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Uzbekistan

Health system review

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Health Systems in Transition

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Preface

The 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.

HiT profiles and HiT summaries are available on the Observatory's web site at 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.

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The current series of HiT profiles has been prepared by the research directors and 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.

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The HiT reflects data available in May 2007.

List of abbreviations

CARK	Central Asian Republics and Kazakhstan
CDC	(United States) Centers for Disease Control
CIS	Commonwealth of Independent States
CRB	Central rayon hospital
DFID	(United Kingdom) Department for International Development
DHS	Demographic and Health (Examination) Survey
DOTS	Directly Observed Treatment Short-course
DRG	Diagnosis-related group
DTP	Diphtheria, tetanus, pertussis
EU	European Union
EU15	Countries constituting the European Union before May 2004
EU25	Countries constituting the European Union after May 2004
FAP	Feldsher-accoucheur point
GAIN	Global Alliance for Improved Nutrition
GDP	Gross domestic product
GMP	Good Medical Practice
GNP	Gross national product
GP	General practitioner
HINARI	Health InterNetwork Access to Research Initiative
HIV/AIDS	Human Immunodeficiency Virus / Acquired Immunodeficiency Syndrome
IAEA	International Atomic Energy Agency
IMF	International Monetary Fund
IT	Information technologies
JICA	Japanese International Corporation Agency
KfW	German Bank for Reconstruction and Development
LCU	Local Currency Unit
MDS	Medical Diagnostics Services (clinic – private provider)
MICS	Multiple Indicator Cluster Survey
NGO	Nongovernmental organization
NICE	National Institute for Health and Clinical Excellence

NIS	Newly independent states
OECD	Organisation for Economic Co-operation and Development
PPP	Purchasing Power Parity
SRI	Scientific Research Institute
STI	Sexually transmitted infection
SUB	Small local community hospital
SVA	Small rural ambulatory facility
SVP	Rural primary care unit (rural physician point)
TB	Tuberculosis
UHES	Uzbekistan Health Examination Survey
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
UNIC	Uzbekinvest National Export-Import Insurance Company
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VAT	Value-added tax
WHO	World Health Organization

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Abstract

The 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.

The Uzbek health system has undergone significant changes since the country became independent in 1991. While Uzbekistan has made progress in the restructuring of different layers of health services with an increased emphasis on primary care, the coordination of different levels of care remains a major challenge. The establishment of a state-guaranteed benefits package was an important element of health reforms. However, a number of essential services were left outside the state-guaranteed benefits package for the majority of the population, including secondary and tertiary services and outpatient pharmaceuticals. This has created many challenges, such as increasing the pressure on emergency services, which are comparatively well equipped and formally free of charge. Overall, access to secondary and tertiary care seems to have deteriorated in recent years and out-of-pocket payments (both formal and informal) present a major barrier to accessing health services and pharmaceuticals, in particular for low-income groups. In addition, there are significant differences in terms of per capita health expenditure across regions and many rural physician points face staffing shortages. Quality improvement is another major challenge for the Uzbek health system and initial quality improvement initiatives are now being undertaken.

Executive summary

The Uzbek health system has undergone significant changes since the country became independent in 1991. Although a number of health programmes and projects have been documented, a comprehensive and up-to-date description and evaluation of the Uzbek health system has so far been lacking. This country profile aims to provide an outline of the health system in Uzbekistan in accordance with the guidelines developed for the Health Systems in Transition (HiT) series by the European Observatory on Health Systems and Policies.

The first chapter provides a brief overview of the Uzbek health system, placing it in the context of a transition economy with changing demographics, politics and health indicators. This chapter also describes recent changes to the political system, including the introduction of a bicameral Parliament. The chapter further outlines the health status of Uzbekistan's population and provides information on a range of health indicators, such as causes of mortality and the prevalence and incidence of selected infectious conditions.

The second chapter describes the organizational structure of the Uzbek health system. It begins by outlining the overview of the health system and its key historical developments, with a particular focus on the Soviet health system, which continues to shape the reform trajectory of the Uzbek health system. The chapter then sets out the current organizational structure of the public health system, which is the dominant mode of health care provision, as the organized private health sector is still in the process of developing. The chapter concludes by discussing issues of patient empowerment.

Chapter 3 focuses on financial aspects, providing an overall picture of health spending and revenue sources in Uzbekistan. While taxation remains the main source of health financing, new revenue sources have emerged in recent years, including out-of-pocket payments, voluntary health insurance and international

development assistance. The final part of this chapter describes pooling agencies and disbursement mechanisms, focusing mostly on the disbursement and reimbursement mechanisms in the public sector, as little public funding is directed towards private health care providers.

The fourth chapter deals with regulatory aspects of the Uzbek health system. As the private sector is subject to little regulation, the main focus of this chapter is the regulatory framework for the public sector, which is described from three perspectives: the national, local and provider levels. Health technology assessment as a regulatory tool is still at an early stage of development in Uzbekistan. While health system data are key to regulatory processes, health-related information in Uzbekistan is currently collected by five separate data-collection systems and continues to be tailored towards the quantitative planning and control functions of governmental health authorities. This chapter provides details of the main data-collection system, which is managed by the Institute of Health, and concludes by exploring the framework for public research funding, which has undergone significant changes since 2002.

Chapter 5 focuses on the physical resources of the Uzbek health system. It outlines the framework for capital investments and provides information on the current use of information technologies (IT) in Uzbekistan's health sector. In 2002, only 0.3% of the population owned computers and there were overall only approximately 55 000 Internet users. However, this situation is changing rapidly, as both the Internet and other IT become more accessible, and as the Government facilitates the expansion of IT. By September 2006, there were approximately 1.4 million Internet users (a 30-fold increase since 2002) and approximately 2 million mobile phone users (a 10-fold increase since 2002) (UzA 2006b; Communications and Information Agency of Uzbekistan 2006). The chapter proceeds to describe the framework for the procurement of medical equipment, devices and pharmaceuticals, which follows different paths in the public and private sectors. It concludes by describing human resource trends and by detailing the training paths for different groups of health professionals (physicians, nurses, pharmacists and dentists) and the framework for registration and licensing.

Chapter 6 discusses the delivery of health services and provides in-depth information about public health services; primary, secondary and tertiary care; pharmaceuticals; mental health care; maternal and child health; and dental care. This reviews health care delivery in the public and private sector, referral processes, patient pathways and the quality of care.

Chapter 7 presents the major reform initiatives in the Uzbek health system. A new vision for the Uzbek health sector was outlined in two major documents: the "Law on Health Protection" of 1996 (Republic of Uzbekistan 1996) and the

"Presidential Decree on the State Programme for the Reform of the Health Care System of Uzbekistan" of 1998 (President of Uzbekistan 1998). Subsequent government initiatives in the health sector aimed to achieve the objectives set out in these two documents. After detailing the main points of these key documents, the chapter concludes by analysing the reform processes with regard to primary, secondary, tertiary and emergency care.

The assessment of health systems can make use of a range of different criteria or indicators. Although no health system excels according to all criteria, a regular assessment can help to redirect resources and efforts to those aspects of the health system that could be improved. Chapter 8 assesses the Uzbek health system using criteria such as access and coverage, equity, and allocative and technical efficiency.

Access and coverage can be considered in terms of geographical access, financial access and the overall quality of services provided. Uzbekistan is currently restructuring its network of primary care facilities, which should improve geographical access to quality primary care services for all strata of the population. At the same time, however, inpatient and specialized care have become less accessible, in particular in rural areas. In the period between 1997 and 2003, overall bed capacity was reduced by 50%, with a reduction of the number of hospitals in rural areas by 50% and in urban areas by 20%. Although financing reforms resulted in the establishment of a state-financed basic benefits package, the costs for services outside the basic benefits package have been shifted to individual users, as third-party pooling systems are not in place in Uzbekistan. This has reduced access to services outside the package, such as tertiary or inpatient care and outpatient pharmaceuticals.

Chapter 8 proceeds by considering equity from a horizontal and vertical perspective and explores the efficiency of resource allocations, which differ for the public and private health sectors and for different levels of care. While the public sector follows established protocols and guidelines, allocation in the private sector relies on market forces, that is, demand and the ability to pay. The chapter concludes by exploring technical efficiency according to both quantitative and qualitative approaches. However, in Uzbekistan, as in many other countries of the region, there is a lack of data on the efficiency of health services and systems, so that conclusions have to remain, to some degree, tentative.

The final chapter summarizes the future challenges facing the Uzbek health system. While the country has made progress in the restructuring of different layers of health services, such as primary care, emergency care, and secondary and tertiary care, the coordination of different levels of care remains a major challenge. A more holistic approach to care delivery processes and training

programmes would result in improved efficiency and better health outcomes. A reform of the financing and information system, linking resource flows to performance, would be crucial to realize the full potential of investments made at the various levels of care. It would also necessitate quality improvements, which could be facilitated by development and effective dissemination of appropriate guidelines; a shift in medical education from factual knowledge to self-learning skills, continuing professional development, a strong emphasis on English proficiency, and health information systems that would allow the continuous monitoring and evaluation of appropriate quality indicators. At present, reforms in the Uzbek health system have reduced access to health services outside the state-financed basic benefits package. The development of pooling schemes and third-party payers would be useful for improving access to health services, and for strengthening the efficiency and equity of the country's health system.

1 Introduction

1.1 Geography and sociodemography

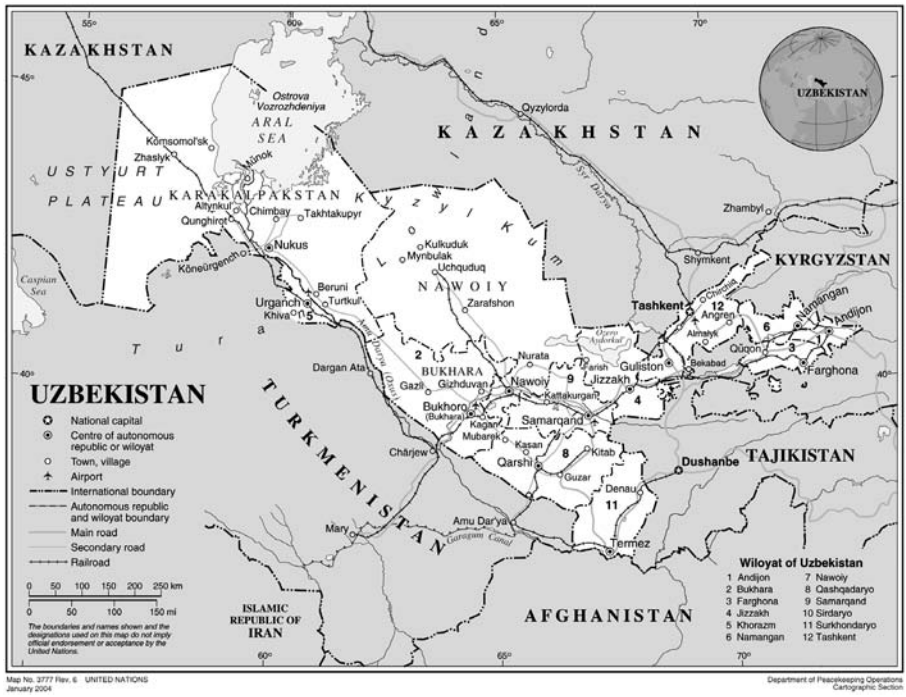
Uzbekistan is a landlocked country located in central Asia (see Fig. 1.1). It is bordered to the north and north-east by Kazakhstan, to the west and south-west by Turkmenistan, to the south by Afghanistan and to the east by Tajikistan and Kyrgyzstan. Uzbekistan's territory is 447 400 km^2. Its terrain is a combination of sandy deserts, intensely irrigated river valleys and mountains. The climate is continental, with long hot summers and short mild winters.

Since the 1970s, Uzbekistan's population has more than doubled. The most recent estimates put the total population at 27 million (UNFPA 2006). The high population growth rates that occurred in the 1970s, however, have gradually decreased and population growth was 1.5% in 2005. This change can be primarily attributed to decreasing birth and fertility rates, as death rates slightly declined. The declining population growth is reflected in a changing demographic structure and age–dependency ratio. The share of the population aged 0–14 decreased from 45% of the total population in 1970 to 33.2% in 2005, while the age–dependency ratio declined by 40% over the same period.

Despite these demographic developments, the pressures on the health system that arise from an ageing population in many countries in western Europe do not seem to be currently in place in Uzbekistan. The share of the population over 65 years of age has decreased from 5.9% in 1970 to 4.7% in 2005. However, the overall demographic trends imply an ageing of Uzbekistan's population in the long run (Table 1.1).

Uzbekistan is a multiethnic country. It has been estimated that in 1996, 80% of the population were ethnic Uzbeks, 5.5% Russians, 5% Tajiks, 3% Kazakhs, 2.5% Karakalpaks and 1.5% Tatars, with the remaining 2.5%

Fig. 1.1 Map of Uzbekistan



Source: United Nations Cartographic Section, 2007.

belonging to smaller ethnic groups (CIA 2006). It can be assumed that the ethnic composition of Uzbekistan's population has changed since then, as the country has experienced significant emigration, in particular of Russian-speaking residents.

In terms of religious affiliation, most of the population identify themselves as Muslims (88%, mostly Sunnis). Other religious groups represented in Uzbekistan are Eastern Orthodox Christians (9%) and Jews (3%) (CIA 2006). The majority of the population (63%) live in rural areas (CIA 2006; Republic of Uzbekistan 2007b).

Table 1.1 Population/demographic indicators, 1970, 1980, 1990, 2000, 2003–2005

	1970	1980	1990	2000	2003	2004	2005
Age–dependency ratio (dependants to working-age population)	1.0	0.8	0.8	0.7	0.7	0.6	0.6
Birth rate, crude (per 1000 people)	–	33.9	33.7	22.2	–	–	19.9
Death rate, crude (per 1000 people)	–	7.5	6.1	6.1	–	–	6.4
Fertility rate, total (births per woman)	5.6	4.8	4.1	2.6	2.3	2.3	2.2
Population ages 0–14 (% of total)	45.2	40.9	40.9	37.2	34.8	34.0	33.2
Population ages 65 and above (% of total)	5.9	5.1	4.0	4.3	4.6	4.7	4.7
Population density (people per km^2)	28.1	37.5	48.2	57.9	60.1	60.8	61.5
Population growth (annual %)	3.1	2.6	2.4	1.0	1.2	1.2	1.2
Population, total (million)	12.0	16.0	20.5	24.7	25.6	25.9	26.6

Source: World Bank, 2007.

1.2 Economic context

Uzbekistan's economy is mostly oriented towards services and agriculture, with a small share of gross domestic product (GDP) generated by industry. Despite being a dry and landlocked country, 11% of Uzbekistan consists of intensely cultivated, irrigated river valleys. It is the world's second-largest cotton exporter, a large producer of gold and oil, and a regionally significant producer of chemicals and machinery (CIA 2006).

Since independence, Uzbekistan has focused on the development of its industry and pursued a policy of self-sufficiency in energy, grain and other selected items. The Government has provided subsidies to textile and car production and to many other industries.

After the break-up of the Soviet Union, Uzbekistan experienced a significant fall in its GDP. Following a steady recovery in the period 1995–1999, GDP declined again by almost 40% between 1999 and 2002. Since then, GDP has slowly increased again (UzA 2006a). Table 1.2 shows some macroeconomic indicators for the period 1995–2005.

Table 1.2 Macroeconomic indicators, 1995–2005 (selected years)

	1995	1997	1999	2001	2003	2004	2005
Agriculture, value added (% of GDP)	32.3	32.2	33.5	34.0	33.1	30.8	28.1
Industry, value added (% of GDP)	27.8	26.1	24.3	22.6	23.5	26.0	28.7
Services, etc., value added (% of GDP)	39.9	41.7	42.2	43.4	43.4	43.3	43.2
GDP (current US$ in billions)	13.4	14.8	17.1	11.4	10.1	12.0	14.0
GDP per capita (constant 2000 US$)	1 341	1 381	1 457	1 540	1 630	1 735	1 835
GDP per capita, PPP (current international $)	1 235	1 318	1 426	1 577	1 733	1 893	2 063
GDP, PPP (current international $ in billions)	28.1	31.2	34.8	39.4	44.3	49.0	54.0
Labour force, total (millions)	8.5	9.0	9.6	10.1	10.7	11.0	11.3
Official exchange rate (LCU per US$, period average)	29.8	62.9	124.6	–	–	–	–
Short-term debt (% of total external debt)	11.8	14.5	12.7	10.3	4.5	3.7	0.9

Source: World Bank, 2007.

Notes: GDP: gross domestic product; PPP: purchasing power parity; LCU: local currency unit.

1.3 Political context

The Constitution of Uzbekistan of 1992 defines the country as a democratic republic with the state power divided between the executive, legislative and judicial branches of government (Republic of Uzbekistan 1992). Uzbekistan has 14 administrative divisions: 12 *oblasts* (regions), one autonomous republic (Karakalpakstan) and one administrative city, the capital Tashkent (CIA 2006; Republic of Uzbekistan 1992).

The State is headed by the President who is elected for seven years through popular vote for a maximum of two terms. The current President is Islom Karimov, who has held this position since March 1990, when he was elected President by the then Supreme Soviet. The last presidential election took place in January 2000, when President Karimov was re-elected with 91.9% of the vote.

The legislative system is represented by the Parliament (*Oliy Majlis*), which is the highest representative body in the country. Uzbekistan has a bicameral Parliament which is elected and appointed for a 5-year term. It consists of:

- an Upper House or Senate with 100 members, 84 of whom are elected by *oblast* governing councils (six from each *oblast*) and 16 of whom are appointed by the President;
- a Lower House or Legislative Chamber with 120 members, who are elected by popular vote (Republic of Uzbekistan 1992).

Five parties are at present officially registered in Uzbekistan. At the last elections for the Legislative Chamber in December 2004, the parties gained the following representation (CIA 2006):

- Liberal Democratic Party of Uzbekistan – 41 seats;
- National Democratic Party – 32 seats;
- *Fidokorlar* (Self-sacrificers) National Democratic Party – 17 seats;
- National Revival Party – 11 seats;
- *Adolat* (Justice) Social Democratic Party – 9 seats;
- Unaffiliated – 10 seats.

The executive branch of government is represented by the Cabinet of Ministers, which consists of the Prime Minister, the deputy prime ministers, the heads of government agencies, bodies and ministries, and the Head of Government of the Karakalpakstan Autonomous Republic. The Prime Minister is nominated by the President, subject to approval by the two chambers of parliament. Other members of the Cabinet of Ministers are nominated by the Prime Minister, subject to approval by the President. The Cabinet of Ministers is formally headed by the Prime Minister and is accountable to the President and the Parliament (Republic of Uzbekistan 1992).

Oblast governments are represented by *oblast* councils which consist of elected members and are headed by governors. *Oblast* governors and the governor of Tashkent are appointed by the President, subject to approval by the *oblast* councils. Governors of *rayons* (districts) and cities in each *oblast* are appointed by the *oblast* governor, subject to approval by local (*rayon* or city) councils. Councils at the *oblast*, *rayon* or city levels are elected through popular vote. The governors of *oblasts*, *rayons* and cities are the highest authorities of the respective territories (Republic of Uzbekistan 1992).

All courts in Uzbekistan are *de jure* independent from the legislative and executive governments, political parties or any community or social groups (Republic of Uzbekistan 1993b). The chairperson and the judges in the Supreme Court and the Constitutional Court are nominated by the President, subject to approval by the Upper House of Parliament. All other judges (at *oblast*, *rayon* and city courts) are appointed by the President upon nomination by a special selection committee. Judges in the Karakalpakstan Autonomous Republic are elected by the Karakalpak Parliament upon nomination by the chairperson of

the Karakalpak Parliament, subject to approval by the President (Republic of Uzbekistan 1993c).

Uzbekistan is a member of the World Health Organization (WHO), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Development Programme (UNDP) and a number of financial organizations that invest in the health sector, such as the World Bank and the Asian Development Bank (Republic of Uzbekistan 2007a).

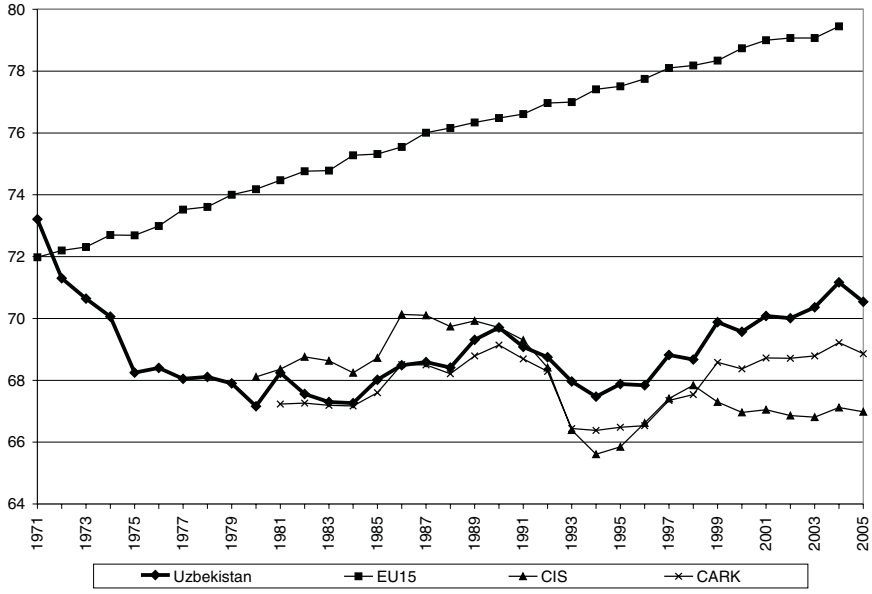
1.4 Health status

Due to diverging estimates of infant and child mortality, estimates of life expectancy at birth in Uzbekistan differ considerably. According to the WHO Regional Office for Europe Health for All database, which is based on the official vital statistics reported to WHO by Uzbekistan, the country recorded a life expectancy at birth of 70.54 years in 2005. According to these official statistics, life expectancy decreased from 72.85 in 1970 to 67.16 in 1980, after which it increased to 69.71 in 1990 (see Fig. 1.2). After independence, life expectancy decreased to 67.47 in 1994 and has since followed an upward trend. This trajectory closely resembles the trends in other countries of the former Soviet Union. Comparing Uzbekistan with the countries constituting the European Union (EU) before 1 May 2004 (EU15), a growing divergence of life expectancies can be observed since the 1970s. In 2002, life expectancy at birth in the EU15 exceeded the officially recorded rate in Uzbekistan by nine years (WHO Regional Office for Europe 2007).

As the infant and child mortality rates which are recorded in official statistics in central Asia underestimate actual mortality, life expectancy in Uzbekistan can be assumed to be lower than recorded by official statistics (World Bank 2004a; Aleshina and Redmond 2003). According to World Bank estimates, mortality rates have increased for both males and females since 1990, whereas mortality rates for infants and children under five have slightly decreased (see Table 1.3) (World Bank 2007; UNICEF 2006). The World Bank estimated that actual life expectancy at birth in Uzbekistan stood at 67.4 years in 2005 (World Bank 2007) and WHO estimates are even lower, suggesting a life expectancy of 66 years in 2003 (see Fig. 1.3).

Diseases of the circulatory system are the most common cause of death in Uzbekistan, accounting for 65.6% of age-standardized mortality in 2005 (WHO Regional Office for Europe 2007). The mortality rate from diseases of the circulatory system has increased in Uzbekistan since the 1980s, a development that mirrors the trends in other countries of central Asia and the Commonwealth

Fig. 1.2 Officially recorded life expectancy in Uzbekistan, CIS, CARK and EU15, 1971–2005



Source: WHO Regional Office for Europe, 2007.

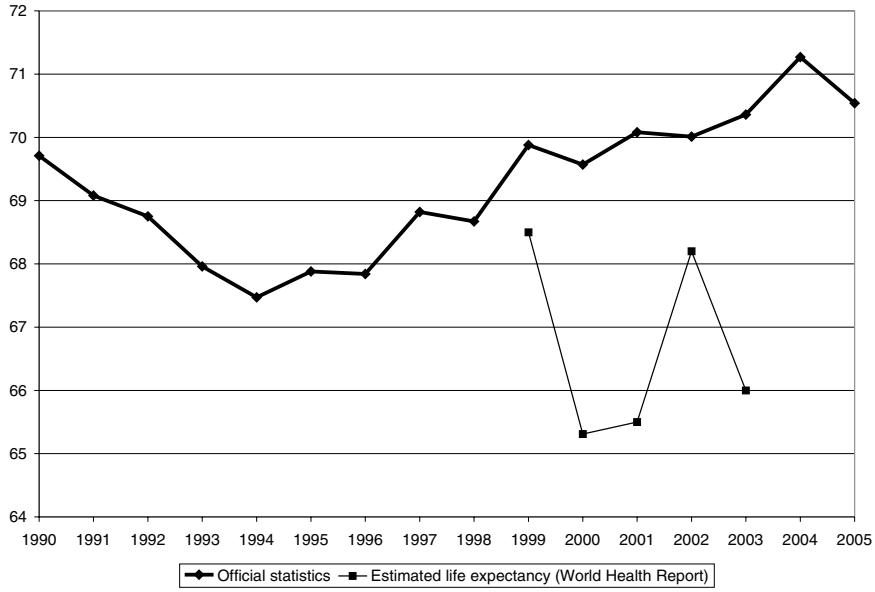
Notes: The officially recorded life expectancy for Uzbekistan is an overestimate, as it underestimates infant mortality; CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan; EU15: European Union Member States before May 2004.

of Independent States (CIS), but contrasts with trends in western Europe, where mortality from diseases of the circulatory system has continuously declined in the last few decades. These developments have resulted in a significant divergence between the rates in Uzbekistan and western Europe. In 2005, age-standardized mortality rates from diseases of the circulatory system in Uzbekistan were more than three times higher than the average in the EU15 in 2004 (WHO Regional Office for Europe 2007).

Ischaemic heart diseases and cerebrovascular conditions constitute almost two thirds of all circulatory system mortality cases in Uzbekistan (see Table 1.4). Although there are no significant gender gaps in the aggregate data on circulatory system mortality, some significant differences exist. Males, for example, are more likely to die of ischaemic heart disease (WHO 2005).

Malignant neoplasms (cancer) are the second most prevalent cause of death in Uzbekistan, closely followed by accidents and infectious diseases (WHO 2005). Age-standardized mortality rates from malignant neoplasms are two and

Fig. 1.3 Officially recorded and estimated life expectancy at birth, 1990–2005



Source: WHO Regional Office for Europe, 2007.

a half times lower than the EU15 average (WHO Regional Office for Europe 2007), equally affecting both genders (WHO 2005).

More than half of the mortality related to infectious conditions in 2000 was attributable to tuberculosis (WHO 2005). Although aggregate mortality rates from infectious diseases have continuously decreased in Uzbekistan since

Table 1.3 Mortality and health indicators, 1970–2005 (selected years)

	1970	1980	1990	2000	2002	2003	2004	2005
Life expectancy at birth, female (years)	–	70.7	72.4	71.1	70.3	–	–	70.7
Life expectancy at birth, male (years)	–	64.0	66.1	64.7	63.8	–	–	64.2
Life expectancy at birth, total (years)	–	67.3	69.2	67.9	67.0	–	–	67.4
Mortality rate, adult, female (per 1000 female adults)	146.6	116.1	109.2	–	148.6	–	–	144.8
Mortality rate, adult, male (per 1000 male adults)	253.6	219.1	207.5	–	252.0	–	–	247.2
Mortality rate, infant (per 1000 live births)	83	73	65	59	–	–	–	57
Mortality rate, under-5 (per 1000)	101	89	79	71	–	–	–	68

Source: World Bank, 2007.

Table 1.4 Estimated deaths per 100 000 population by cause, 2002

Communicable, maternal, perinatal and nutritional conditions		**91.5**
	Infectious and parasitic diseases	26.9
	Respiratory infections	43.4
	Maternal conditions	0.9
	Perinatal conditions	18.9
	Nutritional deficiencies	1.3
Noncommunicable diseases		**531.7**
	Malignant neoplasms	46.9
	Other neoplasms	0.4
	Diabetes mellitus	11.5
	Endocrine disorders	0.9
	Neuropsychiatric conditions	13.7
	Cardiovascular diseases	375.2
	Respiratory diseases	28.6
	Digestive diseases	36.6
	Genitourinary diseases	12.1
	Skin diseases	0.5
	Musculoskeletal diseases	0.8
	Congenital anomalies	4.6
Injuries		**44.0**
	Unintentional injuries	31.2
	Intentional injuries	12.9
All causes		**667.2**

Source: WHO, 2004.

the second half of the 1980s, mortality attributable to tuberculosis has almost doubled since reaching its lowest point in 1990. This trend in tuberculosis mortality is similar to the trends observed in other countries of the former Soviet Union. It is related to the economic decline, breakdown of public support systems, and impoverishment of large parts of the population associated with the transition towards a market economy in these countries. In 2002, the mortality rate attributable to tuberculosis in Uzbekistan was 30 times higher than the EU15 average. It affected predominantly males whose mortality rate attributable to tuberculosis was almost two and a half times that of females (WHO Regional Office for Europe 2007).

Males in Uzbekistan are also more likely to die from various types of injuries. Mortality due to injuries is almost three times more common among males than among females. Motor vehicle traffic accidents, accidental drowning, and suicide or self-inflicted injuries account for almost two thirds of all mortality from external causes (WHO 2005).

The mortality rate from motor vehicle accidents in Uzbekistan is less than half the CIS average and approximately two thirds of the European average. The mortality from suicide or self-inflicted injuries shows a similar picture. In 2002, the central Asian average was almost two times higher than the rate in Uzbekistan, while the CIS average exceeded the rate in Uzbekistan almost four times and the European average one and half times. Whereas mortality rates related to suicide or self-inflicted injuries have stayed almost unchanged in Uzbekistan since the 1980s, mortality related to motor vehicle accidents reached a high in 1990 and has since declined almost threefold (WHO Regional Office for Europe 2007), mostly as result of enforcement of traffic regulations. The largely unchanged mortality rate from suicide and self-inflicted injuries might be due to a strong social stigmatization of suicide and a traditionally strong social support network within local communities.

Reported healthy life expectancy indicators show a significant improvement in recent years for both males and females (see Table 1.5). It is, however, not clear how this improvement over such a short period of time can be explained, calling into question the validity of the data. In general, females in Uzbekistan have a longer healthy life than males.

According to data from the Uzbekistan Health Examination Survey (UHES) in 2002, the total fertility rate in Uzbekistan (2.9) was much higher than in many other countries in central Asia or the CIS, such as Ukraine (1.4), Georgia (1.7) and Kazakhstan (2.1). However, as already mentioned, the fertility rate in Uzbekistan has shown a significant decline from 4.1 in 1990. It is noteworthy that there are different estimates of total fertility rates in Uzbekistan. According to data from the Ministry of Health, the total fertility rate was 2.5 in the period 2000–2002, while the nationally representative UHES found a rate of 2.9 for the same period. Fertility rates are higher among ethnic Uzbeks, Tajiks and Kazakhs than among ethnic Russians and Tatars.

Table 1.5 Healthy life expectancy indicators, 2000–2002

	2000	2001	2002
Healthy life expectancy at birth (years), total population	53.4	53.5	59.4
Healthy life expectancy at birth (years), males	52.7	50.9	57.9
Healthy life expectancy at birth (years), females	55.8	56.1	60.9
Healthy life expectancy at age 60 (years), females	11.6	10.8	12.6
Expectation of lost healthy years at birth, males	9.4	11.7	7.6
Expectation of lost healthy years at birth, females	12.2	12.4	10.0
Percentage of total life expectancy lost, males	15.1	18.7	11.6

Source: WHO, 2006.

The UHES in 1996 and 2002 provided some additional information on determinants of maternal and child health. They indicate an increase in child spacing and in the age when the first child is born. The percentage of births that occurred within two years of the preceding birth decreased from 30% in 1996 to 24% in 2002. Among women aged 15–19, only 2% reported to have given birth to a child in 2002, compared to 7% in 1996 (Measure DHS 2004).

There are significantly different estimates of infant mortality in Uzbekistan. As already mentioned, the official vital statistics collected by the Ministry of Health tend to underestimate the actual infant mortality rate in Uzbekistan. More appropriate estimates can be derived from nationally representative surveys based on reproductive histories. The UHES of 2002 estimated the infant mortality rate to be 62 per 1000 live births for the period 1998–2002, which is similar to the results of the Multiple Indicator Cluster Survey (MICS) conducted in 2000 by the United Nations Children's Fund (UNICEF). In contrast, data from the Ministry of Health for the same period range from 16.3 to 21.8 infant deaths per 1000 live births, with an average infant mortality rate of 19 per 1000 live births.

The difference between officially recorded rates and estimates based on survey data is a result of two main factors (World Bank 2004a; Aleshina & Redmond 2003). The first is that the more restrictive Soviet definition of a live birth, which does not count neonates dying in the first seven days of life, is still in use in Uzbekistan, so that fewer infant deaths are recorded than would have been the case if the WHO definition was used. It has been estimated that the continued use of the Soviet definition of a live birth accounts for 37% of the difference between Ministry of Health data and the estimate derived from the UHES of 2002 (Measure DHS 2004). The second reason for the discrepancy between official data and estimates is the misreporting of births and infant deaths by medical staff, partly due to the fear of negative consequences by medical personnel. According to the UHES, 63% of the difference between official and survey data is due to infants dying after seven days of life, indicating general underreporting of infant deaths in the registration system (Measure DHS 2004).

There are significant regional variations in infant mortality. According to the UHES of 2002, the infant mortality rate for the period 1998–2002 was higher in rural areas (75 per 1000 live births) than in urban areas (43 per 1000 live births) and higher among women with primary or mid-level education (95 per 1000 live births) than among women with higher education (29 per 1000 live births) (Measure DHS 2004).

Malnutrition among children and women of reproductive age continues to be a major problem. The UHES of 2002 found 21% of children under the age

of five years to be moderately or severely stunted (short for their age) and 7% moderately or severely wasted (underweight for their height) (Measure DHS 2004). Children in the lowest income groups are twice as much at risk of being underweight than those in the highest income groups. There are also significant urban–rural differences. Prevalence of stunting and underweight is 1.5 times higher in rural areas compared to urban areas (Kamatsuchi 2006).

Among children aged 6–59 months, the UHES found 49% to have some degree of anaemia, with lower levels in Tashkent (20%) than in other regions (46–58%). The survey also revealed severe vitamin A deficiency among 9% of children in Ferghana *oblast*, with 44% suffering from moderate vitamin A deficiency, despite a generally rich supply of fruits and vegetables in this *oblast* compared to other parts of the country (Measure DHS 2004). Iodine deficiency is another important public health challenge. The MICS conducted by UNICEF in 2000 found that only 19% of households consumed adequately iodized salt (Kamatsuchi 2006).

As a result of Ministry of Health immunization protocols and strict control over compliance, immunization rates have been traditionally high in Uzbekistan, although actual immunization rates might be somewhat lower than officially reported, as there are no adequate systems for the monitoring of compliance. Table 1.6 shows data for vaccinations against childhood diseases for the year 2000. Taking the official incidence of the respective infections as a measure of the effectiveness of vaccinations, Uzbekistan fares well when compared to the former Soviet Union and EU15 rates for the main vaccine-preventable childhood illnesses, including pertussis, rubella, measles, diphtheria, tetanus, acute poliomyelitis and mumps (WHO Regional Office for Europe 2007).

According to official data, the number of decayed, missing or filled teeth at age 12 in Uzbekistan in 2000 was approximately two thirds of the EU15 average (see Table 1.7) (WHO Regional Office for Europe 2007). However, according to the UHES of 2002, 64–65% of children under the age of five rarely or never cleaned their teeth (Measure DHS 2004). These low rates of regular teeth cleaning suggest that the comparatively low number of decayed, missing or filled teeth at age 12 in Uzbekistan may be an underestimate. However, a nationally representative survey conducted in 1996, the Demographic and

Table 1.6 Percentage of children aged 12–23 months vaccinated against childhood diseases, 2000 (percentages)

BCG	DTP1	DTP2	DTP3	Polio0	Polio1	Polio2	Polio3	Measles
98.9	98.4	97.6	95.7	96.3	98.4	97.6	95.7	97.0

Source: UNICEF, 2000.

Notes: BCG: Bacillus Calmette-Guérin vaccine; DPT: Diphtheria-Tetanus-Pertussis vaccine.

Table 1.7 Decayed, missing or filled teeth at age 12, 1990, 1995, 2000, 2001

	1990	1995	2000	2001
Uzbekistan	2.80	–	0.90	0.90
EU15	3.37	1.94	1.47	–
CIS	3.46	–	–	–
CARK	2.26	–	–	–

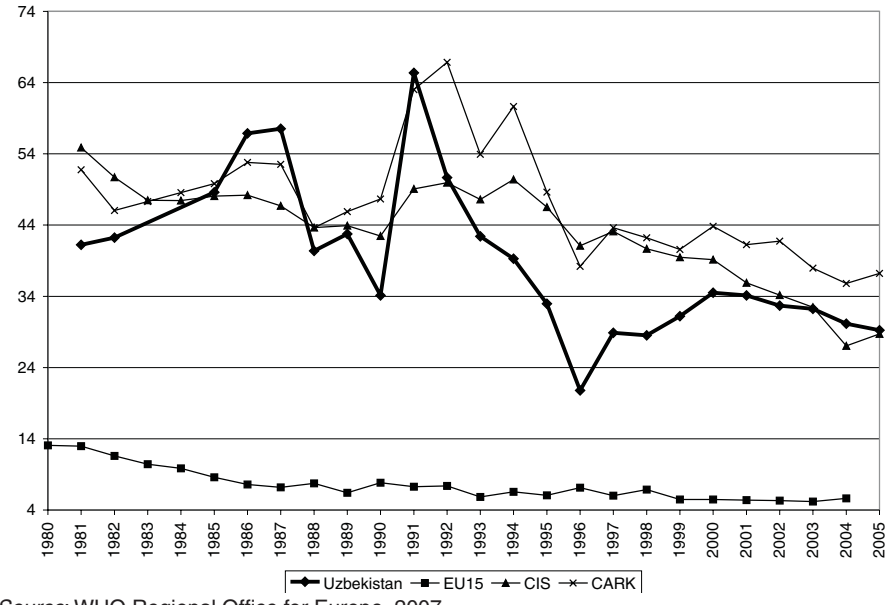
Source: WHO Regional Office for Europe, 2007.

Notes: EU15: European Union Member States before May 2004; CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan.

Health Survey (DHS), found numbers of decayed, missing or filled teeth at age 12 which were similar to the data reported in the WHO Regional Office for Europe Health for All database (WHO Regional Office for Europe 2007; Measure DHS 1997).

The maternal mortality rate in Uzbekistan has followed a development similar to the overall trends in central Asia and the CIS. In 2005, maternal mortality in Uzbekistan was recorded at 29.24 per 100 000 live births, which was

Fig. 1.4 Officially recorded maternal deaths per 100 000 live births, Uzbekistan, EU15, CIS, CARK, 1980–2005



Source: WHO Regional Office for Europe, 2007.

Notes: EU15: European Union Member States before May 2004; CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan; some data for 1980 and 2005 are not available.

slightly higher than the CIS average (28.72) and five times higher than the EU15 average, which stood at 5.64 per 100 000 live births in 2004 (Fig. 1.4) (WHO Regional Office for Europe 2007). Currently, in Uzbekistan, a maternal death is considered to have arisen from a criminal offence and is subject to criminal investigations by the prosecutor's office (MoH Department of Treatment and Prevention, personal communication), creating a powerful incentive for underreporting in official statistics.

The prevalence of anaemia among women of reproductive age (15–49 years) in Uzbekistan (60.4%) is the highest found in DHSs in central Asia, and was especially high in the western and eastern parts of the country (see Table 1.8) (Kamatsuchi 2006). Anaemia rates are highest in poorer and more rural areas, such as the Aral Sea region, while the lowest incidence rates were found in Tashkent city.

