment to be hopeless; and (2) that the condition of the patient does not demand hospital admission. This compensation amounts to 1.5 times the amount the informal carer would have been given as sickness benefit. However, exceeding the informal carer's normal salary is not allowed (Danish National Centre for Employment Initiatives 2005).

## 6.9 Palliative care

Palliative care is organized at two levels, basic and specialist care. Basic palliative care is directly integrated into the mainstream health system, and it includes GPs, municipality home care and hospital departments. Specialist palliative care includes palliative teams, hospices and palliative units. This care is mainly contracted out to independent hospice institutions but a few units have been set up in hospitals and are thus integrated into the health care system.

The National Cancer Plan, published in 2000, concluded that the development of palliative care in Denmark is behind that of other countries and that resources should be allocated to the improvement of, and education in the field of, palliative care (Cancer Steering Committee 2000). The development of palliative care has historically varied across the country. According to the Association of County Councils' 2001 report, very few counties had developed palliative care according to the national recommendations (National Board of Health 1999; Association of County Councils, Ministry of Health & National Association of Local Authorities 2001). Only four counties had beds dedicated to palliative care, and there were only 10 hospices in the whole country. The report concluded that more resources and efforts were needed for the education and training of health care professionals to develop palliative care according to the national recommendations.

According to English calculations, there should be 12 palliative/hospice beds per 250 000 inhabitants is an appropriate measure. This would correspond to a total of 257 palliative/hospice beds in Denmark (Danish Cancer Society 2005). In 2001, the number of palliative/hospice beds in Denmark was 73: 22 palliative

beds and 51 hospice beds (Association of County Councils, Ministry of Health & National Association of Local Authorities 2001). Thus, according to English standards, Denmark had a deficit of 184 palliative/hospice beds in 2001.

Legislation determines the general municipal and regional obligations regarding the care and treatment of terminally ill patients in hospitals, nursing homes and their own homes. Legislation specifically states that access to care compensation, medicine, physiotherapy, psychological assistance, health care commodities and cleaning, among other things, should be provided. According to legislation, the regions are obliged to offer treatment in hospitals including the treatment of terminally ill patients. It is up to the individual region to determine whether it will establish a hospice as a means of complying with its hospital obligations. Hospices are permitted to be built and run in cooperation with another region or with a private promoter; however, its services should always be free of charge for the patients (Association of County Councils, Ministry of Health & National Association of Local Authorities 2001).

Patients with great palliative needs fall under the same rules as other patients in the health care system when it comes to access to secondary care facilities. They have to be referred by a GP who is the first point of contact and who functions as a gatekeeper to hospitals, specialists and physiotherapists. It is up to the GP to decide when his/her own field of competence is no longer sufficient or if his/her practice does not have the necessary technology to treat the patient. In principle, however, patients are able to contact some Danish hospices on their own, and to be admitted without referral.

Some specialist care services have a broad range of health care professionals (social workers, psychologists, physiotherapists, occupational therapists, complementary therapists, speech therapists, etc.) involved in the delivery of palliative care. Bispebjerg Hospital is one of the hospitals in Denmark that has many different kinds of health care professionals involved in the palliative care unit.

Palliative care services do not rely on volunteers to help provide services because this kind of voluntary involvement is not common in Denmark. However, in Bispebjerg Hospital, a development project is experimenting with volunteers to help provide services. Patients and their relatives are explicitly involved in determining palliative care management plans and are dependent on the local availability of palliative care specialists.

In 1996, the National Board of Health published guidelines, containing organizational instructions for palliative care, on how to care for seriously ill and terminally ill patients. The guidelines were expanded in 1999 to target professional health personnel and their respective responsibilities. WHO's recommendations for palliative care, which address the health care personnel

performing palliative care, were the point of origin of these guidelines (National Board of Health 2005a). Palliative care, as such, is not mentioned; however, many objectives are set related to understanding and managing serious illness, death and dying from different perspectives.

In 1999 and 2001, the National Board of Health, the Danish Regions, the Ministry of Health and the National Association of Local Authorities proposed a strategic plan for a palliative programme, which has since been used to some extent to determine the level of services required for palliative care in the country (Association of County Councils, Ministry of Health, National Association of Local Authorities 2001; National Board of Health 2005a).

Overall, palliative care has not developed as intended in the national recommendations from 1999 and, as a result, a national steering group was appointed in December 2003 to investigate the reasons for this slow development and to ensure implementation of the national recommendations in both the regions and communities.

Following from recent political pressures, DKK 35 million has been made available for the establishment of 5–10 new hospices. Preconditions for this are that the economic resources should be given only to independent institutions that have a working agreement with the region, and that the hospices should be included under the Act on free choice of hospital. The establishment of these new hospices is an attempt to change the care delivery setting from hospitals to community-based locations. These grants, however, do not fully cover the need for new hospice places. For the coming years, a new reform is being developed that will further change responsibilities in the palliative care area (see Section 7.2 on Recent developments).

Information surveys, patient/family surveys or performance indicators containing data on the quality of palliative care services are not widely published in Denmark. However, some surveys do exist that contain information which could be used indirectly as a measure of the quality of palliative care services (Goldschmidt et al. 2005; Strömngren et al. 2005).

The palliative care effort in Denmark is still developing and there is thus a need to test different models of organization and cooperation combined with systematic evaluations and research.

## 6.10 Mental health care

In 1977, responsibility for psychiatric hospitals was transferred from the State to the counties. This led to a major decrease in hospital beds, which took place simultaneously with increased local and district psychiatric outpatient treatment. The development of decentralized psychiatric care emphasizing outpatient treatment and the adjustment of sick individuals to the local environment were facilitated as a result of the appearance of modern psychoactive drugs and a change in the psychological and social treatment of the mentally ill. This organizational change has, as planned, resulted in many mentally ill people living in their homes. However, their integration into wider society has not always been successful, especially in the big cities, where some of these people have ended up homeless or living in shelters (Mental Institute 2005).

Full implementation of the organizational change in psychiatric care did not take place until the 1990s, and it was followed by problems relating to coordination and service coherence. Because the provision of services was divided between counties and municipalities, there were many problems embedded in organizational fragmentation. The counties made a number of subsequent organizational changes in order to secure coordination and coherence of services within and between clinical psychiatry and social psychiatry care.

Psychiatry has developed from long-term admission to psychiatric departments to shorter admissions and more outpatient and district psychiatric treatments combined with social psychiatric day services. The aim of this change was to integrate the mentally ill better into society. Because it is particularly difficult to integrate the severely mentally ill into society, special admission conditions have been established for this group, based on 24-hour stays.

Public services for patients with mental disorders are provided in cross-sectoral collaboration between the health and the social care sectors. The regions are responsible for health care services, and the municipalities are responsible for the social psychiatric services. The main responsibility of the regions is a specialized effort towards caring for the long-term mentally ill. The municipalities take care of all other psychiatric tasks. There is, however, partial overlap of some of the social psychiatric services that are provided by the regions and municipalities. This can further complicate efforts to run an effective, coherent system linking decision competence and financing responsibility.

### **Private practising psychiatrists**

There were 108 full-time private practising psychiatrists in 2000. Patient admission to these private practising psychiatrists tends to be from two sources: a direct approach from the patient without referral (to be fully paid for by the

patient), or referral from a GP (financed by the region). All patients have the right to confidentiality. Information about admission and treatment can only be passed on to a GP with the patient's approval.

### **Hospital psychiatry**

In 2002, a total of 3894 beds were available in hospital psychiatric departments. GPs are entitled to admit immediately a patient to a psychiatric hospital. If this requires the use of force, the police may be involved.

### **District psychiatry**

A district psychiatric unit is established locally, providing outpatient care and interdisciplinary psychiatric treatment. Most treatment is conducted at the mentally ill patient's residence. The treatment is conducted by district psychiatric teams, which comprise interdisciplinary doctors, nurses, social workers, occupational therapists, psychologists, physiotherapists, and so on. In some regions, these teams are located locally in district psychiatric centres, which are sometimes connected with a day care centre. Other regions have placed the teams in hospitals' psychiatric departments. The regions also have different district psychiatric services; some strictly provide services only for people with long-term and socially disabling diseases, while others also include services for people with short-term mental illness.

A referral is needed for a mentally ill person to seek treatment from district psychiatry care providers. The referral can be obtained from a GP, the hospital or, in some cases, the caseworker.

District psychiatry has been criticized for providing insufficient treatment, which is primarily explained by a lack of economic resources and a reduction in the number of beds without simultaneously increasing outpatient care resources. The planned extension of resident institutions outside of hospitals has not yet been executed, despite the fact that a third of the available psychiatric beds have been removed from service.

Almost all of Denmark is served by district psychiatric services, with approximately 120 units across the country (Association of County Councils 2005). The current focus is still on the development of the level of care and education of personnel.

### **Social psychiatry**

The municipalities have the primary responsibility for social psychiatry, and the regional authorities are responsible for those services requiring special competencies. In 2002 the counties had 2061 occupied day centre

accommodation places (versus 3256 day and night accommodation places). The municipalities are also responsible for the mentally ill at local nursing homes, as well as providing temporary residence and home care arrangements. In 2001 a total of 4979 individuals were included in the municipalities' support and contact person arrangements (Ministry of the Interior and Health 2004b).

### **Legislation and strategic programmes**

From the early 1990s, mental health care has continuously been on the agendas of the Danish Parliament and Government, regions and municipalities. According to legislation, the regions and municipalities have a considerable degree of freedom in the organization and management of mental health care services.

Treatment in psychiatric departments is regulated by the law, which includes details on the patient's loss of freedom and the use of force in psychiatric care (Ministry of the Interior and Health 2004b). The current legislation amended the legislation from 1938, and places more focus on the rights of patients. According to the current Act, the health authorities are obligated to offer hospital stay, treatment and care, corresponding to accepted psychiatric hospital standards; bed and personnel nomination; possibilities for stays outside of the hospital; and occupational, educational and other activity services. However, the State has had a greater influence on the county and municipality management of psychiatry through economic and psychiatry agreements. In 2003, a plan for the treatment of the mentally ill was agreed on for the period 2003–2006, which provided DKK 250 million a year for four years. The plan focused to a large extent on increasing the quality of services to the mentally ill (Association of County Councils 2005).

The latest development within the psychiatric field has been the establishment of new organizational forms with outgoing and interdisciplinary teams for treatment of the mentally ill in their homes or within their living arrangements. Fieldwork teams for psychotic patients and for young schizophrenic patients are some examples of these new organizational forms, which are targeted towards the most challenging group of mentally ill patients in order to create a uniform and coherent service. This service can include treatment, various social psychiatric services, educational services, and so on (Ministry of the Interior and Health 2004b).

There is a well-established system of appeals and advocacy in place for mental health care. The Mental Health Act states that treatment must be a collaborative effort between the patient and professionals. A plan must be prepared and implemented within seven days of admission for all patients. The patient, if capable, must be consulted on, and accept, the plan. Patients

are also given access to a list of approved advocates from outside of the hospital. Advocates support the patient if a complaint is raised or if the patient is to be subjected to physical restraint. Although the use of physical restraints is still widespread, it is more common in Denmark than many other countries, but measures to minimize this are being taken at the time of writing.

### **Discrimination and social stigma**

The regional authorities have established different programmes to tackle discrimination and social stigma from which individuals with mental health disorders often suffer (Association of County Councils 2005). The Danish Mental Health Fund, the primary aim of which is to disseminate knowledge about mental disorders and to minimize prejudice existing within the field, has established a nationwide programme against depression (Danish Mental Health Fund 2005). One of the many goals of this programme is to focus on discrimination and social stigma in order to minimize the burden of the mentally ill. The programme is coordinated by the Danish Mental Health Fund and based in the regions. A great deal of the nationwide effort against depression has been undertaken through regional and local projects. The projects depend on the needs and situation of the local area, but they generally offer courses, themes, public meetings, and activities in the workplace, schools, educational institutions, and so on. As an integrated part of the nationwide effort, the Danish Mental Health Fund runs a project aimed at children and adolescents, primarily those aged 14–19 years (Danish Mental Health Fund 2005). The fund has a bus, which is driven around the country with free information and education about psychiatry, mental disorders and problems with a special focus on children with mentally ill parents.

The Ministry of Health and the former Ministry of Social Affairs created a proposal regarding a common set of fundamental values within the field of mental health. The aim was to establish positive interplay between the services provided in both the health and social care sectors for people with long-term mental disorders. Special efforts are made to provide services that are meaningful and coherent for the users and their families as well as for professional personnel (Ministry of the Interior and Health & Ministry of Social Affairs 2004).

### **Refugees and asylum seekers**

No specific public services are provided to deal with the particular problems that are faced by refugees and asylum seekers. Red Cross Denmark, however, offers three hours of psychological consultation per individual. If that individual needs further consultation, they have to apply to the Danish Immigration Service to

obtain it. The Danish Immigration Service is unfortunately quite restrictive in this area, and can put the involved individual in a difficult position (see Section 6.14 on Health care for specific populations).

### **Families and care**

Families are not legally obligated to provide care for fellow family members with mental health problems. Each region assesses the individual situation and decides which arrangements are best for the patient. However, in recent years, the focus has been on creating a set of common values, to be applied nationwide (Association of County Councils 2005).

### **Availability of specialist professionals**

The number of specialist professionals in the delivery of mental care is illustrated in Table 6.1.

### **Psychiatric beds**

The number of beds in hospital and district psychiatry services was 3799 in 2002. This is approximately one fifth of the beds available in Danish somatic hospitals (see Subsection 5.1.1 on Infrastructure and capital investment). This relative reduction is most significant in psychiatry, largely due to a policy of deinstitutionalization. The general decline in the number of beds in psychiatric hospitals has been associated with a large increase in the number of outpatient visits. Many diagnostic and therapeutic procedures now take place without inpatient admission or before and after inpatient stay. The rate of deinstitutionalization and the insufficient development of community mental

**Table 6.1** Number of full-time specialist professionals involved in the delivery of mental health care, 2001–2003

<b>Profession</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>
Doctors	1 069	1 165	1 179
Psychologists	366	394	444
Nurses	2 918	3 172	3 260
Psychiatric nursing aids	991	923	1 020
Social and health care assistants	2 079	2 296	2 223
Social workers	328	284	287
Social workers helping to advise the mentally ill	230	297	289
Physiotherapists and occupational therapists	463	440	442
Other health care personnel	363	296	123

*Source:* Association of County Councils, 2005.

health care systems are partly responsible for what is known as “revolving door psychiatry” in Denmark. The increased risk of suicide, compulsory hospitalization and abuse among psychotic patients in Denmark can, to a certain extent, be explained by the rate of deinstitutionalization and patient dropouts in community psychiatry, despite the fact that one of the basic principles in outpatient treatment is continuity (Aagaard & Nielsen 2004).

### **Priorities for mental health care**

The main priority in Danish mental health care is to provide treatment for the mentally ill according to severity, with first priority given to individuals suffering from, for example, schizophrenia and severe depression. However, the regions have established a pilot project, which examined whether milder illnesses, such as anxiety and abuse, should also be included as priority areas (Association of County Councils 2005).

Over the coming years, the distribution of responsibility in mental health care is to be reformed, along with the organizational structure of mental health services (see Section 7.2 on Recent developments).

## **6.11 Dental health care**

In Denmark, oral health care for children and adolescents is provided by the Municipal Dental Service. According to the 1986 Act on dental care, the system also provides health promotion, systematic prevention and curative care free of charge (Danish Parliament 1986). Dental health for children and adolescents is essentially school based and, as a result of outreach activities, the participation rate is nearly 100%. The 1972 Act on children’s dental care created the first concrete framework for preventive and health promoting activities for children and adolescents (Danish Parliament 1971; Ministry of the Interior 1974). These Acts have ensured the continued expansion of a public health programme within the framework of primary health care. An important element of the Danish Act on children’s dental care was that municipalities were mandated to take on the responsibility to report oral health data to a national recording system (the SCOR-system), which is developed and implemented by the National Board of Health. The system was established to evaluate the evolution of oral health status nationally, regionally and locally (Hansen, Foldspang & Poulsen 2001). Information derived from the register shows that an improvement in dental health among children and adolescents occurred primarily from the late 1970s and throughout the 1980s, concurrent with the introduction of population-oriented preventive programmes (Petersen & Torres 1999).