Table 1.8 Incidence of anaemia among females per 1000 population, first time diagnosis, 1999 and 2000

	1999				2000			
Regions	**Total**	**Children (< 14)**	**Teenagers (15–17)**	**Adult**	**Total**	**Children (< 14)**	**Teenagers (15–17)**	**Adult**
Tashkent City	19.60	16.50	17.08	20.99	26.54	25.28	27.02	27.00
Andijan	123.05	69.77	150.16	156.49	139.57	88.45	163.35	171.91
Bukhara	136.08	119.62	245.64	134.58	116.87	98.42	251.95	113.80
Djizzak	47.46	19.23	37.48	71.80	53.77	29.41	91.58	68.82
Kashkadarya	64.60	35.11	83.31	87.63	64.44	38.73	82.37	84.31
Navoi	100.28	85.93	190.61	99.32	109.49	85.80	197.12	115.20
Namangan	114.08	54.94	118.74	157.85	128.79	65.94	196.66	167.78
Samarkand	72.52	23.86	61.10	112.72	71.97	29.03	59.96	107.68
Surkhandarya	61.50	20.18	83.14	95.56	65.43	30.05	78.81	95.29
Syrdarya	24.91	13.42	51.05	30.32	23.85	8.92	39.68	33.35
Tashkent	52.79	36.82	59.31	61.82	51.96	37.33	75.75	58.37
Ferghana	75.68	62.13	44.03	88.35	76.97	59.58	117.51	84.36
Khorezm	28.87	41.69	36.80	18.48	23.35	33.70	30.65	14.86
Karakalpakstan	164.47	171.76	102.22	167.39	178.22	127.74	365.52	190.30
National average	**78.06**	**53.12**	**87.10**	**94.42**	**81.59**	**53.71**	**123.83**	**96.15**

Source: World Bank, 2003.

Since independence, Uzbekistan has seen a steep rise in the rates of sexually transmitted infections (STIs), in particular with regard to syphilis and – to a lesser extent – gonococcal infections, which are the two most prevalent STIs. These trends correspond with developments in other countries of the former Soviet Union, although the increase in recorded rates in Uzbekistan was less pronounced (WHO Regional Office for Europe 2007). According to official data, the rate of gonococcal infections in Uzbekistan in 2005, at 23.95 per

100 000 population, was about half of the CIS average (53.83 per 100 000) and significantly below the central Asian average in 2004 (35.56 per 100 000). Nevertheless, the rate in Uzbekistan was 2.5 times higher than the EU15 average in 2005 (9.78 per 100 000).

More striking differences exist for the rates of syphilis, which, at 16.2 per 100 000 population in Uzbekistan in 2005, were more than three times higher in the CIS (49.46 per 100 000), while the central Asian average in 2004 (34.38 per 100 000) was twice the rate in Uzbekistan. Although comparing favourably with many other countries of the former Soviet Union, the rate of syphilis in Uzbekistan in 2005 was more than five times higher than the EU15 average (2.94 per 100 000) (WHO Regional Office for Europe 2007).

In Uzbekistan, there seem to be significant gaps in public knowledge about STIs. The UHES in 2002 found that men (64%) are more likely to have ever heard of STIs other than HIV than women (39%). Women living in Tashkent (88%) were almost two and a half times more likely to have some knowledge of these diseases than women in the rest of the country (34%), with a less striking difference among men (91% in Tashkent versus 61% in the rest of the country). Among young people aged 15–19, 21% of female respondents and 37% of male respondents were found to be aware of STIs (Measure DHS 2004).

Uzbekistan has maintained the system of strict monitoring and obligatory treatment of STIs that was practised in the Soviet Union. The resulting lack of anonymity and confidentiality, in conjunction with processes of social stigmatization, likely leads to an underreporting of STIs.

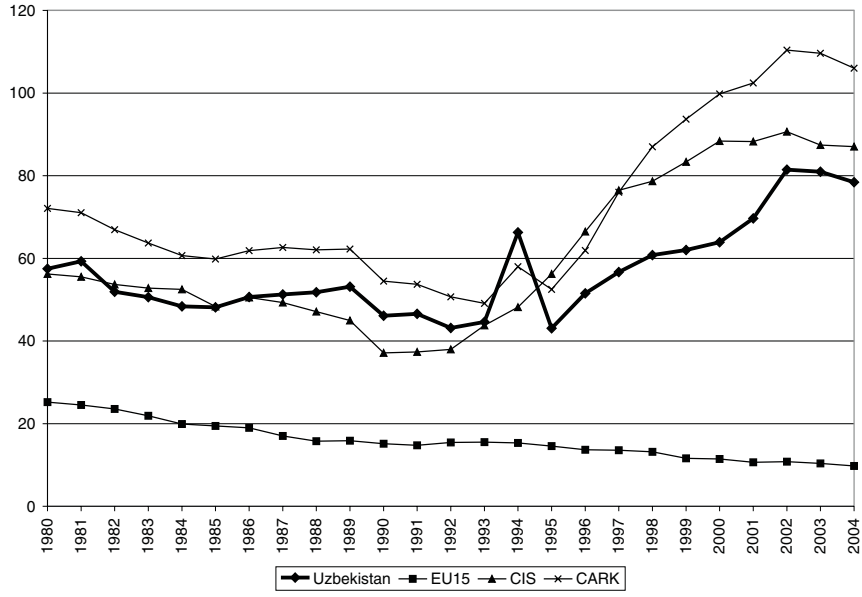
HIV/AIDS is a newly emerging challenge for the Uzbek health system. In 1998, the total number of registered infections was less than 50 (UNAIDS/WHO 2004), while in 1999 only 18 new infections were registered. Since then, however, the number of registered HIV cases has increased exponentially, similar to developments in other countries of the former Soviet Union. In 2004, there were 2016 newly diagnosed cases and the total number of HIV infections reached 5600 (UNAIDS 2005). In the first 11 months of 2005, 2010 cases were newly diagnosed, of which 49.5% were attributed to injections and 19% to sexual intercourse (UNDP Uzbekistan 2006b). Injecting drug use continues to be the most prevalent mode of transmission. Of all transmissions registered by 2004, 63.4% were attributed to injecting drug use, 11.3% to heterosexual contacts, and less than 1% to homosexual contacts. The mode of transmission was unknown for 24% of cases. A large percentage of unidentified modes of transmission could be due to the strong social stigma that is associated with homo- or bisexual practices (UNAIDS/WHO 2004). There is, however, a clearly identifiable trend from injecting drug use as the predominant mode of transmission to an increasing percentage of cases attributable to unsafe sex.

One of the population groups at highest risk are prisoners and almost 35% of recent new cases have been registered in the prison system (UNDP Uzbekistan 2006b).

As already mentioned, mortality from tuberculosis increased significantly in the 1990s. The incidence of tuberculosis declined from 57.5 per 100 000 population in 1980 to 43.1 in 1995, but has since almost doubled, reaching 78.4 per 100 000 population in 2004 (Fig. 1.5). Although this mirrors trends in central Asia and the former Soviet Union, rates in Uzbekistan are almost eight times the EU15 average of 9.8 per 100 000 (WHO Regional Office for Europe 2007).

There are hardly any reliable and nationally representative data on lifestyle factors affecting the health of Uzbekistan's population. Tobacco use seems to be the factor that has been studied most extensively. According to the UHES of 2002, the prevalence of tobacco smoking is insignificant among women, less than 1% of whom were smoking. This low prevalence of smoking among females could be due to negative cultural perceptions of smoking by females. These perceptions seem to be strongest among ethnic Uzbeks. Only 0.3% of females identifying themselves in the survey as ethnic Uzbeks were smokers,

Fig. 1.5 Tuberculosis incidence per 100 000, Uzbekistan, EU15, CIS, CARK, 1980–2004



Source: WHO Regional Office for Europe, 2007.

Notes: EU15: European Union Member States before May 2004; CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan.

compared to 4.5% of non-Uzbeks. The prevalence of smokers in the overall population is significantly higher among men than among women, and reached 21% in 2002. As among females, smoking was more common among non-Uzbek ethnic groups, where it reached 30%, compared to 19% among ethnic Uzbeks. *Naswhy*, a homemade chewing tobacco, is another form of tobacco that is used in Uzbekistan. In the 2002 UHES, approximately 38% of male respondents indicated that they have (ever) used *naswhy*, with no significant differences between the country's ethnic groups (Measure DHS 2004). Uzbekistan has been the setting for major investment by the British American Tobacco Company, which at one point accounted for 31% of total foreign investment in Uzbekistan. This factor enabled it to block an attempt to implement a proposal that would have strengthened tobacco control efforts in 1994 (Gilmore, Collin & McKee 2006).

Reflecting the traditional nature of Uzbek society, reported alcohol consumption is relatively low in Uzbekistan. According to official statistics, in 2003, 1 litre of pure alcohol per capita was consumed in Uzbekistan per year, which was roughly comparable to the central Asian average (1.34 litres), but substantially lower than the CIS (6.19 litres) or EU15 (9.35 litres) averages (see Table 1.9) (WHO Regional Office for Europe 2007).

An increase in overweight and obesity among the adult population has been reported in Uzbekistan, and this trend is expected to continue due to lifestyle changes and an ageing population. According to a survey in 2002, 28% of women and 32% of men were either overweight or obese. The increase in overweight and obesity can be expected to lead to an increase in multiple chronic diseases, including hypertension, type 2 diabetes, coronary heart diseases and certain forms of cancer (Kamatsuchi 2006).

Table 1.9 Pure alcohol consumption, litres per capita per year, Uzbekistan and selected countries, 1990, 1995, 2000–2003

Country	1990	1995	2000	2001	2002	2003
Kazakhstan	–	3.33	2.49	2.06	2.55	2.24
Kyrgyzstan	2.83	1.99	2.37	3.61	2.05	2.43
Russian Federation	5.46	8.90	8.78	8.72	8.72	8.87
Tajikistan	–	1.03	0.21	0.50	0.29	0.25
Turkmenistan	–	1.29	1.00	0.68	0.73	0.72
Uzbekistan	–	0.92	1.04	0.99	0.96	1.00
EU15	10.78	9.93	9.53	9.53	9.56	9.35
CIS	–	6.03	6.06	5.93	5.93	6.19
CARK	–	1.79	1.45	1.42	1.38	1.34

Source: WHO Regional Office for Europe, 2007.

Notes: EU15: European Union Member States before May 2004; CARK: Central Asian Republics and Kazakhstan; CIS: Commonwealth of Independent States.

Access to safe water remains a major problem, with significant differences across Uzbekistan's regions. According to the MICS of 2000, in some *oblasts* only 59% of the population had access to safe water, while in others this percentage was 96%. On average, 84.3% of respondents had access to safe drinking water, with a higher share in urban (94.4%) than in rural (79.4%) areas (UNICEF 2000). The Uzbekistan Household Budget Survey of 2001 confirmed that there are massive problems with securing safe water supply. Less than 50% of respondents throughout the country had running water, and only 42.7% had running water within their dwelling, a figure declining to less than 20% of respondents in rural areas (World Bank 2003). The lack of access to safe drinking water has been suggested as one of the reasons for the observed high levels of malnutrition (Kamatsuchi 2006).

2 Organizational structure

2.1 Overview of the health system

The Uzbek health system has evolved from the Soviet Semashko model of health care and the public sector continues to constitute its core. The Cabinet of Ministers, which is accountable to the President and the Parliament, is at the top of the hierarchy of the health system both in terms of regulation and financing. It develops strategies, approves the health budget and holds other governmental agencies accountable for the implementation of health policies.

At lower hierarchical levels, the Government is represented by implementing agencies. The Ministry of Health and the *oblast* (region) or *rayon* (district) health authorities assume administrative responsibilities, whereas the Ministry of Finance and its *oblast* branches (the *oblast* and *rayon* finance departments) are responsible for the implementation of financing directives.

Although the administrative functions of the Ministry of Health and the *oblast* and *rayon* health authorities are tailored primarily towards the public sector, some of their functions extend to some degree to the private sector, such as the licensing of health care providers. The Ministry of Finance and its *oblast* and *rayon* branches, on the other hand, only deal with the disbursement and control of public funding to public providers of health care.

The lowest layer in the hierarchy of the Uzbek health system is formed by a mixture of public and private health care providers. Public providers are tasked with the delivery of health care within a centrally set framework and can be divided into three categories, depending on their accountability and source of funding.

Primary health care providers are administratively accountable to the *rayon* or urban health authorities and draw on public and private financing. Public financing to health facilities at the *rayon* level comes from the *rayon* or urban finance departments. The exception is the primary care units in the *oblasts* covered by the World Bank-financed "Health" project, which are financed from *oblast* finance departments. Private funding is obtained through the delivery of services outside the state-guaranteed basic benefits package of medical services.

The next category of public health care providers is located at the *oblast* level. These are administratively accountable to the *oblast* health authorities and are financed through the *oblast* finance departments. These *oblast* health care providers include general or specialized hospitals and specialized outpatient clinics.

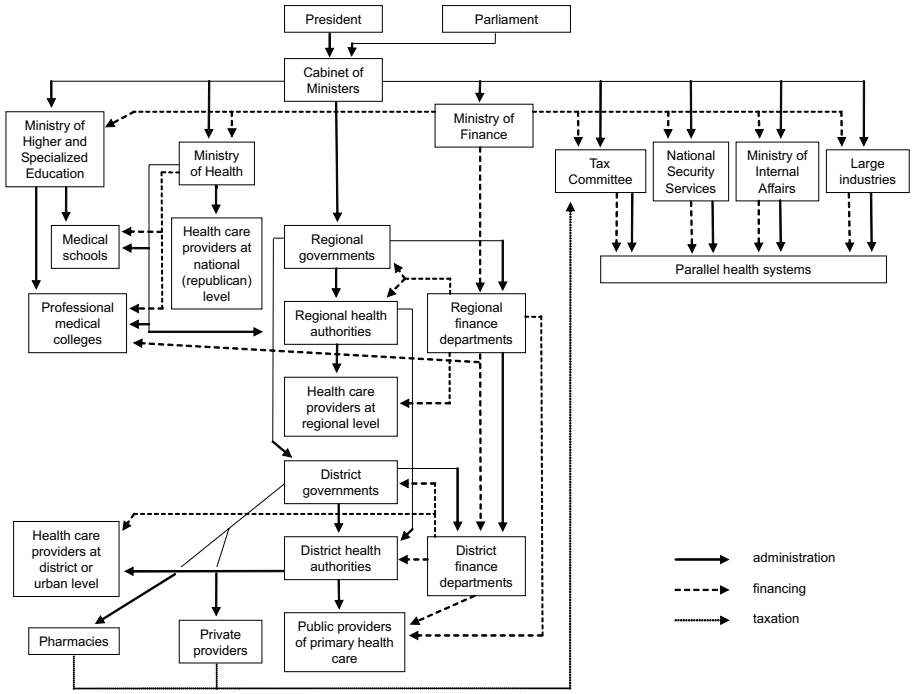
The final category of public health care providers is located at the national (republican) level. A number of health facilities receive public funding directly from the Ministry of Health and are also administratively accountable directly to the Ministry of Health.

Private providers, which are still small in numbers, are subject to the regulations of "for-profit" (profit-making) entities. Administratively, they are accountable to the local governments, while financial accountability lies with the local tax departments, to which private providers are required to submit regular financial reports.

In addition to the statutory health system outlined above, some government agencies, such as the Ministry of Internal Affairs, national security services and major industrial companies, maintain their own health facilities. These parallel health care providers are directly accountable to, and receive funding from, the respective state agency or company. They primarily serve their respective employees, with little or no access by the general population.

Medical education in Uzbekistan is exclusively provided by public institutions. They are administratively accountable directly to the Ministry of Health and the local and central governments, and are obliged to comply with the regulations of the Ministry of Higher and Specialized Education. Public financing to these institutions is provided by either the national or the local government. Figure 2.1 gives an overview of the health system.

Fig. 2.1 Overview chart of the health system



Source: Authors' compilation.

2.2 Historical background

The practice of medicine in the territory that is now Uzbekistan dates back thousands of years. Most of the ancient scholars practised medicine in addition to other sciences, as medicine was considered as an integral part of science. The most prominent representative of ancient scholars in medicine is Avicenna. He was born in 980 near the present-day Uzbek city of Bukhara.

Avicenna is considered to be the father of oriental medicine. Of his surviving works, some 40 were dedicated to medicine, the most significant contributions being *The Book of Healing* and *The Canon of Medicine* (University of St Andrews 1999). Although many scholars who significantly advanced knowledge in medicine existed, historical circumstances were not conducive to the development and transfer of medical knowledge, partly due to the lack of structured medical education and of a health care delivery system. Health care was mostly provided outside any institutional framework by self-trained or apprenticed "*tabibs*" (physicians). A health care delivery system and systematic medical education only came into being in the second half of the 19th century.

Russian conquest brought western medical concepts to the territories of present-day Uzbekistan. Under this Russian influence, a structured health care delivery system was gradually introduced from the second half of the 19th century onwards. Initial steps towards establishing a systematic medical education system can be traced to the beginning of the 20th century, when the Turkistan State University, with its Medical Faculty, was founded.

Following the Russian revolution of 1917, all medical institutions and pharmacies were nationalized and incorporated into the highly centralized Soviet health system. Being part of the Soviet Union, the Uzbek health system underwent the same changes as the Soviet health system. Under the Soviet Union, most health data were aggregated across the various member states, which means that published health data for Uzbekistan specifically, up to the time of the break-up of the Union, are difficult to find.

The Soviet health system only allowed health delivery through the public sector, with no room for private practitioners. While it provided all its citizens with access to health care free at the point of delivery and a wide range of medical services were available for all, the Soviet model of health care contained several structural weaknesses. It proved to be effective in tackling infectious diseases and similar health issues specific to developing countries, but major system-based problems surfaced with a change in the burden of diseases (Rowland 1991).

One weakness of the Soviet health system was the emphasis on quantitative indicators, with very limited attention to outcomes and the quality of care. In 1989, the Soviet Union had three times more hospitals and two times more physicians per capita than the United States, although both countries had a comparable demographic structure. Health expenditure in the Soviet Union as a share of gross national product (GNP), however, was less than one third of the share spent in the United States. In absolute numbers, the difference was even more telling. In 1979, the Soviet Union spent almost eight times less on health care than the United States. The Soviet Union also lagged behind most western nations in terms of health indicators (Rowland 1991). Major structural changes in Soviet health care resulted from the amendment of Article 42 of the Soviet Constitution in 1977, entitling all citizens to free medical services provided by state-owned health care facilities.

Other structural weaknesses of the Soviet health system were inflexible management and financing arrangements. The extensive network of health facilities was rigidly managed and regulated, both in terms of financing and decision-making, and policies were set centrally by the National Ministry of Health, based in Moscow. In 1989, 80% of health expenditures were distributed directly through the Ministry of Health, with large state-owned enterprises

accounting for the remaining 20%. The National Ministry of Health directly operated 96% of inpatient care and 94% of outpatient care (Rowland 1991).

The National Ministry of Health also had tight control over medical education, personnel planning and distribution. The organizational structure of the health system was based on vertical management. The highest layer, the National Ministry of Health, was followed by the republican Ministries of Health of the 15 Soviet Republics. The next layers of management were the *oblast* and *rayon* health authorities. This centralized approach left little flexibility to tailor resources to local needs in *oblasts* and *rayons*.

In addition, many system-based inequities existed in the seemingly equitable system. There were, for example, serious geographical imbalances in the distribution of health resources. In 1987, present-day Uzbekistan had 3.5 physicians per 1000 population, which was approximately 20% less than the Soviet average of 4.3 physicians per 1000 population in the same year (Rowland 1991).

In the Soviet health system, inpatient care was provided by the following facilities (Rowland 1991):

- small local community hospitals (S*el'skaya uchastkovaya bol'nitsa*, SUBs) serving approximately 5000 people
- rural and urban *rayon* hospitals serving up to 50 000 people
- central city hospitals serving up to 200 000 people
- regional and national hospitals serving up to 2–3 million people.

Outpatient care was provided by a comprehensive network of free-standing polyclinics, rural physician points (small rural ambulatory facilities, *Sel'skaya vrachebnaya ambulatoryia*, SVAs) and feldsher-accoucheur (midwifery) points (FAPs), or feldsher/obstetrical points, as well as polyclinics incorporated into inpatient clinics. FAPs were staffed with feldshers (health professionals equivalent to western physician assistants or nurse practitioners) and provided basic primary care including immunization, midwifery and minor surgery.

Health financing was heavily biased towards secondary care which, in 1988, accounted for approximately 78% of overall health expenditure, with much lower allocations to ambulatory care (11%), emergency services (2%) and sanitary-epidemiological services (9%) (Rowland 1991). In the mid-1980s, Uzbekistan had almost twice as many hospitals per 100 000 population (7.89 in 1985) than the EU15 (4.15 in 1986) (WHO Regional Office for Europe 2007). Primary care was neglected and did not fulfil the role of gatekeeper for higher levels of care. Even cases which could have been easily managed at primary care level were increasingly referred to hospitals. The ineffective use of resources was exacerbated by inefficient hospital procedures, with

diagnostic investigations requiring hospital stays of up to seven days (Rowland 1991). In 1980, the average length of stay in hospitals was approximately 16 days. However, similar or even higher lengths of stay were common in western Europe (EU15 average: 16.4 days, United Kingdom and Germany: 19 days) (WHO Regional Office for Europe 2007). Inefficiencies in the Soviet Union were also sustained by the lack of incentives for health professionals to raise the productivity and quality of care (Rowland 1991).

Although the Soviet health system had a comprehensive network of health facilities, it faced major problems related to their operation. Facilities were poorly equipped and maintained, and a shortage of medical supplies existed throughout the system. In rural areas, 27% of hospitals did not have sewage and 17% did not have running water. Health personnel were inadequately trained and poorly paid, with physicians receiving approximately 70% of the average salary of non-farm workers (Rowland 1991).

In the late 1980s, the need for reforms was recognized by the Soviet Government, resulting in more flexible regulations and the entry of private providers into the Soviet health arena. Quasi-independent groups of health professionals (cooperatives) were allowed to provide health care outside the state sector. These enterprises required out-of-pocket payments for the services provided and were only regulated to a limited extent by local state authorities. By 1990, approximately 3300 such cooperatives had been formed in the health sector, employing some 20 000 full-time and 40 000 part-time physicians (Rowland 1991).

Another failure of the Soviet health system was related to health spending. Soviet health spending had been significantly lower than in other developed nations, in particular given its commitments to provide most health care free at the point of access. Health expenditure for the Soviet Union was estimated to be around 3% of GDP in the period 1980–1989, when the population-weighted average figure for the countries of the Organisation for Economic Co-operation and Development (OECD) was 7.5% (Rowland 1991).

Environmental and behavioural factors significantly contributed to the poor health status of the Soviet population. Approximately 15% of the population of the country lived in heavily polluted air conditions, while smoking and alcohol consumption had become major problems (Rowland 1991). With the dissolution of the Soviet Union, the newly independent states (NIS) were confronted with the legacy of the Soviet health system, while undergoing economic, social and political transition.

2.3 Organizational overview

Uzbekistan has a single statutory health care system, which includes public, private and other forms of non-public actors.

The public sector consists of health care providers managed by *oblast* and *rayon* health authorities and the Ministry of Health, as well as all the institutions owned by the State and involved in health care delivery, rehabilitation, sanitary-epidemiological services, medical and pharmaceutical education, medical research, and the production of pharmaceuticals and medical equipment. The public sector also includes health care providers and pharmacies owned and operated by state agencies other than the Ministry of Health, such as the Ministry of Internal Affairs or the military (President of Uzbekistan 1998).

Private and other forms of non-public actors in the health sector comprise pharmacies, physicians working in single practices, and institutions involved in health care delivery or the production and supply of pharmaceuticals or medical equipment (President of Uzbekistan 1998).

The Uzbek health system is organized according to different levels of management and health care delivery.

Organization of health care delivery

From the perspective of health care delivery, the Uzbek health system can be divided into primary, emergency and specialized care, and the care for conditions deemed "socially significant and hazardous" (President of Uzbekistan 1998).

While the Law on Health Protection defines primary, specialized, and "socially significant and hazardous" conditions, it does not provide an explicit definition of emergency care.

Primary care has been defined in Uzbek legislation as the treatment of certain prevalent diseases, traumas and other emergency conditions; the rendering of sanitary-hygienic and anti-epidemic activities; and the carrying out of certain activities related to the protection of family, maternal and child health, as well as other medical-sanitary activities (President of Uzbekistan 1998).

Care related to tuberculosis, oncology, mental health, drug addiction, endocrinology, and occupational conditions classified as "socially significant and hazardous" is provided by public health institutions and fully financed by public sources (President of Uzbekistan 1998; Cabinet of Ministers 1999a).

Specialized care has been defined by the Government as care which requires special methods of prevention, diagnosis or management and involves the use of complex or sophisticated medical technologies. Only specialized physicians

in health facilities licensed to deliver this type of care are authorized to provide specialized care. The types, volume and quality of specialized care provided in health facilities are regulated by the Ministry of Health (President of Uzbekistan 1998).

Management

Based on managerial and regulatory functions as well as accountability, the Uzbek public health care system falls into three distinct hierarchical layers:

- national level (republican)
- *oblast* level
- *rayon*/urban level.

National (republican) level

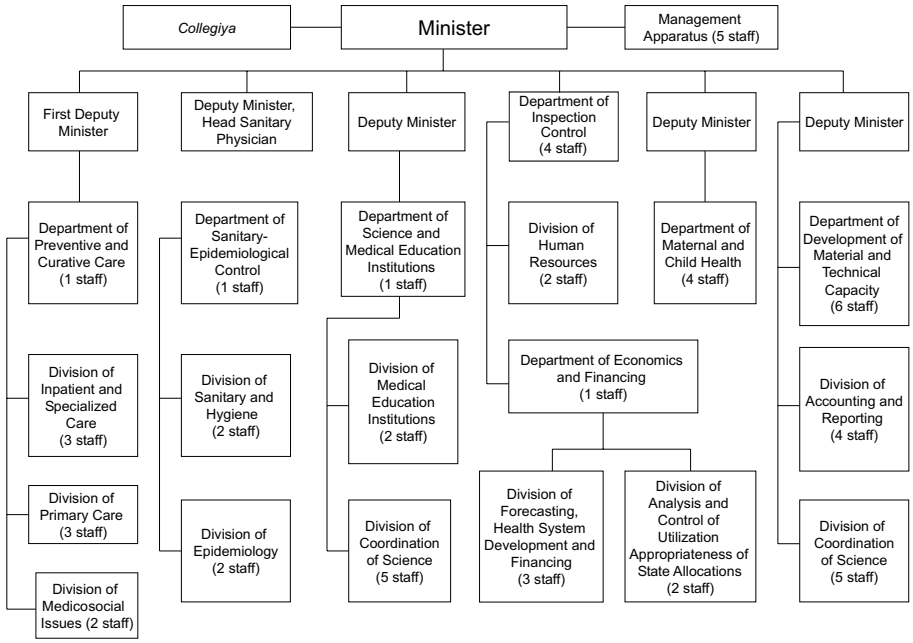
The highest hierarchical layer is formed by the Ministry of Health and other national institutions.

The Ministry of Health is the major player in organizing, planning and managing the Uzbek health system (MoH 1998). The structure of the Ministry, approved by the Cabinet of Ministers on 2 October 2006, is outlined in Fig. 2.2 (Cabinet of Ministers 2006).

The Ministry of Health has 78 staff responsible for administration and management, not including the staff involved in secretarial and maintenance services. It is headed by the Minister of Health who is appointed and dismissed by the President with the approval of the Parliament. The Minister has one first deputy and four deputy ministers. The deputy ministers are appointed and dismissed by the President (Republic of Uzbekistan 1993a).

The central decision-making body of the Ministry of Health is called the *Collegiya*. Appointed members of the *Collegiya* are: the Minister of Health (who is also the head of the *Collegiya*), the deputy ministers, an adviser to the minister, the head of the health department of the Tashkent city administration, and the chair of the Red Crescent Society. Other members of the *Collegiya* need to be approved by the Cabinet of Ministers. The *Collegiya* is a consultative body with responsibilities including the development of the Uzbek health system, the selection and appointment of key management/policy-making personnel, the development of key documents and, more generally, health care delivery and education. The implementation of decisions of the *Collegiya* depends on approval by the Minister, who can reject proposals put forward by the *Collegiya*. In case of disagreement, the issue is reported to the Cabinet of Ministers.

Fig. 2.2 Structure of the Ministry of Health



Source: Ministry of Health, personal communication, 2007.

The Scientific Council under the Ministry of Health is responsible for the application of medical science in the Uzbek health system. It includes leading scientists and experts.

The Ministry of Health develops health care legislation and regulation; sets standards for the quality and volume of health services; monitors the quality of health care; identifies priorities for medical research; monitors population health; develops curricula for the training of health professionals; issues licences; certifies health care providers; and coordinates international aid for the health sector (see Chapter 3). It also evaluates the implementation of governmental and ministerial policies (Cabinet of Ministers 1999a).

The Ministry of Health provides guidance to the Minister of Health of the autonomous Republic of Karakalpakstan and acts as the supervisory authority for *oblast*, city and *rayon* health departments.

The structure of the Ministry of Health of Uzbekistan has changed frequently during recent years. Since the first years of independence, there has been a substantial reduction in the number of departments and staff. The names of departments have also changed frequently.

The Department of Treatment and Prevention is one of the main departments responsible for the overall management and supervision of health services. It is responsible for developing practice guidelines and protocols for preventing and treating diseases.

The Department for Maternal and Child Health administers maternal and child health facilities and supervises health care for children and mothers.

The main tasks of the Department of Sanitary-Epidemiological Control are the monitoring of sanitation issues, the control of infectious diseases, and the supervision of all sanitary-epidemiological institutions.

The Departments of Human Resources and Science and Medical Education Institutions are in charge of the education and training of health personnel and of forecasting the requirements for health personnel and human resource planning. The Department of Science and Medical Education Institutions is also in charge of developing curricula for health care professionals in cooperation with the Ministry of Higher and Specialist Education.

The Department of Inspection Control oversees the implementation of health care reforms and the pharmaceutical supply system, and inspects legal and reporting documents processed by other departments in the Ministry of Health. Health facilities are regularly inspected by clinical specialists and heads of health departments with the aim of ensuring that health facilities meet normative targets and comply with central regulations.

The highest hierarchical layer of the Uzbek health system also comprises health care delivery and research institutions. These institutions at the national level are financed and regulated directly by the Ministry of Health. An important difference between these institutions and those at lower levels is the extent of direct accountability. Although the Ministry of Health exerts to some extent managerial and regulatory functions over all actors in the health system, only national-level institutions are directly managed by, and accountable to, the Ministry of Health. Heads of these institutions are appointed by the Minister of Health. They also receive direct financing from the Ministry of Health and report directly to relevant departments of the Ministry or to the Minister himself. For all other institutions, these administrative and regulatory functions are performed by other agencies, such as *oblast*, city and *rayon* health authorities. The institutions at national level include:

- medical and research institutions;
- institutions of higher medical education – medical schools, the Pharmaceutical Institute, and some colleges for health professionals;
- health care delivery institutions classified as being of national importance;
- the National Centre for Emergency Care.

Oblast and *rayon* levels

At the *oblast* level, each of the 13 regional units (12 *viloyats* and Karakalpakstan Autonomous Republic) and the city of Tashkent have an administration called a *khokimiat* (Cabinet of Ministers in Karakalpakstan) headed by a *khokim* (Governor; Head of the Cabinet of Ministers in Karakalpakstan). These heads of government are appointed by the President.

Oblast governing bodies form a new system of regional administration and have replaced the executive committees of the *oblasts* and the municipal communist authorities of the former Soviet system. Their finance departments collect a significant share of government revenue, of which they keep a proportion.

The next hierarchical level of administration is formed by *rayon* (*tuman*) governments, which are headed by a *rayon khokim*. These *rayon* governments are increasingly responsible for administering funds for social assistance and for managing health and social services.

Health care institutions at the *oblast* and *rayon* levels represent the second and third managerial and regulatory layers of the Uzbek health system.

Regional health care is managed by the respective health departments within the *oblast* government. These regional health authorities form part of the statutory health system and are accountable to their respective *oblast* government and the Ministry of Health (Cabinet of Ministers 1999a). They coordinate and control activities of health-related institutions in their territory, irrespective of the forms of ownership (Cabinet of Ministers 1999a). Regional health authorities also supervise *oblast* health care providers and institutions that form part of the third hierarchical layer of the health system and are accountable to *rayon* or city health authorities.

Every *oblast* consists of a number of rural *rayons* and urban territorial units. Only cities with a significant population or classified as *oblast* centres are considered to be separate urban territorial units. These urban territorial units have their own health departments, accountable to the city government and *oblast* health authorities. Apart from these separate regional territorial units, the *oblasts* comprise only a very limited number of cities that have their own health authorities. Smaller towns and rural areas are included in the *rayon* government system and their health institutions are supervised by *rayon* health departments.

The third hierarchical layer of health care in rural areas (*rayons*) consists of central *rayon* hospitals (*Central'naya rayonnaya bol'nitsa*, CRBs) and a network of SVAs providing primary care to the covered population. CRBs

include a specialized outpatient unit, inpatient units covering different specialties and a unit of emergency care (usually placed within the surgery department).

The head of the CRB is also the head of the *rayon* health authority and is responsible for the health of the *rayon* population and its health care services. There are 159 CRBs nationwide (Institute of Health 2006).

Reforms have envisaged the long-term creation of a new comprehensive primary care delivery network in rural areas consisting of two levels: SVAs and CRBs (for more details see Chapters 6 and 7). Other types of care delivery institutions in rural areas inherited from the Soviet system, such as SUBs and FAPs, are being phased out, but continue to exist in limited numbers (see Chapter 6).

City health authorities, very similar to *rayon* health authorities, are responsible for the management and monitoring of the health care institutions within their urban territorial unit. These institutions include the central city hospital, city hospitals, specialized outpatient and inpatient units (*dispanser*), and polyclinics or urban primary care centres. The central city hospital includes outpatient, inpatient and emergency units. The head of the city central hospital is also the head of the city health authority.

Key stakeholders

The key players involved in organizing and managing the health system in Uzbekistan are the President, the Cabinet of Ministers, the Supreme Assembly (Legislative Chamber and Senate), the Ministry of Health, the Ministry of Finance, *oblast* and *rayon* health authorities and the network of health facilities.

The President and the Cabinet of Ministers, headed by the Prime Minister, are responsible for developing national health policies. The Cabinet of Ministers decides on the financing of health care programmes and medical research, monitors environmental health, ensures a standard system for the collection and processing of health data and coordinates and supervises the activities of all government bodies concerned with health protection.

The Parliament adopts legislation on health care, approves the national health care budget and controls its execution. Health care laws are debated within the labour and welfare committees of the Parliament.

The Ministry of Finance formulates the budget to be approved by the Supreme Assembly and allocates funds to the Ministry of Health and the *oblasts*, including funds for health services and capital investments.

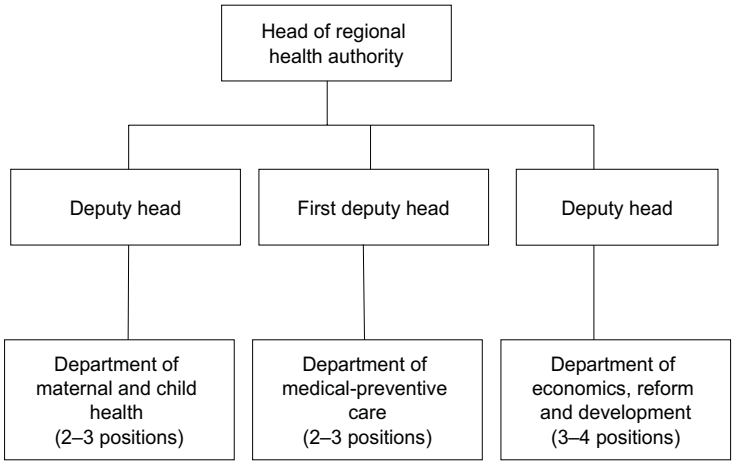
2.4 Decentralization and centralization

In Uzbekistan, decentralization has been approached gradually. Administrative functions have been delegated to *oblast* health authorities, while centralized decision-making has been retained at national level, in order to prevent the emergence of unregulated markets, ensure guaranteed access to health care and the implementation of reforms (Fierman 1997).

Devolution in the system is largely reflected in the delegation of budgetary responsibilities from the national level to the *oblasts*, while keeping a strictly vertical structure and tight national guidelines and norms, on which decisions at *oblast* level are based. Regional health authorities, although part of *oblast* governments, are mainly considered to be a quasi-independent branch of the Ministry of Health (see Fig. 2.3 for details).

The Ministry of Health closely controls the implementation of centrally developed planning guidelines. Some *oblasts* raise some local income for the autonomous management of their health services and receive central support to meet planning guidelines.

Fig. 2.3 Structural framework of *oblast* health authorities



Source: Ministry of Health, personal communication, 2007.

2.5 Patient empowerment

Patient rights

The Law on Health Protection, outlining the legal framework for the Uzbek health system and setting out the rights and entitlements of patients, was passed by Parliament in 1996, although it is not clear if this law was developed in response to the 1994 WHO Declaration on the Promotion of Patients' Rights in Europe or if it was an independent initiative.

Article 25 of the law states that every citizen has the right to information on the state of their health, the required diagnosis and treatment, outcomes, and possible risks or complications. This information should be provided directly to the patient. In cases in which the patient is younger than 14 years or has a legal trustee in line with relevant legal policies, the information should be provided to the parent or the legal trustee. The information cannot be shared or used without the patient's consent, except in cases in which:

- it is used with the aim of diagnosing or managing a medical condition;
- there is a danger of spreading infectious diseases;
- the information is required in the process of criminal investigations or court hearings;
- medical care is delivered to a person younger than 14 years and his/her parents or trustees will be informed;
- it is suspected that harm has occurred as a result of either an accident or illegal actions.

Whoever gains access to health information as a result of these exceptions (such as health professionals, police, or judges) will be accountable for the disclosure of information for reasons other than those mentioned.

Article 24 of the same law states that every patient has the right to choose a physician and health care delivery facility. All citizens are also entitled to preventive, medical and rehabilitative care, orthopaedic devices, and social support, including financial compensation when caring for ill and disabled persons on sick leave (Republic of Uzbekistan 1996). Citizens have the right to refuse the delivery of medical care, except for under conditions that pose a threat to others (Republic of Uzbekistan 1996).

Patients seeking and receiving health care are entitled to:

- humane treatment by health and auxiliary staff;
- choice of physician and health facility;
- receive diagnostic and medical care in an environment that meets sanitary and hygienic standards;

- consultations with other specialists;
- confidentiality related to seeking care, state of health, or other information obtained in the process of diagnosis and treatment;
- access to a lawyer;
- compensation in cases in which harm has been inflicted in the process of the delivery of medical care;
- legal action when patients' rights have been violated, either by complaining to the management of the institution or higher ranking agencies in the hierarchy of the health system, or seeking direct legal recourse from the relevant civil court (Republic of Uzbekistan 1996).

Patient choice and information for patients

As mentioned above, patients have the formal right to choose a physician and a health care provider (for details on the choice of these different types of care see Chapter 6) (Republic of Uzbekistan 1996). No evidence is available on to what extent the population are aware of their rights, how these are exercised in practice and if the new patients' rights have any effect on the quality and efficiency of care. Although data on the utilization of specific services are available, they do not allow conclusions to be drawn on these issues.

Government efforts to assist private sector development have contributed to an increase in choice of providers. According to anecdotal evidence, the emergence of private health care providers and the introduction of out-of-pocket payments have decreased the pressure on public health care providers, which were previously overloaded with high numbers of patients.

Apart from their ability to pay for the services provided, health care providers have no legal justification for refusing to allow patients to utilize health services.

There is currently no comprehensive and publicly available database or mechanism to inform patients on the quality, price, type or other characteristics of the services provided by health care providers in the public or private sector. It is most likely that choosing health care providers is currently a result of referral, geographical location, word of mouth and the financial status of the individual.

Complaint procedures

The formal framework for appeal processes in the health system was revised in the 2002 Law on the Appeal of Citizens (Republic of Uzbekistan 2002). In

2003, the Ministry of Health issued a revision of its previous framework for dealing with patients' appeals (MoH 2003a). According to this revision, oral and written appeals have the same legal status. All appeals are received and reviewed by the Unit of Correspondence at the Ministry of Health. Written appeals are redirected towards relevant units within five days of receipt. Appeals not requiring further activities need to be reviewed within 15 days. When further activities are required, the appeal should be reviewed within a month. Every letter of appeal must be registered with the Unit of Correspondence. Once referred to the relevant department or agency, the respective head is expected to sign the letter of appeal and indicate who is responsible for the review process and how and when it will be processed. Once the review process is completed, the person(s) appealing must be informed of the outcome(s) of the process.

All agencies are required to have specified times for receiving oral appeals, which follow the same process as written appeals.

A recent UNDP report provides some insight into the areas of concern that are subject to complaints (UNDP Uzbekistan 2006b). Complaints were mainly related to (UNDP Uzbekistan 2006b):

- inadequate population awareness of free medical services and of patients' rights;
- limited access to free-of-charge services;
- the poor quality of services rendered;
- limited access to pharmaceuticals for financial reasons;
- difficulties in getting health-related legal assistance and proving one's rights.