The aim of the dental health service is to develop good oral health habits through oral self-care at home and a coherent prevention and care system within the population so that teeth, mouth and jaws can be maintained and function for life. The objectives, therefore, include aspects of behaviour, care and health. The means used to reach the goals of the Municipal Dental Health Service include health promotion, prevention, regular check-ups and dental treatment of oral disease (Danish Parliament 1971). Great importance is also attached to individual needs and contact with key people associated with the care of children.

Dental care is free for children and young people below the age of 18 under the Municipal Dental Health Service or with a private practising dentist, who is reimbursed based on fees paid by the municipalities. This latter option, however, is only used by a small minority. The municipal children and youth dental care includes periodic check-ups and treatments (e.g. in connection with caries). Municipal children and youth dental care services also refer children to orthodontists if necessary.

Dental health care for adults is offered by private dental practitioners. The adults are responsible for a substantial part of the payments; however, some of the payments, in particular the curative services, are covered by the regions. If a person is covered by private health insurance, for instance Health Insurance "denmark", dental care is further subsidized. Prices are regulated through negotiations between the Association of Dentists and the Danish Regions every third year, and through negotiated changes in the salaries of public sector employees (Health Care Reimbursement Negotiating Committee & Danish Dental Association 2004).

There is no direct monitoring of the quality of dental health services in Denmark. However, the dentist has to negotiate with the regions, which look at the services provided and assess the overall composition of services. Complaints about the quality of a dental service are to be sent to the National Board of Health. The Board does not generally monitor dental health services, but it does take action against the dentist concerned if there has been a substantiated complaint (Danish Dental Association 2005).

Denmark has had a tradition for several decades of community-oriented preventive oral health care programmes, in particular in relation to children. The Danish Municipal Dental Health Service is a school-based programme, which includes comprehensive clinical oral care, prevention and oral health education for children and parents. School-based activities encompass oral health education in the classroom, diet control, supervised oral hygiene instructions, fissure sealing of permanent molars and the effective use of fluorides. In Denmark, only fluoridated toothpaste is available on the market. Increased

control of dental caries has been observed among children and adolescents of varying social and economic backgrounds and across regional and geographical boundaries. From an overall perspective, considerable improvements have been registered. The prevalence rate of dental caries, the average incidence of caries and the number of children with particularly severe caries have all decreased substantially (Petersen & Torres 1999).

## 6.12 Alternative/complementary medicine

In Denmark, a wide choice of alternative treatment exists such as zone therapy, osteopathy, homoeopathy, acupuncture, herbal medicine, and so on. Chiropractic is no longer considered an alternative treatment.

The provision of complementary and alternative medicine is regulated by a medical law regarding quackery, but it can be practised freely as long as the law is respected. The law states that authorization is required, and that if the individual without professional qualification calls him/herself a doctor or performs surgery, then a penalty will be executed. Acupuncture is considered a surgical operation and, therefore, can only be conducted by an authorized doctor. Alternative medical products are also governed by regulations. As a response to EU directives regarding the production and sale of homoeopathic medicine, these regulations have been revised in Denmark. All alternative medicines sold in Denmark have to be approved by the Danish Medicines Agency, which sets out regulations on production standards, safety and product efficacy (Johannessen 2001).

Complementary and alternative medicine is partly accepted by the mainstream medical profession. The biggest problem lies in the interaction between different preparations and conventional treatments. These interactions have not been fully explored, can be potentially dangerous for the patient and can result in complaints for doctors who have not guided the patient properly. It can be difficult for the doctor to guide a patient if he/she is not aware that patient is using alternative treatments and herbal medicines.

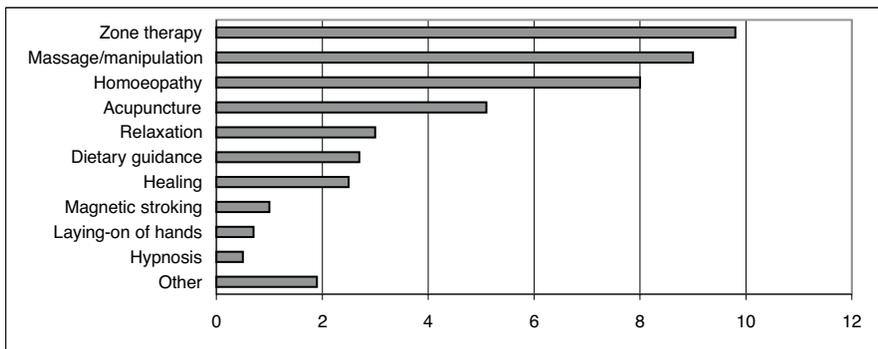
Approximately half of the GPs in Denmark use some kind of alternative treatment in their practices (Johannessen 2001). Physiotherapists, psychologists and chiropractors also use alternative treatments to some extent, but they are only used in a few hospitals and often in the form of acupuncture as pain treatment. There are no authorized clinics or hospitals specializing in alternative treatments, but a number of centres for integrated medicine do exist. At these centres, therapists with government-approved therapist education cooperate with alternative therapists of varying education and therapeutic specialties.

Approximately 10% of the adult Danish population attended zone therapy during 2003; it is the most used alternative treatment. A total of 21% of the adult population received an alternative treatment during 2003, which is almost double compared to 1987. As illustrated in Fig. 6.3, zone therapy, massage/manipulation, homoeopathy and acupuncture are the forms of alternative treatment sought most in Denmark. The age groups 25–44 and 45–66 years mostly attend zone therapy and, within these groups, there are three times as many women as men. The general patterns in the use of alternative treatments indicate that there are relatively few users among people with less education and nonprofessional workers, but there are a much larger number of users among the self-employed (National Institute of Public Health 2003).

The only alternative therapy that is reimbursable within the Danish health care system by third-party payers is acupuncture practised by a doctor. The regions and Health Insurance “denmark” provide contributions to this alternative treatment. Alternative therapists are, otherwise, reliant on out-of-pocket payments, details of which are not available.

The Knowledge and Research Centre for Alternative Medicine was established in 2000. In the future, it is expected that the Centre will continue to explore complementary and alternative therapies and herbal medicines, to raise knowledge of such therapies and their effects and to engage in dialogue with health care providers, complementary and alternative therapists and health care consumers. In 2004, legislation was introduced on a voluntary self-administrated registration arrangement for alternative therapists.

**Fig. 6.3** Percentage of the population having received different forms of alternative treatment in 2003



Source: National Institute of Public Health, 2003.

## 6.13 Maternal and child health

Since the 1930s and 1940s, maternal and child health care has been free of charge and regulated by laws. Pregnant women are offered antenatal care and the number of such visits is regulated by need, which is decided by the health professionals. Care may be administered at separate clinics or at outpatient clinics within hospitals. Health examinations are performed by GPs, midwives and sometimes obstetricians. Antenatal care is organized and financed by the regions, as is delivery-related care, whether the woman chooses to deliver at hospital or at home. Less than 1% of women opt for home deliveries.

The municipalities are responsible for providing and financing health checks for infants, which take place in the child's home, carried out by a health visitor. Preschool children are offered seven free health examinations by a GP, financed by the regions. Health checks for schoolchildren usually take place at school clinics, carried out by a school nurse and a medical doctor. Extra examinations are offered for children with special needs.

The acceptance rate for these services is very high, reaching almost 100% for antenatal and infant care, but somewhat lower for preschool health checks. They are also generally considered to be adequate and of high quality. The only major change that has occurred in the services since their inception is that needs assessment has played a role in establishing the type of care and number of consultations to be offered since the 1970s.

Adolescent pregnancies are few and their number is not considered a problem. Perinatal death rates continue to decline but are also continuously higher than those in the other Nordic countries (NOMESCO 2005). Maternal deaths are very rare, and syphilis is not particularly prevalent in the population.

**Table 6.2 Reproductive health, 1991–2004 (selected years)**

	1991	1993	1995	1997	1999	2000	2001	2002	2003	2004
Adolescent pregnancy rates below 18 years, %	0.40	0.40	0.30	0.30	0.30	0.30	0.30	0.20	0.20	0.30
Perinatal deaths per 1000 births	7.90	7.50	7.40	8.50	7.20	7.30	7.10	6.20	6.40	4.80 <sup>a</sup>
Maternal deaths per 100 000	3.13	7.50	10.16	7.47	6.12	-	3.10	-	-	-
Sexually transmitted infections (syphilis, gonorrhoea, HIV)	-	-	456	368	447	427	472	553	539	830

Source: NOMESCO, 2005.

Note: <sup>a</sup> preliminary data.

The number of people that are registered as HIV positive has increased recently, causing some concern, but in general, reproductive health in Denmark is considered to be very good (see Table 6.2).

## 6.14 Health care for specific populations

Special population groups have different kinds of access to the statutory health care system. Recognized refugees are included in regional health care coverage and have the same rights as Danish citizens, although they have to undergo a 6-week period of quarantine before entitlement commences. There are no national plans to offer services for preventive examinations and vaccination programmes for refugees and family reunion refugees. It is up to each municipality to decide whether to implement screening services or preventive initiatives.

Asylum seekers are all offered a volunteer screening examination by Red Cross Denmark. This examination is a general health check-up as well as an offer to perform an HIV test and an X-ray for thorax for risk groups. Children are examined for their vaccination status. Asylum seekers are not covered by regional health care and are only directly entitled to: (1) basic primary health care provided by the Red Cross or selected municipalities; and (2) hospital care in case of emergency. If an asylum seeker has a chronic disease, Red Cross Denmark can apply to the Danish Immigration Service for economic support. According to the Danish Immigration Service, this support can only be provided if the treatment is necessary, to relieve pain or to deal with a life-threatening situation. The application is assessed by a medical consultant and case officers from the Danish Immigration Service. Illegal immigrants are only entitled to acute treatment and are not covered by the regions. They are, however, often afraid of being reported to the authorities if they attend the health services for acute care. In Denmark, a network of doctors exists that treats illegal immigrants despite the act being unlawful. Commercial sex workers living illegally in Denmark are also helped by nongovernmental organizations, which treat them for sexually transmitted infections and other problems.

Psychological diseases are a major problem among asylum seekers and refugees. They have often been traumatized by war, have been tortured or experienced other events that have had a profound impact on their lives. Red Cross Denmark offers three hours of psychological consultation free of charge. For further consultation, the asylum seeker has to apply to the Danish Immigration Service. However, the Service is quite restrictive in this area, which can put the involved individual in a difficult position.

Access to health care services is generally affected by various barriers, such as lack of knowledge regarding the health system's functions, language problems, and cultural and structural barriers.

## 7 Principal health care reforms

### 7.1 Analysis of recent reforms

**T**able 7.1 provides an overview of the major reforms and policy initiatives that had a substantial impact on health care from 1970 to 2007. For information regarding earlier and more recent reforms, see Section 2.1 on Historical background.

#### **Free choice of hospitals and waiting time guarantee**

An Act on free choice of hospital for patients was introduced in 1993. Once referred by a GP, patients may choose among all public hospitals in Denmark and some private non-profit-making hospitals with the same level of specialization.

An “extended free choice” was introduced in 2002. With this, choice was extended to a number of private facilities and facilities abroad for patients with expected waiting times of more than two months. This is a waiting time guarantee and patients’ choice is limited to the hospitals that have an agreement with the region.

There has been a slight increase in the utilization of the “free choice” of hospitals, but current official data sources do not represent accurate trends. An official study, based on data from the National Patient Register, shows a growth in the share of non-acute patients treated outside their home county, from 8.0% of all patients in 1997 to 11.3% in 2003 (percentage of non-acute basic-level patients treated in other counties as a percentage of the total number of non-acute basic-level patients) (Ministry of the Interior and Health 2004b). This study includes patients treated at higher levels of specialization outside the county,

**Table 7.1 Overview of major reforms and policy initiatives with a substantial impact on health care, 1970–2007**

Year	Description
1970	Political and administrative structural reform: the responsibility of a large part of the health care sector is placed with 14 new counties and the cities of Copenhagen and Frederiksberg. The National Board of Health has the responsibility of approving county hospital plans.
1970–1980	The responsibility of state hospitals and those financed by the State is assigned to the counties (with the exception of Rigshospitalet).
1972	The municipalities are obligated to offer free dental care for children. This is extended in 1994 to include the elderly and the disabled.
1973	Counties and municipalities are given the responsibility of managing practising health professionals.
1980	Annual budget negotiations between the State and the counties, and between the State and the municipalities, are introduced.
1985	Hospital plans that are developed by the counties no longer need approval by the National Board of Health but only need to be presented to the Board.
1989	The first coherent, national prevention programme for health is developed in cooperation with all relevant sectors.
1990	Budget agreements between the State and the counties increasingly include specific objectives and demands.
1993	Free choice of hospital is mandated by law, including all counties and the cities of Copenhagen and Frederiksberg.
1994	Counties and municipalities are obligated to coordinate plans for health care services.
1995	The Copenhagen Hospital Cooperation (H:S) is formed. All hospital-related tasks in the cities of Copenhagen, Frederiksberg and Rigshospitalet are transferred to H:S.
1999	As part of the 1998 budget agreement, full diagnostic-related group (DRG) payments for patients treated are introduced at hospitals outside their home county (under the 1993 free choice scheme). 10% of hospital budgets are allocated according to activities by DRG.
2002	A waiting time guarantee, named the “extended free choice”, is introduced. Patients with waiting times of more than two months can choose between a number of private facilities and facilities abroad, provided the patient’s county has an agreement with them.
2003	The 1999 reform is extended to include activity-based financing (20% of budget) in hospitals from 2004.
2005	A major structural reform of the Danish administrative system is passed in Parliament. The reform was implemented in 2007 with 2006 being a transition year.
2007	The waiting time guarantee is reduced from two months to one month.

Sources: Ankjær-Jensen & Rath, 2004; Ministry of the Interior and Health, 2005c.

but excludes choices made within counties. Thus, there are no exact figures on the extent to which the right to choose a hospital has been utilized.

A study group organized by the Ministry of Health in 2004 concluded that there had been a slight increase in the number of “extended free choice patients” from approximately 2000 in the third quarter of 2002 to approximately 6000 in the final quarter of 2004. The extended choice scheme is mostly used for eye surgery, orthopaedic surgery, ear, nose and throat treatment and plastic surgery (Association of County Councils, Copenhagen Hospital Co-operation, Ministry of Finance & Ministry of Health 2004).

Although variations in waiting times persist, the limited utilization of this opportunity reflects the generally short waiting times in Denmark. Travel costs, limited information on quality matters, traditions, and patient preferences for treatment close to home may be other explanatory factors for this utilization pattern (Vrangbæk 1999; Birk, Vrangbaek, Winblad & Østergren 2007). The waiting time guarantee has been further reduced to one month as of 1 October 2007.

### **DRG and activity-based financing**

A Danish DRG system and diagnosis-related prices have been developed from the late 1990s. This has formed the administrative backbone of a number of experiments with activity-based financing as a supplement to the standard block grants and global budgets. “Free choice” patients across regional lines are paid on a full DRG price basis. In most cases this has created incentives for counties to try to retain “free choice” patients by reducing waiting lists. The Government as of autumn 2006 has actively sought to use activity-based financing to create incentives for increased activity when redistributing funds. This seems to have led to increases in activity levels, but possibly also to a bias against some of the areas where the activity level is harder to measure and influence (e.g. geriatrics, internal medicine, etc). The current objective is to gradually increase the level of activity-based financing from 20% to 50% (Ankjær-Jensen & Rath 2004; Ministry of Health 2005c).