According to a survey conducted by the Consumer Rights Federation in Tashkent in January 2006, covering 20 inpatient and 7 primary care facilities, only 12% of respondents were aware of the list of services to be provided free of charge; 87% rated the quality of hospital food as "poor"; and 77% were unsatisfied with the quality of services. In another survey conducted by the same organization in 2004, almost three quarters of female respondents with children under the age of two stated that they had been paying for services rendered at maternity homes – services which are included in the basic benefits package and should be free of charge. The rate of payments for maternity services, however, varied considerably between regions, with three quarters paying in Tashkent (which has the second highest gross regional product per capita) and one tenth in Navoi region (which has the highest gross regional product per capita) (UNDP Uzbekistan 2006b).

Patient safety and compensation

In the Uzbek health system, the Government, through the public health system, is the primary provider of health care. As previously in the Soviet system, legal actions are neither part of the system nor are there any inbuilt incentives to take legal action or to seek compensation. Generally, legal action is only taken in extreme cases, when involving avoidable mortality or disability. Compensation mechanisms are not clear and might involve state-guaranteed disability support. Although official data on the number of legal actions are not available, anecdotal evidence suggests that legal actions constitute rare exceptions, rather than a norm.

The Law on Health Protection guarantees the right to compensation when harm has been inflicted. However, it is not clear if explicit mechanisms or policies for compensation have been developed following adoption of the law, or which funds should be used for compensation in cases in which the health care provider is owned by the Government.

So far, there is no well-developed system for the monitoring and reporting of medical errors and safety issues. Information on adverse effects of drugs is also not collected centrally. However, there are regular medical conferences conducted in each institution (generally at least twice a month), where these issues should be discussed and documented. Data on compliance with this protocol are not available.

There are no specialized agencies for patient safety or, more broadly, for quality of care. This role is generally carried out by different public agencies, such as sanitary-epidemiological stations and fire departments.

Patient participation/involvement

No specific frameworks are in place to ensure patient participation in the purchasing and organization of health services. Patient satisfaction surveys are not common practice within the health system. While one-off patient satisfaction surveys have been conducted by agencies outside the Ministry of Health, the findings of these surveys were not yet available at the time of writing.

3 Financing

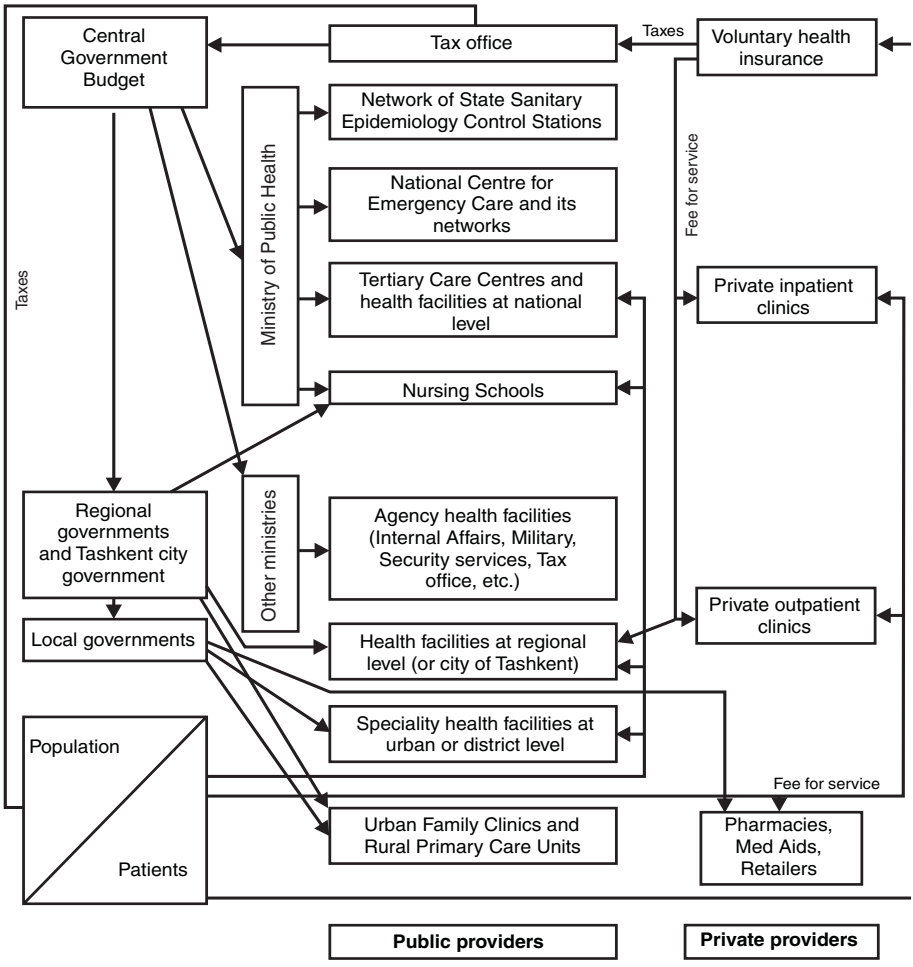
In the Soviet Union, public funding was, by and large, the only source of health financing. Public sources for health care were drawn from a wide range of taxes, while patient co-payments existed only for a limited number of services, such as rehabilitation services or some pharmaceuticals for ambulatory care.

After the break-up of the Soviet Union, the Uzbek health system has maintained tax-based public financing as a major source of health care funding. However, other health financing mechanisms have gradually been introduced. With public sector reforms and the emergence of a private sector, out-of-pocket payments have become a permanent part of the health system. In addition, voluntary health insurance schemes were initiated either by insurance companies which developed insurance plans and contracted medical services to selected providers (i.e. the Uzbek-AIG joint insurance company) or by private medical providers with the aim of attracting more clients (i.e. the Medical Diagnostics Services clinic, known as MDS).

The allocation of resources for health care in Uzbekistan depends on the financing sources and the ownership of health care providers. There are three principal mechanisms. In the first, public funding originates from the state budget and strictly follows the expenditure protocols developed by the central Government. Most of this funding flows into public health facilities, while a small share is directed towards the private sector, such as through the reimbursement for outpatient pharmaceuticals. In the second allocation mechanism, public health facilities draw on external funding. Public health facilities have been permitted to charge fees for services provided outside the state-guaranteed package of services. This funding might flow from a variety of sources, including out-of-pocket payments, employer contributions, or voluntary health insurance, and funding follows the protocols set by the central

Government in a more flexible manner. In the third allocation mechanism, financing flows from external sources to the private sector, for which no protocols on expenditure and use of health resources exist. Fig. 3.1 provides a general outline of the financial flows in the Uzbek health system

Fig. 3.1 Financial flows in the Uzbek health system



Source: Authors' compilation.

3.1 Health expenditure

In Uzbekistan, total health expenditure as a share of GDP has been gradually decreasing since independence. In 1991, according to government estimates, total health expenditure accounted for 5.9% of GDP. By 2005, this share had decreased to only 2.4%. However, government statistics are likely to understate actual health expenditure, as they do not account for informal payments and fail to capture all expenditures in the private sector. WHO estimates of total health expenditure are therefore considerably higher than government figures and suggest that total health expenditure in 2004 was 5.4% of GDP (Fig. 3.2). A similar discrepancy can be found in the data on public health expenditure as

Table 3.1 Trends in health expenditure, 1994–2005 (selected years)

	1994	1996	1998	2000	2002	2004	2005
Total health expenditure as a % of GDP	4.6	3.1	3.3	3.0	2.4	2.4	2.4
Total health expenditure as a % of GDP, WHO estimates	–	–	6.7	5.7	5.6	5.4	–
Total health expenditure, US$ PPP per capita	112	–	68	73	40	–	–
Total health expenditure, US$ PPP per capita, WHO estimates	–	–	152	142	155	169	–
Public sector health expenditure as a % of total health expenditure, WHO estimates	–	–	48.0	45.6	44.3	42.1	–

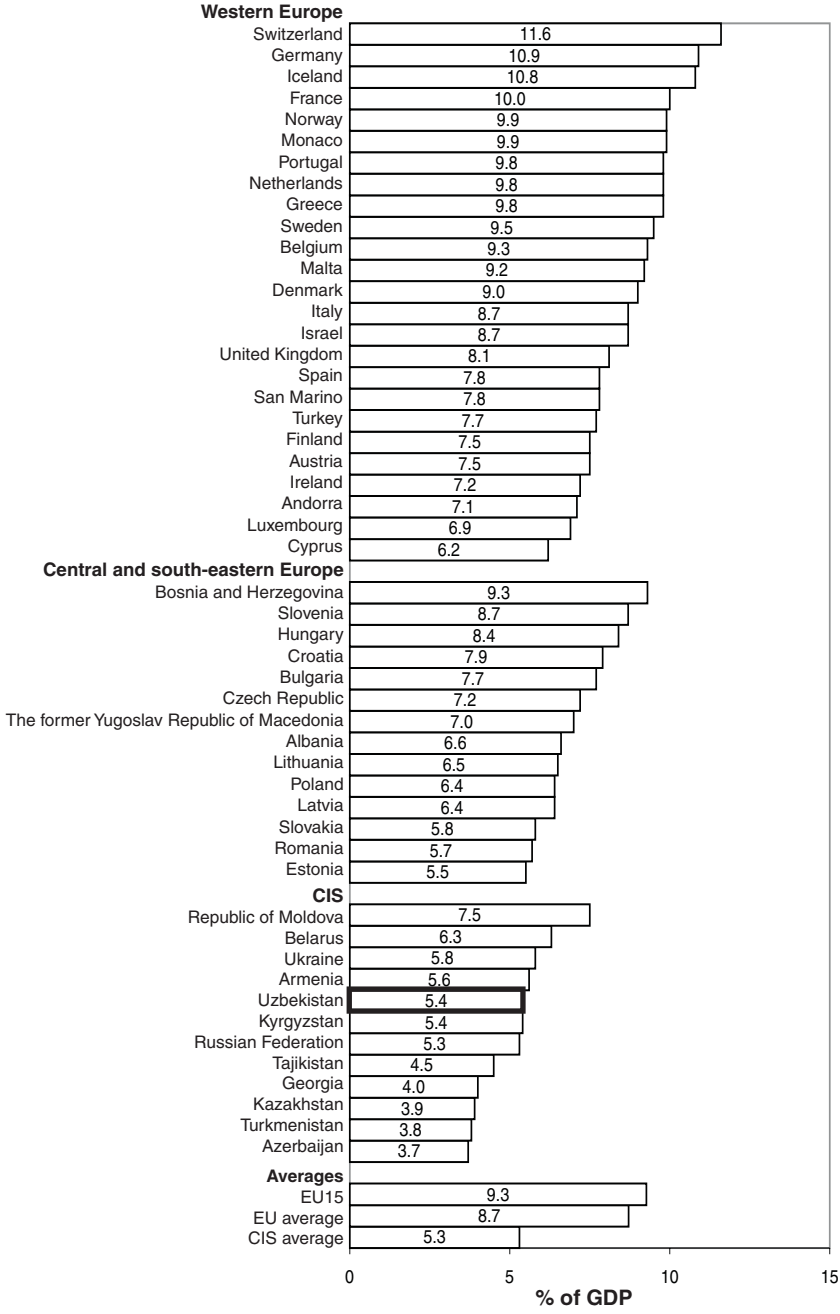
Source: WHO Regional Office for Europe, 2007.

Notes: GDP: gross domestic product; PPP: purchasing power parity; WHO: World Health Organization.

a percentage of total health expenditure. According to WHO estimates, public health expenditure amounted to only 42.1% of total health expenditure in 2004 (see Table 3.1).

Other countries of the region experienced a similar downward trend in total health expenditure in the early 1990s. However, the downward trend was much steeper in Uzbekistan than in other countries of central Asia or the CIS (Fig. 3.3). This is in contrast to developments in the WHO European Region as a whole, where health expenditure as a percentage of GDP has continuously grown in recent decades and is now more than twice the CIS average and almost three times higher than in Uzbekistan (Fig. 3.3). As already noted, however, these figures for Uzbekistan and other CIS countries are considerable underestimates,

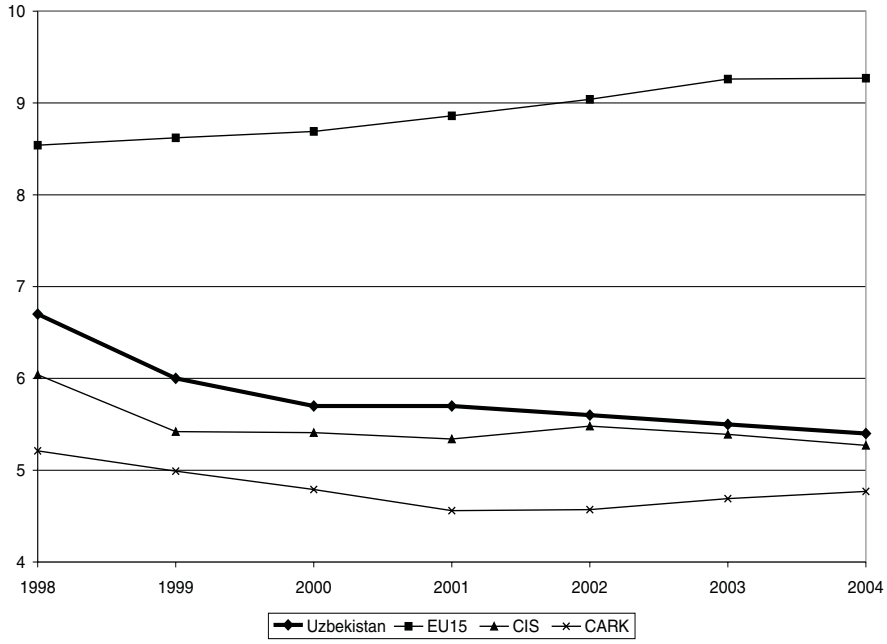
Fig. 3.2 Health expenditure as a share (%) of GDP in the WHO European Region, 2004, WHO estimates



Source: WHO Regional Office for Europe, 2007.

Notes: GDP: gross domestic product; CIS Commonwealth of Independent States; EU15: European Union Member States before May 2004.

Fig. 3.3 Trends in health expenditure as a share (%) of GDP in Uzbekistan, CIS, CARK and EU15, 1998–2005, WHO estimates



Source: WHO Regional Office for Europe Health for All database, January 2007.

Notes: GDP: gross domestic product; CIS Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan; EU15: European Union Member States before May 2004.

as they do not take account of private out-of-pocket payments and fail to capture all expenditures in the private sector.

In 2006, according to the Ministry of Finance, health expenditure accounted for approximately 7.9% of the national budget, with a volume of 495 billion soms out of a total of 6199 billion soms (with an exchange rate of 1240 soms to the US$). This is a slight increase compared to 7.8% (378 billion soms out of 4884 billion soms) in 2005, 7.7% (282 billion soms out of 3680 billion soms) in 2004 and 7.2% (229 billion soms out of 3181 billion soms) in 2003. However, actual changes in public health funding are difficult to ascertain, as these numbers are not adjusted for inflation.

The national budget uses different categories for health expenditure. The main bulk of public health expenditure is contained in the budget's section on "health care expenditures", which is further divided into six subsections (see Tables 3.2, 3.3 and 3.4). According to these data, hospitals make up the

Table 3.2 Health care expenditure (in million soms), national budget 2003

	Total state health expenditure, planned	Disbursed		
		Total state health expenditure, disbursed	Including:	
			Expenditure out of national budgets	Expenditure out of local budgets
Hospitals	151 024 (66.0%)	151 262 (66.0%)	19 310 (13%)	131 952 (87%)
Polyclinics and ambulatories	29 997 (13.0%)	30 062 (13.0%)	748 (3%)	29 314 (97%)
Rural primary care units	13 333 (5.8%)	13 402 (5.9%)	–	13 402 (100%[a])
Ambulance and emergency care facilities	4 062 (1.8%)	4 058 (1.8%)	–	4 058 (100%[a])
Sanitary-epidemiological stations	10 690 (4.7%)	10 681 (4.7%)	999 (9%)	9 682 (91%)
Other expenditures	19 324 (8.5%)	19 244 (8.4%)	6 363 (33%)	12 880 (67%)
Total	**228 430 (100%[a])**	**228 709 (100%[a])**	**27 421 (12%)**	**201 288 (88%)**

Source: MoF, 2006.

Note: [a] Percentages may not total 100% as a result of rounding.

Table 3.3 Health care expenditure (in million soms), national budget 2004

	Total state health expenditure, planned	Disbursed		
		Total state health expenditure, disbursed	Including:	
			Expenditure out of national budgets	Expenditure out of local budgets
Hospitals	180 086 (65.8%)	183 603 (66%)	23 850 (13%)	159 754 (87%)
Polyclinics and ambulatories	34 704 (12.7%)	34 883 (12.6%)	896 (3%)	33 987 (97%)
Rural primary care units	19 577 (7.2%)	19 869 (7.2%)	–	19 869 (100%[a])
Ambulance and emergency care facilities	4 305 (1.6%)	4 290 (1.5%)	–	4 290 (100%[a])
Sanitary-epidemiological stations	12 941 (4.7%)	12 934 (4.7%)	1 340 (9%)	11 595 (91%)
Other expenditures	21 875 (8%)	21 826 (7.9%)	7 317 (33%)	14 509 (67%)
Total	**273 488 (100%[a])**	**277 405 (100%[a])**	**33 402 (12%)**	**244 003 (88%)**

Source: MoF, 2006.

Note: [a] Percentages may not total 100% as a result of rounding.

biggest expenditure item and account for approximately 66% of overall health expenditure. The vast majority (85.7% in 2005) of hospital expenses need to be generated at the local level, from *oblast*, *rayon* and urban budgets. Rural primary care units (*Sel'skii vrachebny punkt*, SVPs) have seen a small increase

Table 3.4 Health care expenditure (in million soms), national budget 2005

	Total state health expenditure, planned	Disbursed		
		Total state health expenditure, disbursed	Including:	
			Expenditure out of national budgets	Expenditure out of local budgets
Hospitals	236 298 (65.3%)	237 806 (65.5%)	33 941 (14.3%)	203 865 (85.7%)
Polyclinics and ambulatories	44 778 (12.4%)	45 341 (12.5%)	1 249 (2.8%)	44 092 (97.2%)
Rural primary care units	28 348 (7.8%)	28 592 (7.8%)	–	28 592 (100%[a])
Ambulance and emergency care facilities	5 723 (1.6%)	5 690 (1.6%)	–	5 691 (100%[a])
Sanitary-epidemiological stations	17 381 (4.8%)	17 364 (4.8%)	2 104 (12.1%)	15 261 (87.9%)
Other expenditures	29 429 (8.1%)	28 102 (7.7%)	10 809 (38.5%)	17 293 (61.5%)
Total	**361 956 (100%[a])**	**362 896 (100%[a])**	**48 103 (13.3%)**	**314 794 (86.7%)**

Source: MoF, 2006.

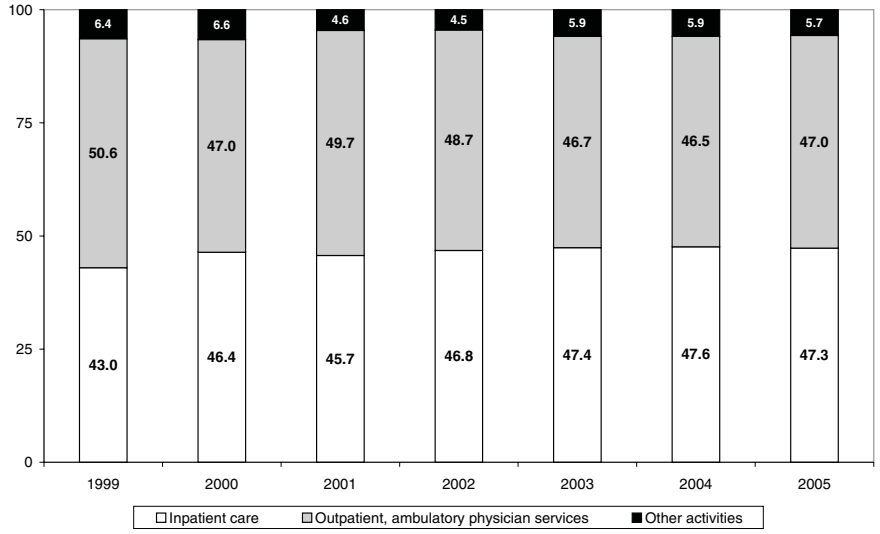
Note: [a] Percentages may not total 100% as a result of rounding.

as a share of total health expenditure, from 5.9% in 2003 to 7.2% in 2004 and 7.8% in 2005. The available data do not allow differentiation between expenses at different levels of care. CRBs and urban hospitals, for example, are included in the primary care package within the framework of the Ministry of Health, but would be considered as hospitals in reports by the Ministry of Finance.

Furthermore, data from the Ministry of Finance differ from those from the Ministry of Health in relation to inpatient and outpatient care. According to Ministry of Health data, inpatient care expenditure made up 51% of total health expenditure in 2004, while according to Ministry of Finance data they accounted for 47.6%. These differences might stem from different classification systems used by the respective agencies. Significantly, according to data from the Ministry of Health, there was an increase in recent years in the share devoted to inpatient care. Despite major primary care reforms, a larger proportion of public expenditure continues to be spent on hospitals. Data on spending by type of service are shown in Fig. 3.4.

Most health expenditure is directed towards the delivery of health services and only a small share is dedicated to education and research. In 2004, education accounted for approximately 3% and research for 0.4% of total health expenditure (see Table 3.5 and Table 3.6).

Fig. 3.4 Public expenditure for medical services by type of service (in percentages), 1999–2005



Source: Ministry of Health, personal communication, 2006.

Table 3.5 Public health expenditure by type of service, in million soms, 1999–2005

	1999	2000	2001	2002	2003	2004	2005[a]
Medical services	56 758	82 026	119 407	173 519	217 163	270 186	252 108
Education and training	1 734	2 677	3 874	5 108	7 040	8 513	7 795
Research and development	155	311	486	629	1053	1193	995
Other	10	26	34	55	85	97	91
Total	**58 656**	**85 039**	**123 801**	**179 310**	**225 340**	**279 988**	**260 999**

Source: Ministry of Health, personal communication, 2006.

Note: [a] Data from the first nine months of 2005.

Table 3.6 Public health expenditure by type of service as a percentage of total health expenditure, 1999–2005

	1999	2000	2001	2002	2003	2004	2005[a]
Medical services	96.76	96.46	96.45	96.77	96.37	96.50	96.59
Education and training	2.96	3.15	3.13	2.85	3.12	3.04	2.99
Research and development	0.26	0.37	0.39	0.35	0.47	0.43	0.38
Other	0.02	0.03	0.03	0.03	0.04	0.03	0.04
Total[b]	**100**	**100**	**100**	**100**	**100**	**100**	**100**

Source: Ministry of Health, personal communication, 2006.

Notes: [a] Data from the first nine months of 2005; [b] Percentages may not total 100% as a result of rounding.

Table 3.7 Public expenditure for medical services by source of funding, in million soms, 1999–2005

	1999	2000	2001	2002	2003	2004	2005[a]
Republican budget	4 897	8 932	13 237	17 562	22 417	28 690	30 912
Local	51 861	73 094	106 170	155 957	194 746	241 495	221 196

Source: Ministry of Health, personal communication, 2006.

Note: [a] Data from the first nine months of 2005.

Table 3.8 Public expenditure for medical services by source of funding, as a percentage of total health expenditure, 1999–2005

	1999	2000	2001	2002	2003	2004	2005[a]
Republican budget	8.6	10.9	11.1	10.1	10.3	10.6	12.3
Local	91.4	89.1	88.9	89.9	89.7	89.4	87.7

Source: Ministry of Health, personal communication, 2006.

Note: [a] Data from the first nine months of 2005.

Most health expenditure from public sources comes from local budgets (Tables 3.7 and 3.8). There are, however, large variations in per capita public health expenditures across *oblasts*. Poorer *oblasts* generally spend less per capita on health than richer *oblasts* (Fig. 3.5).

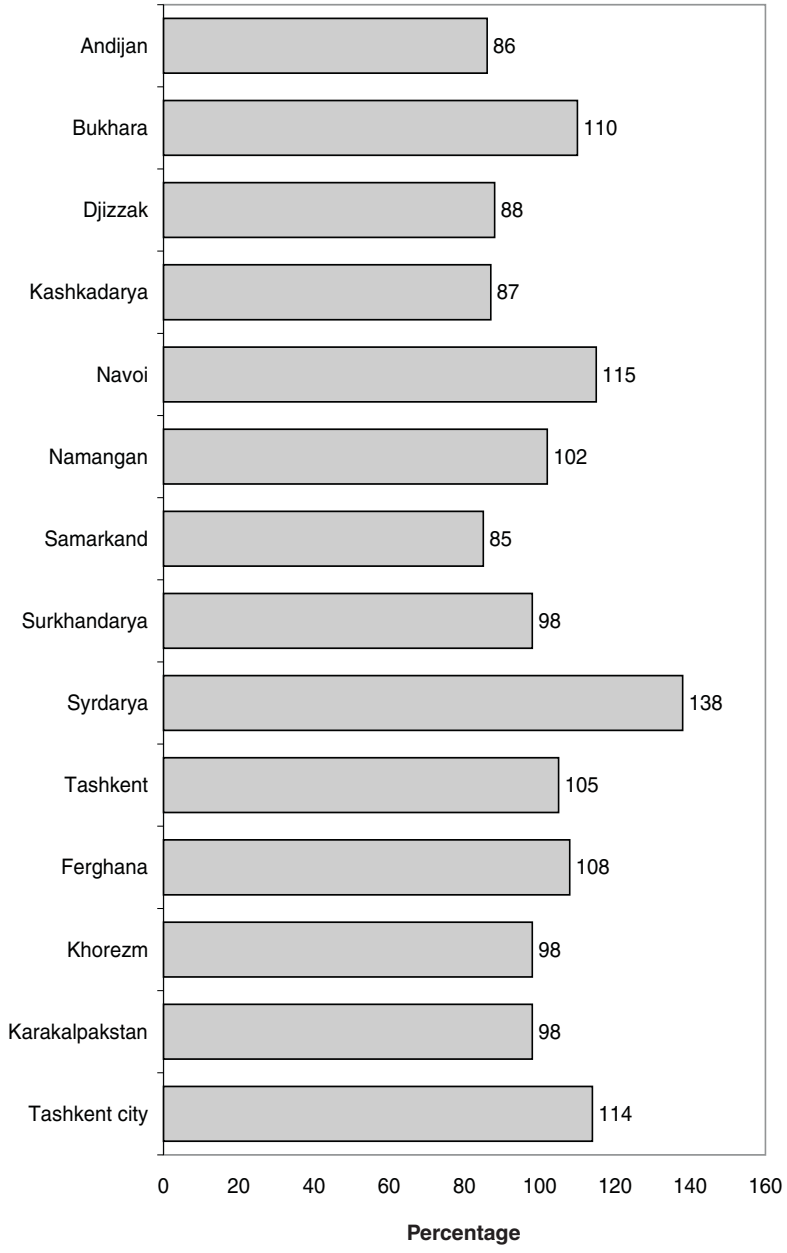
3.2 Population coverage and basis for entitlement

Population coverage

Uzbekistan's public health care system is nominally committed to universal coverage. The country's Constitution of 1992 provides that "everyone shall have the right to receive skilled medical care" (Republic of Uzbekistan 1992). While the Constitution guarantees access to all levels of care, it no longer guarantees free services, in contrast to the Soviet Constitution. Uzbekistan's Constitution has therefore been an important step towards redefining the State's responsibilities with regard to the health of the population.

The Law on Health Protection of 1996 can be considered to derive from the Constitution. It confirms the right of citizens to health care. This right applies to all health services, including delivery, antenatal and neonatal care, paediatric services, immunization, family planning, outpatient services and specialized

Fig. 3.5 Per capita public expenditure on health by *oblast*, as a percentage of average, 2003



Source: Langenbrunner, Salikhova & Karimova, 2006.

services. The State guarantees health protection irrespective of age, race, gender, ethnicity, religion, social status and beliefs (Republic of Uzbekistan 1996).

The Law defines the services to be funded by the State (the basic benefits package) and the services to be reimbursed by other sources of funding (complementary services). All citizens have a right to universal state coverage under the basic benefits package. While residents are entitled to the same rights in accessing health services as citizens, the Law states that foreigners are guaranteed health protection in line with the bilateral international treaties of which Uzbekistan is a signatory (Republic of Uzbekistan 1996). Refugees and foreigners are eligible for free emergency services. Health care providers are expected to provide other services for foreigners, for fees that do not exceed regular prices (MoH 1996).

Anecdotally, access to the state-guaranteed basic benefits package is not fully utilized by higher income groups, who often opt for services provided by the private sector or utilize services under private arrangements.

While voluntary health insurance has been set up in recent years by profit-making companies, no data are available on their market share in the utilization of health services, although anecdotal evidence suggests that they remain insignificant (for more details see Chapter 6 and Subsection 3.3, Voluntary health insurance).

Prisoners, soldiers and military personnel have access to parallel health services which are run outside the framework of the Ministry of Health. For cases in which specialized care is not available within these parallel services, the Ministry of Health system can be utilized. The mechanisms and financing arrangements for these rare cases are defined in special agreements between the Ministry of Health and the respective agencies (MoH Department of Treatment and Prevention, personal communication).

Basic benefits package

The basic benefits package guaranteed by the Government includes primary care, emergency care, care for "socially significant and hazardous" conditions, and specialized care for groups of the population classified by the Government as vulnerable (Republic of Uzbekistan 1996).

Public health care providers provide the state-guaranteed package of medical services free of charge. All medical services outside the package are financed by non-public sources (Republic of Uzbekistan 1996).

Pharmaceuticals for the period in which inpatient care is provided are covered by the state-guaranteed basic benefits package, provided that the inpatient care itself forms part of the basic benefits package. Outpatient pharmaceuticals are

not covered, except for 13 population categories, including orphans, people with disabilities categorized as levels I and II, children and adolescents up to the age of 17, and single pensioners registered with support agencies (Cabinet of Ministers 1997). In 2004, overall expenditure on outpatient pharmaceuticals for these 13 groups amounted to 2.1 billion soms (approximately US$ 2 million) (MoH, personal communication), although no data are available on existing or unmet needs.

The following range of services form part of the guaranteed primary health care services:

- management of prevalent and emergency conditions;
- preventive and sanitary-epidemiological activities;
- initiatives in family, maternal and child health.

In 2004, as part of a document outlining the functions of primary care units, an explicit list of services covered in primary care was developed by the Ministry of Health (MoH 2004a). The document lists the conditions to be diagnosed and managed in primary care units (such as chronic heart failure (grades I–II), bronchitis and diabetes), their (related) diagnostic and investigative procedures (such as electrocardiography), and the conditions subject to rehabilitative services and continuous observation. The document obliged primary care providers to offer health promotion and education to patients on an individual basis.

Another group of services included in the state-guaranteed basic benefits package is emergency care. Although an extensive network of public sector emergency care units exists, every citizen has the legal right to obtain emergency services from any health care provider, irrespective of the form of

Table 3.9 Population groups eligible for free tertiary care at four piloted public tertiary care providers

Population group
Children with disabilities
Orphans
People with disabilities of categories I and II
Veterans and disabled veterans of the Second World War
Pensioners
Participants of the "labour front" in 1941–1945
People with disabilities incurred when liquidating the consequences of the Chernobyl disaster
Participants of international wars (such as the war in Afghanistan during the Soviet period)
Families receiving social support

Source: Ministry of Health, personal communication, 2006.

ownership (Republic of Uzbekistan 1996). The law stipulates that all medical and pharmaceutical professionals must provide emergency care when required, and could otherwise be held legally responsible. However, issues related to the reimbursement of services in the private sector or in public facilities that use mixed financing (i.e. a combination of government funding and self-financing) have so far not been clarified.

Medical services that fall outside the basic package of primary care services, emergency care, and care for "socially significant and hazardous" conditions are expected to be financed from sources other than public funds, which include, but are not limited to, health insurance, employer contributions, union funds and out-of-pocket payments. A special complementary package is available for specified groups of the population at different levels of care. Tertiary care provided by specialized centres is free of charge for nine population groups (Table 3.8). The types of tertiary services funded by the State for these groups have not been defined and generally include all services available at the tertiary care institutions.

The state-guaranteed package of medical services defined by law in 1996 has not undergone any changes since then. It still serves as the guideline for policies and regulations related to benefits.

The services that form part of the basic benefits package can also be accessed on a fee-for-service basis from the private sector. In this case, however, patients are not reimbursed for their expenses.

In the public sector, financial benefits exist for defined categories of the population, including those on sick or maternity leave and people with disabilities or mental illnesses. Sick leave is originally granted for a period of five days. After this initial period, the extension of sick leave requires the approval of a special commission, which is in place in every public health care unit, except in single practices, where the extension can be granted without approval of the commission. For the duration of the approved sick leave, patients receive benefits from the social security system in the range of 80–100% of their usual income; these benefits are disbursed by their respective employers. In 2004, 1 236 375 "approvals" for sick leave were issued, totalling 32.5 million days of sick leave or on average 26.3 days per sick leave period (Institute of Health 2006).

If there is a need to extend sick leave for more than three continuous months, or four months per year with interruptions, the patient's data are reviewed by a special expert commission, which is part of the social security system and outside the influence of the health authorities. The commission decides on the patient's eligibility for financial benefits related to disability. Following a decision by the expert commission, the patient might be assigned to one of

three disability groups, within two of which he/she is not permitted to work. All individuals in any of the three disability groups are included in special observation registries (also called *dispanser* (meaning dispenser) registries) and are eligible once a year for rehabilitative services covered by state funds. *Dispanser* registries are special classifications used by public health providers to assist compliance with management protocols for certain conditions. Patients with mental disorders are eligible for the same disability benefits, but are subject to a review by separate expert commissions, which have been set up within psychiatric clinics.

3.3 Revenue collection/sources of funds

The Uzbek health system relies on a mix of financing sources. Although taxation accounts for a major share of health financing, other sources – primarily out-of-pocket payments – are increasingly supplementing or replacing public financing. Out-of-pocket payments were first introduced as direct payments for outpatient pharmaceuticals and inpatient meals, and were gradually extended to medical services. From the second half of the 1990s, external development assistance, mostly in the form of loans, has been increasingly used to address various elements of health system restructuring. Voluntary health insurance, although still insignificant, has become more visible over recent years as an alternative source of health financing.

Compulsory sources of finance

State funding accounts for a major share of health financing in Uzbekistan. The public sector health system is the main beneficiary of public funding, and only an insignificant share is allocated to the private sector. Although state funding draws on a variety of sources, it is mostly derived from different types of taxes. However, so far no taxes earmarked specifically for health financing exist in Uzbekistan.

For the year 2006, the national budget of Uzbekistan was estimated to be approximately 6199 billion soms or approximately US$ 5.0 billion (at the rate of 1240 soms to the US$). Direct taxes, such as income taxes from individuals and business entities, accounted for approximately 18% of national budget revenues. Indirect taxes (such as customs or value-added tax (VAT)) accounted for approximately 34% of revenues, resource taxes (such as for real estate, land, or use of natural resources) for 13%, dividends from state investments for 27%, and other revenues (such as school education tax) for 8% (MoF 2006).

The main tax-collecting agency in Uzbekistan is the State Tax Agency. The agency has a vertical management hierarchy, and is represented by branches at both the *oblast* and *rayon* levels. The local branches at *rayon* and urban levels are responsible for the collection of taxes in their respective territorial units.

Tax rates in Uzbekistan are established by the Parliament. The taxation system is progressive and has "floors" and "ceilings". Monthly incomes of up to five times the minimum monthly salary (currently approximately US$ 8–9) are subject to an income tax of 13%. Incomes in the range of 5–10 times the minimum salary are subject to an income tax of 18%, and incomes higher than 10 times the minimum salary are subject to an income tax of 25% (Republic of Uzbekistan 2005; Republic of Uzbekistan 2006).

While no tax subsidies exist for individuals' health care expenses, other forms of subsidies have recently been introduced into the health sector. Private health care providers are exempted from all types of taxes for the first two years, provided they use these savings for investment in their medical and diagnostic equipment (President of Uzbekistan 1998). The revenues of public health institutions received through fee-for-service activities have also been granted tax relief until January 2008 (Cabinet of Ministers 1999b).

Voluntary health insurance

According to anecdotal evidence, voluntary health insurance accounts for only a tiny share of health expenditure in Uzbekistan. Reliable national data on the volume of services covered by voluntary health insurance are, however, not available. At present, only very few companies in the country offer this kind of insurance.

Two types of companies offering voluntary health insurance in Uzbekistan can be distinguished: private providers of health services (MDS 2004) and insurance companies involved in other types of insurance (UNIC 2006). While voluntary health insurance is often classified as substitutive, complementary, or supplementary, it is difficult to fit policies in the Uzbek market into any of these categories. There are no limitations regarding the policy coverage by service types or volumes. The services offered by insurance policies include both services that form part of the state-guaranteed basic benefits package and services outside the package. The purported advantage over the statutory system is the quality of care, faster access to services and increased choice of health care providers.

MDS is one of the largest private medical providers in the Uzbek health market with some 200 staff, including 80 physicians. The insurance policy offered by this health care provider is not risk-rated and allows the full use of

services available within the clinic. The following four types of policies are offered:

- individual policy without surgical interventions
- individual policy with surgical interventions
- family (husband, wife and children) policy without surgical interventions
- family (husband, wife and children) policy with surgical interventions.

The state joint insurance company Uzbekinvest National Export-Import Insurance Company (UNIC) is an example of an insurance company involved in the health insurance sector. The company is possibly the biggest issuer of voluntary health insurance policies. In total, approximately 2400 policies have been sold since its inception several years ago. In contrast to policies offered by MDS, the company's policy has a more complex structure, in which consumers are risk-rated by age and insured against a fixed amount of expenditure. Furthermore, UNIC offers different types of coverage. The first type only covers costs related to outpatient visits to physicians and home visits by physicians. The most comprehensive policy covers the full costs related to outpatient visits, home visits, emergency care, inpatient care, and pharmaceuticals for the period of inpatient care. These comprehensive policies offer discounted prices at 21 preferred health care providers in the capital and major regional cities (UNIC 2006).

There are no regulations with regard to price setting of voluntary health insurance policies. The small number of sales, the small risk pool, and the selection bias seem to result in high prices for voluntary health insurance policies. Annual policies at MDS cost between US$ 500 (individual policy without surgical interventions) and US$ 875 (family policy with surgical interventions) (MDS 2004). UNIC's most comprehensive polices cost between 24% of the insured amount for the lowest risk group and 42% for the highest risk group (UNIC 2006). The existing policy prices are designed to appeal to high-income groups.

Voluntary health insurance policies are generally available on an annual basis without any restrictions. Probably due to their insignificant market share, specific government regulations have so far not been developed, with the exception of general guidelines for health insurers produced by the Ministry of Health (MoH 2000).

Out-of-pocket payments

Formal payments

As already mentioned, the Soviet health system offered universal coverage, with almost no charges to the patient at the point of access. After the independence of Uzbekistan, allocated state funds have become increasingly inadequate to maintain the health system inherited from the Soviet period. New mechanisms have consequently emerged to bring in additional revenue.

Governmental reform initiatives have mostly encouraged the direct form of out-of-pocket payments. The envisaged creation of a health insurance system was expected to replace direct payments through a system of cost sharing, but the health insurance initiative has not been realized, so that direct payments still constitute the major part of out-of-pocket payments.

Direct out-of-pocket payments can be differentiated according to whether they are charged by public sector or by non-public health institutions. Public sector out-of-pocket payments are regulated by the relevant departments of the Ministry of Health and by the *oblast* health authorities.

As a part of the introduction of formal out-of-pocket payments, from 1998 charges for the meals provided during inpatient care were introduced, with the exception of breakfast. These charges could be paid through direct out-of-pocket payments, sponsors, or employers. Twelve disease categories and ten population groups were exempted from these charges (see Table 3.10).

Table 3.10 Population and disease groups exempted from inpatient meal charges at public health care providers

Disease groups	Population groups
Cancer	Children with disabilities
Tuberculosis	Orphans
Mental conditions	People with disabilities of categories I and II
Drug addiction (at specialized providers)	Veterans and disabled veterans of the Second World War
Conditions related to radiation exposure	Pensioners living alone registered with the social services
Infectious conditions	Participants of the “labour front” in 1941–1945
Syphilis	People with disabilities incurred when liquidating the consequences of the Chernobyl disaster
HIV/AIDS	Participants of international wars (such as the war in Afghanistan during the Soviet period)
Emergency conditions	Children and adolescents up to the age of 17
Anaemic pregnant women	Military recruits in the age group 18–27
Endocrinological conditions	
Leprosy	

Source: Cabinet of Ministers of the Republic of Uzbekistan, 1997

The funds for meals, however, continued to be provided from the state budget, so the income from the meal charges was intended to bring in additional resources to strengthen the organizational infrastructure (Cabinet of Ministers 1997).