### **Danish model for quality development**

In 2002, the national and regional authorities agreed to implement a national model for quality assurance in health care. The idea was to integrate a number of previously national and regional projects – including clinical databases, clinical guidelines, accreditation schemes and national patient satisfaction surveys – into a comprehensive scheme covering all areas of the health sector. The main components of the model were the development of standards (e.g. general, process-related; specific, diagnosis-related; and organizational) and

measurement indicators. Standards and indicators are supposed to support internal quality assurance, benchmarking and external accreditation. Quality data are published on the Internet to facilitate comparison and choice. So far, it is possible to compare quality for seven diagnosis areas (diabetes, lung cancer, schizophrenia, heart failure, hip fracture, stroke and acute surgery for gastrointestinal bleeding) as well as patient satisfaction ratings for all hospital departments (Danish eHealth Portal 2007; Danish National Indicator Project 2007). The accreditation of hospitals takes place every third year based on previous internal assessments. External accreditation is carried out by independent accreditation experts. So far, the Government has entered into a contract with the American Joint Commission for Accreditation of Health Organizations. The structure of the data builds on the integration of existing and new electronic patient records.

## 7.2 Recent developments

### Structural reform

A major structural reform of the administrative system was passed by the Danish Parliament in 2005. The reform was implemented in 2007, with 2006 as a transition year. The reform reduced the number of regional authorities from 14 counties to 5 regions (0.6–1.6 million inhabitants per region) and the number of municipalities from 275 to 98 (37% of the new municipalities have more than 50 000 inhabitants; 38% have 30 000–50 000; 18% have 20 000–30 000; and 7% have fewer than 20 000 inhabitants). Both levels are governed directly by elected politicians. The main responsibility of the regions is to provide health care services, but some environmental and regional development tasks have also been maintained at this level. Most other tasks have been moved to either the State or the municipalities. The new municipalities have assumed full responsibility for prevention, health promotion and rehabilitation outside of hospitals.

From an economic point of view, several important changes have been implemented. First, the regions' right to tax was removed. Health care is now financed by a combination of national earmarked "health taxes" (the new state health contribution), which are redistributed in terms of block grants to regions and municipalities. A total of 80% of the regional health care activities are financed by the State via block grants and some activity-based payments (approximately 5%). The remaining public financing for regional health care activities comes from municipal contributions, which are paid as a combination of per capita contributions and activity-based payments related to the use of

services by the citizens of the municipality. The idea behind the municipal co-financing is to create incentives for municipalities to increase preventative services in order to reduce hospitalization. The impetus behind the new state health contribution is to create greater transparency for taxpayers with regards to their health contributions and priorities. The size of the block grants from the State are calculated according to a formula, which includes the expected health care needs of the population as a central component. The expected need is assessed by combining the number of inhabitants in different age groups and across certain socioeconomic status levels (Strandberg-Larsen, Nielsen, Krasnik & Vrangbaek 2006).

The reform passed through the Parliament with a small majority. This is unusual in Denmark, as the norm has previously been that major structural reforms have needed a broad consensus between the Government and the Opposition. Two of the parties behind the reform, including the Conservative coalition government party, had been in favour of dismantling the counties for a number of years. The main arguments for the reform were related to bureaucratic costs and taxation levels. It is not clear, however, whether the reform will lead to major reductions in administrative costs. Significant implementation costs are currently being incurred. Another main driver of the reform was the perception that larger catchment areas were needed to support future specialization and to secure structural adjustments. Many observers have pointed to the ambiguous evidence on the benefits of scale and specialization in health care (Christensen, Nielsen, Holm-Petersen & Lassen 2005). Other observers have pointed out that the counties were performing well in terms of controlling expenditure levels, increasing productivity and making gradual structural adjustments (Søgaard 2004), and that the evidence behind benefits of scale in hospital treatment is unfounded. Most observers agree that the strengthening of the municipal level is beneficial; however, there is some fear that the municipalities will not have sufficient competences to plan and carry out their new tasks and that they will prioritize activities that directly reduce hospital admissions over general, long-term preventive programmes. No independent experts have argued in favour of the changes in financing scheme (Pedersen, Christiansen & Bech 2005).



## 8 Assessment of the health system

### 8.1 Objectives of the health system

**A**n official government report from 2003 outlines the objectives of the Danish health system as follows (Advisory Committee to the Minister for the Interior and Health 2003):

- free and equal access to treatment
- choice
- high quality
- coherent patient pathways
- consideration for diversity in patient needs and preferences
- efficient use of resources
- efficient macroeconomic control of expenditure
- democratic control.

In this chapter, we investigate recent policies and the status regarding these objectives, where evidence is available.

### 8.2 Distribution of the health system's costs and benefits across the population

#### **Financing health services**

Until 2007, the Danish health system was financed through progressive general income taxation at the national level and proportional income and property taxes at the regional level (see Chapter 4 on Financial resources). The national-level

tax revenue was redistributed to the counties via block grants based on objective criteria and some activity-based financing for hospitals. The system was designed to support solidarity in financing and equity in coverage (Gundgaard 2006; Wagstaff et al. 1999).

Since 2007, financing has taken place through earmarked proportional taxation at the national level (see Section 7.2 on Recent developments). Most of this revenue (80%) is redistributed to the regions via block grants based on objective criteria (social and demographic indicators). The remaining 20% is redistributed to the new municipalities, which in turn co-finance regional hospital services for their population. The system continues to be based on principles of solidarity and redistribution across the population. The earmarking of health taxes is a new feature in Denmark and is intended to create greater transparency for taxpayers with regard to the health sector. However, this mechanism also reduces the potential for redistribution across sector areas.

There is an increasing level of user charges in Danish health care. These are mostly related to payments for pharmaceuticals, dental care and physiotherapy, and also to a fast growing private health insurance market, which is partly established by labour market agreements for groups of employees. Some argue in favour of introducing more co-payments, such as patient fees for GP consultations, as this may reduce the unnecessary utilization of services. Increases in private financing of health services may lead to major changes in the patterns of health care financing in Denmark over time, which could threaten the general principles of solidarity and equity in the tax-based financing of health care services.

### **Provision of benefits**

At the time of writing, the system is based on the principles of universal, free and equal access to health care. Although utilization patterns vary somewhat across the regions, these objectives have largely been met. In practice, some groups (such as the homeless, the mentally disabled, immigrants, and drug and alcohol abusers) appear to have a more unstable utilization pattern than other groups. The high individual costs of dental care for adults seem to result in social inequity in the utilization of this kind of service, which has also led to social differences in dental health status. The use of private practising specialists reveals a geographic and social bias, as services are mostly established in affluent urban areas. The utilization of patient choice appears to favour patients with higher education and stable employment. There is some speculation that the increasing use of activity-based financing will divert investments and activities away from areas such as internal medicine and geriatrics and towards areas

where increases in activity are easier to demonstrate. However, the evidence base for this claim is limited.

Equal access and utilization of services according to need will probably remain a strong focus in the Danish health sector in the near future. However, ever increasing demands as a result of new technology and expected changes in age distribution and disease patterns of the population might foster political initiatives to reduce access through new financial and structural reforms.

## **8.3 Efficiency of resource allocation in health care**

### **Allocative efficiency**

In general, current resource allocation for health care meets the needs of the population. The reduction in waiting times, along with the waiting time guarantee and “extended free choice” of hospital, ensure access to health services within relatively short periods. The waiting time guarantee ensures access to treatment in the public system or at private facilities in Denmark or abroad, if expected waiting times exceed one month. Patient satisfaction surveys continue to demonstrate remarkably high levels of satisfaction with both GPs and hospital services.

However, international comparisons of survival rates among some patient groups (i.e. patients with lung cancer and ovarian tumours) seem to indicate that the efficiency of some diagnostic and curative services is not optimal. This may be due to a lack of staff, equipment or skills, or to structural problems in the Danish health care system related to service coordination and specialization. There are also some issues of personnel coverage in peripheral areas; however, regional authorities are actively seeking to remedy such difficulties by employing non-native doctors and nurses.

Recent years have seen special emphases placed on psychiatric care and common life-threatening diseases, such as cancer and heart problems. Psychiatric diseases and treatments for musculoskeletal ailments are given low priority despite general statements to the contrary in national health policy. There is no evidence of significant shifts in the balance between primary, secondary and tertiary care. However, a stated objective of the current structural reform is to create incentives for the municipalities to place more emphasis on prevention, health promotion and rehabilitation outside of hospitals.