In the Soviet period, all inpatient pharmaceuticals were, in general, supplied by the State at no cost to the end-user, whereas outpatient pharmaceuticals were either covered by the State or available over the counter at centrally set and controlled prices. Since independence, reform initiatives have limited state coverage for outpatient pharmaceuticals to a defined set of conditions and population groups. All other expenses related to pharmaceutical needs have to be met through other sources (Cabinet of Ministers 1997). Anecdotally, most outpatient pharmaceutical expenses are covered by individual direct payments, although no reliable data on the share of different types of payments are currently available. The specified groups eligible for free outpatient pharmaceutical coverage are (Cabinet of Ministers 1997):

- seven disease groups: cancer; endocrinological conditions; mental conditions; tuberculosis; leprosy; HIV/AIDS; and post-operative conditions related to cardiac interventions and transplantations;
- six population groups: pensioners living on their own who are registered with the social services; participants of the "labour front" in 1941–1945; veterans and disabled veterans of the Second World War; people with disabilities incurred when liquidating the consequences of the Chernobyl disaster; participants of international wars (such as the war in Afghanistan during the Soviet period); and retired military personnel who served in nuclear technology-related posts.

No reliable data, however, are available with regard to existing or unmet needs in these groups of the population.

Table 3.11 Share of paid services and paid inpatient meals in total public health expenditure, million soms and percentages, 1999–2005

	1999	2000	2001	2002	2003	2004	2005
Total public expenditure on health care	58 390	86 105	125 921	183 183	231 306	288 996	271 597
(%)	100	100	100	100	100	100	100
Paid inpatient meals	–	–	896	1 176	1 568	2 005	1 824
(%)	–	–	0.7	0.6	0.7	0.7	0.7
Paid services	–	–	5 618	6 873	9 555	13 700	15 688
(%)	–	–	4.5	3.8	4.1	4.7	5.8

Source: MoH, personal communication, 2006.

A recent set of initiatives has permitted direct formal payments to health care providers. The Presidential Decree of 10 November 1998 outlined a time frame for replacing governmental funding with other revenue sources for various types of health care provider in the public sector. In the absence of a third-party payer system, direct payments have become a major formal source of revenue.

According to data from the Ministry of Health, the share of revenues from formally paid services in the public sector has been growing gradually in recent years. In 2002, formally paid services amounted to 3.8% of total government funding, a share that increased to 4.1% in 2003 and 5.8% in 2005 (Table 3.11). The number of people who utilize formally paid services has also increased, from 651 400 in 2001, to 790 000 in 2002, and 931 700 in 2003 (MoH, personal communication).

While the ultimate objective of the introduction of formal direct payments was to attract new resources into the health system, the increased range of services requiring formal out-of-pocket payments has resulted in decreased demand, as many patients cannot afford the required payments.

Cost sharing

Cost sharing is almost non-existent in the Uzbek health system. Anecdotally, various forms of cost sharing are being introduced in the voluntary health insurance sector, although no reliable data on the forms and extent of cost sharing in this sector are available.

Informal payments

Although there is only limited hard evidence, it has come to light anecdotally that informal payments were already a feature of health care during the Soviet era (Belli, Gotsadze & Shahriari 2004). With the break-up of the Soviet Union, informal payments have become even more common throughout the region (Belli, Gotsadze & Shahriari 2004).

Informal payments in the Uzbek health context can be defined as payments that go unregistered. While the Law on Health Protection permits voluntary and charitable contributions by individuals as a source of financing for the state health sector (Republic of Uzbekistan 1996), it has been suggested that informal payments now assume a larger volume than formal private health care payments. Informal private practice by publicly employed physicians significantly contributes to informal payments and to the income of health professionals (World Bank 2003). According to the Living Standards Assessment produced by the World Bank in 2003, more than two thirds of health care users have made

Table 3.12 Examples of informal payments in cash, in soms

Tashkent	Djizzak	Ferghana	Namangan
– 225 000 soms to doctor for treatment; 10 000 to doctor for blood transfusion; 15 000 to nurse for injections. – 10 000 to doctor; 20 000 for food and cot. – 10 000 to doctor; 10 000 for cot; 5 000 for X-rays in MDS; 5 000 for X-rays in Emergency Hospital. – 20 000 for prenatal hospitalization; 30 000 for operation; 15 000 for medical services.	– 20 000 for tests, analyses and X-rays; 250 000 to professor; 25 000 for bandages; 10 000 to nurses. – 50 000 to doctor; 12 000 for food. – 60 000 to doctor; 10 000 for analyses, tests and X-rays. – 48 000 to doctor; 1 000 for analyses, tests and X-rays. – 25 000 to doctor.	– 15 000 to doctor as a "thank you"; 7 200 to nurse. – 30 000 to doctor for operation; 2 000 for X-rays, tests, and analyses. – 2 000 to doctor in Andijan; 7 000 to doctor in Margilan as a "thank you".	– 2 000 for tests, analyses, and X-rays; 1 000 for cot; 2 000 to Tabib (traditional healer). – 30 000 for operation; 25 000 to donors; 2 000 to nurse; 3 000 to doctor in ward. – 10 000 for treatment; 30 000 for medicines. – 20 000 to doctor; 10 000 for food.

Source: Nishino, 2002.

informal payments to providers in cash or kind, with cash being more prevalent in urban areas. Informal payments were either requested or given voluntarily and can be in addition to, or in substitution of, official fees (World Bank 2003). Informal payments differ across regions, types of expenditure, medical settings and income groups. According to the World Bank Household Budget Survey in 2001, the biggest burden of out-of-pocket payments was related to medicine, and patients were often required by health facilities to purchase pharmaceuticals exempted from patient co-payments. Informal payments were reported to be less prevalent and lower in facilities and for services that were widely recognized to be free, such as for primary care services, emergency care and immunizations (World Bank 2003). Some examples of informal payments reported in focus groups are presented in Table 3.12.

Informal payments impede the utilization of health services, in particular for the poor. As informal payments are more prevalent at the level of secondary

Table 3.13 Distribution of population paying for health services, by income groups

Location	Income quintile				
	Poorest	2nd	3rd	4th	Richest
Urban	8.1	11.7	15.0	20.6	44.6
Rural	15.2	21.3	22.6	21.7	19.2
Total	**11.2**	**15.9**	**18.3**	**21.1**	**33.5**

Source: World Bank, 2003.

and tertiary care, the poor face particular obstacles in accessing higher quality care (Table 3.13). In addition, the existence of informal and formal payments can result in a poverty trap for those with serious illnesses. As social protection mechanisms are not well developed in Uzbekistan, the likelihood of falling into impoverishment is quite high for those facing serious health problems (World Bank 2003). A qualitative study from one of the *oblasts* (Ferghana) showed that 31% of those with health needs in the lowest income percentile did not seek health care due to a lack of money and 77% had difficulty in finding money to pay for health care (Cashin 2001). The impact of out-of-pocket payments is especially severe in households with more vulnerable members, such as children and individuals with chronic conditions (World Bank 2003).

The World Bank Living Standards Assessment suggested several factors that contribute to the persistence of informal payments in Uzbekistan. Informal payments are made with the aim of ensuring quality of care, more attention by medical staff and a polite attitude. There is also a lack of awareness regarding the basic benefits package, patient rights and the obligations of providers. At present, effective policies and mechanisms against informal payments are lacking, while institutional inefficiencies further contribute to such payments. There are also incentives for patients to receive informal services, since the overall fee negotiated directly between the patient and the provider could be less than official charges (World Bank 2003).

The introduction of official user fees, the greater flexibility in the use of funds and the shift towards self-financing were expected to formalize and reduce the share of informal payments. The Ministry of Health has also endeavoured to address the general lack of awareness about new policies related to benefits, rights and obligations by drawing up a protocol which obliges all health care providers to inform patients through the use of posters displayed in health care facilities about the basic benefits package and prices for chargeable services. It is difficult to evaluate the effects of these initiatives, as (at the time of writing) no new studies on informal payments have been conducted since the publication of the World Bank Living Standards Assessment in 2003.

External sources of funds

External sources of funds are being extensively used to support ongoing reforms and to strengthen the existing health infrastructure. These funds may take different forms: loans, humanitarian aids, direct private investments and technical assistance grants.

A number of technical assistance programmes are being run by international agencies. ZdravPlus (implemented by Abt Associates Inc.), funded by the United

States Agency for International Development (USAID), is an example of one of the major technical assistance programmes. British and Japanese development funds are other major benefactors in the health sector. World Bank and Asian Development Bank loans in primary care and maternity/child health care are examples of loan funds in the health sector.

Technical assistance programmes are developed in close cooperation with the Ministry of Health to align them with governmental reform objectives. A total of US$ 144 million external funds were disbursed in the health sector in the years 2000–2005 and commitments were made to invest further US$ 150 million in the coming 4–5 years (UNDP Uzbekistan 2006a).

Tables 3.14 and 3.15 present an overview of major external health sector investments by area, volume status and implementation time frame.

Other sources of finance

The exact volume of voluntary and charitable funding has not been documented. International charitable funds are channelled to public sector providers through the Ministry of Health.

Parallel health systems comprise a sizable share of public health financing and different governmental agencies – such as the Ministry of Internal Affairs, the national security services, and the Ministry of Defence – run their own health systems. However, as these health systems fall outside the framework of the Ministry of Health, exact financial data are not readily available.

There is no legislation that prevents those eligible for parallel health systems from accessing the system run by the Ministry of Health, and it is not clear if the respective agencies have internal policies for preventing their employees from utilizing the Ministry of Health system. However, as there are no official charges in the parallel health systems and there is comparatively better pharmaceutical coverage, few people who have access to the parallel health systems seem to switch to the general public sector.

3.4 Pooling of funds

In Uzbekistan, the Government acts as the agency that pools and allocates public funding for health care. There is a distinct divide between national (republican) and local (*oblast*, *rayon* or urban) governments with regard to health financing. The national Government is responsible for the financing of specialized medical centres, research institutes, emergency care centres

Table 3.14 Major completed international health sector programmes/projects

Project title	Total disbursements	Implementation timeframe
Early childhood survival	3 719 257	05/2000–12/2004
Feasibility studies on construction of an Emergency Medical Centre in Tashkent	386 000	01/2000–12/2001
Gulistan rehabilitation centre	2 799 320	01/2000–12/2000
Health project	29 529 460	03/1999–01/2005
Improvement of access to STI/HIV/AIDS treatment and care	239 774	12/2004–12/2005
Improvement of the nursing education system in Uzbekistan	2 600 000	01/2004–12/2004
Mother and child health protection system development in Karakalpakstan	4 000 000	01/2000–12/2000
Mother and neonatal care	801 019	05/2000–12/2004
Nurata city maternity hospitals	1 178 410	01/2000–12/2000
Population and Development Strategies (2000–2004)	1 500 000	01/2000–12/2004
Procurement of medical diagnostic equipment for the Republican Scientific Centre for Emergency Assistance	7 500 000	01/2001–12/2002
Procurement of medical equipment for the Republican Scientific Centre of Oncology	4 400 000	01/2000–03/2001
Procurement of medical equipment for the SRI of Cardiology and the SRI of Epidemiology and Microbiology	500 000	01/2001–12/2001
Procurement of medical equipment for Uzbekistan clinics for children	500 000	01/2000–12/2000
Provision of vaccines for children	1 800 000	01/2000–12/2001
Reproductive Health (2000–2004)	5 500 000	01/2000–12/2004
Reproductive Health (2005–2009)	900 000	01/2005–12/2009
Southern Karakalpakstan Water Supply and Community Health Initiative	500 000	10/2002–12/2004
Support for regional health care in Uzbekistan	1 937 001	09/2002–09/2004
Support of reproductive health I	2 198 529	07/2001–12/2005
Tashkent perinatal centre in CAMPI	3 199 760	01/2001–12/2001
Technical equipment for the Republican Centre for Emergency Medical Assistance in Tashkent	9 803 270	01/2001–12/2002
Tuberculosis Prevention Programme I	2 387 520	10/1999–01/2001
Tuberculosis Prevention Programme II	2 198 530	07/2001–12/2005
Tuberculosis Prevention Programme III	2 421 250	09/2002–12/2003

Source: UNDP Uzbekistan, 2006a

Notes: STI: sexually transmitted infection; SRI: Scientific Research Institute.

Table 3.15 Major ongoing or planned international health sector programmes/projects

Project title	Project status	Total commitments	Implementation time frame
Development of clinical skills at Uzbek institutions	Ongoing	318 241	09/2005–09/2006
Emergency medical departments	Pipeline	23 100 000	01/2007–06/2008
Health project	Ongoing	39 676 850	01/2005–01/2009
Supply of medical equipment to the Republican Centre for Emergency Medical Assistance and its regional branches	Pipeline	23 746 000	02/2005–12/2009
Mother and Child Survival, Development and Protection (2005–2006 Programme)	Ongoing	930 000	01/2005–12/2006
National programme for flour fortification	Ongoing	2 517 980	01/2005–12/2009
Population and Development Strategies (2005–2009)	Ongoing	381 000	01/2005–12/2009
Procurement of educational and diagnostic equipment for medical institutions and their clinical bases	Ongoing	3 620 000	01/2005–12/2006
Procurement of medical equipment for oncological centres	Ongoing	2 500 000	01/2005–12/2006
Procurement of ultrasound equipment for screening centres	Ongoing	760 000	01/2005–12/2006
Scaling up the response to HIV/AIDS	Ongoing	3 753 760	12/2004–11/2008
Scaling up the response to malaria	Ongoing	1 701 021	04/2005–03/2009
Scaling up the response to tuberculosis	Ongoing	4 412 645	04/2005–03/2007
Technical cooperation between IAEA and the Ministry of Health	Ongoing	230 000	01/2005–12/2006
Woman and Child Health Development	Ongoing	39 870 000	09/2004–12/2009

Source: UNDP Uzbekistan, 2006a

Note: IAEA: International Atomic Energy Agency.

and national- (republican-) level hospitals. Local governments are responsible for expenditure related to other hospitals, primary care units, sanitary-epidemiological units, and ambulance services (Table 3.16). In 2004, 12% of overall health expenditure in the public sector was covered from the national budget, 30% from the *oblast*, and 58% from *rayon* or urban budgets (Kuchkarov, Haydarov et al. 2004).

Pooling agencies and mechanisms for allocating funds

Health financing in the Uzbek public sector involves two elements: (a) how government health budgets are formed and (b) the allocation process to providers.

Local governments at the *rayon* or urban levels are tasked with the financing of state-guaranteed services for the population in their respective territories

Table 3.16 Health financing: division by level of government

National Government	Local governments (*oblast* and *rayon*/urban)
All medical schools	Medical professional colleges
Institutes of advanced medical education	Hospitals
National specialty centres (such as for cardiology, urology, or surgery)	Primary care units
National-level hospitals	*Feldsher*/obstetrical units
Emergency centres	Ambulance services
	Sanitary-epidemiological system
	Blood transfusion centres

Source: Kuchkarov, Haydarov et al., 2004.

(including outpatient services, specialized inpatient services at *rayon* or urban hospitals, and primary care services by providers that have not moved to per capita financing). Regional governments are responsible for the financing of other health facilities that provide the state-guaranteed package of services in the *oblast* (including specialized *oblast* outpatient and inpatient clinics, and primary care units financed per capita).

Health providers in the public sector annually set their prospective budgets for the next year, based on inputs, norms and past expenditure. These budgets are then pooled by the respective *rayon* or urban health authorities and submitted to the governments at *rayon* or urban levels. After approval by the *rayon* or urban governments, the health budgets of all territorial units are pooled by the *oblast* governments to establish *oblast* government budgets.

Regional health budgets are calculated on the basis of the health budgets proposed by the territorial units and health providers that are directly accountable to and financed from the *oblast* governments. Once the proposed *oblast* health expenditures have been approved by the *oblast* governments, they are pooled by the Ministry of Health. These pooled *oblast* health expenditures are then merged with the budget proposals of care providers that are directly accountable to and financed through the Ministry of Health. The merged budget is submitted

to the national Government (the Cabinet of Ministers) for approval and, once approved, becomes the national health budget.

The financing of health care providers in the public sector follows the prospective budgets drawn up in the previous year. As finances are derived from different levels of government, shortfalls in the government budgets might affect health financing in the respective territories. Significant shortages in health funding will be generally made up for by subsidies from higher governmental levels.

The Soviet model of allocating state funds to public organizations was characterized by a detailed and strict budgeting process according to budget lines, with almost no flexibility to shift funds between different budget lines. This model of allocating state funds had been retained in the financing of the Uzbek health system since independence. The Soviet model, however, was inefficient and failed to address the new challenges brought about by the entry of a private market and competition from the emerging private industry.

In 1999, a Governmental Decree introduced major changes to the budgeting of public organizations (Cabinet of Ministers 1999b). These changes aimed to improve the efficiency and effectiveness of budgetary allocations through increased organizational independence in management and decision-making. The new mechanism introduced a single budget line, with four subcategories. The first two subcategories are related to the funds earmarked for salaries and related expenses. The third subcategory includes funds earmarked for capital investment, which is allocated in line with the annual state investment programme. The final subcategory is named "other expenses" and covers a wide range of possible allocations. Funds allocated as "other expenses", however, have to be prioritized according to organizational needs, such as food, medication and maintenance (including gas and electricity). In addition, the purchase of "luxury" goods and services from these funds – such as motor vehicles, mobile phones, or imported office furniture – requires the prior approval of the Ministry of Finance (Cabinet of Ministers 1999b).

The above-mentioned Governmental Decree also expanded the permitted revenue sources for publicly funded organizations. Public entities are now allowed to produce and sell products or services, to rent unused space and other organizational assets, and to receive and use funds from sponsors. Half of the revenue received from rent stays with the organization, while the other half is channelled to local government accounts. These additional revenues are exempted from all taxes from the year 2000 to January 2008, provided the additional funds are used to strengthen the infrastructure of the organization and to supplement employee salaries (Cabinet of Ministers 1999b).

In order to facilitate the monitoring of how state funds are used under the new arrangements, public organizations are required to have two separate accounts: one solely for state funds and the other, called "development accounts", for other sources of revenue. Development accounts draw on revenue from rent, the sale of products or services, unused state funds from the previous year, and contributions from sponsors. Up to 25% of funds in development accounts can be used to supplement employee salaries or benefits. All funds from sponsors are used to strengthen the infrastructure, if no other stipulations have been made by the sponsor (Cabinet of Ministers 1999b).

A Presidential Decree in December 2005 introduced further changes to development accounts (see Subsection 3.6, Paying health care personnel).

3.5 Purchasing and purchaser–provider relations

In terms of purchaser–provider relations, the Uzbek public health system follows an integrated approach, although in recent years a reimbursement model has (to some degree) been introduced. The private industry does not draw on resources from pooled funds, and health care delivery in the private sector is provided primarily on a fee-for-service basis, covered by out-of-pocket payments.

In the public sector, the organizational relationship between purchasers and providers of health services differs between the primary care system (rural primary care units, SVPs) and specialized care (both outpatient and inpatient).

Currently, SVPs can be divided into those functioning under the new per capita financing arrangements and those financed according to budget lines. As part of the national health reforms, per capita payments have been introduced in 3 of the 12 *oblasts* and are planned to be rolled out nationwide in the period 2005–2010 (see Chapter 7). Under these new financing arrangements, SVPs are expected to provide a package of services to the enrolled population free of charge, covered by state funding per enrolled population. This type of organizational relationship does not exactly fit with any of the common organizational models. Although the SVPs included in the reforms are *de jure* tasked with the provision of specified services for the per capita financing they receive from local governments, de facto no contracts exist: health facilities are government owned, and all health personnel are government employees. Two mechanisms are used for the regulation of organizational behaviour: financial incentives and protocols. Although financial incentives for the improvement of

the efficiency and quality of care exist, the most prevalent mechanism continues to be protocols drawn up by higher levels of management.

The regulation of the organizational behaviour of the inpatient, specialized outpatient and emergency care providers in the public sector is much closer to the integrated model. Government funding of these providers is strictly based on line-item budgeting, and financing mechanisms are not used as a management tool. Administrative protocols and hierarchical management are the prevalent tools for regulating organizational behaviour.

However, there are also new developments in the financing and management of inpatient care providers, such as a pilot initiative for four tertiary care provider facilities (see Chapter 7). New mechanisms will change the existing purchaser–provider relationship, with a shift from an integrated model to greater use of contracts.

The four pilot facilities have been allowed greater autonomy in terms of management, staff planning and service pricing and delivery. The heads of these institutions are currently appointed by the Government (the Cabinet of Ministers). According to the relevant Governmental Decree, transfer of ownership from the Government to the employees will take place in the near future. All government assets in these institutions will be sold to the employees at preferential prices. This should result in a clearer distinction between providers and purchasers, with the Ministry of Health purchasing services from these institutions for a defined part of the population. At the same time, however, some features of the integrated model have been kept.

These pilot tertiary care providers are reimbursed by the Ministry of Health for the treatment of patients who qualify for state funding. All other services need to be reimbursed from other sources, primarily out-of-pocket payments. As this process has just started, specific regulations to prevent hazardous practices and provider-induced demand are not yet in place, although some existing regulations might help to limit such excesses. A limit of up to 20% of bed capacity, for example, can be reimbursed by the State, and special approval by the Ministry of Health needs to be obtained by the patient before his/her care is eligible for reimbursement. However, some of these regulations seem to result in changes that might require further regulation. As there is no defined expenditure ceiling per patient for those eligible for state funding, for example, this has led anecdotally to selection bias: those with potentially the highest expenses seek Ministry of Health approval for state reimbursement.

3.6 Payment mechanisms

Paying for health services

Reimbursement pathways for health services in the Uzbek public sector can be differentiated according to the type of care provided. There are three main reimbursement pathways in paying for health service provision:

- prospective global budgets based on per capita payments for primary care in rural areas (in areas where the per capita reforms have been introduced);
- prospective global budgets based on past expenditure and inputs for primary care in urban areas, specialized outpatient and inpatient care, and public health services in the sanitary-epidemiological system;
- retrospective payments of full cost within a fixed price context for the four pilot institutions in tertiary inpatient care.

The introduction of capitation-based payments is one of the major shifts away from the Soviet financing framework that the Uzbek health system has taken. Nationwide, SVPs are included in a capitation-based payment system. Per capita payments are in place for the covered population, with adjustments for age and gender. Importantly, under the new arrangements these per capita rates are calculated at the *oblast* level, which helps to spread risks more evenly and to level off the impact of geographical income differentials on health financing in primary care. This payment system does not differentiate between different health services and includes all expenses related to the running of primary care practices. Per capita funds received can be spent according to the four budget lines set by government protocols. These per capita rates are set annually by the *oblast* governments and depend on the size of the respective *oblast* health budgets. No strict protocols exist that define the share of primary care funding in the overall health budgets.

A second health financing mechanism is based on the inputs involved in health care delivery and on past expenditure. The inputs that are used for the calculation of budgets are the number of beds in inpatient care and the number of patient visits in outpatient care (urban primary care and specialized outpatient care providers). In the budget calculation, these inputs are linked to predefined ratios of staff to inputs. In the sanitary-epidemiological system, inputs are defined in terms of staff. Other budget items are mostly based on past expenditure, such as expenses for maintenance.

The above-mentioned new pilot financing systems initiated at the four tertiary care providers are similar to a system of "full cost" retrospective reimbursement. Patients who receive approval by the Ministry of Health for reimbursement will

pay for all required services and will then be reimbursed retrospectively by the Ministry of Health. The charges by the health care provider cover the full costs of services plus a mark-up of up to 25%.

Case-based reimbursement mechanisms for inpatient services (diagnosis-related groups, or DRGs) are also planned, to be piloted jointly by the Ministry of Health and international agencies (USAID-funded ZdravPlus and World Bank).

Paying health care personnel

Health care professionals in Uzbekistan are paid differently, according to whether they work in the public or the private sectors. The private health sector is subject to little regulation regarding who should be paid what amount. Private health care companies establish salary structures themselves, so that payment mechanisms and salary levels differ from company to company. This is also the case for individual private practices in their employment of health professionals. Reliable data on salaries and payment mechanisms in the private sector are not available.

In the public sector, employees are salaried and paid according to strict guidelines from the Ministry of Finance, which apply throughout the country. These guidelines differentiate salaries depending on position (such as head, physician, nurse, or unskilled worker) and qualifications. The workload of each position is regulated in quantitative terms, specifying for example the number of patient consultations, or of inpatient care beds. The qualifications of health professionals are determined by special national commissions (such as, in the case of physicians and pharmacists, the National Centre for Licensing and Accreditation) depending on the results of interviews and examinations. There are four categories of qualifications: highest, first, second, and third. Allocation to a higher category results in specified salary supplements. This payment mechanism, however, does not generally emphasize improvements in the productivity, quality and efficiency of care. As a result, managing through a set of disincentives – that is, compliance with administrative protocols – remains the primary management tool.

Minimum salaries for each position are defined by guidelines from the Ministry of Health. Salaries are generally paid by state-allocated funds. Further increases are possible, but should be funded from sources other than state funds, through the external funding accounts of health care providers. Government initiatives in recent years have aimed to give health care providers the opportunity to use financial incentives as management tools. The Governmental Decree establishing separate accounts for non-state funds in public organizations

was one of the major initiatives in this direction. As mentioned above, up to one quarter of the funds in these accounts can be used to supplement employee salaries (Cabinet of Ministers 1999b). Organizations are free to determine the recipients and the amounts of the supplements. However, it should be noted that although the share of non-state funds has been increasing over recent years, it still only accounts for a small share of overall health care funding in the public sector. In 1999, non-state funds accounted for 2.8% of overall health funding in the public health sector, a share that was expected to increase to 7.2% in 2005. Furthermore, anecdotal evidence suggests that the bulk of non-state funding is generated by only a few major health care providers. However, data on how public organizations exercise their right to use these funds as incentives for their employees are lacking.

These latest government initiatives have increased health care providers' flexibility in reimbursing health professionals, providing financial incentives as a management tool. One example is the management and financing pilot carried out in four tertiary care institutions (see Chapter 7). This pilot granted the respective institutions the freedom to determine employee reimbursement frameworks and to emphasize incentives for efficiency, quality and productivity.

The most recent Presidential Decree, issued in December 2005 (President of Uzbekistan 2005a), further emphasizes the role of financial incentives and aims to introduce into the health system reimbursement mechanisms that:

- take into account certain personal contribution factors, as well as the quality and complexity of the work performed;
- help to retain health professionals in rural areas and in specialized health care provider facilities;
- empower the management of care provider institutions to evaluate objectively and to reimburse adequately health professionals.

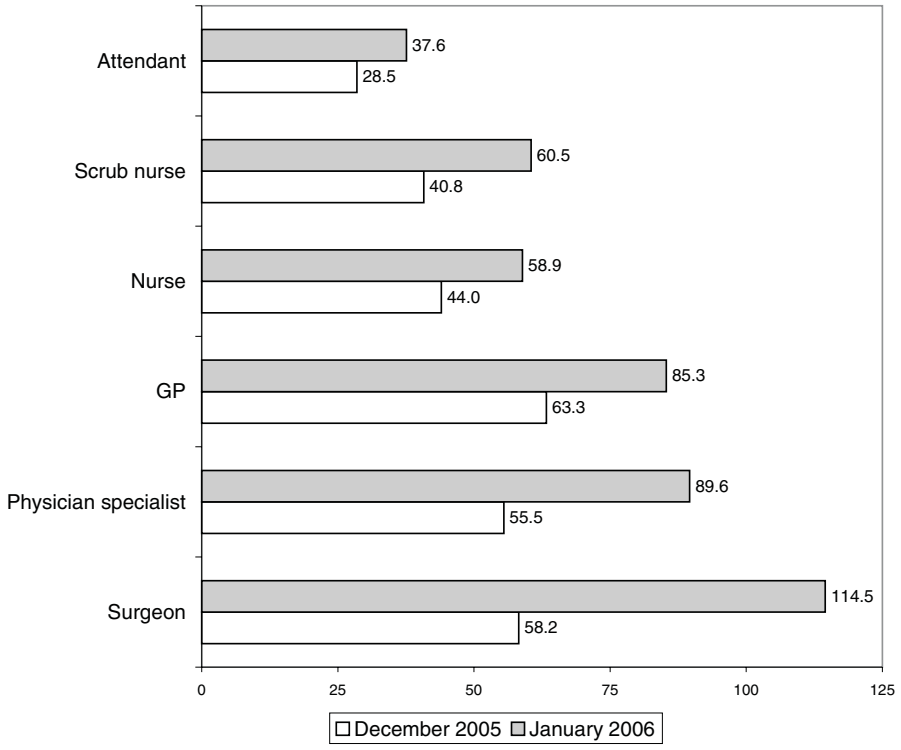
In line with these aims, the document introduces:

- an amended financial reimbursement mechanism taking effect in January 2006 that differentiates staff reimbursement by type of provider, position, qualifications and supplemental coefficients, and builds on an existing 11-grade health sector wage grid (Fig. 3.6);
- pay increases of 25–35% to (a) physicians of the following specialties: neonatologists, neurosurgeons, cardiac general surgeons, microvessel surgeons; and (b) health professionals working in the following departments: tuberculosis, anaesthetics, resuscitative care, intensive care, pathology, radiology and laboratories dealing with pathogens;
- a change in the health care providers' extrabudgetary accounts, introducing "development and financial incentives" accounts.

Under the new arrangements, up to 5% of the allocated public budget will be channelled into this development and financial incentives account, with additional funds coming from sponsors, unutilized public funds, and fees received for designated services. Funds from this account can be spent on financial incentives for staff or for structural strengthening or reconstruction. The share of expenses between these two budget lines will be determined by the Ministry of Health, the Ministry of Finance, and the Ministry of Labour and Social Protection according to types of health care providers.

At present, salary rates for health professionals in the public sector are comparatively low. On average, the basic monthly salaries for physicians in the public sector range from US$ 50 to US$ 100, and the salary rates for nurses are slightly lower (Fig. 3.6). Anecdotally, some public health care providers, mostly among those providing tertiary care, pay their health professionals salaries that

Fig. 3.6 Estimated monthly wages for health care workers following the 2006 reforms



Source: Langenbrunner, Salikhova & Karimova, 2006.

are several times higher than the average rates and on a par with salaries in the private sector. However, these providers only constitute a small portion of the public sector. In particular, there are insufficient financial incentives for health professionals working in primary care. The salaries of general practitioners (GPs) remain below the salaries for specialists and surgeons. There are also concerns about the high administrative burden associated with the new payment system (Langenbrunner, Salikhova & Karimova 2006).

4 Planning and regulation

Health care in Uzbekistan forms part of the social policy of the State, which also covers employment, income generation, social protection, pensions, education, support to women and consumer rights. The Uzbek health system can be characterized as a quasi-integrated system. The country inherited an extensive network of health care facilities, owned and operated by the Government, from the Soviet Union. The organization of Soviet health care was based on the Semashko model, an integrated model of health care, in which the State was the principal provider of health care and the sole provider of health care within the statutory system. Since independence, the health system has not been exposed to extensive privatization and continues to be owned to a large extent by the Government, with the exception of dental care and the pharmaceutical sector. Public health care providers consist of primary care facilities, polyclinics, hospitals and research institutes with both inpatient and outpatient capacity, and sanitary-epidemiological centres.

Departing from the Semashko model, the Uzbek Government has encouraged the setting up of private practices and clinics, in order to mobilize additional resources and to raise efficiency and quality. There has been a gradual increase in private health care providers since independence (MoH Department of Licensing, personal communication). Private services are based on private payment arrangements between providers and patients or third parties (such as employers, the Government, or insurance companies) based on a fee-for-service model. In the past, the private sector had been limited to single practitioners providing outpatient services. Nowadays, the private industry has significantly expanded, with many new clinics entering the market and providing specialized outpatient, inpatient and emergency care services.

The public sector has further distanced itself from the integral Semashko model by introducing new fiscal arrangements for the compensation of medical

services within the public sector. Secondary and tertiary care institutions have adopted mixed funding arrangements, whereby most of the services outside the government-guaranteed benefits package are provided on a fee-for-service basis. The Government's share in the budget of these organizations is to be gradually reduced (see Chapters 3, 6 and 7).

The existing health care system in Uzbekistan is therefore a unique blend of public and private health care providers. The changed functions of the Government in regulation and planning affect mostly public providers, while the private industry is mostly regulated by market forces and business-related government initiatives.

4.1 Regulation

This section discusses the main government bodies involved in the regulation of health care in Uzbekistan, the scope of regulation they exercise, their regulatory methods, and the use of health targets or health plans as a regulatory tool. Regulation in the Uzbek health system is the prerogative of the Government, with little or no role played by nongovernmental organizations (NGOs). As the Uzbek public health care system still largely follows the integrated model, almost all providers are government-salaried employees. Public funds are not used for purchasing services from the private sector, for which a purchasing process per se does not exist, nor is this sector regulated, or used as a tool.

The best way to approach the regulatory functions of the Government is to describe them from the perspective of the public and private sectors. In the private sector, the Government initially strictly limited the involvement of health authorities in the operations of private providers, in order to facilitate the growth of the private sector. The role of government health agencies in regulating the private industry is mostly limited to licensing and the accreditation of professionals or institutions.

The public sector, in contrast, is heavily regulated by government agencies. Involvement varies according to the level of government. At national level, the Government is mainly concerned with strategy setting and assessing the population's health, while at lower levels (*oblast* and *rayon* levels) it is mainly responsible for the management and implementation of national policies. As there is only limited policy formulation at local level, the stewardship role of the Government expresses itself differently at different levels. The greatest leverage is invested in agencies at the national level, while lower levels act as enforcers of nationally adopted regulations and policies.

It should be noted that the public health system in Uzbekistan is strictly hierarchical. The most prevalent mode of regulation is policy formulation. Subordinate levels of the health system are expected to follow the policies set by higher levels. Fiscal and other forms of incentives do not form part of the system used for regulating health care providers.

Regulation at national level

At national level, the Government regulates the health sector through a number of organizations. The Cabinet of Ministers, the President and the Parliament are involved in the development of a vision for the health of the population and of directions for health care development. These bodies are the main players who set priorities, formulate national health policies, and determine means and identify sources for carrying out these policies. However, other agencies, such as the Ministry of Health, the Ministry of Finance and the Ministry of Justice are extensively involved in the policy development process and consulted before the final policy documents are adopted. With the move towards a bicameral parliamentary system which started with the 2004 elections, it is expected that the lower chamber of Parliament, the Legislative Parliament, will become a major player in the formulation of health policies.

The Law on Health Protection of 1996 is the main document outlining the areas subject to regulation by different players in the health sector (Republic of Uzbekistan 1996). The Cabinet of Ministers and the Ministry of Health are charged with competencies such as:

- defending the rights of individuals to health protection
- developing the national health policy and ensuring its implementation
- financing the health sector and programmes for the development of medical science
- managing, coordinating and controlling the public health sector
- controlling the sanitary-epidemiological status of the population
- ensuring a unified system of statistical reporting in the health sector
- defining the state-guaranteed benefits package for vulnerable groups of the population.

The Ministry of Health, the Ministry of Finance and the Ministry of Justice are the main institutional actors involved in the development of detailed policies and regulations and the implementation plans for government priorities and objectives. They are also responsible for evaluation and monitoring, and information management.

Access to health care-related information is limited to governmental agencies. Clear and well-structured mechanisms ensuring public access to agency reports and documents are not yet in place. Public transparency was not part of the Soviet style of management and the system requires the establishment of a whole new set of facilitating frameworks and structures.

The Ministry of Health is predominantly involved in planning, managing and regulating the health services. It formulates its own institutional decrees and protocols to ensure implementation of governmental aims and objectives. These documents are developed by the relevant departments of the Ministry. The respective departments are also, in most cases, responsible for monitoring and evaluation. Within the Ministry of Health, the Department of Treatment and Prevention is mainly responsible for the overall management of the health system, supported by the the Department of Economics and Financing and the Department of Human Resources, Science and Educational Institutions (human resources planning). The Ministry of Health issues planning guidelines for the distribution of financial resources and the management of health care facilities at the *oblast* level.

Budget setting and the monitoring of budget expenditure for the institutions at national level (see Chapter 2) are the responsibilities of the Ministry of Health. The Department of Economics and Financing of the Ministry of Health works in coordination with the Ministry of Finance to ensure that allocations from the budget are spent as planned. All national institutions receive budgetary funding from the Ministry of Finance via the Ministry of Health.

In the years since independence, national priority health policy areas have included the protection of women and child health (Cabinet of Ministers 2001), the prevention and control of infectious diseases, environmental protection and the development of primary health care (President of Uzbekistan 1998). The majority of the national plans have been in the domain of health services (structure, finance) with the implicit aim of improving accessibility, equity and quality of care.

The most prominent example of such documents is the Presidential Decree of 10 November 1998 on reforming the Uzbek health system (President of Uzbekistan 1998). The document identified priority areas in the health system, including maternal and child health, the development of the private sector, quality of care and a state-guaranteed package of medical services free at the point of delivery. In addition to identifying priority areas, the document also sets some clear targets to be achieved in the form of structural indicators. Examples of some of the structural indicators and objectives are:

- transformation of the sanitary-epidemiological sector into a single organizational structure within the Ministry of Health by 2000;

- transition to a country-wide two-tiered primary care system by 2005.

The document also defines the role of the Ministry of Health in the health care sector. According to the Decree, primary responsibilities of the Ministry should be:

- the development of a regulatory framework with quality standards in the health care sector, including monitoring of compliance;
- implementation of governmental health programmes;
- financing of primary care within a government-guaranteed package of medical services;
- licensing and accreditation of health care institutions, pharmacies and health professionals;
- regulation of prices for medical services;
- licensing of pharmaceuticals.

While these policies include some elements of the targeted health plans, they mostly emphasize structures and process inputs (such as the number of primary health care units built or the number of personnel trained). An emphasis on outcomes is lacking, possibly compromising the achievement of the ultimate goals set out by these documents: quality, efficiency and access.

Regulation at local levels

Government regulation at the subnational level is carried out by *oblast* and *rayon* (or urban) health authorities. Regional health administrations are responsible for the management of health services in their territorial units (see Chapter 2). They allocate resources to health care facilities based on guidelines determined by the Ministry of Health. Regional administrations are supposed to take responsibility for preparing strategies for the development of the health system at the *oblast* level, and each *oblast* establishes its work plan for implementing national health care priorities.

The *oblast* health authorities are responsible for ensuring an appropriate supply of pharmaceuticals and medical equipment in their *oblasts*. They are also responsible for providing appropriate health care services to the population in their *oblasts* and for directly providing sanitary-epidemiological and ambulance services. The responsibilities of the *oblast* administration also include the provision of rehabilitation services for disabled people, fund raising for health activities and services, and social protection.

The Ministry of Health is responsible for the implementation of nationally set protocols and policies at the local level. Local governments can only issue local policies that do not contradict national policies. Local policies are used

as regulatory tool at the local level, but carry less weight than those from the national level. On the whole, local government representatives (such as governors or health authorities) ensure implementation of and compliance with national guidelines.

According to the Law on Health Protection, local authorities are, inter alia, charged with the following responsibilities:

- ensuring compliance with and implementation of legislation in the health sector;
- defending the rights of individuals to health protection;
- ensuring access to primary health care and social care;
- controlling the quality of medical care, compliance with medical protocols and the provision of pharmaceuticals;
- coordinating and controlling all institutions involved in health care delivery;
- creating an environment which facilitates the development of the private sector.

Regulation and governance of third-party payers

Currently, a very small share of health financing is channelled through third-party payers and no specific regulations or frameworks for third-party payers exist.

Regulation and governance of providers

In Uzbekistan, health care services are provided by the public and the private sectors. Public providers include different types of hospitals (rural, *rayon*, *oblast* and national), specialized centres, general polyclinics, specialized outpatient clinics, and rural primary care units. Private providers include mostly single (solo) practitioners and outpatient or inpatient clinics. In this subsection the regulation and governance mechanisms with regard to health care providers are explored, considering in turn the public and the private sectors. This is followed by a discussion of reform efforts and initiatives directed at improving performance through regulation and governance.

There are no restrictions on the kinds of private providers that can access the health care delivery market. The only criteria are that health professionals and health care delivery institutions are licensed by the Ministry of Health and meet other requirements set out for private businesses or NGOs.

Private health care providers are free to establish their own governance and management arrangements. There are no data available on the existence or number of private non-profit-making providers. Private providers are generally considered to be commercial enterprises and are governed by the same regulations and agencies as these commercial undertakings, irrespective of whether they work for profit or not.

In contrast to the newly emerging private industry, the governance and management structure of public providers has not changed much since the Soviet period. Hospitals are managed by the head physician, who is exclusively responsible for all hospital activities, and clinical and nonclinical outcomes or outputs. Depending on the size and type of the hospital, the head physician is allocated a number of deputies responsible for clinical aspects, infrastructure and similar issues.