## 8.4 Technical efficiency in the production of health care

The health system is in general considered to provide good “value for money”. Consecutive government reports have indicated that the relationship between overall expenditure levels and service levels, including available indicators on waiting times and quality, is acceptable in comparison with other European countries (Advisory Committee to the Minister for the Interior and Health 2003; Ministry of the Interior and Health 2004b). Efficiency in this area is a result of many different initiatives, which aimed at controlling expenditure, raising productivity and improving quality, over the decades.

The use of global budgeting and hard budget constraints is a pervasive feature of the system. In recent years, this has also been combined with internal contracts and some activity-based payments in order to encourage higher activity and stronger productivity. A recent government report highlights the gradually improving productivity in the sector, with a 2.4% increase from 2003 to 2004 (Ministry of the Interior and Health 2005d). Productivity is measured at the system level and for the individual units on an annual basis. It is measured as the relationship between DRG production values (output) and expenditure (input). Hospital productivity is compared to average productivity at national, regional and county levels (Ministry of the Interior and Health 2005a). There is limited information on the efficiency of the primary care sector; however, it is generally assumed that the combined per capita and fee-for-service payment mechanisms provide incentives to optimize both activity levels and composition. Fees are negotiated with the public authorities on a regular basis and activity profiles are monitored regularly. GP “gatekeeping” has been a significant feature of the Danish system for many years, along with the general principle of treating patients at the lowest effective care level, as opposed to providing free access to units that are more specialized.

There is a general policy to promote the generic substitution of pharmaceuticals, and all regional authorities have implemented policies that monitor and influence the use of drugs in their health facilities. Efforts to reduce the general costs of drugs have not been particularly successful, in spite of some positive results in terms of drug pricing. Any potential savings have been more than counterbalanced by wider use of new and more expensive drugs and by changes in the treatment indications of hypertension, high cholesterol, and so on. There has been some experimentation with substitution of doctors with nurses, but the most important efficiency drive has been a massive, and largely successful, effort to convert inpatient treatment to outpatient or ambulatory treatment.

## 8.5 Accountability of payers and providers

Accountability of payers and providers is largely ensured by hierarchical control within political-bureaucratic structures at national, regional and municipal levels. The budgeting and economic management processes include accountability assessments at all levels. Annual negotiations between the State and the regional and municipal authorities involve a detailed evaluation of needs, results and new activity areas. Regional and municipal public management is based on contracting, incentives and surveillance measures, to control the performance of hospitals and other public organizations. The activities of practising primary and secondary care doctors are monitored and funded with the nationally negotiated fee schedules, by the regional authorities.

Quality is monitored by state-employed medical health officers via internal bureaucratic procedures, national measures of patient satisfaction and various national and regional initiatives to develop standards, clinical guidelines, clinical databases, and so on. All hospitals have been included in the general Danish model for quality assurance since 2007, and external accreditation takes place at regular intervals (see Section 7.2 on Recent developments). A national system for reporting inadvertent events has been established as well.

HTA has become an integrated part of the system, along with other types of evaluation at local or regional levels. HTAs are performed at national, regional and local levels. The HTA practice has become institutionalized via a national institute and several regional resource centres. HTA is recommended for major decisions, but has not yet been implemented comprehensively. Evaluations may be performed by local or regional initiatives, in addition to the nationally mandated quality assurance programme.

Patients rights have been extended and formalized during recent years (see Subsection 2.5.2 on Patient rights and empowerment). These rights are generally respected and there are mechanisms in place for sanctioning professional misconduct and abuse.

## 8.6 The contribution of the health system to health improvement

The contribution the health system has made to the health of the population is difficult to assess. It depends on the measure of health utilized and the time span under consideration. For instance, the decline in mortality stagnated in Denmark during the 1950s and at the same time health care costs started to

increase substantially. However, in recent decades, mortality caused by heart disease has declined remarkably, partly due to better survival among heart patients. In addition, survival rates for some types of cancer have increased due to better interventions. That said, Denmark is still lagging behind other Nordic countries regarding general mortality and some cause-specific mortality figures; this is probably due to a combination of health care, environmental and health behaviour factors. There is also reason to believe that people's functional abilities and quality of life have improved because of enhanced surgical and pharmaceutical treatments; however, there is little quantitative evidence to support this assumption. A recent study on amenable deaths in 19 industrialized countries indicates that the Danish system is performing at an average level. It is not performing as well as other Scandinavian countries (namely, Norway and Sweden) but it is performing better than countries such as the United Kingdom, Portugal, Ireland, the United States, Austria, New Zealand and Greece (Nolte & McKee 2003). Although the method used in the *WHO World Health Report 2000* for evaluating the performance of health systems is far from perfect and widely debated, it indicated a rather poor ranking of Denmark (Nolte & McKee 2003).

In spite of the rather weak public health interventions regarding tobacco consumption, there have been some changes in the population's behaviour, showing a gradual decrease in the Danish population's high tobacco consumption. However, a new, stricter legislation largely banning smoking in places of work was implemented as of 15 August 2007. Alcohol consumption is also high in Denmark. The public health effort continues to focus on general campaigns in this area, which have been counteracted by a reduction in alcohol taxes. The increase in obesity and related diseases such as diabetes has become a public health issue in recent years, but major interventions are yet to be put into practice.

Health inequalities are increasing between educational and occupational groups, as is the trend in many other western European countries (Mackenbach et al. 2003). There is, however, no evidence indicating that this is due to unequal access to or utilization of health care services; that is, with the exception of specific instances such as the high co-payment for adult dental care. It is rather caused by unfavourable social and environmental conditions and health behaviours in some population groups, which cannot be modified by the ongoing types of public health interventions in effect at the time of writing.

## 9 Conclusions

The general picture that emerges from the bulk of the evidence presented here is of an integrated, yet decentralized public health system, which appears to have delivered sustainable good value for money. A predominantly political and administrative governance system has found a dynamic balance between the objectives of equity, efficiency, cost-containment and relatively high levels of service and quality. Various policy tools have been implemented to achieve this balance. However, the country's continued ability to strike an acceptable balance in this respect has been drawn into question. As in all Western health systems, there are increasing demands for individualized services at a high level of quality, an ageing population, rapid development of technological possibilities and the resulting pressures on health expenditures. At the same time, health care has become more politicized and is subject to increasing attention by both the voting population and political parties.

It is generally understood that elections can be lost or won on health sector issues. The media-fuelled public perception of waiting time problems, the relatively poor life expectancy in Denmark compared to other Scandinavian countries and the identification of substandard results in some critical treatment areas such as heart disease and cancer have contributed to greater scepticism than was previously evident in the population towards both health professionals and health administration. Signs of this can be found in the media coverage of health issues, while the national patient satisfaction surveys show remarkably high, albeit slowly declining, rates of satisfaction with the system.

Various pressures and the changing political dynamics have led to the introduction of many new reform initiatives in the sector. The reforms have strengthened the position of patients and are gradually changing the managerial dynamics to combine professional and decentralized political governance with various national monitoring, control and incentive schemes. Several aspects

of these developments are worth considering: first, a gradual change in the dominant medical thinking from a local clinical focus to global, evidence-based approaches; second, the evidence-based transparency systems are introduced in a more or less uneasy alliance with the managerial demands for accountability and control through auditing; and third, economic incentives are used more consciously as an instrument to affect behaviour at department, hospital, and regional and municipal levels. This is gradually changing the “rules of the game” and the mix of values and cost–benefit assessment within the system. Furthermore, the free choice of hospitals was introduced in 1993 as a goal in its own right, and as an instrument intended to put pressure on the public hospital system. That element of choice has been combined with a waiting time guarantee, which extends the principle of choice to a set of private providers both in Denmark and abroad, if expected waiting times exceed one month from referral to treatment.

The Danish health system has thus gradually moved from a predominantly hierarchically managed and supply-driven system to one based on a combination of supply and demand governance and mixed with a stronger role for economic incentives and emerging openings for more entrepreneurial behaviour, both within the public sector and by private actors.

Some of the specific policies to strengthen the position of users/patients include the general waiting time guarantee of one month from referral to treatment, free choice of hospitals, and improved general patient rights to information and dialogue. Added to this is an ongoing focus on better coordination of patient pathways from initial diagnosis to treatment and rehabilitative follow-up. Incentive-based policies include the partial introduction of activity-based financing for hospitals and the introduction of municipal co-financing of regional health services. Other performance-oriented policies aim to develop detailed monitoring and control systems for service and quality. A combination of user assessments, self-evaluation and external accreditation is the chosen approach in the Danish national programme for quality assessment, which is to be implemented in all parts of the health system in the years to come.