The next level of the management hierarchy comprises the heads of departments. They are "operational managers", responsible for the day-to-day running of departments and have both clinical and nonclinical responsibilities.

Commencing in 2003, the Government initiated a pilot project introducing new methods of governance and management for public providers of specialized care (President of Uzbekistan 2003) (see Chapter 7). If successful, this governance framework might be replicated at national level by other public providers of inpatient care.

According to the reorganization of primary care that is being introduced throughout the country, primary care providers consist of polyclinics (mostly in urban areas) and SVPs (see Chapters 6 and 7). Urban polyclinics have a management and governance structure similar to that of hospitals. A head physician is responsible for the management of the clinic and, in large polyclinics, is assisted by deputies. SVPs, due to their small size, have a much simpler management structure, although they also have a head physician, even when they employ only one physician.

The head physician, whether of a tertiary care hospital with 500 beds or of a primary care provider covering a population of a few thousand, is the formal "manager" of the public provider and is expected to have a medical degree.

Each level of government provides reports on the quality of health care provision. These reports are mainly limited to structural and outcome indicators defined by the Ministry of Health. The data are consolidated and analysed by the Ministry's relevant departments, and then reported to the Parliament, the Cabinet of Ministers, the President, and relevant subunits and commissions.

Monitoring bodies at all levels can impose administrative or fiscal penalties, which in the case of individuals range from formal reprimands to dismissals.

Reform efforts

The current arrangement, requiring a medical degree for management positions, is a legacy of the Soviet period. It has become questionable in recent years, due to the increasing emphasis on quality, efficiency and competitiveness. The Government has realized that training in medical schools does not automatically equip physicians with the skills required to effectively and efficiently run organizations in the new economic context, and has aimed to bridge existing gaps in managerial skills. Reforms have focused on three areas: primary care, hospital management and undergraduate medical training.

At the SVP level, the Ministry of Health has, since the late 1990s, trained general practitioners (GPs) in management skills, in conjunction with international organizations. USAID/ZdravPlus has been a key partner in the development and delivery of management courses. In addition, in SVPs a new management position has been created. These managers are not required to have a medical degree and are responsible for the nonclinical aspects of running a practice. The need for this new position arose partly due to the changes in financing (capitation payments) which require rural practices to act as quasi-enterprises with their own bank accounts (see Chapter 7).

Efforts to improve hospital administration started in the early 1990s. The American International Health Alliance, supported by USAID, facilitated a partnership between leading United States schools on hospital administration and Uzbek counterparts. A number of workshops, seminars and exchanges were organized for hospital administrators.

A course on health management and marketing has been included in the national curriculum of medical schools. The United Kingdom's Department for International Development (DFID), the Association of Schools of Public Health in the European Region and the American International Health Alliance played important roles in supporting the Tashkent Medical Academy (named the Second Tashkent Medical Institute prior to the 2005 merger) in developing a management programme. Later, other medical institutes throughout the country also participated in the process.

In addition to efforts to improve the management skills of health providers, the Government has gradually replaced the administration principles based on central command and control with a system that devolves more responsibilities and functions to health care providers. Most of this shift occurred with regard to financing issues, as public providers were allowed to charge fees for services and to manage their revenue from paid services (for more details, see Chapters 3, 6 and 7).

However, delegation of control over salary scales and the number of staff has been very limited. The number of staff is mostly determined by the size

of the covered population or by fixed capacities, while salaries are defined by governmental guidelines. That said, health care providers have acquired some flexibility over payment increases from non-budgetary funds, but, as mentioned above, no data are available on how organizations have taken advantage of this opportunity to increase the remuneration of their staff or on how this has affected the quality or efficiency of services.

4.2 Planning and health information management

Health technology assessment

Until the 1990s, technology assessment in the health sector was the domain of central agencies at the national level. While this structure may have been appropriate for the Soviet Union, with its single market and strictly regulated access to products and services, it became redundant when multiple markets emerged following the break-up of the Soviet Union. Many NIS lacked the capacity to carry out sophisticated technology assessments in the years after 1991.

In Uzbekistan, health technology assessment was mainly limited to the assessment of the safety of pharmaceuticals. The results of these assessments have been linked to the licensing procedure which granted access to the national pharmaceutical market.

Assessments are carried out in two steps. First, the product is licensed to gain access to the Uzbek market or to be included in the pharmaceutical formulary. In this case, several characteristics of the pharmaceutical are taken into account, such as efficiency, effectiveness and cost, based on the trials performed by pharmaceutical companies. Second, every group of pharmaceuticals entering the market is assessed in terms of health and safety. Only upon approval is the retailer allowed to sell it.

With regard to medical equipment, an assessment is now required for any equipment to gain access to the Uzbek market, when publicly financed purchasing is carried out centrally, and the Ministry of Health or other relevant public bodies are responsible for the registration (licensing) of the equipment. Examples of such cases could be the purchases conducted within the World Bank primary care project "Health II", or centralized purchasing for emergency centres. In other instances, distributors of medical equipment are required to obtain prior permission when selling on the Uzbek market.

No data are available on regular systematic assessments of clinical procedures. There seem to have been a number of unsystematic assessment initiatives at major health care institutions. While they might have affected policy-making at the institutional level, it is unclear how these assessments were carried out and how any changes due to their results were implemented.

With the quality of care receiving more attention in recent years from Uzbekistan's Government and international agencies, several initiatives have been directed towards a more systematic process of health technology assessment. The launch of the Evidence-Based Medicine Centre within the Tashkent Institute for Advanced Medical Education, supported by ZdravPlus on behalf of USAID, could contribute to the entry of health technology assessment into the clinical arena. Although the Centre's activities are mainly concerned with the management of clinical conditions and not with health technology assessment per se, in the future the Centre might contribute to the development of national and institutional policies related to health technologies.

Since its launch in April 2004, the Centre has produced a manual on the methodology for the development of clinical practice guidelines and two clinical guidelines, on anaemia and hypertension. The development of clinical guidelines is based on "SIGN 50: A Guideline Developer's Handbook", a manual developed by the Scottish Intercollegiate Guidelines Network. Dissemination is mainly undertaken by international agencies, and guidelines are generally disseminated through pilot initiatives.

Other quality-improvement initiatives, supported mainly by ZdravPlus, are three clinical care improvement projects piloted in Ferghana *oblast* on iron-deficiency anaemia, hypertension and child health at primary care level, which are being replicated through the World Bank and Asian Development Bank projects. In addition, a course in quality improvement was developed to equip mid-level managers at *oblast* and *rayon* levels with the skills necessary to initiate and facilitate facility-based quality-improvement projects, delivered through training institutions. In 2004, the first central Asian conference on improving the quality of care took place in Tashkent, bringing together over 100 participants.

Information systems

Uzbekistan has inherited a very comprehensive data-collection system from the Soviet period. The Soviet system, on which the Uzbek data-collection system is based, was primarily built to support the planning and control functions of the central Government in Moscow (Lippeveld [unpublished paper]). Despite

efforts at modifying the system, the current data-collection system is fragmented, collects too many data that are poorly processed, and is rather disconnected from daily needs.

Public health facilities are required to report data to different data-collection agencies. Five major data-collection mechanisms can be identified (Lippeveld [unpublished paper]; Olson 2003).

1. *Ministry of Health*: the Institute of Health collects data from all public health care facilities through so-called *Rayon* Organizational and Methodological Units. The collected data are then pooled at the *oblast* branches of the Institute of Health, and then in turn at its central branch in Tashkent.
2. *Sanitary and Epidemiological System*: data collection for the sanitary and epidemiological services operates separately from the Institute of Health system. It is mainly concerned with data related to infectious diseases and hygiene and is the pathway most often used for decision-making purposes at all levels. Data are collected from all public health care facilities. They are first pooled at the sanitary and epidemiological units at *rayon* level, and then at the *oblast* and national sanitary and epidemiological departments.
3. *Programmes*: national programmes develop their own reporting systems for monitoring and evaluation purposes. Examples of such a data-collection system are the Tuberculosis Research Institute with its nationwide dispensary system and the nationwide HIV/AIDS network.
4. *State statistics*: the Ministry of Macroeconomics and Statistics requires separate reporting of health data through its *oblast* and *rayon* branches. This data-collection system covers indicators on mortality, births and logistics.
5. *Parallel health systems*: parallel health systems maintained by the National Security Service, the Ministry of Internal Affairs, Uzbek Airlines and other ministries or companies use separate reporting systems. Some of the data collected by these parallel systems might, however, at some stage be incorporated into the data-collection systems of the Ministry of Health or the Ministry of Macroeconomics and Statistics.

Patient records are the legal reference point for most health data collected by the various data-collection systems. In most cases, patient records are kept at the primary care level at which they are registered. These patient records are, generally, notebooks written by hand and stored at the reception area of the primary care unit.

All data-collection systems function independently from each other. It is not entirely clear how far the data-collection systems are coordinated or if any data are pooled at the different levels of data collection. The Institute of Health is the primary data-collection agency for the Ministry of Health. Although the Sanitary and Epidemiological Services form part of the Ministry of Health, they collect data relevant to their functions of infectious diseases control and health promotion separately from the Ministry of Health system.

In 1999, the Department of Statistics at the Ministry of Health was merged with the Information Centre and the Computing Centre at the Ministry of Health to form a new department with expanded responsibilities, the Republican Information and Analytical Centre. In addition to data collection, the Centre was responsible for the development of information systems, IT and data analysis. Although data collection was still seen as its main domain of activities, it has played an important role in establishing national strategies and policies with regard to data collection and the development of IT in the public health care system. The Centre and all its responsibilities were incorporated into the Institute of Health in April 2005.

Based on the collected data, the Institute of Health produces a number of different regular reports which are distributed to relevant agencies within the Ministry of Health. All these reports are designed to facilitate decision- and policy-making at national or *oblast* levels, with hardly any attention to local (*rayon* and facility) levels. Data collection heavily focuses on quantitative indicators which might be related to the predominant use of data for planning and control purposes. However, the lack of analytical and statistical training for policy- and decision-makers, as well as within the Institute of Health, somewhat limits the usefulness of the collected data.

Data collection within the Institute of Health system is carried out manually at all levels, except at national level, where all data pooled from the *oblasts* are (manually) entered into an electronic database. The data-collection process conducted by the Institute of Health is currently limited to the public sector, partly due to the fact that the private sector is still in the early stages of development and currently consists mainly of solo practitioners, with only a few medical groups and clinics situated in the capital and larger cities. At present, there are no effective tools or systems to ensure accurate collection of data in the private sector and positive incentives for accurate reporting are lacking. In addition, although the Government has streamlined the data-collection process in recent years, the scope of data collection is still immense, with 213 indicators to be submitted by the different players in the public health care sector (Streveler 2004). The public agencies responsible for data collection would require additional resources for the collection, monitoring and processing of data from the private sector.

In view of the recent expansion of the private sector, in which no data collection is performed, and increasing barriers to accessing care (such as out-of-pocket payments and limited pharmaceutical coverage), some health indicators reported by the Government have to be treated with considerable caution. Statistics on many conditions manageable at the outpatient level, including some communicable diseases, may be underestimates. With regard to the indicators not influenced by the above-mentioned factors, for example where services are free and/or exclusively provided by the public sector, the public data-collection system provides comparably reliable data, including on general mortality and physical and human resources.

In order to obtain data that are not well captured by the public data-collection system, a number of surveys have been conducted in recent years. An important example is the series of DHSs conducted jointly by the Ministry of Health and USAID. The first DHS, primarily concerned with reproductive health, was conducted in 1996. The following survey (2002) significantly increased its scope and provided important insights into a number of indicators, including cholesterol levels and the prevalence of AIDS.

Research and development

For many years after Uzbekistan's independence, the system of funding research continued to be based on the Soviet model, despite the rapidly changing environment. In this system, the Government was the primary source of funds and all funding was devoted to government institutions involved in science and research.

However, in the allocation of funds to these institutions, research funding was not explicitly earmarked and separated from other expenditure. This resulted in an unclear demarcation between institutional expenditure and actual research funding. With reduced governmental funding in the 1990s, a higher proportion of resources were allocated to non-research activities, such as salaries and maintenance, with only residual funding going to research.

Furthermore, resources allocated to research were largely controlled by the managers at research institutions, who directed them according to their preferences and other competing needs. Even more importantly, the system of research funding was not directly linked to research outputs. It encouraged inefficiency and lacked the leverage to direct scientific potential towards clearly defined priorities.

In 2002, a Presidential Decree was issued to reorganize the sciences both structurally and financially. The aims of the organizational changes were to establish a new framework which would facilitate scientific-technological

progress, target scientific potential according to governmental priorities, and improve the quality, efficiency, effectiveness and applicability of research (President of Uzbekistan 2002).

Following the adoption of the Decree, a new coordination body headed by the Prime Minister was established, charged with the following tasks:

- coordination and guidance of scientific developments in the country;
- identification of priority areas for investigations in line with the structural and organizational reforms carried out;
- evaluation and approval of large-scale investigations and research projects;
- approval of annual state-funded scientific programmes and projects; and
- development of a framework to support young researchers.

This coordination body set up the National Centre for Science, which is the agency responsible for the operational aspect of activities, and the Expert Council, dealing with large-scale research programmes.

The Presidential Decree has not limited scientific activities to the priorities defined by the National Centre for Science and the Expert Council. Priorities set by the Centre and the Council only apply to those investigations which are funded by them. Public and private institutions are allowed to initiate and fund research according to their own priorities.

Public institutions involved in health-related research can be divided into research institutions (15), specialized centres (20) and educational institutions (such as medical or nursing schools).

Under the new arrangement, scientists apply for grants independently or in teams. Applications are reviewed by the relevant expert committees within the National Centre for Science and the Expert Council. Funding is to be spent according to the submitted budgets, covering the funding of staff, travel and other expenses. This financial flexibility is a significant change from the previous system. Twenty per cent of funding will be transferred to the institution at which the investigator is situated, allowing for competitive recruitment of scientists by the institution in question.

The new financing arrangement addresses shortfalls of the previous system, which have become obvious in recent years. First of all, the funding is earmarked to be allocated to research only, in contrast to the previous system where it had been blended with other expenses. Earmarking not only helps in tracking governmental spending, but also increases accountability by linking funding more closely to outputs. Furthermore, all government-funded research is to be brought under the same institutional framework, which it is hoped will improve the link between governmental priorities, research and practice.

The arrangement also facilitates competition, with a potential improvement in innovation, quality and efficiency.

Research activities under the new system are differentiated according to the following categories:

- programmes funded by the Government
- innovative programmes (assessing or developing new technologies)
- funds for young researchers
- initiative programmes (based on the interests of researchers)
- international grants.

The first three categories will be considered for governmental funding.

The main bulk of health-related research is conducted by independent researchers, funded either by institutions or from personal resources. The main impetus for research is that it is a requirement for obtaining a scientific degree. In 2003, there were a total of 533 doctoral research projects. These projects are usually not submitted to the National Centre for Science, but are approved by the relevant scientific committees and follow the interests of researchers or supervisors.

In the health sector, there were 144 ongoing research programmes in 2004 that had been initiated by the Government. Of these, 32 had been granted to researchers from medical institutes or universities, 33 to specialized scientific centres and 79 to scientific research institutions. Eight innovative programmes and a financing of a few young researcher initiatives were also funded by the National Centre for Science. The funding allocated by the National Centre to the health sector amounted to 981 million soms (approximately US$ 981 000). A limited number of internationally funded investigations were also under way.

According to the new Governmental Decree of August 2006, changes to the management and responsibilities of the existing framework were introduced (President of Uzbekistan 2006). The Decree introduced a number of changes:

- the two-tiered coordination body with its two subunits was dissolved to create a single committee for the coordination of research and technology development;
- this new committee was charged to work closely with the respective ministries in establishing priority areas for research;
- state funds earmarked for research are to be directly allocated to the respective ministries and government agencies;
- the respective ministries are to be the contractors for the research and make decisions on the allocation of grants;

- new units on coordination of research are to be organized within the ministries;
- the number of training posts in research (*aspirantura* and *doktorantura*) are to be decided by the respective ministries within the scope of the earmarked resources set by the Ministry of Finance.

The Decree decentralized the decision-making process to the ministries, stating the following reasons:

- the duplication of research in the previous system;
- a resource allocation was skewed towards research institutes, while 74% of scientists were employed in universities;
- poor coordination between the two subunits of the coordination body (the Centre and the Council).

The Ministry of Health has developed a list of research priorities eligible for funding. They include areas such as reproductive health, neonatology, paediatrics, adolescent medicine and the development of new technologies. In the process of reviewing applications, relevance according to the list of priorities constitutes one of the criteria for approval. Previously, health-related grants had been disbursed without the involvement of the Ministry of Health in the selection or approval process. The new Decree delegates priority setting and grant allocation to the Ministry of Health.

As already mentioned, the changes in research financing have increased the accountability of government-funded research. A monitoring committee has been established and researchers must submit regular reports on research progress and expenditure. Although there has not been any evaluation of the utilization of research results by decision-makers so far, the new system has an inbuilt mechanism for monitoring the application of research results.

Uzbekistan currently has 14 scientific medical journals, which sometimes require the authors to make a formal payment for the publication of their articles. While they are considered to be peer-reviewed journals in Uzbekistan, it is not clear whether they meet international peer-review standards.

5 Physical and human resources

5.1 Physical resources

Infrastructure

Infrastructure planning in Uzbekistan's state-owned health system is primarily the responsibility of the national Government. Major investments in the health system are planned and funded by the national Government, whereas small-scale capital investments also come from local governments.

The national Government conducts regular infrastructure evaluations and keeps an updated registry of inventories in public health institutions. Based on governmental priorities and on recommendations of the Ministry of Health, annual capital investments are planned and included in the state budget. There are, however, no clear guidelines or standards for capital investments. An example is the construction/reconstruction of facilities and the delivery of equipment as part of the primary care development programme (see Chapter 7). Similar types of capital investment are under way for other national programmes, such as the development of emergency care or of specialized clinical centres. The bulk of investment is channelled to these programmes. Some minor capital investments are also being made at the *oblast* or *rayon* level and by health institutions, depending on available resources. These investments are not subject to any control.

The Government does not control capital or other types of investment in the still small private health sector, consistent with its policies to facilitate entry of the private sector into the health care arena. The private sector does not receive direct subsidies from the Government for capital investments, making the sector heavily reliant on private sources. Several indirect subsidies, however, are in

place, such as tax breaks when redirecting resources into capital investments and low-interest loans from government-owned banks (President of Uzbekistan 1998).

While strictly enforced controls or frameworks for capital investment are lacking in both the public and private sectors, certain controls are in place in the public system, such as decisions on the share of capital investment within national health programmes. Government planning has been clearly visible in recent years in the trends of hospitals and, more specifically, hospital bed numbers in the public sector. National health reforms with a focus on primary care resulted in a redirection of resources from inpatient to primary care. Resources were freed from the inpatient sector through increased efficiency (a reduction of length of hospital stay) and cuts in hospital beds and hospital numbers. The ratio of hospital beds to population has been reduced more than twofold since the early 1990s: from 12.48 beds per 1000 population in 1990 to 5.19 per 1000 in 2005. This number is close to the central Asian average, approximately 10% below the EU15 average and approximately 40% lower than the CIS average (WHO Regional Office for Europe 2007). Figures 5.1, 5.2 and 5.3 show data on types of bed and bed numbers in Uzbekistan between 1990 and 2005.

Information technologies

In Europe, IT have been increasingly applied in the health sector in recent years, with gains in efficiency, quality of care and costs. IT can also be used to educate the population on health issues and to make the health system more transparent and accountable to the public.

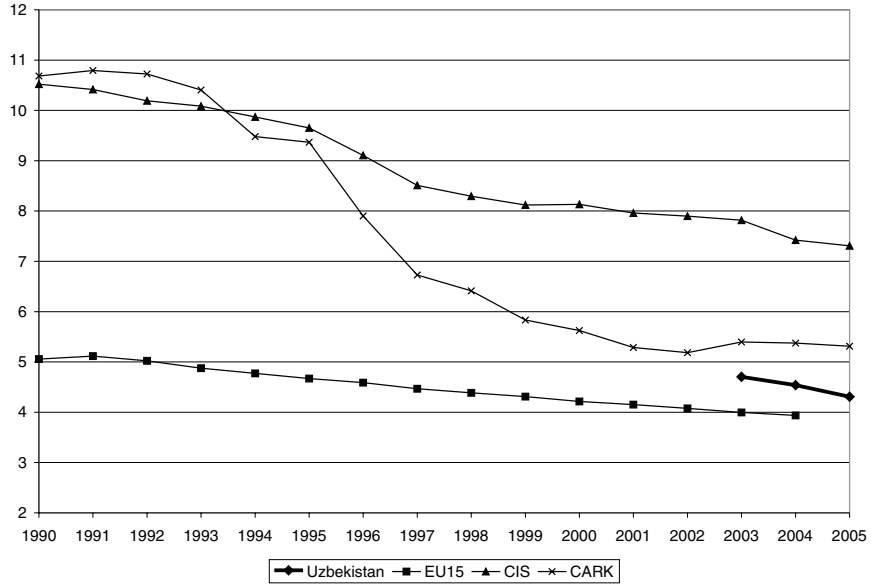
Health systems in the former Soviet Union, however, have been slow in taking advantage of IT. Major barriers to the application of these technologies in the Uzbek health system are the lack of access to IT hardware, the costs related to the development and application of software, and a lack of expertise, capacity and awareness.

This subsection deals with the major efforts that have been undertaken by the Government to promote the use of IT in Uzbekistan, as well as with related efforts in the health sector.

National efforts in information technologies

In Uzbekistan, the Government has adopted national IT development policies to promote the use of IT in all sectors of the economy. A Decree on IT development, issued in 2002, has been a major stimulus towards the expansion of IT in the

Fig. 5.1 Acute hospital beds per 1000 population in Uzbekistan, CIS, CARK and EU15, 1990–2005



Source: WHO Regional Office for Europe, 2007.

Notes: CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan; EU15: European Union Member States before May 2004; EU15 data for 2005 not available; Uzbekistan data not available before 2003.

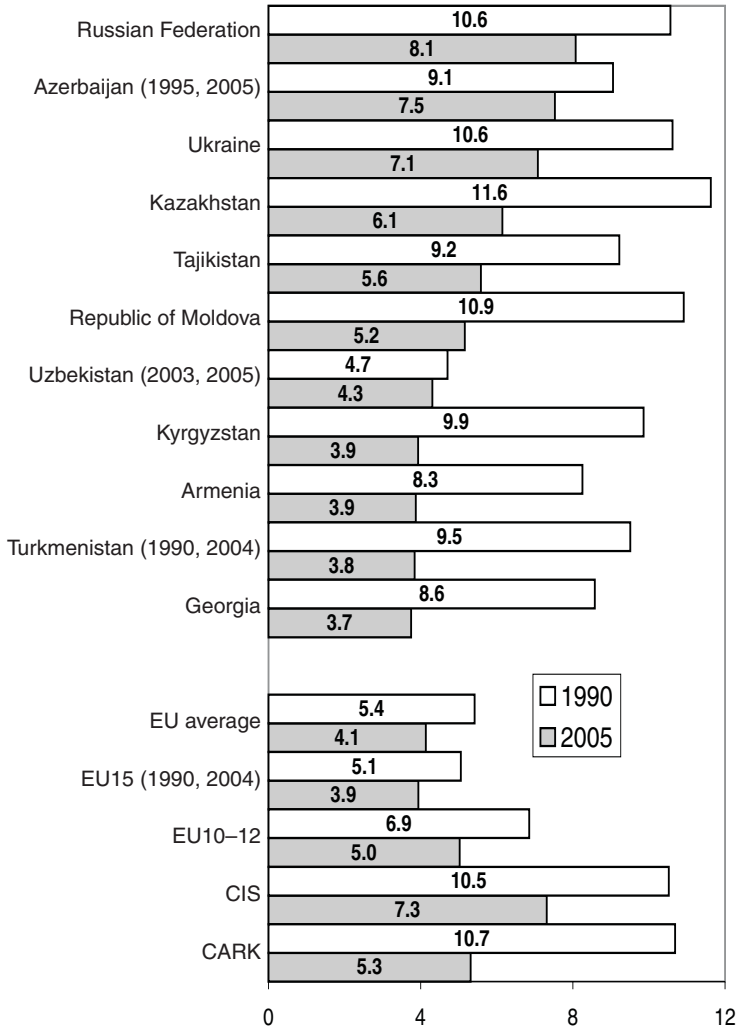
country (Cabinet of Ministers 2002). The Decree established a committee, charged with implementation of the following three main objectives:

- electronic sharing of documents at local and national levels of government by 2010;
- development of electronic commerce;
- increased utilization of IT in all sectors of the economy.

With this Decree, all imported IT (including hardware and software) have been exempted from customs tax until 2006. All services related to IT training, maintenance or the retail of software have been exempted from VAT and a facilitated tax procedure has been introduced for companies in the IT sector.

The committee tasked with implementing the goals of the Decree has developed a national plan with ambitious tentative targets. Examples of these targets give an overall picture of the state of IT in Uzbekistan in 2002, as well as potential improvements. It is expected that the number of Internet users will increase from 55 000 in 2002 to 3.3 million in 2010, equivalent to 60% of households. In 2002, only 1.6% of households used the Internet, the majority of which were located in the capital, Tashkent. It was estimated that in 2002

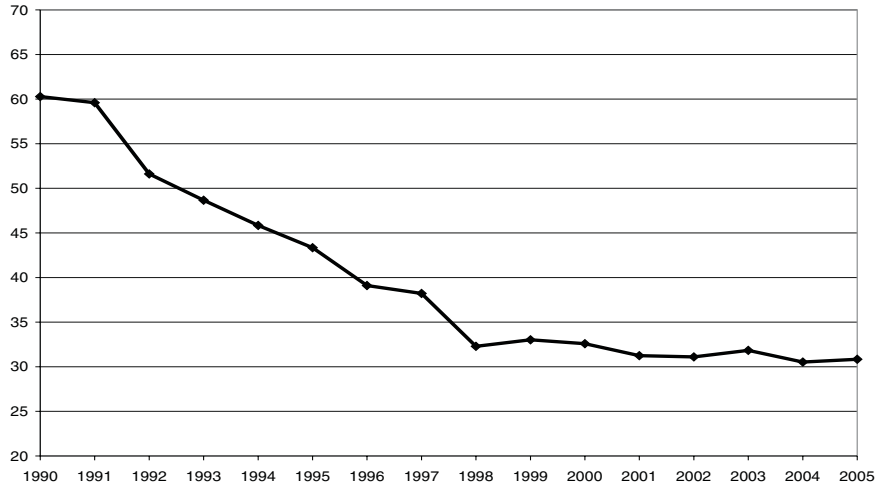
Fig. 5.2 Beds in acute hospitals per 1000 population in Uzbekistan, CIS and selected averages, 1990 and 2005 (available years in parentheses)



Source: WHO Regional Office for Europe, 2007.

Notes: CARK: Central Asian Republics and Kazakhstan; CIS: Commonwealth of Independent States; EU: European Union; EU15: European Union Member States before May 2004; EU10–12: European Union Member States after May 2004 and January 2007.

Fig. 5.3 Psychiatric hospital beds per 100 000, 1990–2005



Source: WHO Regional Office for Europe, January 2007.

Notes: The respective data for the Commonwealth of Independent States (CIS), Central Asian Republics and Kazakhstan (CARK), and European Union (EU) Member States belonging to the EU before May 2004 (EU15) are not available.

only approximately 0.3% of the population owned personal computers, with a share of 2.5% in Tashkent. The national IT development plan envisages that Internet access will be available in all populated areas and two thirds of public institutions by 2010. It is also envisaged that government agencies will move gradually towards the electronic sharing of documents. It is not clear, however, if these targets include health care institutions (Cabinet of Ministers 2002). It is planned that 74% of governmental bodies, 63% of comprehensive schools, 92% of high schools, 85% of professional colleges and 100% of higher educational institutions will have Internet access by 2010 (Cabinet of Ministers 2002).

The limited number of current Internet users is partly due to the poor technological infrastructure. In 2002, only 6.68% of households had phone lines, with a higher share in urban (15.4%) than in rural areas (1.6%), in which 63% of the population live. Telephone networks are lacking in 28% of populated areas. Only 35% of existing phone lines are digital, a percentage envisaged to increase to 52.6% by 2010 (Cabinet of Ministers 2002). One major obstacle to the use of modern IT is that Internet provider charges are much higher than in most western European countries, despite much lower population income levels in Uzbekistan.

In 2002, higher education institutions had on average 4 computers per 100 students. The targets for the distribution of computers according to the national IT development plan are ambitious and envisage, by 2010, 5 personal computers per 100 students in schools, 13.4 in lyceums (academic high schools), 7 in professional colleges and 25.6 in institutions of higher education (Cabinet of Ministers 2002).

IT have rapidly expanded in Uzbekistan in recent years. According to official reports, there were approximately 2 million mobile phone users in October 2006, constituting a 10-fold increase since 2002. The number of Internet users increased in the same period 30 times, reaching 1.4 million users in October 2006, while the percentage of digital phone lines doubled between 2002 and 2006, reaching 70% (UzA 2006b; Communications and Information Agency of Uzbekistan 2006).

In light of the rapid expansion of IT, the Government in 2005 revised upwards the objectives set in the 2002 Decree (President of Uzbekistan 2005c).

Information technologies in the health sector

In line with the national IT development plan, the Ministry of Health has issued a Decree charging the Republican Information and Analytical Centre of the Ministry of Health (which was incorporated into the Institute of Health in April 2005) with the responsibility of developing relevant targets in the health sector and ensuring their realization. For these purposes, a working group has been organized at the Ministry of Health to develop a work plan and targets for the Uzbek health system (MoH 2002).

The utilization of IT in Uzbekistan's health system varies depending on the ownership, location and size of the health care institutions concerned. The use of IT in public health institutions is very limited and mostly confined to basic electronic data collection and entry.

All public health institutions are obliged to submit data on a number of indicators to the Institute of Health. At present, data from health institutions are submitted through a paper-based system to *rayon* health authorities. The data are then pooled at the *oblast* and national levels, after which the Institute of Health converts the data into electronic format. Data are stored at the Institute of Health and provided to policy- and decision-makers upon request (see also Chapter 3).

It is expected that in the near future, electronic data entry will be fully delegated to *oblast* and *rayon* branches, with the Institute of Health pooling electronic data at national level. However, the national-level implementation of electronic data entry faces several barriers, including a shortage of IT skills in the country's *oblasts*, which are rare and highly valued. After receiving IT training,

many health professionals in the *oblasts* move to better paid opportunities in the private health sector or to other sectors of the economy (personal communication with the Director of the Analytical Information Centre). The brain drain of IT professionals has been identified as one of the possible impediments to the fast entry of IT into the health arena (Streveler 2004).

The low number of personal computers in the health sector is another major impediment to the widespread use of IT. In 2004, there were overall only 4500 personal computers in the public health sector. Most of them were located in institutions for medical education: 1500 in medical schools and 1300 in medical professional colleges and high schools (lyceums) (MoH, personal communication, 2004). However, the age and performance of these computers have not been assessed and a significant proportion of them are likely to be very outdated.

New initiatives are under way to address some of these issues. The roll-out of the national primary care reform programme (funded with support from the World Bank and the Asian Development Bank) aims to equip all *oblast* and *rayon* branches involved in data collection with personal computers and to provide training and software development (see Chapter 7).

No data are available with regard to the use of IT in the private sector. The absence of governmental regulations, combined with easier access to resources, may have resulted in a higher use of IT in the private sector. On the other hand, the private sector does not have access to centralized governmental subsidies. Health care users are not yet likely to use the Internet as a major tool for the selection of health care providers or for accessing health-related information, and in any case, Internet-based information or services are scarce in the Uzbek health system.

A number of commercial IT applications for health care institutions have been delivered by the Institute of Health. These applications cover data collection, management and analysis (personal communication with the Director of the Analytical Information Centre). Private and public health care facilities are not legally limited in their choice of software. The use of IT applications in public health care institutions, however, is still the exception rather than the rule. It can be expected that developments in this area will gain momentum as a result of government policies, a more favourable tax environment, and increased Internet penetration in the country.

So far, there are no national Internet resources specifically related to health, with the exception of the Internet pages of a few health institutions (such as the Ministry of Health and the Tashkent Medical Academy) and some independent local initiatives, such as a web initiative on pharmaceuticals in Tashkent (www.apteka.uz), which offers information on wholesalers and retailers of

pharmaceuticals and medical equipment and on selected pharmaceuticals. While many Russian-language Internet sites can be used by the bilingual population in Tashkent and elsewhere in the country, detailed data with regard to access to health information on the Internet are not available.

Telemedicine has been introduced in recent years with international support. Four tertiary care institutions have been linked, allowing them to benefit from video consultation opportunities in complex clinical situations. There are plans to link all emergency units in the country, enabling them to consult the National Centre for Emergency Care in real time when faced with complex clinical situations.

Medical equipment, devices and aids

The purchase and distribution of medical equipment, devices and aids does not have a unified institutional framework. The processes can change depending on who is the purchaser (private or public) and which funds are being used (international loans or institutional funds). Broadly, funds currently used for the purchase of medical equipment, devices and aids are either international loans, earmarked state funding, private capital in the private sector or, in the public sector, funds accumulated through fee-for-service schemes and sponsor initiatives.

In the public sector, a major share of large-scale purchasing is facilitated by international loans, when the purchasing process follows the stipulations outlined in the loan agreement. In most cases, the Ministry of Health acts as the purchaser, either through international bidding or local purchasing.

In exceptional cases, such as for the purchase of major technologies, the State might earmark funding for this purpose. Otherwise, no special funds exist for the purchase of equipment, devices and aids, and the purchase is delegated to health care facilities. Depending on needs and available resources, facilities can directly purchase from distributors. While the shift towards self-financing and the decreasing share of state funding could impede such purchases, data on this issue are lacking. According to anecdotal evidence, private sponsoring sometimes makes the purchase of medical equipment in the public sector possible.

Private capital or sponsorship are the only potential sources for the purchase of medical equipment in the private sector, as the sector generally has no access to international loans or state funding.

In neither the public nor the private sectors are there any explicit controls on the purchase of equipment, devices and aids, except for purchases exceeding US$ 100 000. However, the Department of Quality Control of Medications and

Medical Technologies, operating under the Ministry of Health, must approve all such equipment, devices and aids for sale on the Uzbek market.

Pharmaceuticals

The purchasing and procurement process in the pharmaceutical sector differs between the public and the private sectors. Government efforts to stimulate private health care have resulted in a limited role for the Ministry of Health in the private pharmaceutical sector. The Ministry of Health, however, has taken on the role of gatekeeper to the national pharmaceutical market and has regulatory responsibilities, which include safe storage and distribution and other safety-related issues.

Governmental policies regulate the framework for the distribution of pharmaceuticals. A universal price-control mechanism is enacted throughout the country, limiting the profit margins of wholesalers and retailers. Wholesalers' mark-ups are limited to 20%, with retailers allowed up to 25% of the purchasing price, so that consumer prices are within a 50% ceiling of the purchase price of the wholesaler. One of the primary aims of this regulation was to prevent possible market manipulation leading to increases in pharmaceutical prices. Private sector retailers can buy products from national wholesalers, representatives of pharmaceutical companies, or producers (personal communication with the representative of the MoH responsible for pharmaceuticals).

The public sector has two main companies responsible for the nationwide purchase and distribution of pharmaceuticals, with the Government holding controlling shares in both. The first, Dori-Darmon, accounted for almost 90% of the centrally organized provision of pharmaceuticals for public health care institutions in recent years, while the second, Uzmedtechnika, accounted for the remaining 10%. Although the Ministry of Health holds 25% of the shares of Dori-Darmon, both companies operate as commercial enterprises and the Ministry has limited control over them (personal communication with the representative of the MoH responsible for pharmaceuticals).

Dori-Darmon has *oblast* branches and procures pharmaceuticals according to requests from health institutions. Public health institutions are, however, allowed to purchase pharmaceuticals from private procurers. Recent policies on demonopolization and increased competition have further liberalized the purchase of pharmaceuticals by public health care entities and permitted the purchase to be based on the best offer. As a result of these changes, the market share of Dori-Darmon in public sector procurement experienced a steep

decline and now accounts for less than 50% (personal communication with the representative of the MoH responsible for pharmaceuticals).

The purchase and distribution of pharmaceuticals was the first health arena to involve the private sector. A licence from the Ministry of Health and staff qualified with degrees in pharmacy are the only prerequisites for private pharmaceutical retail. Wholesale distributors of pharmaceuticals are also required to obtain a licence issued by the Ministry of Health (Cabinet of Ministers 1994).

The Ministry of Health has developed a list of essential drugs, comprising 20 drugs in 1994 (Cabinet of Ministers 1994). It is not clear, however, what criteria were used to develop the list. In addition, the list has not been updated since that time and is now clearly outdated. The listed drugs have to be sold at the prices set by the Ministry of Health, irrespective of purchasing costs and retail outlet ownership (Cabinet of Ministers 1994). Pricing of all other drugs is not regulated, except by the mark-up limits already mentioned. Specified groups of the population are eligible for free medication in outpatient care if they have prescriptions from public primary care facilities (see Table 5.1). In these cases, retail pharmacies are reimbursed by the respective primary care facilities (Cabinet of Ministers 1997).

For patients not included in any of these categories, in particular for the poorest strata of the population, access to pharmaceuticals has become increasingly problematic, as pharmaceutical coverage for outpatient and inpatient care is not a part of the state-guaranteed package of services, except for defined groups of the population and certain clinical conditions (see Section 3.2).

A limited number of drugs (opiates and psychotropic drugs) are subject to special regulations (MoH 2001). A Ministry of Health Decree has outlined the mechanisms for their storage, distribution and retail. This group of drugs requires special prescriptions on pink forms signed by the physician and the head or deputy of health facilities located in the same administrative area as the pharmacy. The Ministry of Health distributes the pink prescriptions to health facilities. It is not clear from the regulation, however, whether the pink prescriptions are distributed to the private sector as well, or if they are the prerogative of the public health care facilities. Other drugs are freely available without prescription in all pharmaceutical retail outlets. No special regulations exist with regard to alternative medicines.

It is legally permitted in Uzbekistan to advertise directly to the consumer. However, the content of the advertisement requires the prior approval of the Ministry of Health (personal communication with the representative of the MoH responsible for pharmaceuticals).

E-commerce and mail order systems are currently non-existent in Uzbekistan, although recent government efforts have been directed towards the development of e-commerce in the country. Currently, there are no regulations regarding the postal distribution of pharmaceuticals.

5.2 Human resources

Trends in health care personnel

A more or less bell-shaped curve with a peak at the time of the break-up of the Soviet Union can be observed in the number of health professionals per population in Uzbekistan since 1980 (see Fig. 5.4 for figures from 1990 and Table 5.2).

In the early 1980s, Uzbekistan had approximately 2.7 physicians per 1000 population. This ratio was significantly lower than the CIS average (3.5 per 1000), but close to the central Asian average. Although low compared to the Soviet average, the Uzbek ratio was still approximately 20% higher than that of western Europe. During the 1980s the number of physicians increased significantly, coinciding with similar trends throughout the Soviet Union and

Table 5.1 Expenditures for outpatient pharmaceuticals for covered groups of the population, in thousand soms and percentages, 2003–2005

	2003		2004		2005	
		%		%		%
Pensioners living alone supported by the social services	68 448	4.59	78 124	3.67	205 610	10.96
Veterans and disabled veterans of the Second World War	276 639	18.55	314 847	14.80	276 390	14.74
Participants of the "labour front" in 1941–1945	198 910	13.34	217 003	10.20	265 983	14.18
Participants in international wars	78 735	5.28	192 532	9.05	65 840	3.51
People with disabilities incurred when liquidating the consequences of the Chernobyl disaster	38 115	2.56	41 223	1.94	28 449	1.52
Cancer conditions	113 224	7.59	197 742	9.30	100 901	5.38
Endocrine disorders	366 372	24.57	647 628	30.45	658 112	35.10
Leprosy	3 202	0.02	301	0.01	54	0.00
Tuberculosis	1 246 682	8.36	113 345	5.33	82 148	4.38
HIV/AIDS	2 742	0.02	9 475	0.04	721	0.04
Mental conditions	1 973 162	13.23	3 179 875	14.95	185 529	9.89
Patients with cardiac devices	280 642	1.88	4 969	0.23	5 432	0.29
Total	**14 910 852**	**100**	**2 126 646**	**100**	**1 875 168**	**100**

Source: Ministry of Health, personal communication, 2006.

central Asia, a result of Soviet policies that aimed to reduce health discrepancies between the constituent republics. Between 1980 and 2004, the absolute number of physicians in present-day Uzbekistan almost doubled, from 43 500 to 70 958. However, population growth exceeded the growth in the supply of physicians and the ratio of physicians (full-time equivalent) to population decreased from its peak in 1991 of 3.7 per 1000 population to 2.9 per 1000 population in 2005 (WHO Regional Office for Europe 2007).

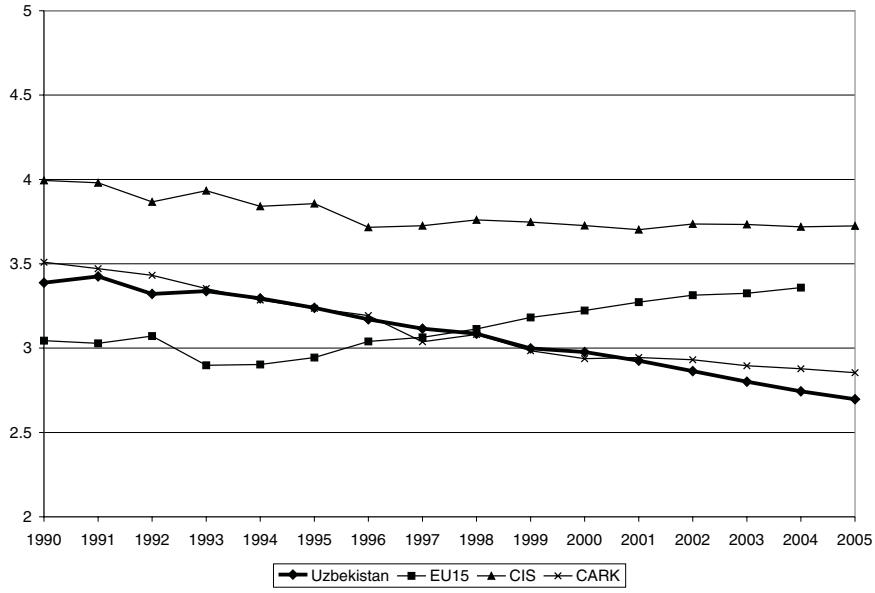
A perceived surplus of physicians in the early years of independence resulted in cutbacks in enrolment in medical schools. The number of graduates of medical schools decreased from its peak (5156 graduates) in 1996 to 2004 (3020 graduates). When population growth is taken into account, a decrease from 0.22 to 0.12 per 1000 population can be observed in this period. Overall, the trend in medical school enrolment follows most other health systems in the region. The ratio of graduated physicians to population in Uzbekistan broadly corresponds to averages in central Asia (0.12 in 2005), CIS (0.12 in 2005) and EU15 (0.91 in 2002) (WHO Regional Office for Europe 2007).

Recent changes in the Uzbek health care system (see Chapter 7) have been reflected in the mix of physicians. Resources were to some degree redirected from secondary and tertiary care to primary care. According to the WHO Regional Office for Europe Health for All database, the highest share of physicians working in hospitals was reached in 1994, when it constituted almost 64% of all physicians working in the health sector, a share decreasing to 41.7% in 2005. The current ratio is similar to other health systems in the WHO European Region: in Kazakhstan in 2005, 44.6% of physicians were working in hospitals, compared to 47% in the Russian Federation, 42.2% in Germany (in 2004) and 29.4% in France (WHO Regional Office for Europe 2007).

However, it should be noted that a very different picture emerged in the Public Expenditure Review in 2004, according to which 62% of doctors and 70% of total health staff were still working in hospitals. Between 1995 and 2003, patient admissions, bed numbers and average length of stay in hospitals decreased by 13–15%, yet hospital staff numbers only decreased by 2% in this period and the number of doctors even increased (Langenbrunner, Salikhova & Karimova 2006).

There are also significant disparities in the regional distribution of health care workers, with a concentration in urban areas and a shortage in rural areas. In 2002, the number of physicians per population in urban areas was almost double that in rural areas (Measure DHS 2004). In 2006, the Ministry of Health estimated that approximately 10% (approximately 300 health facilities) of all SVPs were lacking physicians (Langenbrunner, Salikhova & Karimova 2006).

Fig. 5.4 Physicians per 1000 population in Uzbekistan, CIS, CARK and EU15, full-time equivalent, 1990–2005



Source: WHO Regional Office for Europe, 2007.

Notes: EU15: European Union Member States before May 2004; CARK: Central Asian Republics and Kazakhstan; CIS: Commonwealth of Independent States; EU15 data for 2005 are not available.

Table 5.2 Health care personnel per 1000 population, 1980–2005 (selected years)

Type of personnel	1980	1990	1992	1994	1996	1998	2000	2002	2004	2005
Physicians (FTE)	3.26	3.58	3.57	3.46	3.54	3.41	3.29	3.01	2.94	2.92
Dentists (FTE)	0.19	0.22	0.22	0.23	0.16	0.18	0.22	0.21	0.22	0.22
Pharmacists (PP)	0.21	0.32	0.26	0.07	0.04	0.03	0.03	0.03	0.03	0.03
Nurses (FTE)	9.10	10.73	10.19	9.43	–	–	7.36	6.69	6.47	6.44
Midwives (PP)	0.76	0.99	0.95	0.90	0.90	0.68	0.84	0.83	0.84	0.85
Physicians graduated	0.21	0.16	0.19	0.23	0.22	0.14	0.09	0.08	0.12	0.10

Source: WHO Regional Office for Europe, 2007.

Notes: FTE: full-time equivalent; PP: physical persons.

The ratio of dentists (full-time equivalent) to population has slightly decreased during the years of independence, from 0.36 dentists per 1000 population in 1989 to 0.22 in 2005 (Fig. 5.5). However, the ratio fluctuated during these years and was as low as 0.15 in 1996. It is not entirely clear why these fluctuations occurred. The ratio of dentists to population in Uzbekistan was lower than the CIS average (0.26 in 2005) (WHO Regional Office for Europe 2007).

The number of graduated dentists in Uzbekistan decreased from 413 in 1992 to 151 in 1997, increasing again to 261 in 2005. The ratio of graduated dentists to population in Uzbekistan, at 0.01 per 1000 population in 2005, was lower than the EU15 (0.02 per 1000) and CIS (0.02 per 1000) averages (WHO Regional Office for Europe 2007).

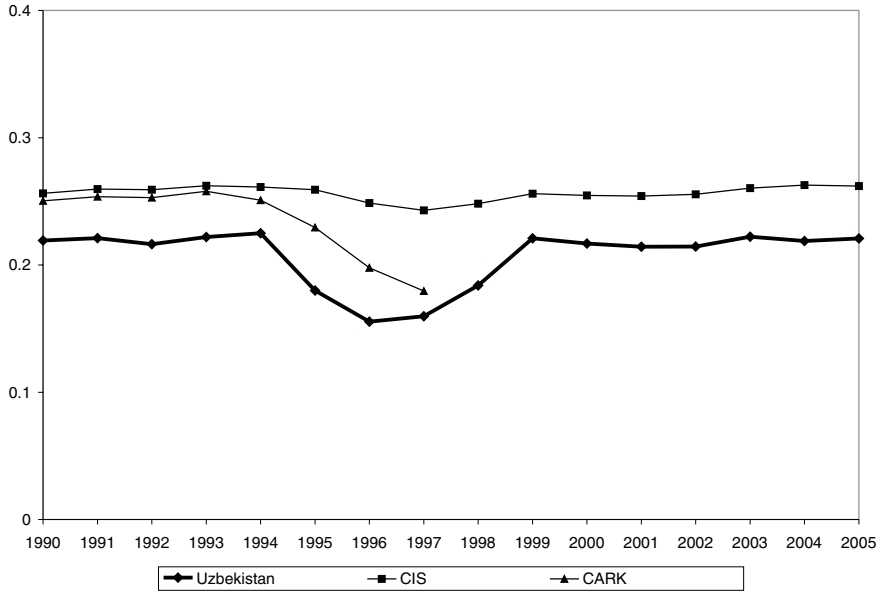
The absolute number of graduated pharmacists steeply decreased from 998 in 1990 to just 178 in 1996, increasing again thereafter to reach 3205 in 2005. The number of graduated pharmacists per 1000 population in Uzbekistan, at 0.12 in 2005, is significantly higher than in other countries of the region. It exceeds the CIS average (0.03 per 1000) fourfold and is six times higher than the ratios for the Russian Federation and Germany (both 0.02 per 1000). Interestingly, until 2001 the ratio for Uzbekistan was similar to other countries in the region; since then it has increased more than four times (WHO Regional Office for Europe 2007). It is not entirely clear why these increases have occurred, but they may be related to the liberalization of the pharmaceutical market.

Interestingly, WHO data on the absolute number of pharmacists in Uzbekistan, which are based on the reporting of Uzbek authorities, show a very different trend, with a decline from a peak in 1990 of 6460 pharmacists to just 828 in 2005 (WHO Regional Office for Europe 2007). The inconsistency between this trend and the increase in graduated pharmacists may be due to the omission of pharmacists in the private sector from governmental statistics, where, following the privatization of the pharmaceutical industry in the 1990s, most pharmacists are currently working. The ratio of pharmacists to population in Uzbekistan was recorded at only 0.03 per 1000 population in 2005, which compared to a central Asian average (in 2004) of 0.25 per 1000 population, a CIS average of 0.22 and an EU15 average of 0.82 per 1000 population (in 2004) (WHO Regional Office for Europe 2007) (Fig. 5.6), indicating that the official statistics on the number of pharmacists in Uzbekistan may not reflect the actual situation.

The ratio of nurses (full-time equivalent) to population has seen a steep decline following Uzbekistan's independence, from 10.9 per 1000 population in 1991 to 6.4 in 2005, which was similar to developments in the CIS (Fig. 5.7) (WHO Regional Office for Europe 2007).

The number of graduated nurses in a given year has seen considerable fluctuations. It increased from 13 889 in 1991 to 30 154 in 1996, decreased to 15 622 in 2002, and increased again to 41 955 in 2005. The ratio of graduated nurses per 1000 population decreased between 1996 and 2002 from 1.3 to 0.6, but reached 1.6 in 2005. This compared to a central Asian average of 0.9 per 1000 population, a CIS average of 0.4 per 1000, and an EU15 average of 0.3 per 1000 in 2003 (WHO Regional Office for Europe 2007).

Fig. 5.5 Number of dentists per 1000 population in Uzbekistan, CIS and CARK, full-time equivalent, 1990–2005



Source: WHO Regional Office for Europe, 2007.

Notes: CARK: Central Asian Republics and Kazakhstan; CIS: Commonwealth of Independent States.

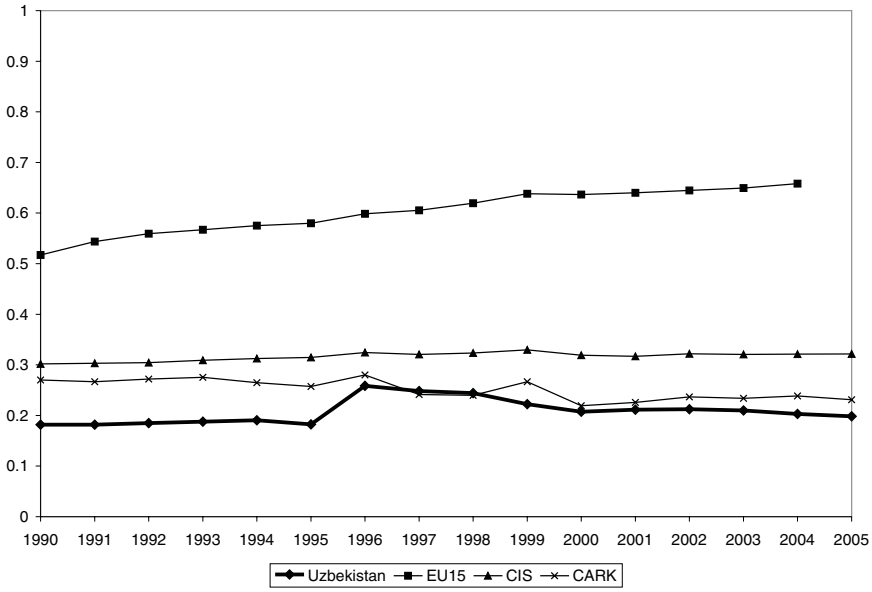
Planning of health care personnel

Similar to other health systems, Uzbekistan faces shortages in some specialties and oversupply in others. It also faces geographical imbalances, since the abolishment of the old Soviet system of *oblast* quotas has allowed for an increase in better educated students working in the cities, leaving less prosperous rural *oblasts* without qualified staff. With regard to staff shortages, it is sometimes difficult to establish if they are a result of an actual scarcity of health professionals or the lack of willingness on their part to take on specific employment opportunities.

In the health system there are several mechanisms in place to regulate the number of health professionals.

The first mechanism to regulate the supply of health professionals is enrolment into institutions of higher education and professional colleges. All institutions for medical education are public and the Government determines annual enrolment, as well as the annual slots for undergraduate and postgraduate

Fig. 5.6 Number of pharmacists per 1000 population in Uzbekistan, CIS, CARK and EU15, 1990–2005



Source: WHO Regional Office for Europe, 2007.

Notes: CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan; EU15: European Union Member States before May 2004; EU15 and CARK data for 2005 not available.

medical education for the various specialties. Another potential tool is the licensing framework, which is currently used for the private sector, but could be extended to the public sector if needed.

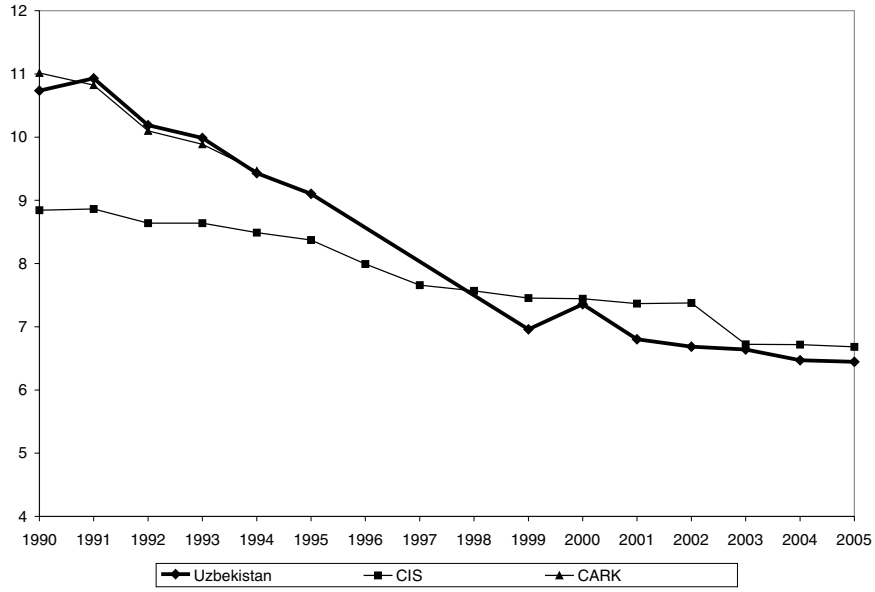
In addition to the number of training slots, shortages in specialists are addressed through fiscal rewards. A recent Governmental Decree on the reimbursement of health professionals is a good example of this mechanism in use (President of Uzbekistan 2005a).

Finally, as the public health sector is the biggest health care employer in Uzbekistan, the Government can also influence the supply of health professionals through employment policies. However, it is not clear if these policies are measured against efficiency and effectiveness prior to adoption or following implementation.

Training of health care personnel

The major groups of health professionals in Uzbekistan are physicians, nurses, dentists and pharmacists. Public health professionals and managers in the health

Fig. 5.7 Number of nurses (full-time equivalent) per 1000 population in Uzbekistan, CIS and CARK, 1990–2005



Source: WHO Regional Office for Europe, 2007.

Notes: CIS: Commonwealth of Independent States; CARK: Central Asian Republics and Kazakhstan.

system are seen as a further specialization within the group of physicians. This subsection explores the training structure and pathways for the different professional groups. Figure 5.8 outlines the framework for medical education in Uzbekistan.

Structure

In Uzbekistan, only public educational institutions are involved in the training of health professionals. Each of the four major professional groups follows a separate training pathway. Physician and dentistry training is provided in medical schools, nursing schools provide basic nursing training, and pharmacy training is provided by the Institute of Pharmacy. The recently introduced advanced nursing training, entitled "higher nursing education", is being provided at medical schools.

Until recently, there were six medical schools, with three regional branches of medical schools. In 2005, two leading medical schools in Tashkent were merged to form the Tashkent State Medical Academy. Currently, there is one

medical academy, four medical schools and three regional branches, all of which are state owned.

There are four main faculties for the training of medical doctors in medical schools: treatment; treatment with an emphasis on teaching skills; paediatrics; and sanitary-epidemiology training. In contrast to medical education in most countries in western Europe, Uzbekistan has separate educational tracks for adult and child medicine, and prospective students have to apply separately for these two programmes. Until recently, the graduates of treatment (adult), treatment with teaching emphasis (adult) and paediatrics faculties were only allowed to practise in their respective field. However, through recent moves in medical education towards general medicine, this distinction has become blurred. In primary care settings, GPs now practise both adult and child care, irrespective of the faculty from which they graduated. The faculty for treatment with an emphasis on teaching skills has recently been introduced with the aim to provide additional training for those pursuing an academic career. In addition to the courses covered by the treatment faculty, students are exposed to knowledge and skills required for teaching in academic environments.

Only one medical institution, the Tashkent State Medical Academy, provides sanitary-epidemiological training in Uzbekistan. Although graduates of this sanitary-epidemiological faculty obtain the degree of medical doctors, they are not legally allowed to practise clinically, except when they have enrolled in postgraduate clinical programmes for training relating to infectious diseases. All other graduates of the sanitary-epidemiological faculty are expected to work in the Sanitary-Epidemiological Services of the Ministry of Health within the health system.

The Tashkent Institute of Pharmacy is the only educational institution offering higher education in pharmacy. Many professional colleges, however, offer pharmacy courses leading to qualifications equivalent to pharmacy assistant.

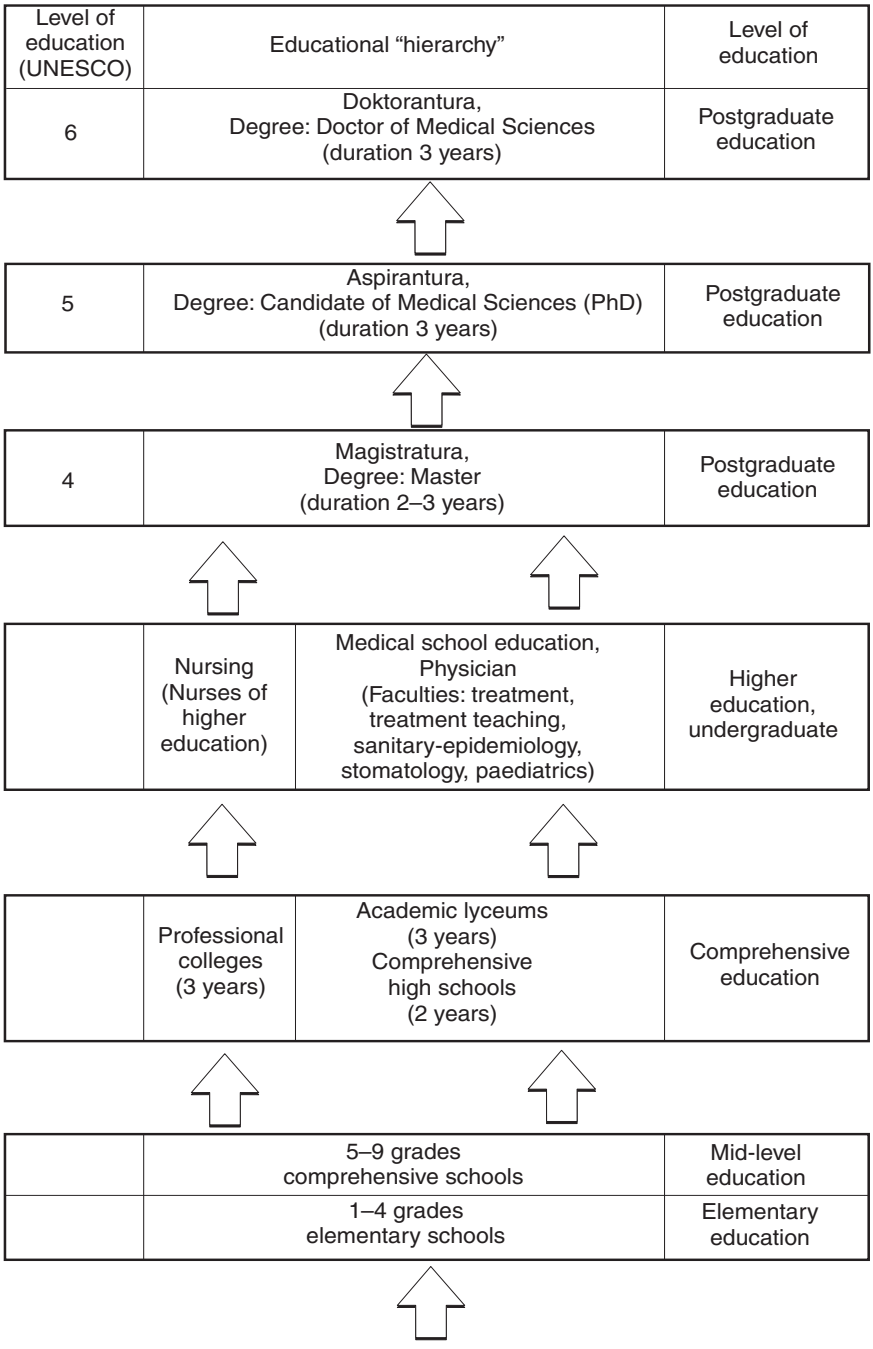
There are 57 professional colleges offering basic nursing training with a total enrolment of 32 000–35 000 trainees. As already mentioned, higher nursing education was recently introduced into Uzbek medical education and is carried out by medical schools (Streveler 2004).

Training pathways

Public health professionals

A public health profession in a western sense did not exist in Uzbekistan until early 2000. Until then, practitioners graduating from the Sanitary-

Fig. 5.8 Educational framework in Uzbekistan



Source: MoH, personal communication, 2006.

Epidemiological Department of the Tashkent State Medical Academy were seen as the professionals most closely fitting the description of public health professionals in the areas of epidemiology, health promotion and environmental health. Biostatisticians were not trained within medical schools and were not considered to be part of the medical profession. The closest match to the health services within Soviet medical education would have been social hygiene, which covered some aspects of the organization of the health system. Advanced training in the organization of the health system was only provided to physicians in management positions, as an opportunity for involvement in continuing medical education. Management skills and policy analysis, however, were not covered.

In 2000, the former Second Tashkent State Medical Institute initiated the introduction of a unified public health programme in line with international standards and in 2001 established the Department of Public Health and Health Management. The Department developed the first integrated public health training programme at graduate level and offered the degree of Master of Public Health. International agencies, such as the Open Society Institute, the Association for Schools of Public Health in the European Region, the United Kingdom DFID, the USAID-funded ZdravPlus project and the American International Health Alliance played important roles in aligning the new programme with international standards and in developing local capacity.

The initiative has been approved by the Government and has been rolled out nationally. Departments of public health were launched in all medical schools, and courses in different aspects of public health (clinical epidemiology, health management and marketing) were incorporated into the undergraduate medical curriculum. A number of other medical schools have also launched programmes offering the degree of Master of Public Health. It has yet to be seen, though, where within the health system the graduates of these programmes will be accepted for employment. In addition to these programmes in medical education, international agencies organized a number of continuing medical education courses in different components of public health for practising health professionals (see Chapter 6).

Physicians

In Uzbekistan, institutions of higher education start specialization at the undergraduate level, and a decision regarding the professional career is already made when applying to undergraduate schools. High-school graduates can apply directly to one of the institutions of higher education in a given specialty. The major requirement for admission into medical schools is a high-school certificate

or an equivalent certificate from a community college. Enrolment is based on the results of national multiple choice examinations conducted by a governmental agency on the same day for all institutions of higher education throughout the country. Entry examinations for medical schools test the participant's knowledge in three subjects: biology, chemistry and Uzbek or Russian language.

Medical training in Uzbekistan used to follow the model of Soviet medical education. Reforms in medical education aimed to find a balance between preserving positive elements of the old system and introducing changes in line with international trends.

Soviet medical training consisted of two years of pre-clinical and four years of clinical training. In the fifth year of their studies, medical students had to make a decision regarding the broad specialty they wanted to follow: internal medicine, surgery or obstetrics/gynaecology. After graduation, physicians were required to undertake a 1-year internship, after which they received permission for independent clinical practice.

A diploma with distinction or two to three years of clinical practice were the prerequisites for entering advanced medical education in a chosen subspecialty. Residency programmes in a subspecialty (*clinical ordinatura*) were the main method of exposure to a certain specialty in an academic or specialized setting. After completing the residency programmes, those willing to pursue an academic career could choose further research training.

The first step in academic training was a doctoral programme (*aspirantura*) similar to western doctoral programmes. It consisted of a 3-year programme with a doctoral dissertation as the final element. Those with a doctoral degree (*fan nomzodi*) were mainly employed in academic settings, such as research institutes and medical schools. The highest scientific degree was Doctor of Science (*fan doctori*). This degree could be obtained through the next step of academic training (*doktorantura*), with a duration of three years, where candidates were expected to prove their ability to conduct a large-scale independent investigation. Academics holding the degree of *fan nomzodi* (equivalent to a PhD) could advance to the level of "associate professor" and those with the degree of Doctor of Science to full professorship.

After independence, a number of changes related to the framework and content of medical education have been introduced in Uzbekistan. Changes related to the framework were tailored towards the priorities of health care reform and aim to meet international standards in medical education. The duration of undergraduate medical education has been extended from six to seven years. Early specialization has been replaced by a tendency towards generalization. Graduates are now qualified as GPs, in contrast to the three broad specializations used in the Soviet model. In terms of content, medical

education has been gradually moving from training based on diseases to training oriented towards symptoms or syndromes. The development of clinical skills was identified as another priority and new assessment tools for clinical skills have been introduced in all medical schools.

At the postgraduate level, the Soviet *clinical ordinatura* has been replaced by a *magistratura*, which has a different duration and training structure. The emphasis in the *magistratura* is on the combination of mentorship and didactic learning, with unified content for all programmes. Resident groups (up to five people) are linked to a senior faculty member, who is responsible for the overall training of residents. This contrasts with the previous *clinical ordinatura*, which did not have a uniform programme content and was more of an unstructured exposure to clinical practice, with a duration of two years regardless of specialty. The duration of the *magistratura* varies between two and three years, depending on specialty, lasting three years for most clinical specialties. *Magistratura* graduates can work as specialists both in inpatient and outpatient care. Very limited changes, however, have so far been introduced in academic training. The main changes are related to the requirements for defending the dissertation, such as the number of articles published.

Graduates of the sanitary-epidemiological faculty follow a very similar track. Differences are mostly related to the course load and content, which is less clinically oriented. The duration of the programme is six years, and postgraduate training follows a structure similar to clinical medical education.

Enrolment limits for undergraduate studies and the *magistratura* (both for medical schools and professional colleges) are approved by the Cabinet of Ministers, based on Ministry of Health suggestions. The *clinical ordinatura*, however, has not yet been completely replaced. Due to its shorter length and less stringent requirements, it is currently used as a tool for addressing the immediate needs in certain specialties. Enrolment numbers for the *clinical ordinatura* are defined by the Ministry of Health in coordination with the Ministry of Finance. Enrolment numbers for academic training (*aspirantura* and *doctorantura*) used to be within the remit of the State Committee on Science and New Technologies within the Cabinet of Ministers (personal communication with the MoH Department of Staff, Science and Education). Although the recent changes in national research management delegate this responsibility to the Ministry of Health, the decision-making on training slots is to be limited to the funds allocated by the Ministry of Finance (President of Uzbekistan 2006).

Continuing medical education is based on the requirement of attending a short training course every five years. At national level, the Tashkent Institute of Advanced Medical Education is responsible for the development of courses in continuing medical education. There are also departments of continuing

medical education in some regional medical schools, which serve as hubs for the surrounding regions. Spaces for continuing medical education courses are distributed among the *rayon* health authorities, which allocate them to physicians practising in public health care facilities. However, in the light of rapid advances in medical care, concepts for improvement are being drafted with support from the World Bank "Health II" loan, to ensure that *oblast*- and *rayon*-level health staff receive up-to-date training materials more frequently than once every 5 years.

Nurses, midwives and nursing specialties

The Soviet model of nurse training was tailored towards a highly specialized health system. Potential students could follow two tracks. They entered nursing school after graduation from comprehensive high schools (with a total of 11 years of school education), or after graduation from comprehensive schools (with a total of 9 years of school education). Training duration was 18 months for those entering with a high-school certificate and 30 months for those with a comprehensive-school certificate. As was the case with medical students, nurses specialized in internal medicine, surgery or obstetrics/gynaecology.

As part of the reforms of medical education, all nursing schools have been transformed into community colleges for health professionals. Currently, these colleges offer professional education in nine specialties: general nursing, midwifery, medicine, preventive medicine, pharmacy, orthopaedic dentistry, dentistry, laboratory diagnostics and medical equipment.

The training duration has been extended to two years for nursing students with high-school certificates and to three years for students with comprehensive-school certificates.

For an advanced degree in nursing, higher nursing education has been introduced and new faculties have been launched in medical schools. The prerequisite for admission to the new programme is a nursing diploma from a professional college. In the higher nursing education programmes four specialties are offered: internal medicine, surgery, obstetrics/gynaecology and administration. For those graduating from programmes of higher nursing education, it is possible to pursue Master degrees in selected disciplines. Currently, a Master of Nursing Management is offered by medical schools.

The framework for the continuing medical education of nurses is similar to that for physicians. There is a mandatory requirement to attend a continuing medical education course at least once every five years. These courses are offered at 12 specialized *oblast* centres for advanced medical education of mid-level health professionals.

Dentists and pharmacists

Dental education is provided by two medical schools in Uzbekistan, the Tashkent State Medical Academy and the Bukhara State Medical Institute. In recent years, it has been transformed into a two-level training programme. The first level consists of 5 years of undergraduate education, exposing students to general dentistry. The graduate level, *magistratura*, is a 2-year programme which allows students to specialize in one of three broad areas: therapeutic, orthopaedic or surgical dentistry training.

As described previously, the Tashkent Institute of Pharmacy is the only institution of higher education in Uzbekistan that provides pharmaceutical training. Pharmaceutical training has been included in the education reforms and has been divided into undergraduate and postgraduate training. At undergraduate level, students can choose between two specializations: biotechnology and pharmaceutical industry, and pharmacy.

Training in biotechnology and pharmaceutical industry is provided in a 4-year undergraduate programme. Pharmacy training follows two different subprogrammes. In the first, students receive training only in pharmacy, while in the second they are also exposed to teaching skills, enabling graduates to hold teaching positions.

Postgraduate pharmaceutical education consists of a 2-year *magistratura* either in "technologies of immuno-biological and microbiological medicines" or in "the biotechnology of medicines". Advanced research training both in dentistry and pharmacy is similar to that provided in medicine.

Educational standards

Education in Uzbekistan is centrally organized. All educational programmes have to conform to the educational standards of the respective disciplines developed by the State, and medical education follows the same principle. The educational standards in a given medical discipline are developed by a special working group which includes leading academic experts in the discipline, representatives of the Ministry of Health, and faculty members of relevant departments. After an initial review, the set of standards is submitted either to the Institute of Issues of Higher Education (institutions of higher education) or to the Institute of Development of Specialized Mid-level Education (professional colleges). When approved by these institutions, the standards are confirmed by the Ministry of Health and the Ministry of Higher and Specialized Education (personal communication with the MoH Department of Staff, Science and Education).

Registration and licensing

The Soviet Union had a single health care market and a unified medical education system. A diploma from any medical school in the country was able to grant the right to practise medicine in any part of the Soviet Union, and no parallel licensing system was in place. A medical diploma, once awarded, allowed clinical practice until retirement, provided the requirement of partaking in continuing medical education was met.

In what is now Uzbekistan, continuing medical education courses were conducted either at the Tashkent Institute of Advanced Medical Education or at the advanced medical education departments of medical schools. Health providers were expected to ensure compliance with the regulations on continuing medical education. Mandatory continuing medical education is still in place within a cycle of 5-year periods. According to Ministry of Health sources, approximately 20.9% of the physician pool underwent continuing medical education in 2005 (Institute of Health 2006).

Initial policies on quality assurance were drawn up in Uzbekistan in the mid-1990s. These policies considered health professionals to be the key to quality assurance. The Law on Health Protection stated that only those who held a graduation diploma awarded by higher or special medical education institutions of Uzbekistan were allowed to work in clinical practice. Those who graduated from educational institutions outside of Uzbekistan had to obtain approval for their diploma, according to procedures set out by the Ministry of Health. Those who had not been practising for more than three years were required to pass retraining or attestation processes (Republic of Uzbekistan 1996).

While licensing for employment in the public sector has stayed unchanged since independence and no additional licensing processes have been established, licences for private practice have been introduced. Licences for private clinical practice (in single or group practices) are issued by a special committee organized through the Ministry of Health. Until August 2005, a licence for private clinical practice was issued for five years. A new Governmental Decree abolished this time limitation and now all licences are valid indefinitely (President of Uzbekistan 2005b). The Ministry of Health licensing committee consists of a licensing council, which is headed by the First Deputy Minister of Health (all other members of the council are appointed by the Minister of Health), and an expert committee, the members of which are appointed by the Minister of Health (MoH 2003b).

The licensing council consists of a chairman (the First Deputy Minister), a deputy chairman, a secretary, and the council members. The council should meet at least once a month. Applications for licences are reviewed by the expert committee, which reports to the council. If the application does not

meet the necessary requirements, the council must provide written feedback to the applicant, who has to be informed within three days of the decision of the council (MoH 2003b). The application fee equals five times the minimum monthly salary, approximately US$ 45 at the time of writing.

The expert committee is charged with the detailed review of submitted documents. The committee consists of professional individuals with different fields of expertise and receives the application and the required documents from the applicant. The committee is expected to submit a report to the council within a period of 15 days and, if deemed necessary, may conduct on-site visits during this period (MoH 2003b).

The following documents are required for private practice licence applications (MoH 2003b):

- a completed application form;
- a legal copy of the government permit for business activities;
- a receipt for the payment of the application fee;
- an approval from a local sanitary-epidemiological control agency;
- a list of available medical equipment and devices;
- a document confirming the proper functioning of the listed equipment and devices, obtained from the state agency for technical standards;
- a legal copy of the diploma and work history of the applicant (in the case of a single practice) or the head of the facility (in the case of a group practice).

In 1999 the Ministry of Health, supported by ZdravPlus and the United Kingdom DFID, established a Centre for Licensing and Revalidation of Health Professionals. Project "Health" has supplied the Centre with office equipment, while the DFID provided consultative support in terms of a licensing framework and computer software. Currently, the Centre is primarily involved in assigning "attestation" qualifications. Within the Centre there is one central committee and 20 specialty committees involved in assigning these qualifications for physicians and pharmacists. Since its inception, 10 555 physicians and pharmacists have been evaluated. Of these, 8080 were given the highest qualification, 2206 the first, and 269 the second qualifications (MoH 2006). As mentioned above, these qualifications are linked to the salary scale in the public sector and need to be renewed every 3–5 years.

There are plans to create a database of practising health professionals, starting with physicians. A pilot licensing programme encompassing the retrained GPs has been carried out, and it is envisaged that all doctors will eventually go through this licensing process on a 5-yearly cycle. It will consist of knowledge and skills tests, but the educational portfolio will be a key part of the revalidation process (MoH 2006).

Relative importance of different health professionals

Similar to many other countries, the Uzbek health system rewards specialists over generalists and certain specialties (such as surgery and obstetrics/gynaecology) over others (such as psychiatry and radiology). In Uzbekistan, much of this imbalance can be traced back to the Soviet system and to recent changes in financial rewards. The Soviet system emphasized secondary and tertiary care, leading to a lack of faith in primary care providers on the part of the public. Inpatient physicians were regarded as providers of higher quality care, and inpatient care was considered superior to outpatient care, irrespective of the clinical condition. These preconceptions, combined with financial incentives, played an important role in drawing the best graduates into inpatient care, further undermining primary care.

Hard evidence on higher fiscal rewards for specialists over generalists or for certain types of specialties is difficult to obtain. At present, informal payments form an important part of physician income, but they are difficult to measure or quantify (see Chapter 4). According to the Living Standards Assessment produced by the World Bank in 2003, surgeons and emergency care physicians receive more significant informal payments than other health care workers (World Bank 2003).

After independence, extensive market mechanisms were introduced in the public health sector, increasing the flow of external cash into health care institutions. As part of these changes, the health care institutions could redirect a certain percentage of their non-budgetary income towards fiscal rewards for their staff. However, this primarily concerns secondary and tertiary care (see Chapters 4, 6 and 7).

Opportunities in the private industry, which offers higher levels of remuneration, were also more favourable for specialists, especially for those with a background in secondary or tertiary care institutions. Although it is difficult to quantify how much specialists benefit from external cash flows or what their comparative advantage is in the private sector, it can be assumed that these factors influence the career decisions of medical graduates.

A number of policies to change the public image of "underrated" specialties and the incentives available to them have been developed. An increased emphasis has been placed in recent years on general medicine. Per capita payment is expected to provide both monetary and non-monetary incentives by offering payment bonuses and financial independence for primary care practitioners (see Chapters 3 and 7). Improved facilities and access to new medical equipment could serve as additional incentives for primary care specialists (see Chapter 7). The Presidential Decree of 6 December 2005 introduced new incentives for

selected specialties, but these did not include general medicine (see Subsection 3.6, Paying health care personnel).

Specialties such as radiology, phthisiology (care, treatment and study of tuberculosis) and occupational medicine are undervalued specialties and experience a shortage of professionals. At this stage, the main governmental policy implemented to reverse this trend has been an increase in the number of educational places in the respective residency programmes for *clinical ordinatura*.

Clinicians with a scientific degree and involved in academic teaching are considered by the public to be providers of the highest quality health care. They therefore enjoy the highest status and potential financial rewards. This, in combination with enhanced opportunities for promotion, might explain the continued demand for academic medical training.

Medical education is the main governmental tool for the regulation of the number and mix of health care professionals in the Uzbek health system. As all medical education institutions are public, they are subject to strict governmental regulations. Public institutions have centrally set enrolment quotas both for undergraduate and postgraduate degrees (Master, PhD, and Doctor of Science). These quotas are further divided according to funding. For approximately 40% of overall enrolment, expenses (including tuition fees and a stipend) are funded by the Government, while approximately 60% of enrolment places are self-financed by students.

The number of both government-funded and self-financed enrolment places for undergraduate and postgraduate education is set by the Cabinet of Ministers, based on recommendations of the Ministry of Health, while the number of places for advanced academic degrees is set by the Ministry of Health and the Ministry of Finance (President of Uzbekistan 2006). This arrangement provides an easy regulatory tool to address imbalances in the supply of health professionals, as the number of new specialists depends on the number of training places. However, as evidenced by the current imbalances in the health system, other regulatory tools might be needed in the future to address this issue more effectively.

6 Provision of services

6.1 Public health

Public health has been defined as the science and art of promoting health, preventing disease, and prolonging life through the organized efforts of society (WHO 1998 [adapted]). In Uzbekistan, these functions are performed by different agencies, including the Sanitary-Epidemiological (san-epid) Services, the HIV/AIDS Centres, the Institute of Health, primary health care units, NGOs and international agencies.

The Sanitary-Epidemiological Services are responsible for environmental health services, food safety and controlling communicable diseases. They also notify the Department of Sanitary-Epidemiological Inspection of the Ministry of Health of illnesses defined as "especially dangerous diseases".

At the national level, the Department of Sanitary-Epidemiological Inspection is the main body responsible for the overall control of the status of sanitation and infectious diseases in Uzbekistan; it supervises all sanitary-epidemiological institutions in the country. The department is divided into two main sections: sanitation and epidemiology, reflecting the dichotomy throughout the entire sanitary-epidemiological system. The sanitation division is responsible for controlling the sanitary problems related to common industrial hazards: hygiene, radiation, food safety and related activities. The epidemiology division is responsible for preventing and combating communicable diseases. It has different units for virology, parasitology, tuberculosis and venereal diseases, cholera and plague, and "very dangerous infectious diseases".

The sanitary-epidemiological system is organized vertically, with services at the national, *oblast* and *rayon* levels. In 2005, Uzbekistan had 216 sanitary-epidemiological units, 7 disinfection units and 166 mixed-payment units (Institute of Health 2006). Mixed-payment units were developed to provide paid

services outside the main functions of the system. For example, households or other legal entities can use disinfection services of these units on a fee-for-service basis. In 2005 the san-epid system had a capacity of 6566 physician positions, of which 87.4% were filled. Some enterprises, such as the Railway Administration, the National Air Company and the National Security Service, maintain semi-independent sanitary-epidemiological centres which are not part of the mainstream system.