A structural reform took effect on 1 January 2007. This reform reconfigures the administrative landscape within which health governance takes place. The previously existing 14 counties have been replaced by 5 regions, with largely the same responsibilities for primary care and hospital services but, importantly, without the independent right to raise taxes. Both the introduction of larger regions and the shift to predominantly state-funded health care can be regarded as a recentralization of powers. This is further underlined by the strengthening of the National Board of Health with regard to planning of specialty treatment capacity. However, the general tendency towards more centralized power in

health governance is combined with a new role for the municipalities as co-financers of health services and as the main responsible administrative level for rehabilitation, prevention and health promotion. The municipal co-financing is a unique feature in Denmark, which is intended to create incentives for the municipalities to focus their attention on prevention and substitution of hospital services with various forms of outpatient care. The municipal capacity to do this has been questioned, but it seems that most municipalities are actively working on the development of new health functions.

A main argument for embarking on the structural reform was to improve coordination and create patient pathways that function more smoothly. This may be the outcome within the larger regions, while the coordination across regions and municipalities may become problematic as a result of the new financial relationships and potential conflicts of interest. Special coordination councils are supposed to take care of this, but results will only gradually emerge over the years to come.

Structural changes are not limited to the administrative level. The new regions as well as the new municipalities are now actively seeking to develop a new delivery infrastructure. In all regions this means political backing for a series of mergers and closures of hospitals and departments in an effort to reap benefits of scale and scope. Some of these aspirations are likely to be successful, while there is less evidence that anything useful can be gained from other mergers and structural changes.

The overall effects of the reform will become apparent in the coming years, although it will be difficult to evaluate effects in a clear causal pattern. It is considered likely that a “blame game” will emerge between the regions and the State, as the regions have incentives to increase demands for funding, and are more likely to be backed by their population, than in the previous situation where higher service levels were immediately linked to higher regional taxation.

Equity remains a core value in the Danish health sector, but it coexists with long-standing elements of private ownership in general and specialist practices, as well as supplementary health insurance, particularly to reimburse co-payments. Several developments may lead to a slow de facto erosion of the equity principle. First, the rapid spread of voluntary supplementary health insurance will allow some segments of the population more direct access to private health providers. This is likely to lead to a greater role for both private and public entrepreneurship as new actors enter the market and public health organizations attempt to respond to challenges by creating more differentiated service concepts. Second, the demands for more individualized services in the public health sector, combined with increasing focus on lifestyle and self-

inflicted conditions, may be part of a broader cultural change in the perception of health services.

Another factor that is gradually changing the political landscape is the internationalization of health care, and particularly the development of internal EU markets for people, services and goods. Mobility of health professionals and cross-border patient mobility are gradually making an impact in the Danish health system. Cross-border patient mobility challenges national planning capacity and changes the conditions of the national health policy situation. Attracting health professionals from abroad may be a solution to the shortages of skilled staff in the Danish system, but it also creates new challenges in terms of communication, cultural barriers and quality control.

## 10 Appendices

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## 10.2 Principal legislation

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Law of authorization of health professionals and of health care activities [Lov om autorisation af sundhedspersoner og om sundhedsfaglig virksomhed]. Law no 451, 22-5-2006.

Ministerial order of Law of the central administration of health services [Bekendtgørelse af lov om sundhedsvæsenets centralstyrelse]. LBK no. 790, 10-9-2002.

Law on pharmaceuticals [Lov om lægemidler]. Law no. 1180. 12-12-2005.

Law of access to complaint and compensation within the health services [Lov om klage- og erstatningsadgang inden for sundhedsvæsenet]. Law no. 547, 24-6-2005.

Ministerial order of Law on infectious diseases [Bekendtgørelse af lov om foranstaltninger mod smitsomme og andre overførbare sygdomme]. LBK no. 640, 14-6-2007.

Law of a scientific ethical committee system and biomedical research projects [Lov om et videnskabetisk komitesystem og behandling af biomedicinske forskningsprojekter]. Law no. 402, 28-5-2003.

Ministerial order of Law on use of force in psychiatric treatment [Bekendtgørelse af lov om anvendelse af tvang i psykiatrien]. LBK no. 1111, 1-11-2006.

Law on psychiatric treatment according to a legal proceeding [Lov om retspsykiatrisk behandling]. Law no. 1396, 21-12-2005.

### 10.3 Useful web sites

<a href="http://www.cancer.dk">www.cancer.dk</a>	Danish Cancer Society
<a href="http://www.cvuoesund.dk">www.cvuoesund.dk</a>	Centre for Higher Education, University College Øresund
<a href="http://www.dagensmedicin.dk">www.dagensmedicin.dk</a>	Dagens Medicin
<a href="http://www.dp.dk">www.dp.dk</a>	Danish Association of Psychologists
<a href="http://www.dsi.dk">www.dsi.dk</a>	Danish Institute of Health Services Research
<a href="http://www.dst.dk">www.dst.dk</a>	Statistics Denmark
<a href="http://www.dtfnet.dk">www.dtfnet.dk</a>	Danish Dental Association
<a href="http://www.europa.eu">www.europa.eu</a>	Europa – Gateway to the European Union
<a href="http://www.fleksjob.dk">www.fleksjob.dk</a>	CABI – Danish National Centre for Employment Initiatives
<a href="http://www.fysio.dk">www.fysio.dk</a>	Association of Danish Physiotherapists
<a href="http://www.sum.dk">www.sum.dk</a>	Ministry of Health
<a href="http://www.kiropraktor-foreningen.dk">www.kiropraktor-foreningen.dk</a>	Danish Association of Chiropractors
<a href="http://www.kl.dk">www.kl.dk</a>	National Association of Local Authorities in Denmark
<a href="http://www.laegemiddelstyrelsen.dk">www.laegemiddelstyrelsen.dk</a>	Danish Medicines Agency
<a href="http://www.dkma.dk">www.dkma.dk</a>	Danish Medicines Agency
<a href="http://www.lifdk.dk">www.lifdk.dk</a>	Danish Association of the Pharmaceutical Industry
<a href="http://www.mm.dk">www.mm.dk</a>	Mandag Morgen
<a href="http://www.oecd.org">www.oecd.org</a>	Organisation for Economic Co-operation and Development
<a href="http://www.pkn.dk">www.pkn.dk</a>	Patients' Complaints Board

<a href="http://www.plo.dk">www.plo.dk</a>	Organisation of General Practitioners in Denmark
<a href="http://www.psykiatrifonden.dk">www.psykiatrifonden.dk</a>	Danish Mental Health Fund
<a href="http://www.psykisk-institut.dk">www.psykisk-institut.dk</a>	Mental Institute
<a href="http://www.regioner.dk">www.regioner.dk</a>	Danish Regions
<a href="http://www.retsinfo.dk">www.retsinfo.dk</a>	Legal Information of the Danish State
<a href="http://www.sfi.dk">www.sfi.dk</a>	Danish National Centre for Social Research
<a href="http://www.niph.dk">www.niph.dk</a>	National Institute of Public Health
<a href="http://www.ssi.dk">www.ssi.dk</a>	National Serum Institute
<a href="http://www.sst.dk">www.sst.dk</a>	National Board of Health
<a href="http://www.sygeforsikring.dk">www.sygeforsikring.dk</a>	Health Insurance “denmark“
<a href="http://www.uvm.dk">www.uvm.dk</a>	Ministry of Education
<a href="http://www.optagelse.dk">www.optagelse.dk</a>	Ministry of Education
<a href="http://www.videnskabsministeriet.dk">www.videnskabsministeriet.dk</a>	Ministry of Science, Technology and Innovation
<a href="http://www.who.int">www.who.int</a>	World Health Organization

## 10.4 HiT methodology and production process

The Health Systems in Transition (HiT) profiles are produced by country experts in collaboration with the Observatory’s research directors and staff. The profiles are based on a template that, revised periodically, provides detailed guidelines and specific questions, definitions, suggestions for data sources, and examples needed to compile HiTs. While the template offers a comprehensive set of questions, it is intended to be used in a flexible way to allow authors and editors to adapt it to their particular national context. The most recent template is available online at: [http://www.euro.who.int/observatory/Hits/20020525\\_1](http://www.euro.who.int/observatory/Hits/20020525_1).

Authors draw on multiple data sources for the compilation of HiT profiles, ranging from national statistics, national and regional policy documents,

and published literature. Furthermore, international data sources may be incorporated, such as those of the Organisation for Economic Co-operation and Development (OECD) and the World Bank. OECD Health Data contain over 1200 indicators for the 30 OECD countries. Data are drawn from information collected by national statistical bureaux and health ministries. The World Bank provides World Development Indicators, which also rely on official sources.

In addition to the information and data provided by the country experts, the Observatory supplies quantitative data in the form of a set of standard comparative figures for each country, drawing on the European Health for All (HFA) database. The HFA database contains more than 600 indicators defined by the WHO Regional Office for Europe for the purpose of monitoring Health for All policies in Europe. It is updated for distribution twice a year from various sources, relying largely upon official figures provided by governments, as well as health statistics collected by the technical units of the WHO Regional Office for Europe. The standard HFA data have been officially approved by national governments. With its January 2007 edition, the HFA database started to take account of the enlarged European Union (EU) of 27 Member States.

HiT authors are encouraged to discuss the data in the text in detail, especially if there are concerns about discrepancies between the data available from different sources.

A typical HiT profile consists of 10 chapters:

1. **Introduction:** outlines the broader context of the health system, including geography and sociodemography, economic and political context, and population health.
2. **Organizational structure:** provides an overview of how the health system in a country is organized and outlines the main actors and their decision-making powers; discusses the historical background for the system; and describes the level of patient empowerment in the areas of information, rights, choice, complaints procedures, safety and involvement.
3. **Financing:** provides information on the level of expenditure, who is covered, what benefits are covered, the sources of health care finance, how resources are pooled and allocated, the main areas of expenditure, and how providers are paid.
4. **Regulation and planning:** addresses the process of policy development, establishing goals and priorities; deals with questions about relationships between institutional actors, with specific emphasis on their role in regulation and what aspects are subject to regulation; and describes

the process of health technology assessment (HTA) and research and development.

5. **Physical and human resources:** deals with the planning and distribution of infrastructure and capital stock; the context in which information technology (IT) systems operate; and human resource input into the health system, including information on registration, training, trends and career paths.
6. **Provision of services:** concentrates on patient flows, organization and delivery of services, addressing public health, primary and secondary health care, emergency and day care, rehabilitation, pharmaceutical care, long-term care, services for informal carers, palliative care, mental health care, dental care, complementary and alternative medicine, and health care for specific populations.
7. **Principal health care reforms:** reviews reforms, policies and organizational changes that have had a substantial impact on health care.
8. **Assessment of the health system:** provides an assessment based on the stated objectives of the health system, the distribution of costs and benefits across the population, efficiency of resource allocation, technical efficiency in health care production, quality of care, and contribution of health care to health improvement
9. **Conclusions:** highlights the lessons learned from health system changes; summarizes remaining challenges and future prospects.
10. **Appendices:** includes references, useful web sites, legislation.

Producing a HiT is a complex process. It involves:

- writing and editing the report, often in multiple iterations;
  - external review by (inter)national experts and the country's Ministry of Health – the authors are supposed to consider comments provided by the Ministry of Health, but not necessarily include them in the final version;
  - external review by the editors and international multidisciplinary editorial board;
  - finalizing the profile, including the stages of copy-editing and typesetting;
  - dissemination (hard copies, electronic publication, translations and launches).
- The editor supports the authors throughout the production process and in close consultation with the authors ensures that all stages of the process are taken forward as effectively as possible.

# The Health Systems in Transition profiles

## A series of the European Observatory on Health Systems and Policies

The Health Systems in Transition (HiT) country profiles provide an analytical description of each health care system and of reform initiatives in progress or under development. They aim to provide relevant comparative information to support policy-makers and analysts in the development of health systems and reforms in the countries of the European Region and beyond. The HiT profiles are building blocks that can be used:

- to learn in detail about different approaches to the financing, organization and delivery of health care services;
- to describe accurately the process, content and implementation of health care reform programmes;
- to highlight common challenges and areas that require more in-depth analysis; and
- to provide a tool for the dissemination of information on health systems and the exchange of experiences of reform strategies between policy-makers and analysts in countries of the WHO European Region.

### How to obtain a HiT

All HiT profiles are available in PDF format on [www.euro.who.int/observatory](http://www.euro.who.int/observatory), where you can also join our listserve for monthly updates of the activities of the European Observatory on Health Systems and Policies, including new HiTs, books in our co-published series with Open University Press, policy briefs, the *EuroObserver* newsletter and the *Eurohealth* journal. If you would like to order a paper copy of a HiT, please write to:



[info@obs.euro.who.int](mailto:info@obs.euro.who.int)

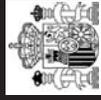
## HiT country profiles published to date:

Albania (1999, 2002<sup>a,g</sup>)  
Andorra (2004)  
Armenia (2001<sup>g</sup>, 2006)  
Australia (2002, 2006)  
Austria (2001<sup>e</sup>, 2006<sup>g</sup>)  
Azerbaijan (2004<sup>g</sup>)  
Belgium (2000, 2007)  
Bosnia and Herzegovina (2002<sup>g</sup>)  
Bulgaria (1999, 2003<sup>b</sup>, 2007)  
Canada (2005)  
Croatia (1999, 2007)  
Cyprus (2004)  
Czech Republic (2000, 2005<sup>g</sup>)  
Denmark (2001, 2007)  
Estonia (2000, 2004<sup>g,j</sup>)  
Finland (2002)  
France (2004<sup>c,g</sup>)  
Georgia (2002<sup>d,g</sup>)  
Germany (2000<sup>e</sup>, 2004<sup>e,g</sup>)  
Hungary (1999, 2004)  
Iceland (2003)  
Israel (2003)  
Italy (2001)  
Kazakhstan (1999<sup>g</sup>)  
Kyrgyzstan (2000<sup>g</sup>, 2005<sup>g</sup>)  
Latvia (2001)  
Lithuania (2000)  
Luxembourg (1999)  
Malta (1999)  
Mongolia (2007)  
Netherlands (2004<sup>g</sup>)  
New Zealand (2001)  
Norway (2000, 2006)  
Poland (1999, 2005)  
Portugal (1999, 2004, 2007)  
Republic of Moldova (2002<sup>g</sup>)  
Romania (2000)  
Russian Federation (2003<sup>g</sup>)  
Slovakia (2000, 2004)  
Slovenia (2002)  
Spain (2000<sup>h</sup>)  
Sweden (2001, 2005)  
Switzerland (2000)  
Tajikistan (2000)  
The former Yugoslav Republic of Macedonia (2000)  
Turkey (2002<sup>g,i</sup>)  
Turkmenistan (2000)  
Ukraine (2004<sup>g</sup>)  
United Kingdom of Great Britain and Northern Ireland (1999<sup>g</sup>)  
Uzbekistan (2001<sup>g</sup>, 2007)

### Key

All HiTs are available in English.  
When noted, they are also  
available in other languages:

- <sup>a</sup> Albanian
- <sup>b</sup> Bulgarian
- <sup>c</sup> French
- <sup>d</sup> Georgian
- <sup>e</sup> German
- <sup>f</sup> Romanian
- <sup>g</sup> Russian
- <sup>h</sup> Spanish
- <sup>i</sup> Turkish
- <sup>j</sup> Estonian



The European Observatory on Health Systems and Policies is a partnership between the WHO Regional Office for Europe, the Governments of Belgium, Finland, Norway, Slovenia, Spain and Sweden, the Veneto Region of Italy, the European Investment Bank, the Open Society Institute, the World Bank, the London School of Economics and Political Science and the London School of Hygiene & Tropical Medicine.

HITs are in-depth profiles of health systems and policies, produced using a standardized approach that allows comparison across countries. They provide facts, figures and analysis and highlight reform initiatives in progress.