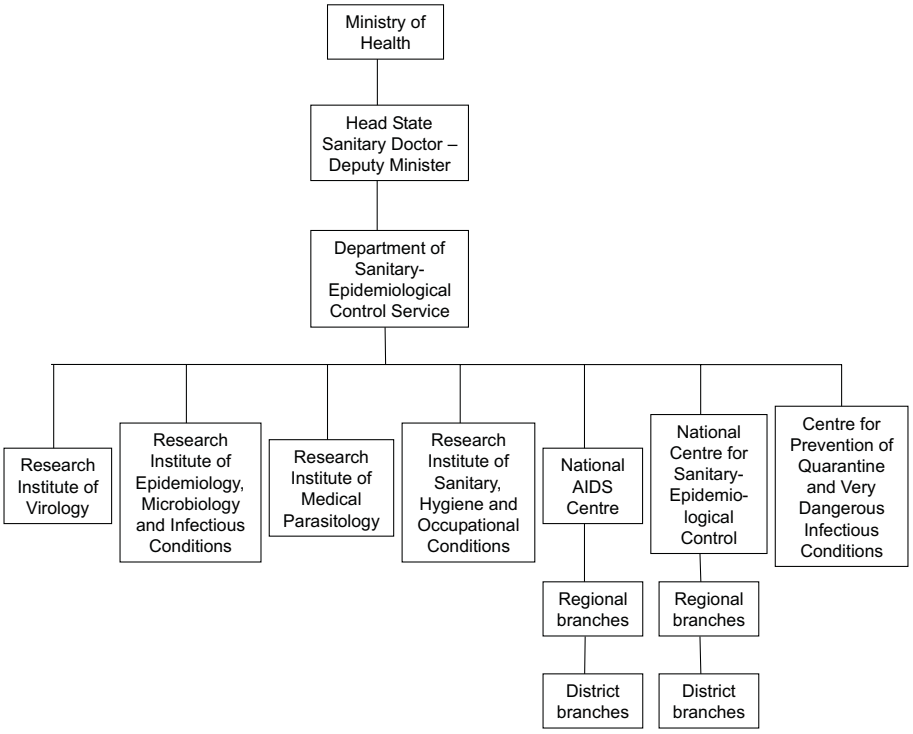
The dichotomous division of services is also reflected at the *oblast* and *rayon* levels. The sanitary units are equipped with physical laboratories for work on environmental exposure such as noise, vibration and pollution in the workplace. The epidemiological stations have laboratories for bacteriology, virology, immunology, parasitology and special laboratories for the prevention and early detection of "especially dangerous infectious diseases". Disinfection units act as independent entities and perform disinfection-related activities.

Rayon sanitary-epidemiological stations are responsible for inspecting sanitary conditions, water supply and nutrition, and for preventing infectious diseases among the population. They are also tasked with the supervision of health education targeted at pregnant women, and with health education in schools which concentrates on seasonal diseases, vaccination and nutrition. *Rayon* centres report to sanitary-epidemiological centres at the *oblast* level.

In addition to the sanitary-epidemiological centres at national, *oblast* and *rayon* levels, the san-epid system has a number of research institutes and centres. Figure 6.1 provides an outline of the organizational structure of the sanitary-epidemiological system in Uzbekistan. The Institute of Health and its branches used to be part of the san-epid system, but, following a merger with the Analytical Information Centre, the Institute is now directly accountable to the First Deputy Minister of Health.

Uzbekistan established a vertical infrastructure for preventing and treating HIV infection and AIDS in 1998, separating it from the Sanitary-Epidemiological Services. The National AIDS Centre is located in Tashkent, with branches operating in each *oblast*. The Centre has an immunodiagnostic laboratory and treatment facilities. It receives reports of registered HIV and AIDS cases on a monthly basis and serves as a reference centre for blood testing throughout the country. The Centre has three main functions: preventing HIV infection and AIDS; analysing the epidemiology of HIV and AIDS in Uzbekistan; and treating people with HIV infection and AIDS. The *oblast* centres primarily carry out surveillance and diagnosis of HIV and AIDS and perform health education mainly by distributing leaflets that inform about the severity of the disease, forms of transmission and ways to prevent it. In Tashkent, the Centre offers anonymous testing and counselling free of charge. However, free testing

Fig. 6.1 Structure of the Sanitary-Epidemiological Services



Source: Ministry of Health, personal communication, 2006.

is not easily available in other health facilities in Tashkent and elsewhere in the country. The Government is currently implementing multimillion dollar projects on HIV/AIDS, jointly with international agencies such as the Global Fund, which aim to extend the network of "anonymous cabinets" for free testing and "trust points" for drug users (IRIN/PlusNews 2006).

Health promotion and education in Uzbekistan is carried out by a number of governmental and nongovernmental agencies. Most primary care providers are involved in some kind of promotional or educational activities, and these have been envisaged as one of the main functions of primary health care (MoH 2004a). Uzbekistan has also enacted an integrated plan for family planning, according to which polyclinics are expected to provide health education on family planning for women of reproductive age.

Preventive services are also incorporated into primary care services and are considered to be a critical part of the health care delivery process. Major governmental documents related to the reform of the health care sector have

stated that preventive services are a priority area for governmental efforts (President of Uzbekistan 1998; Republic of Uzbekistan 1996). Immunizations and vaccinations are carried out by public primary care providers and are coordinated and controlled by *rayon* health authorities and sanitary-epidemiological units. The Ministry of Health has developed a protocol for mandatory immunization and vaccination, which is strictly monitored and controlled. In recent years, the private sector has been gradually developing new services to meet new demand for vaccination and immunization services not covered by the public sector. Immunization against hepatitis A and B and influenza are widely available in the private sector in larger cities.

The Institute of Health was created in 2001 and was envisaged to become the main national player in health promotion and education. The Institute has 14 *oblast* branches, and 159 *rayon* and 15 urban health centres. The Institute has four units: the Media Relations Unit, the Editors' Unit, the Unit for Health Promotion and Education, and the Unit for Health Information. The Unit for Health Promotion and Education also has subunits on maternal and child health, promotion of healthy nutrition, prevention of harmful behaviour, promotion of healthy lifestyles and promotion of hygiene. The Unit for Health Information has subunits on forecasting morbidity, medical-sociological surveys, and on the prevention of communicable and noncommunicable conditions. Up to 2004, the Institute of Health, in cooperation with international agencies, had developed 9 educational or promotional films, 26 radio and 33 video advertisements, 20 posters, 54 information leaflets and more than 100 reminder leaflets.

Many international agencies, such as ZdravPlus, Project Hope and Central Asian Free Exchange, have been actively involved in health promotion in Uzbekistan. An initiative with a focus on improving adolescent reproductive health and maternal education is currently being carried out by Project Hope (Project Hope 2007). ZdravPlus has run four major campaigns in pilot *oblasts*, in cooperation with local health authorities and the regional units of the Institute of Health. The campaigns focused on anaemia, diarrhoea, pneumonia in children, and family planning, and they incorporated a wide range of communication channels, including periodicals and social marketing via national television. An evaluation of these campaigns has shown that they were effective in instituting behavioural changes (Information leaflet produced by ZdravPlus [unpublished]).

There are a number of activities aimed at improving nutrition. In 2002 Uzbekistan initiated weekly (as opposed to WHO-recommended daily supplementation) iron-folate supplementation for pregnant women, children aged 1–2 years and girls aged 12–14 years in three *oblasts*, now extended to six *oblasts* with the financial support of UNICEF and the Japanese International Cooperation Agency (JICA). In the framework of the "Health II" project, the

Government aims to expand this programme to the remaining seven *oblasts* by the end of 2007. Iron tablets are available to pregnant women free of charge when receiving antenatal care (Kamatsuchi 2006).

Flour fortification is advancing well when compared to other countries in central Asia and has now been initiated at 14 government-managed mills, with the support of World Bank, Global Alliance for Improved Nutrition (GAIN), UNICEF, and the Asian Development Bank (Kamatsuchi 2006).

Vitamin A supplementation for children aged 6–59 months is being conducted through Healthy Child Weeks, supported by UNICEF. Universal salt iodization legislation, which has been enacted in all other countries in central Asia, has yet to be adopted in Uzbekistan (Kamatsuchi 2006).

International agencies have involved local NGOs, but recent government policies have meant that the work of NGOs has been reduced, so that the bulk of health promotion must now be carried out through government organs such as *Mahalla* groups (local community organizations) and through health workers.

The other focus of international involvement was health education in schools. To assist the Government in its commitment to introduce health promotion classes into the school curriculum, international organizations cooperated with the Ministry of Education in 2002 to develop a health promotion curriculum. The curriculum has been approved by the Ministry of Education and *oblast* education authorities and has been rolled out to schools first at the *oblast* and then at the national level. The health promotion classes were covering reproductive health, drug addiction and infectious diseases (Information leaflet produced by ZdravPlus, no date [unpublished]).

Occupational health services are provided by a number of specialized institutions with inpatient, outpatient and general rehabilitation units. Historically, these institutions were funded by the relevant industries but were coordinated by the Ministry of Health. The role of the Ministry of Health in occupational health services remains related to medical aspects of care rather than to actual planning, regulation and monitoring.

Major programmes outside the health sector directed at the prevention of injuries and mortality are carried out on an annual basis by the traffic units of the Ministry of Internal Affairs and the fire brigades. The programme on traffic safety includes education by traffic police in schools and advertisements in public transport, radio and television. However, it is unclear whether these efforts are coordinated with similar activities performed under the umbrella of the Ministry of Health.

6.2 Patient pathways

Patient pathways in the Uzbek health system differ according to the type of care sought (primary, secondary or tertiary care), the geographical location of the patient (in particular the proximity to care providers), and the ability and willingness to pay for services. The pathways also differ depending on whether the specific care type is included in the government-guaranteed basic benefits package. To effectively address all these nuances in the current patient pathways in the Uzbek health system, the following sections provide information on patient pathways according to different types of care.

6.3 Primary/ambulatory care

Primary care services are provided by a variety of providers in Uzbekistan, and can be utilized by patients depending on their choice, financial status and location. Patients can access primary care services from public primary care units, outpatient clinics of public secondary and tertiary institutions, and private outpatient clinics. In some cases, private arrangements can be made for private consultations by physicians in inpatient care. The financial status and the location of the patient, however, are likely to be the main determinants of whether public or private providers will be utilized.

This section outlines the actual framework for the delivery of primary care in Uzbekistan. It describes the two main pathways (public and private) with their respective settings and models of delivery, and provides information on referral processes and the quality and scope of primary care services.

Public settings

Publicly funded primary care has for a long time been an integral part of the Uzbek health system. Since the Soviet period, primary care providers have been extensively distributed throughout the country and were geographically accessible to most of the population. This infrastructure has been maintained through the years of independence. Although Uzbekistan has a unified delivery of primary care in terms of its content throughout the country, structurally, it can be divided into rural and urban primary care "models". These "models" were tailored towards geographical specifics and population density.

The rural primary care "model" is based on a hierarchical system of delivery, consisting of several levels. The first point of contact has historically been the

FAP. The second level of primary care in rural areas is delivered by SVAs or, in more populated rural areas, by polyclinics.

The FAP is the most peripheral unit of health services for the rural population in Uzbekistan. It dates from the Soviet era and provides access to basic health care services. Almost the entire population is within 2 km of an FAP. Such a post serves a catchment population of between 600 and 3000 (Ilkhamov, Jakubowski & Hakioff 2001). Staff provide basic curative, antenatal and postnatal care and undertake limited health promotion activities, such as immunization and health education. The posts are staffed with one to three health care workers, usually including a *feldsher* and a midwife. The number of FAPs, however, has been reduced substantially since independence, from 5251 in 1997 to 2115 in 2005 (Institute of Health 2006).

The next level of services in rural areas, SVA facilities, are staffed with an average of four physicians. They usually include a specialist in internal medicine, a paediatrician, an obstetrician and a dentist.

The third level of primary care consists of the outpatient clinics of SUBs or CRBs.

Although the above-mentioned structure is still the prevalent form of public primary care in Uzbekistan, this "model" is currently undergoing changes. As part of a national primary care reform initiative, SVPs have been introduced in three pilot *oblasts* and are now being gradually rolled out throughout the country (see Chapter 7).

Under the new structure, all primary care providers will be replaced by a two-tiered system. The first point of contact will be the SVP, while secondary outpatient care will be provided at the next level, by outpatient clinics of CRBs.

The primary care staff in this new "model" are determined by the size of the population covered. Four types of SVP have been determined, each with a specified number and type of personnel, space and equipment (Karimov et al. 1998): level one will employ one physician to serve a catchment area of 1500–2500 inhabitants; level two will employ two physicians and serve 2500–3500 inhabitants; level three will provide three or more physicians to serve 3500–5500 inhabitants; and level four would represent a rural medical centre for training and education with 7–10 physicians. The number of training medical centres in rural areas is planned to be limited to one or two per *oblast*. These would serve as education centres in general practice for physicians and nurses.

In contrast to the previously existing teams of specialists, SVPs are staffed with GPs who lead the team working at the practices. Specialist physicians are

gradually being retrained to become GPs (see Chapter 7). It is expected that GPs will become the major providers of primary health care in rural areas.

In urban areas, primary health care and selected secondary care services are provided by polyclinics. They provide outpatient services to between 10 000 and 80 000 people. City polyclinics are often large health care facilities with 10 or more staff. Polyclinic staff usually consist of specialists in internal medicine, paediatricians and other specialists. There are several types of polyclinics: those for adults, children, the general population and specializing in women's health. In contrast to providers of rural primary care, polyclinics are equipped with more specialized equipment for diagnostics and treatment. Recent trends in introducing general practice in rural areas are being replicated in urban areas as well. All types of polyclinic are currently being transformed into family polyclinics which provide primary care for all groups of the population.

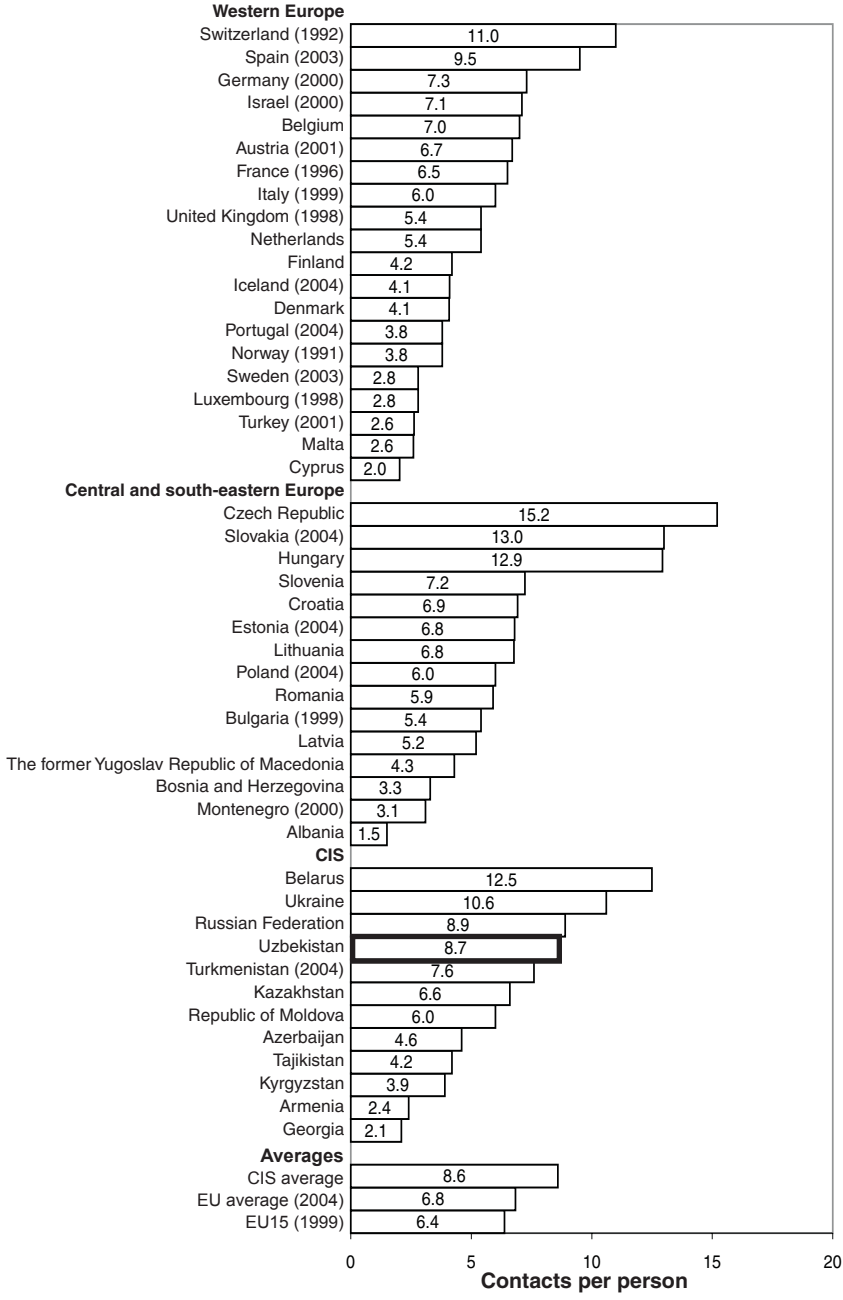
In 2005, Uzbekistan had 4354 public institutions staffed with physicians providing some form of primary care, including 105 stand-alone public clinics for dentistry (Institute of Health 2006). The number of these primary care providers has grown by some 25% since 1996, when it stood at 3450, an increase which can be primarily attributed to the increase of SVPs, from 307 in 1996 to 2797 in 2005 (Institute of Health 2006). The number of all other types of primary care provider has declined in recent years. Rural outpatient clinics account for the largest decrease in absolute figures, with a reduction from 1400 in 1996 to 265 in 2005 (Institute of Health 2006). This structural transformation of primary care delivery is in line with governmental reforms that aim to create a two-tiered system of rural primary care, consisting of SVPs and outpatient clinics of CRBs.

Outpatient contacts have seen a gradual increase from the second half of the 1990s. From 5.8 contacts per year in 1994, their number has grown to 8.7 in 2005 (Institute of Health 2006), although the reasons for this increase remain unclear (see Fig. 6.2).

In addition, the SVPs under the new scheme employ so-called "patronage nurses", whose main responsibility is to conduct home visits. These home visits generally include households with neonates, pregnant women, or elderly people.

Screening is another function of primary care units. Primary care physicians should conduct regular screenings of different segments of the population, such as school children or pregnant women. In addition, screening is required by many employers in order to employ staff or by institutions of higher education as a part of the application process. These screenings, however, are not specific enough, are often supposed to cover a broad range of conditions, and may not always be the most cost-effective or efficient clinical practice.

Fig. 6.2 Outpatient contacts per person in the WHO European Region, 2005 or latest available year (in parentheses)



Source: WHO Regional Office for Europe, 2007.

Notes: CIS: Commonwealth of Independent States; EU15: European Union Member States before May 2004.

Private settings

The private sector provides a much simpler framework for the delivery of primary care, which is provided by single or group practices and by outpatient units of large clinics. While data on the utilization of primary care by the types of private provider and on the scope of the care delivered are not available, anecdotal evidence suggests that most primary care in the private sector is provided by group practices in large urban areas. In rural and smaller urban areas, the prevalent form of delivery is by practitioners in single practices or through private arrangements with physicians employed in the public sector.

According to the Ministry of Health, in 2004, a total of approximately 1500 licences for group practices (clinics) and approximately 1500 licences for private single practices were valid. The number of private licences issued showed an upward trend in recent years: 412 licences were issued in the years 2002–2003 and 356 in the year 2004 alone (MoH 2004b).

Patient pathways

A typical patient pathway in the utilization of primary care services could be described as follows. Patients can obtain free non-emergency primary care from:

- FAPs and rural outpatient clinics according to the original "model", and SVPs in the new "model", in both cases within a rural catchment area;
- polyclinics (adults, children, women) in the original "model" and family clinics in the new "model", in both cases within an urban catchment area;
- outpatient clinics of CRBs if living in a rural catchment area, and outpatient clinics of urban or central urban hospitals if living in an urban catchment area.

The following providers will charge for the services rendered:

- outpatient units of secondary and tertiary care institutions, both at *oblast* and national levels;
- private providers.

When obtaining primary care services from public providers, such as primary care institutions or outpatient units of CRBs, some fees may be charged for diagnostic and laboratory tests. Pharmaceuticals are generally covered by out-of-pocket payments (for exceptions see Section 3.2). When obtaining care directly from the outpatient units of secondary and tertiary care institutions, the patient has to pay service charges. Visits to private providers have to be fully paid by the patient. Price setting in public secondary and tertiary care institutions has

ceilings defined by the Ministry of Health (with up to 25% mark-ups on the costs), whereas private providers are free to set their own prices.

The right to choose health care providers was one of the early government initiatives when introducing market forces into the health care arena. The Law on Health Protection guaranteed the right to choose a physician and a health care institution (Republic of Uzbekistan 1996). This new policy was in contrast to the Soviet "model" where the choice of providers was limited by the hierarchical order of the health system and based on a strict referral system. The Law opened the way for competition between private and public providers based on mixed financing.

According to the Law on Health Protection, patients have the right to obtain primary care in any primary care provider setting throughout the country. In practice, however, the regular utilization of primary care services in an area outside the zone of registration[1] is problematic. The new financing mechanism, which is based on capitation and is planned to be implemented nationwide, will further limit universal access to primary care services by the patients' place of residence (see Chapters 3 and 7). Emergency services, however, will continue to be provided by any public primary care provider, irrespective of the patient's registration area (Republic of Uzbekistan 1996).

Factors such as the availability of alternative providers and geographical access also play an important role in achieving choice. Approximately 63% of the population live in rural areas with a limited choice of health care providers. No data, however, are available on the awareness of the population of their legal right to choose health care providers and how far this right is exercised.

The scope of primary care

The scope of primary care varies according to where and on what terms the services are provided. A state-guaranteed package of services in public primary care has been developed by the Ministry of Health (MoH 2004a). It defines the scope of primary care services to be provided by the above-mentioned health care institutions that provide primary care free of charge. These providers are also responsible for the prevention of infectious diseases through vaccination (against polio, diphtheria, tuberculosis, pertussis, tetanus and measles), for reproductive health, the provision of health surveillance for people in particular

[1] The Soviet system of registration according to the place of residence is still in place. Registration is carried out by local police departments and the current address is documented in the passport.

risk categories, and for health promotion and education for those registered in the provider's own catchment area (Karimov et al. 1998).

The scope of primary care services is less clearly defined when patients access primary care providers which charge for their services. Often, the same provider offers primary and specialized care depending on patient needs and resources, without any distinct division between levels and types of care.

Referral processes

Although public primary care providers are expected in the current reform context to provide high-quality and accessible primary care to the population, they face a number of challenges. Existing financial and structural arrangements do not place primary care at the centre of the Uzbek health system. As both secondary and tertiary care are outside the state-guaranteed benefits package (see Chapter 2 for exceptions), there is no strong link between primary and other forms of care. GPs also lack financial incentives to take on a gatekeeping role and efforts to contain the costs of health services have been directed at other branches of the health system.

As already mentioned, secondary and tertiary services are gradually moving towards a system of mixed financing (see Chapters 3 and 7). These health institutions act as enterprises and attract revenue from sources other than the Government. Patients can easily refer themselves to any secondary or tertiary institution.

The private industry is even less regulated in terms of referral processes. Patients can easily opt for private care providers anywhere in the continuum of care without any referral. There are also no restrictions on patient choice of private providers.

Quality of care

Quality monitoring and assurance in primary care has traditionally been limited to structural and outcome indicators, with no major changes in the years after independence. While some initiatives are being launched which concentrate on process indicators (see Subsection 4.2, Health technology assessment), these quality-assurance activities exist primarily in the public health care system and the private sector has not been involved in the process. While no representative national survey to assess the quality of care has been conducted so far, anecdotal evidence suggests that many medical practices are outdated.

The USAID-funded ZdravPlus project has been pioneering simple continuous quality-improvement initiatives at the primary care level in some *oblasts*, which

have been institutionalized into GP training programmes. Such concepts as self-monitoring (both of process and outcomes) and teamwork are set to be utilized increasingly in order to help ensure the effectiveness of training programmes and dissemination of new evidence-based clinical guidelines.

With regard to structural quality indicators, evaluations have shown that some public health care facilities, especially in primary care, have no central water supply, heating or centralized drainage system and are very short of medical equipment (see Chapter 7), although some of these issues are being addressed through the World Bank "Health II" project currently under way.

6.4 Specialized ambulatory care/inpatient care

Inpatient care in Uzbekistan is delivered by public and private providers. Public inpatient care is an integral part of the statutory health care system. This section will outline the actual framework for the delivery of inpatient care, describe the public and private pathways and the respective settings and models of delivery, and provide information on the referral process and the quality of services.

Public settings

Since Uzbekistan's independence, the delivery of public inpatient care has undergone important changes in terms of management and financing, with a process of decentralization and increased autonomy for health care providers (see Chapters 3 and 7). Structural changes were mostly related to the reduction of hospital capacities and the establishment of a new framework for the delivery of emergency care.

In the public sector, inpatient care is provided by rural *rayon* hospitals, CRBs, *oblast* and city hospitals, and by specialized hospitals. The number of public institutions involved in the delivery of inpatient care decreased from 1151 in 1997 to 987 in 2004 (Institute of Health 2006).

The delivery of inpatient care is structurally different in rural and urban areas, similar to the delivery of outpatient care (see Fig. 6.3). In rural areas, the first points of contact for patients seeking secondary care are rural hospitals (*Uchastkovaya bol'nitsa*), *rayon* hospitals (*Rayonnaya bol'nitsa*) and CRBs.

Rural and *rayon* hospitals serve a catchment area of 10 000–12 000 people and are staffed with paediatricians, specialists in internal medicine and obstetricians. They have 15–75 beds, with an average of approximately 45, and provide first aid and basic secondary care. CRBs have approximately

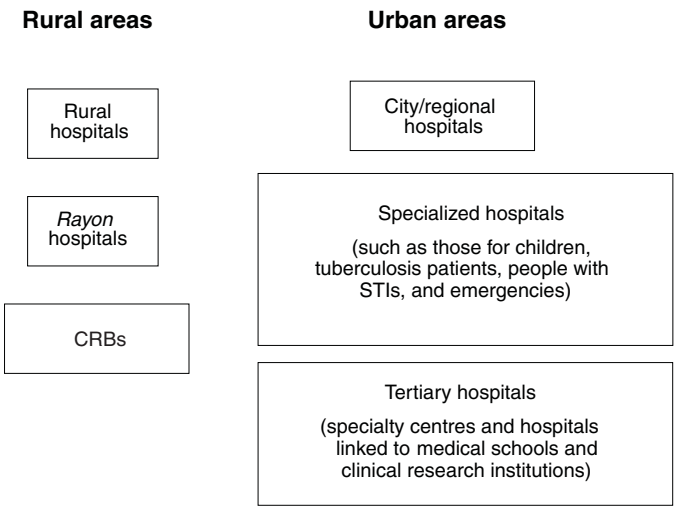
100–300 beds and are staffed with a range of specialists. Some also incorporate a polyclinic (Ilkhamov, Jakubowski & Hakioff 2001).

Between 1997 and 2004, a significant reduction in the number of rural hospitals had taken place, from 312 to 169, while the number of *rayon* hospitals and CRBs increased slightly from 191 to 194 during this period (Institute of Health 2006). This trend is in line with government efforts to shift the focus from inpatient to outpatient care. However, anecdotally, a number of these previously public rural hospitals have been allowed to switch to private ownership, and now charge fees for their services. Data on such changes are lacking.

It should be noted that rural hospitals, *rayon* hospitals and CRBs are defined as primary care providers in the Uzbek health system; they are charged with the provision of the state-guaranteed package of medical services.

In urban areas, *oblast* and city hospitals deliver inpatient care for the population, within the state-guaranteed package of services. Regional and city hospitals, located in the main town of each *oblast*, have between 600 and 1000 beds and offer the services of a range of secondary care specialists, along with more complex services. The number of city hospitals has been reduced in the period 1997–2004 by approximately 20% (Institute of Health 2006).

Fig. 6.3 Hospital types in rural and urban areas



Source: Authors' compilation.

Maternal and child health has been one of the priorities for Uzbekistan's health system. In 2004, most postnatal care was delivered in 51 maternity units, the number of which has not changed much since 1997 (Institute of Health 2006). These maternity units also provide some antenatal care.

At *oblast* level, many disease categories and population groups are treated in separate hospitals. These include children's hospitals, tuberculosis hospitals, hospitals treating STIs, neurological and psychiatric hospitals, and emergency hospitals.

Tertiary inpatient care is generally provided in large hospitals and research institutes at the national level. In 2004 there were 26 institutions linked to medical schools and clinical research facilities and 46 specialty centres primarily involved in the provision of tertiary care (Institute of Health 2006).

The number of hospital beds per 1000 population increased in the 1980s, peaking at more than 12 per 1000 population in 1990, which was among the highest in Europe (WHO Regional Office for Europe 2007). However, until 2005 bed capacity witnessed a sharp decline of more than 50%, reaching 5.2 hospital beds per 1000 population, a level slightly below the EU15 (5.7 in 2004) and CARK (5.9) averages (Institute of Health 2006; WHO Regional Office for Europe 2007).

Admissions and average length of stay in hospitals decreased by 13–15% between 1995 and 2003 (Langenbrunner, Salikhova & Karimova 2006). The number of admissions into acute care stood at 15.0 per 100 in 2005, compared to a CIS average of 19.7 and an EU15 average of 17 in 2003 (WHO Regional Office for Europe 2007).

Although there are efforts by the Government to improve access by the population to high-quality care through investment in health facilities and new equipment, the public sector is clearly underfunded. Introduction of fee-for-service arrangements is expected to bring external resources into the public sector. The private sector has obvious advantages over the public sector in terms of more flexible decision-making and government regulations that facilitate access to capital. The government-run banks have been charged with the task of developing a new financial product tailored towards private health care initiatives, as well as a 2-year relief from all taxes, during which time resources are being reinvested in technology. Data on how much funding was made available to the private sector by the public banking system, however, are not available.

Patient pathways

In general, patients in need of inpatient care can choose any of the following paths.

- They can visit rural hospitals or CRBs, *oblast* hospitals or any other public inpatient institution not included in the self-financing scheme (see Chapter 3). In this case, patients will be able to receive basic secondary-level care and be responsible for limited cost sharing (for example for food, communal expenses, or pharmaceuticals that may be lacking); specified population groups and clinical conditions are exempted from cost sharing (President of Uzbekistan 1998; Republic of Uzbekistan 1996).
- They can visit public inpatient care institutions included in the self-financing scheme. In this case, patients will have to pay the price charged by the institution. The price-setting process is regulated and has ceilings (see Chapter 3). If patients qualify for the government reimbursement scheme (people with disabilities, orphans, veterans, etc.) they are eligible to receive care free of charge in these institutions and expenses are reimbursed by the Ministry of Health (President of Uzbekistan 1998). Reimbursed care, however, should not exceed 20% of the total budget of the institution.
- They can visit any private provider. In this case, patients pay the price charged by the institution. According to legal provisions, specified groups of the population might obtain inpatient care from private institutions, expenses for which will be covered by the Government (see Chapter 4). However, there are no data available on whether or how this right is exercised. Most budgetary allocations for "vulnerable" groups seem to be directed towards public sector institutions and planned in advance.

Referral

With the introduction of new market elements into inpatient care, the link between primary care and inpatient care has been loosened. The establishment of a health insurance system was expected to address system inefficiencies, improve access to inpatient care, and reduce patient cost sharing. However, initiatives aimed at the establishment of a health insurance system have so far been unsuccessful.

A number of initiatives were developed by the Government to improve access to inpatient care for selected groups of the population. According to the newly designed system, the Ministry of Health issues permits to selected patient groups (people with disabilities, orphans and veterans) to utilize secondary and tertiary care services (President of Uzbekistan 1998). These permits reimburse

health care providers for the expenses incurred in the diagnosis and treatment of patients, within the limits of the funding earmarked for this purpose. The funding of permits is determined by the Government on an annual basis (Cabinet of Ministers 2003). Patients who fall into the defined population groups have to apply to the Ministry of Health or to *oblast* health authorities to obtain a permit, although no data are available on the number of applications or permits.

Quality

Quality evaluations are mainly limited to public health care facilities and focus mostly on structural aspects rather than outcomes, and process evaluations are generally not carried out. Structural evaluations of the state of health facilities and equipment are undertaken by agencies of the Ministry of Health, but it is not clear how outcome measures gathered during these evaluations (mostly related to hospital mortality and complications) are fed back to the health care facilities which have been evaluated. Some institutions, especially tertiary-level and private providers, have developed their own institutional frameworks for outcome and process evaluations, showing how they can be used to improve the services provided. ZdravPlus has, with some success, worked with one hospital in Ferghana *oblast* to pilot a quality-improvement project targeted at paediatric care. As the Asian Development Bank "Woman and Child Health Development" project gets under way, ZdravPlus is supporting the training of hospital managers and senior administrators in the use of continuous quality-improvement techniques, and it is hoped that this will help lead to an expansion of such activities throughout the country.

6.5 Emergency care

Since independence, emergency care services have undergone significant reforms. In the Soviet period, the provision of emergency care could be divided into two elements. Basic emergency care on site or at home was the function of the ambulance system (*tez yordam*), while more sophisticated emergency care requiring health facilities was provided by almost all hospitals.

During the Soviet period, ambulance centres were organized throughout the country. Upon receiving a call or after being informed in person (in particular in more rural areas where access to phones was more limited), an ambulance would be dispatched. Ambulances were generally staffed by at least a driver and a health professional (physician or *feldsher*). Whenever possible, the emergency

care needs of the patient were addressed on the spot and if needed, the patient was transported to an inpatient facility for further care.

In rural areas, rural hospitals, *rayon* hospitals or CRBs used to serve as the primary location for more sophisticated services. The health authorities regulated which hospitals served as destination points. The physicians on duty at the hospital provided the necessary care and the patient could be hospitalized into the relevant hospital departments (such as internal medicine, surgery or cardiology). If needed, the patient was transported to the facility for the next level of care.

While patient transportation and on-site care for the emergency needs of the population have remained practically unchanged, hospital-based emergency care has undergone large-scale reforms. A network of emergency departments has been organized throughout the country within the existing inpatient facilities at *rayon*, *oblast* and national levels. In rural areas, *rayon*-level departments with 5–20 beds are generally organized within CRBs. In urban areas, these departments are located at the urban or central urban hospital. Emergency care at the *oblast* level is represented by separate health facilities designated as *oblast* emergency centres. At national level, the National Emergency Centre in Tashkent serves as the referral point.

In 2004, the emergency care framework consisted of one Centre of Emergency Care in Tashkent and 12 branches, made up of free-standing *oblast* health facilities with a total bed capacity of 358. There were also 204 ambulance stations, of which 159 were based at CRBs (Institute of Health 2006).

The patient pathway for emergency care could follow one of three routes.

- Patients can call the public ambulance services. If emergency care needs are not met on site, patients are transported to the emergency care network at the *rayon* or urban levels and, if necessary, to the *oblast* or national levels of emergency care. When using this pathway, no official user fees are charged, as *de jure* all emergency services are free at the point of access. However, as at other levels of the Uzbek health system, the existence of informal payments has been reported. Yet, overall the emergency care system is considered to be much better provided with equipment, medical aids and devices, and medications, than other public health facilities.
- Patients can also call private ambulance services, which are mostly available in larger urban areas. If emergency care needs cannot be met on site, patients are transported to the public emergency network or to private clinics. All encounters with non-public care providers are charged fee-for-service payments which are paid for on an out-of-pocket basis.
- Finally, patients can also arrange their own transport to either public or private health facilities providing emergency care.

Health reforms introduced the concept of formally free and accessible emergency care for all, which seems to have led to an overload of emergency services.

6.6 Pharmaceutical care

Prior to Uzbekistan's independence, the central Ministry of Health in Moscow controlled drug regulation and procurement for the whole of the Soviet Union. Since independence, Uzbekistan has faced the challenge of maintaining the supply of drugs and vaccines, while developing and implementing its own national drug policy. The gradual development of a national drug policy resulted in a clear division of the roles of the Government and the private sector. The Government maintained mostly regulatory functions, while production and distribution were delegated to the private sector. This section describes the pharmaceutical sector from two perspectives: regulation and distribution.

Regulation

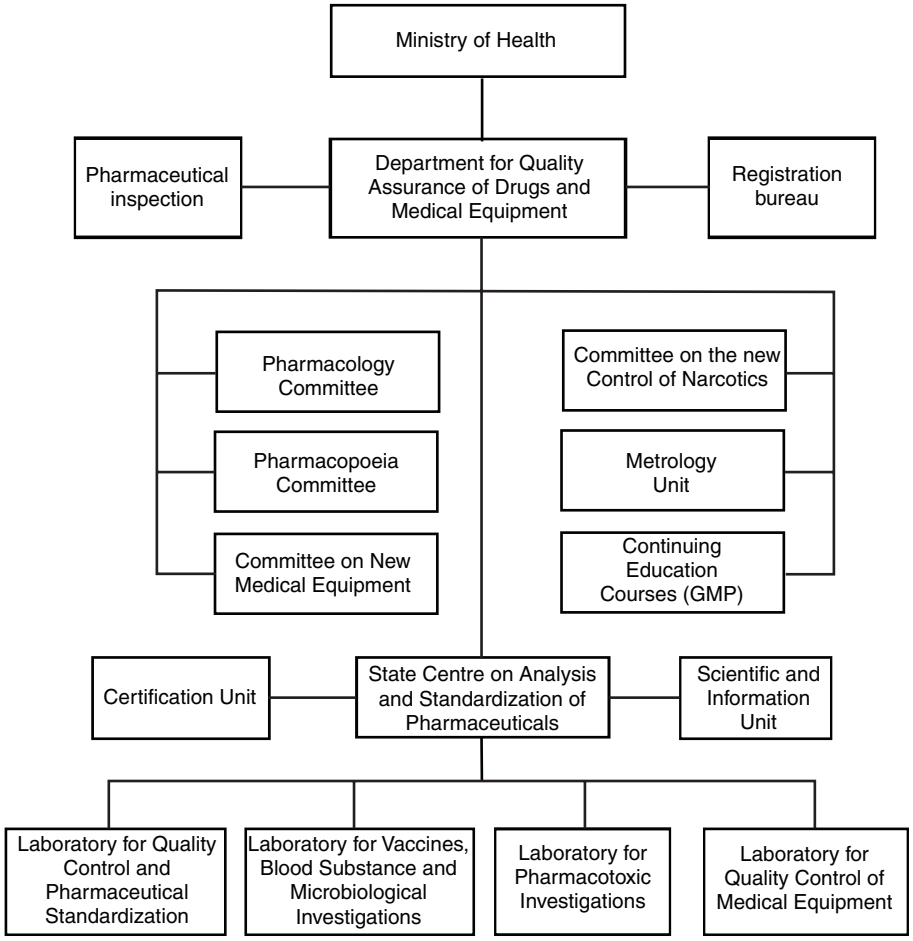
The Ministry of Health is the principal regulatory body in the pharmaceutical arena. It exercises its regulatory role through the Department for Quality Assurance of Drugs and Medical Equipment (Fig. 6.4), which has been set up by a Governmental Decree (Cabinet of Ministers 1995). The department develops and implements quality standards with regard to pharmaceuticals and medical equipment. It is the only state agency responsible for the quality control, standardization and certification of drugs and medical equipment.

In 1999, Uzbekistan passed the Law on Narcotics and Psychotropic Substances. The same year, it adopted a national policy on pharmaceuticals that provides a comprehensive framework for coordinated development of the pharmaceutical sector.

The official state register of pharmaceuticals approved for medical use in Uzbekistan contains approximately 3900 products. The listings are based on the brand name and also indicate the international nonproprietary (generic) name. These products are officially permitted to be prescribed and used in the Uzbek health system. The register contains drugs produced in Uzbekistan, as well as drugs from other countries.

In order to register domestic products, clinical trials are necessary. To register imported pharmaceuticals, a defined set of documents have to be submitted to the Department for Quality Assurance. A committee consisting of three experts reviews the documents and, based on the results, pharmaceuticals are permitted

Fig. 6.4 Organizational structure of the Department for Quality Assurance of Drugs and Medical Equipment



Source: Authors' compilation.

for use without clinical trials, or are required to undergo a clinical trial or a trial for bio-equivalency. Certain pharmaceuticals are eligible for exemption from clinical trials:

- if they have been in medical use for more than five years, and are registered in several countries, including the country where they are produced;
- if they are produced by a pharmaceutical company registered in Uzbekistan;

- generic drugs, if registered and licensed in the country where they are produced and in several other countries, to the extent that bio-equivalency trial outcomes are available.

Registration of medical equipment follows a similar path.

Uzbekistan has adopted the concept of essential drug lists and published a national essential drug formulary in 1998. The national essential drug list contains approximately 240 products, including over-the-counter products, and provides updated information on drugs. The list is based on the WHO model list of essential drugs. In addition, the Ministry of Health is exercising price regulation for the 20 most basic products. All pharmacies, regardless of ownership, are required to offer these 20 products for a fixed consumer price (Ilkhamov, Jakubowski & Hakioff 2001).

The current list includes the following pharmaceuticals:

1. Aspirin
2. Analgin
3. Boric acid
4. Bandage
5. Medicinal cotton
6. Validol
7. Mustard plaster
8. Dimedrol
9. Dibasol
10. Levomycetin
11. Tincture of valerian
12. Nitroglycerine
13. Tincture of iodine
14. Novocaine
15. Papaverine
16. Aqueous ammonia
17. Brilliant green
18. Senadexini
19. Aminophylline
20. Ferramidi

This list of 20 products, however, has not been changed since 1994. For all other products, price regulation is based on limiting wholesale and retail

mark-ups (to 20% and 25% respectively) (MoH Department of Treatment and Prevention, personal communication).

Distribution of pharmaceuticals

Uzbekistan inherited a well-developed drug distribution system from the Soviet period. This included the centralized state pharmacy (*Farmatsija*) system and its regional divisions and pharmacies (Ilkhamov, Jakubowski & Hakioff 2001).

In the early 2000s, Uzbekistan had 3600 pharmacies, 2220 of which were formerly state owned, while the remaining 1380 pharmacies have been newly established. State pharmacies are now almost completely privatized, either as part of a joint shareholding association (Dori-Darmon, the former sole drug distributor), or as a single or group pharmacy (Ilkhamov, Jakubowski & Hakioff 2001). The relative success of privatization has helped to ensure competition and provided new opportunities for circumventing the shortages of foreign drugs. However, it is difficult to obtain up-to-date data on operational private pharmacies (such as their number or scope), as they are outside the framework of the Ministry of Health and do not report to any of the Ministry of Health agencies.

Dori-Darmon has traditionally been the main source of drugs for hospitals, but the share of private distributors has recently been growing. Each hospital places an annual order with Dori-Darmon and deliveries are normally made on a weekly basis. Private sector supply is based on individual negotiations. Private drug distributors also supply drugs to pharmacies, polyclinics and private practices. Vaccines are directly distributed by the Sanitary-Epidemiological Services.

Uzbekistan has a long-term strategy for increasing domestic drug production and seeks to become self-sufficient in the production of essential drugs, infusion solutions, vaccines, blood preparations, disposable blood transfusion systems and blood substitute products. Investments have been made in the domestic industry, and the intention is that international manufacturing standards are to be applied to domestic pharmaceutical production. In 2004, more than 80 companies or facilities were involved in the production of pharmaceuticals, blood products and medical aids, although no data are available on the share of domestic production in overall pharmaceutical consumption.

Foreign drugs for public sector needs are purchased in two ways. Dori-Darmon is responsible for all purchases of drugs from the NIS, while Uzbekmedexport, a private company, undertakes all public sector purchases from other countries. Uzbekmedexport relies on Dori-Darmon for technical information and advice.

Challenges for the purchase and distribution of pharmaceuticals include the cumbersome registration of imported drugs at the airport, price caps for wholesale and retail (20% and 25%), and the limited hard currency available for the purchase of essential or emergency drugs from abroad (World Bank 2003).

Pharmaceuticals for outpatient care are fully covered by out-of-pocket payments, except for selected population groups and clinical conditions. Patients with oncological, endocrinological or psychiatric conditions, tuberculosis, HIV/AIDS, leprosy, cardiac surgery and organ transplants are eligible for free outpatient pharmaceuticals. This eligibility also extends to selected groups of the population, such as veterans of the Second World War, workers disabled in the Chernobyl nuclear disaster, and single pensioners (living on their own) (Cabinet of Ministers 1997).

Coverage of pharmaceuticals in secondary and tertiary care depends on the source of funding. If patients are not eligible for any reimbursement or benefits packages (see Section 6.4), the costs need to be fully met by nongovernmental sources, primarily out-of-pocket payments by patients. When patients are eligible for reimbursement by the Government, they only need to pay out of pocket for pharmaceuticals that are not available from the health care provider (Cabinet of Ministers 1994). In practice, patients often need to pay for pharmaceuticals that are nominally free of charge.

Pharmaceutical expenditure as a percentage of total health expenditure has shown some severe fluctuations in the years since independence. The highest share of pharmaceutical expenditure was reached in 1995 (14.2%), the lowest in 1993 (6%). Since 1996, when the share was 8.6%, pharmaceutical expenditure has been gradually increasing, reaching 11.6% in 2001 (WHO Regional Office for Europe 2007). However, public pharmaceutical expenditure accounts for an insignificant portion of overall pharmaceutical expenditure, amounting to only 3.4% in 1999 (WHO Regional Office for Europe 2007). Even this share is likely to be an overestimate, as a significant proportion of health expenditure is not accounted for, due to informal payments and a lack of documentation in the private sector.

6.7 Rehabilitation/intermediate care

Historically, the provision of rehabilitation services has not been the exclusive domain of the Ministry of Health. During the Soviet period, two types of rehabilitation institution existed. The first type was under the auspices of the Ministry of Health and was therefore funded, regulated and managed by the

Ministry of Health. Access to these facilities was regulated by the Ministry of Health and *oblast* health authorities. In 2005, there were 36 rehabilitative institutions under the auspices of the Ministry of Health with a bed capacity of 5530 beds and a patient turnover of 35 640 (Institute of Health 2006).

The second and more common type of rehabilitative institution was owned and managed by different industry sectors or companies and access was regulated by professional associations of the respective agencies. These facilities primarily served the employees of the respective industries or companies.

After independence, this arrangement remained in place, although the existence of the private industry introduced a third type of rehabilitative institution. Since only major industries could own rehabilitative facilities during the Soviet period, and they continue to be state owned, these facilities have remained under the control of the Government. Many industries, however, could not afford to maintain institutions for rehabilitation in the new economic environment and sold them to the private sector. Private rehabilitative institutions need to be registered with the Ministry of Health and generally operate as commercial enterprises.

6.8 Long-term care

Long-term care in Uzbekistan is provided by social services, which are outside the scope of the Ministry of Health. Financing is channelled through the Ministry of Labour and Social Protection, which also defines eligibility. Rehabilitative facilities are in place for those in need of long-term care. Exact data on the scale and scope of public long-term care are, however, not available. Private long-term care facilities are non-existent.

6.9 Services for informal carers

Limited services provided by the social care system are available for informal carers, the number of which is unknown. These services are mostly confined to a limited period of paid sick leave for carers looking after children.

6.10 Mental health care

In Uzbekistan, psychiatric care is integrated into the statutory public health care system and included in the state-guaranteed package of medical services. While

it is predominantly delivered in the public sector, the stigmatization attached to seeking mental health care might deter patients from utilizing the public sector and give rise to a demand for alternatives, which can include both private practices and private arrangements with publicly employed physicians. The extent to which the public sector is circumvented, however, remains unclear.

Legal framework

Since independence, some efforts have been undertaken to develop a legal framework for psychiatric care. The Law on Psychiatric Services, adopted by the Parliament in the year 2000, was initiated by the Ministry of Health. In 1997, a working group representing 14 stakeholders was established to draft the Law. According to the Ministry of Health, the Law was developed in accordance with relevant international documents, such as the United Nations Resolution on protection of individuals with mental disorders and improvement of mental care (46/119), and in consultation with the WHO Regional Office for Europe and lawyers funded through USAID in Uzbekistan.

This Law defines the minimum government-guaranteed package of psychiatric and social services for mental health patients. Relevant changes have also been made to the criminal code of the country, to which a new section related to the involuntary placement of patients in psychiatric inpatient institutions has been added.

Public settings

A number of initiatives were implemented in the public system of mental health care with the aim of shifting service delivery from inpatient to outpatient care. New outpatient facilities, such as centres for mental health promotion, specialized outpatient centres and child care services, were organized and new services, such as suicide prevention programmes, were designed.

Between 1990 and 2005, the psychiatric bed capacity has been reduced by about half, from 60.28 to 30.84 per 100 000 population (WHO Regional Office for Europe 2007), in line with a similar reduction of bed numbers in all public inpatient facilities (see Section 5.1). Currently, the psychiatric bed capacity in Uzbekistan (30.84 per 100 000 population in 2005) is one of the lowest in the CIS, and compares with 64.15 per 100 000 population in Kazakhstan, 43.61 per 100 000 in Kyrgyzstan and 25.05 per 100 000 in Tajikistan (WHO Regional Office for Europe 2007).

In 2005, hospital discharges for mental disorders were significantly lower in Uzbekistan (304 per 100 000 population) than in the CIS (837per 100 000), the

EU15 (719 per 100 000 in 2003) and central Asia as a whole (435 per 100 000) (WHO Regional Office for Europe 2007). One major reason for this is that the registered prevalence of mental disorders in Uzbekistan in 2005 (1.35%) was lower than in the CIS (2.75%) and lower than the central Asian average (2.01%). The ratio of mental health patients in Uzbekistan staying in hospitals for more than a year was 1.81 per 100 000 population in 2005 (WHO Regional Office for Europe 2007).

In 2005, mental health care services in the public sector were provided by 18 specialized outpatient clinics, 2 regional centres for mental health promotion, 17 emergency mental health units and 12 inpatient institutions. In addition, outpatient mental health care is provided within the general health care delivery framework for primary and secondary care. In 2005, 249 general care providers (polyclinics and hospitals) offered outpatient services in mental health care (MoH Department of Treatment and Prevention, personal communication; UNDP Uzbekistan 2006b). A new children's hospital for mental health care was put into operation in the city of Tashkent in 2003. It has a capacity of 20 inpatient and 100 rehabilitative beds and a school for 70 pupils (MoH Department of Treatment and Prevention, personal communication; UNDP Uzbekistan 2006b).

In 2003, the Ministry of Health and WHO signed a document which defined mental health care as a priority area for bilateral cooperation. A national coordinator on mental health has been appointed and a 2-year cooperation plan for the years 2004–2005 was developed. Within this framework, WHO has assisted the Ministry of Health in an evaluation of mental health in the country, including developing a projection of necessary resources and an analysis of the state of human rights in mental health care. It is envisaged that this cooperation will result in the development of a policy document outlining a Ministry of Health mental health strategy.

Workforce

Specialist training in mental health is carried out in the mental health care departments of all medical schools in Uzbekistan. The overall pool of academics in mental health care consists of 8 professors, 9 associate professors, 4 senior lecturers and 26 professor assistants. Sixty-three trainees were enrolled in mental health care residency programmes in 2004 (MoH Department of Treatment and Prevention, personal communication).

Uzbekistan currently has 0.34 physicians per 10 000 population working in mental health care. The overall physician pool involved in mental health care was estimated at 1013 for 2003, including faculty members and professionals

involved in administrative roles. The physician pool involved directly in patient care was estimated at 966 in 2005. However, it should be noted that in the Uzbek health system, physicians managing sexual issues and criminal experts are listed as psychiatrists in official statistics. In 2003, 270.5 positions were planned to provide child psychiatric services, of which 240.5 positions were filled with 182 specialists, indicating that physicians take up more than one position (MoH Department of Treatment and Prevention, personal communication; UNDP Uzbekistan 2006b).

In many countries, psychologists and social workers contribute significantly to the delivery of mental health care. In Uzbekistan, social services are not closely integrated with mental health care. Psychologists, although part of the health care system at the point of delivery, are not fully integrated into the health system. The training of psychologists falls outside of the scope of medical education and is outside the remit of the Ministry of Health. Recent estimates have suggested that there is a shortage of psychologists to the level of approximately 150 full-time positions. In 2003, only 14 psychologists were employed in the Uzbek health system (MoH Department of Treatment and Prevention, personal communication).

Health professionals involved in the delivery of mental health care are included in the category of professions with occupational hazards. This entitles them to special provisions, such as a lower age for retirement, additional vacation and mark-ups on their salaries.

6.11 Dental health care

In the Soviet "model" of health care, dental health care was part of the integrated health care system. Except for orthodontic care, all types of dental health care were free at the point of access. Similar to the delivery of general health care, dental health care in the Soviet model consisted of general dental health care services offered at the primary level and specialized care delivered primarily at inpatient facilities. Dental health care at the primary level was based on the principle of "*uchastok*" (a designated coverage area). Complex cases were referred to the next level of care at the *oblast* or national levels.

Since independence, Uzbekistan has in principle retained the Soviet model in the public sector. Dental health care is integrated within the health care system and subject to the same changes as the overall health care delivery system. Dental inpatient facilities, for example, underwent the same financial and structural changes as all other inpatient facilities.

Public settings

Generally, dental health care in the public sector consists of dental surgeries in rural areas, and dental polyclinics and specialized inpatient clinics in urban areas. Dental surgeries and polyclinics operate under the auspices of *rayon* health authorities and are considered to be part of the primary care system. Dental health care at the primary care level can be considered to be quasi-public. Dentists are government employees and, as in other parts of primary care, facilities are owned by the Government. However, as a result of limitations in the state provision of dental materials, dentists charge patients service fees for the purpose of purchasing the required materials. As a result, the Government covers the expenses related to salaries and the maintenance of facilities, while patients cover the expenses related to consumables. It is quite possible that some of these service fees are informally used to supplement dentist salaries, and, while limiting access to care, keep dental practices in operation. Anecdotal evidence suggests that the fees charged are lower than those in the private sector.

Specialized inpatient dental care in the public sector is provided by general inpatient or stand-alone institutions. Both are accountable to either *oblast* or national health authorities. Inpatient institutions have undergone significant changes in financing, in line with the changes in all public inpatient care facilities (see Chapter 3).

Private settings

In the reform of the Uzbek health system, dental health care, in conjunction with the pharmaceutical sector, was the first to shift health care costs to patients through out-of-pocket payments and the entry of the private sector.

In the 1990s, the private share of the dental health care market increased significantly. The expansion of the private sector was facilitated by the introduction of cost sharing and limited capital investment in the public dental health care system. Other facilitating factors were a governmental policy of "no interference" with regard to pricing and capital utilization, easier access to capital by the private sector, as well as a new demand for better quality dental health care by the emerging middle class. Much like in other areas of the Uzbek health system in recent years, this combination of factors resulted in the formation of a separate dental health care delivery pathway in addition to the public sector.

The emergence of the private sector has mostly been limited to urban areas and the pricing of dental health care mostly targets groups with above-average incomes. A competitive edge over the public sector is based on better equipment,

know-how, and a focus on consumer satisfaction. Comparative data on the public and private sectors with regard to service utilization and quality of care are, however, not available.

Private practices are operated by one or several dentists. While dentists' entry into the private dental care market is not formally limited, permissions issued by local authorities could be used as a tool to regulate market entry, should an oversupply of dentists occur. Another potential regulatory tool is the licence for private practice issued by the Ministry of Health, which is required by dentists in order to practise. The decision on licensing is made by a committee of the Ministry of Health, and is based on a review of documents submitted on the qualifications of dentists that are applying and the characteristics of their facilities. The licence granted by the Ministry of Health also requires prior permission from local authorities.

Reform initiatives

Reform initiatives in dental health care have been mostly confined to the public domain. Rural dental practices are being reformed as part of ongoing primary health care reforms. These reforms, which are soon to be rolled out nationwide, envisage delivery of dental health care through the network of SVPs, which will be staffed with dentists. This move should improve the accessibility of dental health care in rural areas. However, an important challenge relates to how dental services will be remunerated within the new primary care setting. Dental health care services have not been specifically included in the state-guaranteed benefits package defined by a Presidential Decree in 1998 (President of Uzbekistan 1998). Even if they were included, the envisaged method of financing primary care (based on capitation) might still require a cost-sharing arrangement for dental health services in view of the limited resources available for primary health care.

Patient pathways

Patients seeking dental health care have two principal pathways available to them: they are free to choose between a public or private provider, and can freely choose the provider from which they wish to receive care.

Patients can visit the public dentist with whom they are registered. If a procedure is performed, they are charged a fee for the required dental materials. If there is a need for complex procedures, patients will be referred to the next level of care within the public sector, which can be a secondary or tertiary institution. Specialized care within public facilities needs to be reimbursed

by the patients, unless they belong to certain specified groups, which will be reimbursed by the Government (see Section 3.2). The reimbursement of providers is similar to other forms of publicly provided health care. The prices charged by specialized public institutions are regulated by general protocols on price-setting developed by the Ministry of Health (see Chapter 3).

Patients can access the private sector at any point in the care delivery process. When patients follow this path, they have to cover all expenses, which, in the private sector, are not regulated.

Orthodontic services are provided under full (price) reimbursement arrangements by both private and public facilities. In 2004, there were 78 public institutions involved in orthodontic care and 1.6 orthodontic devices per 1000 population were provided (Institute of Health 2006). Specified population groups can access orthodontic care through the social care system, although the extent to which this happens is unknown.

Quality and access

The public sector has developed a number of structural indicators for the quality of dental health care, such as certain standards for equipment and sanitary safety. These indicators are monitored regularly by the relevant agencies. However, no data are available on process indicators or the quality of outcomes.

While data on the quality of dental health care in Uzbekistan are not available, it can be assumed that two major factors might have impacted on the quality of dental health care in recent years. Dental health care is different from general medical services in that it is easier for patients to assess the quality of care. The entry of the private industry and the free choice of providers have brought increasing competition into the sector and have been a strong incentive for providers to improve the quality of their services. The increase in the supply of dental services, as well as the expansion of the often more flexible and innovative private sector, might have improved the quality of dental health care through decreased waiting lists, a wider range of services, and improved service delivery. However, no data are available to support this assumption.

The nationally representative UHES conducted in 2002 provides some evidence on current levels of utilization of and access to dental health care services (Measure DHS 2004). According to this survey, a national average of 6% of children aged 12–59 months had been seen by a dentist. In Tashkent, this indicator stood at only 2.4%, despite the fact that it has the highest proportion of child dentists in the country (1.53 per 10 000 population). The survey suggests that children from low-income families have more difficulties in accessing dental health services. Unmet needs identified by respondents were two times higher

in the lowest income group compared to the highest income group, although this correlation was not controlled for other variables (Measure DHS 2004). As many as 40% of female and 33% of male respondents indicated that they currently have unmet dental needs, with 6% of women in need of pain relief. While 87% of adult respondents did not have routine check-ups in the previous three years, this was only identified as a currently unmet need by 1.6% of women and 5.3% of men, probably due to a lack of awareness of the importance of regular check-ups. Geographically, the perceived unmet need was particularly high in Tashkent (45.3%), despite its high density of adult dentists (2.53 per 10 000 population compared to a national average of 1.40) (Measure DHS 2004), implying that structural limitations to access exist.

Preventive programmes

Health education and promotion in the area of dental care form part of the functions of primary care dentists in the public sector. However, no data are available on the extent of these activities or their impact on dental health (MoH Department of Treatment and Prevention, personal communication).

In addition, some international agencies are involved in the promotion of dental health care. In 2003, a 5-year cooperation memorandum was signed between Procter & Gamble and the Government. This was preceded by a joint programme between 1997 and 2002, during which the company, in cooperation with the Ministry of Education and the Ministry of Health, initiated the oral health promotion programme "Amazing smile" in the elementary schools of Tashkent and the *oblast* centres. During this period, approximately 100 000 elementary-school pupils attended classes in oral hygiene (Uzreport Business Information Portal 2004). The programme was considered to be a success by the Government and was incorporated into the elementary-school curriculum. Now approximately 500 000 elementary-school children attend the classes in oral hygiene each year (MoH Department of Treatment and Prevention, personal communication).

6.12 Alternative/complementary medicine

Alternative medicine (physiotherapy) is widely incorporated into the delivery of primary, secondary and rehabilitative services and is seen as an essential part of medical care, although exact data on rates of utilization are not available. All public providers deliver some type of alternative services. Alternative medicine is regulated by the same provisions as all other medical services.

Health professionals providing alternative medicine need to be certified by the Ministry of Health.

6.13 Health care for specific populations

As mentioned above, parallel health care services provide health care for employees and officials of certain organizations, enterprises, and ministries, including the Cabinet of Ministers, the Ministry of Interior, the Ministry of Security Services, the Ministry of Defence, the Railway Administration, the Civil Aviation Administration and the National Air Company. The Union of Writers and Artists also operates its own comprehensive network of health services, and approximately 75 large industrial enterprises have their own health departments. All such parallel health services come under the jurisdiction and supervision of the Ministry of Health. Management and resource allocation, however, are under the responsibility of the health care institutions and the organization to which they belong.

6.14 Maternal and child health

According to the Soviet model, obstetric care was provided by maternity homes or delivery departments of general hospitals. Inpatient maternity care in case of complications was mostly provided by general or specialty departments of general hospitals. Outpatient maternity and child care was provided by a host of primary care providers (such as FAPs, or SVPs) within the Soviet primary care framework.

After independence, a restructuring of maternity care took place in Uzbekistan. The maternity departments within general hospitals were closed and services were shifted to newly organized central maternity hospitals or units. The maternity hospitals or units serve as hubs, where all maternity and infant inpatient services are provided for the covered population. The new maternity care structure has integrated all services under the umbrella of a single provider in a given geographical location.

In 2004, Uzbekistan had an overall capacity for maternity care of approximately 23 500 beds (Institute of Health 2006). The maternity care hospitals or departments are divided into two main units:

- a unit for “pregnant women” which includes beds for normal deliveries and postnatal care;
- a unit dealing with complications.

National bed capacities are distributed as follows: prenatal care, 5788 (2002); deliveries, 10 659 (2003); postnatal care, 5389 (2002); pregnancy complications, 7170 (2004) (Institute of Health 2006). In 2004, the bed ratio per 10 000 population in the units for pregnant women was 22.3, a proportion almost 30% lower than in 2003 (30.2 per 10 000). In the same year, the bed ratio in units for pregnancy complications was 10.2 per 10 000 population, an increase of 30% over 2003 (6.2) (Institute of Health 2006). This implies that the recent restructuring has shifted resources towards addressing complications.

The new structure of maternal health care also introduced a vertically integrated management and monitoring framework for maternal and child health, and respective departments were organized within *oblast* health authorities and the Ministry of Health (see Fig. 2.1 and Fig. 2.2 in Chapter 2). The departments coordinate, manage and monitor the activities of all maternity hospitals and related services.

In the new framework, maternal and child care remain firmly in the public statutory health care system. Although a wide range of services in this domain are available from private providers, the major share of maternal and child care services is still provided by the public sector. In 2002, only 0.2% of children under five used the private industry as their usual source of health care, 9% used public hospitals, while the remaining children used public primary care providers (Measure DHS 2004).

In line with governmental priorities, maternal and child health were included in the state-guaranteed package of services. The public sector has shifted its focus from treatment to prevention. A number of preventive and screening protocols were developed by the Ministry of Health and are strictly implemented nationwide.

Antenatal care is also provided as part of the state-guaranteed package of primary care services. According to the protocols of the Ministry of Health, pregnancies are registered in the first three months, with subsequent monthly checks and examinations until delivery. Neonatal care starts from the first day of life in delivery departments. Upon discharge, a nurse from the primary care provider makes home visits to advise the mother on child care. In the first two years, the child is regularly examined by the primary care provider at set time intervals established by the Ministry of Health.

Patient pathways

Patient pathways are straightforward for maternal care. Rural primary care units and polyclinics have a special registry for women of reproductive age and provide regular check-ups and screenings. All cases are first managed by primary

care providers. When the primary care provider deems it necessary, patients are referred to the next level of care. In rural areas, the next level might consist of specialists at central polyclinics or maternity hospitals or units. In urban areas, all polyclinics employ obstetricians/gynaecologists. Specialized outpatient care can therefore be provided at the primary care institution itself. Cases requiring inpatient care are referred to urban inpatient facilities for maternal care.

Child care follows the same pathway in the public framework with public primary care providers being the first points of contact. When required, children will be referred to paediatric hospitals. In 2004, there were 41 public paediatric hospitals (excluding infectious disease hospitals) with a capacity of 13 235 beds (Institute of Health 2006).

There are no legal limitations on the utilization of private providers for maternal and child care. Maternal and child care protocols are strictly implemented and monitored within the public sector and benchmarks are set against the population covered, but these are not applicable in the private sector, possibly resulting in a duplication of services, or problems of coordinating the two sectors.

Initiatives and programmes

As a result of high infant and maternal mortality rates (see Chapter 1), maternal and child care have become one of the main governmental priorities in the health sector and have been included as a priority area in the Presidential Decree outlining the remit of the Uzbek health sector. A number of governmental programmes were developed with the aim of decreasing infant and maternal mortality. Many intersectoral programmes have been implemented, such as the "Year of Health", "Healthy Generation" and "Mother and Child".

A family planning programme was one of the initiatives in the health sector. As part of this programme, contraceptives were distributed for free, there were initiatives on the professional development of health workers, and population education campaigns about reproductive health issues were designed and implemented. Overall, a significant improvement in access to, and utilization of, contraceptives has been observed in recent years: from 13% of women of reproductive age in 1991 to 56.6% in 2001 (MoH Department of Treatment and Prevention, personal communication).

Since 1991, regular examinations of women of reproductive age have been introduced and reached a coverage rate of 99.3% in 2002 (MoH Department of Treatment and Prevention, personal communication). This high coverage could be due to the fact that the indicator is part of a strictly controlled protocol,

which might have forced health professionals to reach the target group, but it may also result from some inaccurate reporting.

After an analysis of the prevalent maternal mortality causes, new teams specialized in resuscitation and haemostasis were established at all *oblast* centres.

The establishment of maternity and child health screening centres was completed throughout the country in 2000. In the same year, screening coverage for hypothyroidism and phenylketonuria in these centres reached 124 000 neonates, which was 23.5% of the target population. In 2002, the number increased to 318 700 neonates, constituting a 60% coverage of the target population (MoH Department of Treatment and Prevention, personal communication). These centres were established in Tashkent and 10 other regional centres with the aim of preventing the birth of children with conditions leading to mental deficiencies and of identifying fetal abnormalities at an early stage. The main functions of the centres are the screening of pregnant women and newborn infants for certain conditions, counselling, and the creation of tentative registries of cases with genetic/congenital abnormalities (UNDP Uzbekistan 2006b).

A number of target areas were identified in an attempt to reduce maternal and infant mortality. Examples include the reduction of early marriages, of marriages between close relatives, and of pregnancy rates in women with conditions deemed to be high risk. The Government also promoted increased birth intervals and having children between the ages of 20 and 30. Over recent years, the proportion of children born within a year of the previous birth has decreased from 5.9% in 1995 to 0.5% in 2002, and children born within two years from 20.1% to 6.8%. The proportion of children born with an interval of two years or more has increased from 51.6% to 57.6% (MoH Department of Treatment and Prevention, personal communication). In 1991, 69.3% of women gave birth between the ages of 20 and 30, which is considered to be the most favourable age range. Substantial improvements could be observed in this indicator over the years following the government initiative; in 2001, 83.3% of women gave birth between the ages of 20 and 30 (MoH Department of Treatment and Prevention, personal communication).

Extensive international support was provided for government efforts to improve maternal and child health. UNICEF, UNFPA (United Nations Population Fund), USAID and WHO have assisted in the piloting of promotional and educational programmes, such as “Safe Motherhood”, “Safe Vaccination” and “Breastfeeding”. In a number of *oblasts*, Project Hope, ZdravPlus, and UNICEF have implemented programmes on breastfeeding and the Integrated Management of Childhood Illnesses. Project Hope is also involved in the

development of educational materials in maternal health (Project Hope 2007). In addition, UNICEF is completing nationwide training of health staff involved in perinatal care, including neonatal resuscitation.

Results of the 2002 UHES provide some further insight into the state of maternal and child health. This survey allows a comparison with the results of a previous survey in 1996 and with relevant indicators from governmental statistics. These indicators might be helpful in the evaluation of government efforts in maternal and child health, especially in the areas of health education and promotion.

In the social context of Uzbekistan, most women have their first sexual experience once they are married. A change in the age of marriage will therefore be reflected in many other indicators. According to the two surveys of 1996 and 2002, the age at which women are married has increased. In 1996, 87% of respondents aged 20–24 were or had been married, whereas in 2002, this percentage had declined to 69%. Childbirth between the ages of 15 and 19 constituted 10% of deliveries in the 1996 survey, but only 4% in 2002 (Measure DHS 2004). The survey also found a high awareness rate regarding contraceptives. Among women aged 15–49, 91% were aware of at least one contraceptive method. Usage of contraceptives has increased among married women from 56% to 65%, with a 25% increase among married women aged 20–29.

7 Principal health care reforms

7.1 Analysis of recent reforms

After independence, Uzbekistan embarked on several reforms of the health sector with the aim of adapting to the challenges of the new social, political and economic environment. A particular impetus for health reforms was created by decreasing governmental health expenditure. The network of health facilities, which had been previously fully funded by the Government, faced a severe funding shortage. Health reforms placed an emphasis on increased efficiency, self-financing mechanisms, and private sector development, changes which were incompatible with the centrally planned and controlled Soviet model of health care.

These health care reform processes in Uzbekistan had the key objectives outlined here (Ilkhamov, Jakubowski & Hakioff 2001).

- *Improving child and maternal health.* Uzbekistan, when compared to most other countries in the WHO European Region, has been facing very high maternal and child mortality rates. The Government has initiated several policies to address this issue, mobilizing both internal and external resources.
- *Promoting privatization.* Privatization efforts in Uzbekistan's health sector were the result of the introduction of a market economy, the search for additional sources of funding to make up for a decreasing public share of total health expenditure, and the desire to increase the choice of health care consumers.
- *Improving the quality of health services*. Public and political perceptions and expectations have been changing in Uzbekistan in recent years, with an increasing orientation towards the standards in place in western Europe or the United States. This has led to the development of a new infrastructure

for improving the quality of health care services. The launches of the Evidence-Based Medicine Centre and the Centre for Continuing Medical Education, as well as the direction of external resources towards improving the quality of care, are examples of an increased emphasis on the quality of health services.

- *Containing costs by reducing the public share of health care financing.* The shortage of public funds has been a strong incentive for rationalizing Uzbekistan's health system. Efforts were directed towards reducing capacities in terms of the number of health care facilities and hospital beds, as well as reducing the demand for health services by shifting the costs to consumers through the introduction of out-of-pocket payments (see Chapters 3 and 6). The Government has also aimed to reduce public sector spending through the introduction of a defined package of services funded from public sources, and this has been reflected in major reform documents, such as the 1996 Law on Health Protection and the 1998 Presidential Decree on the State Programme for the Reform of the Health Care System.
- *Decentralization.* After independence, the Government of Uzbekistan introduced several steps to decentralize the health system. These reforms have concentrated on moving control from the national to the *oblast* levels and from health authorities to health care institutions. The stated objective was to make the allocation of resources more responsive to local needs.

Some of the above objectives of the reform process in Uzbekistan were first clearly defined and then supported by relevant legislative and policy changes, whereas others were not a specifically formulated government objective, but rather the by-product of other initiatives or of contextual factors. Health care reforms in Uzbekistan were mostly geared towards the structural framework of the health system or processes of health care delivery. This section first discusses the legal and structural framework of the health system as it emerged after independence and then discusses recent reforms (Table 7.1) in the areas of primary, secondary, emergency and tertiary care.

Legal and structural framework

Major reforms of Uzbekistan's health sector only started in the second half of the 1990s. Until then, there were only minor transformations that aimed to sustain the existing infrastructure. In 1996, the first major document outlining governmental priorities and a new legal framework for the health sector was developed and passed by the Parliament. This was followed in 1998 by a Presidential Decree outlining a new structural framework for the Uzbek health system and priority areas for health reforms.

Table 7.1 Major health care reforms and policy measures

Reform/Policy measure	Date
Presidential rural social sector infrastructure initiative	April 1996
Law on Health Protection	26 August 1996
Presidential Decree on the State Programme for the Reform of the Health Care System	10 November 1998
Project "Health" (primary care)	1998–2005
Restructuring of emergency services	2001
Presidential Decree on further reforms of the health care sector (tertiary care)	2003
Project "Health II" by the World Bank and "Woman and Child Health Development Project" by the Asian Development Bank (primary care, maternal and child health, public health)	2005–2010

Source: Authors' compilation.

Law on Health Protection

The Law on Health Protection (Republic of Uzbekistan 1996), passed on 26 August 1996, was the first major attempt to restructure Uzbekistan's health system. It lays out the vision for a new Uzbek health system. The document identifies the following main principles of health care:

- compliance with human rights norms
- accessibility of health services for the whole population
- prevention as a priority for the health sector
- social protection for citizens in case of illness
- bridging the gap between medical science and practice.

The Law also provides the legal framework for the major state bodies in the health system, including the Cabinet of Ministers, the Ministry of Health and local governments (see Chapter 4), and defines the public health care sector, its financing sources and the private health sector. Furthermore, the Law clarifies the legal aspects of health protection and defines a wide range of rights for citizens and patients. These include the basic right of access to health care delivery, the right to obtain health-related information and the rights of specified vulnerable groups in utilizing health resources.

The Law also provides a legal definition of the various types of care, specifying primary care, emergency care and specialized care, as well as care

provided to those with "socially significant and hazardous conditions". It outlines the main decision-making committees in the health sector, including the military, the criminal justice system, psychiatry, pathology and general medicine. Further, the Law defines who can be involved in clinical practice and pharmacies, and specifies the responsibilities of physicians, the confidentiality of patient information and the compensation mechanisms for medical harm incurred by patients. In all these aspects of the Uzbek health system, this Law has set the stage for subsequent reforms.

Presidential Decree on the State Programme for the Reform of the Health Care System

The next major document concerned with restructuring the Uzbek health sector was issued on 10 November 1998 (President of Uzbekistan 1998). This Presidential Decree on the reform of the health care system laid out a master plan for future reforms of the health sector. The Decree identified priority areas and plans for the years 1998–2005. The following points were mentioned as priority areas:

- establishing a conceptual framework for health reforms
- setting up a list of health care facilities that will deliver state-funded health care
- setting up a list of health care facilities able to undergo transition towards paid services
- implementing a programme of developing rural medical centres throughout the country
- establishing workforce and medical education forecasts for 2001–2005
- transforming nursing schools into professional colleges between 1999 and 2005.

The Decree included:

- a plan for the establishment of a nationwide network of emergency care centres, including an implementation time scale;
- provisions for the introduction of higher education in nursing care;
- a plan for the establishment of a nationwide network of rural and urban medical centres delivering primary health care to the population of Uzbekistan;
- a plan for the further development of the private health care sector; and
- provisions for the monitoring and implementation of reform measures.

The Decree also recognized the need for a fundamental reform of health care financing. It confirmed the establishment of the Tashkent Emergency Care Centre and its *oblast* branches, which had been newly organized, outlined its structure and set regulations for the operation of the emergency care system. The Decree charges the Ministry of Health with specifying the maximum length of time patients are allowed to stay in the new emergency centres, with developing a list of diseases eligible for state-funded emergency health care services, and with setting out treatment protocols and services for specified diseases.

The Decree also envisages the establishment of rural medical centres throughout the country and requires that all relevant stakeholders collaborate in the drawing up of local plans for the development of urban and rural medical centres.

In order to promote the private health sector, the Decree offers tax exemptions for private health care facilities for two years after their establishment. It also recommends that local governments facilitate the allocation of land for the construction of private health facilities and that they expand initiatives for leasing, renting, or selling public health facilities to the private sector.

Primary care reforms

Two major initiatives have been undertaken so far with the aim of restructuring primary health care in Uzbekistan. The first initiative, project "Health" (1998–2005; subsequently renamed "Health I"), was the result of a collaboration between the World Bank and the Uzbek Government and piloted several new mechanisms and frameworks for the delivery, financing and management of primary care. These pilot schemes were conceptually interlinked and proved to be important in gaining policy support. The second primary care initiative, consisting of project "Health II" of the World Bank and the "Woman and Child Health Development Project" of the Asian Development Bank (2005–2010), aims to roll out the pilot schemes throughout the country and to introduce new approaches to maternal and child health, public health, and monitoring and evaluation, in order to strengthen the primary care sector.

Project "Health", 1998–2005

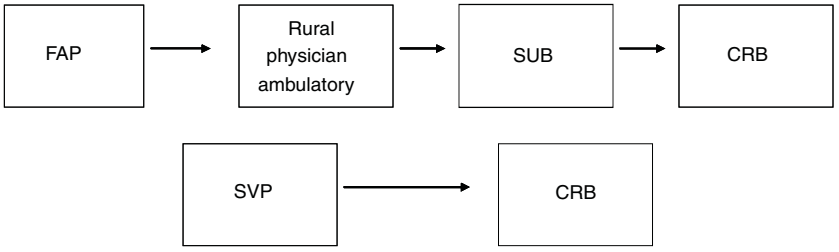
The hierarchically organized Soviet health system relied on a multi-tiered system of primary care (see Fig. 7.1 and Chapter 6 for more details). The financing of primary care was based on the residual principle, with hospital expenses being perceived as a priority (see Chapter 3). The continual lack of resources and the comparatively low status of primary care workers deterred most qualified health professionals from entering primary care. In addition, primary care units

were staffed with specialists, which led in many cases to high referral rates and an uneven distribution of specialists. The Soviet organization of primary care resulted in significant inefficiencies and poor quality of services.

In 1998, the World Bank and the Uzbek Government negotiated the health care reform project "Health" (World Bank 2005), which had a total value of US$ 70 million. The project budget consisted of a World Bank loan of US$ 30 million and a commitment by the Uzbek Government for the construction and reconstruction of primary health facilities to the value of US$ 40 million. Furthermore, project "Health" was marked by bilateral donor collaborations in the form of technical assistance and training activities, particularly from the DFID and USAID (ZdravPlus). Project "Health" consisted of three major components:

- strengthening primary health care
- training of GPs and nurses
- reforming the financing and management of primary care.

Fig. 7.1 The multi-tiered Soviet primary care model (top) and the new two-tiered model (bottom)



Source: Authors' compilation.

Project "Health" aimed to improve the efficiency, quality and accessibility of primary care by establishing a two-tiered system of primary care. Rural primary care units, run or managed by physicians, would become the first point of access for the health needs of the rural population, with CRBs serving as the second tier. This contrasted with the previous system, in which patients could access primary health care at any tier. Some services, such as those provided by FAPs, would be staffed by non-physicians (see Chapter 6). It is hoped that the new framework of primary care contributes to an improvement of the quality of care.

The upgrading of facilities forms a crucial part of the reform of primary care. The first component of "Health" aimed to improve the primary care infrastructure in terms of both facilities and equipment. Prior to the project, most primary care facilities lacked the most basic infrastructure needed for the provision of quality health care. They also lacked medical equipment and experienced problems with water supply and drainage (see Section 2.1).

The health care reform project introduced the new specialty of GP, which is expected to replace all other specialists employed in the primary care sector (physician, paediatrician, obstetrician/gynaecologist). The project supported these professionals through retraining to work as GPs, and the medical institutes began to align their training more to the needs of GPs.

Many of the woes of the previous system were attributed to existing financing mechanisms which lacked flexibility and fiscal incentives to raise productivity, efficiency and quality. The project component on financing was designed to introduce a new fiscal framework which allowed for more flexibility and positive incentives.

In the following subsections, more information is provided on each project component, outlining to what extent the goals of the project have been achieved.

Component on strengthening of primary health care

The first component of project "Health" aimed to establish a network of new primary care units, named SVPs, by constructing or reconstructing existing physician points and supplying them with the necessary medical equipment and furniture. This component was expected to improve efficiency, as well as access to and quality of care. The transformation of the multi-tiered primary care system into a two-tiered one decreased inefficiencies while providing a wider range of services, and this was expected to improve access of the population to health services. It was hoped that new facilities and equipment would facilitate improved quality of care.

In the pilot *oblasts* covered by the project, the component on strengthening primary health care provided:

- medical equipment and furniture to SVPs, according to standards developed by the World Bank and the Ministry of Health;
- medical consumables and lab reagents to SVPs;
- laboratory equipment to CRBs;
- vehicles and radio-communication equipment to SVPs in remote areas;
- technical assistance on health promotion and quality improvement.

The budget that was initially outlined for the first component of project "Health" amounted to US$ 45.5 million, of which US$ 17.7 million was to be allocated by the World Bank and US$ 27.7 million by the Uzbek Government. As a result of amendments made during the implementation phase of the project, the actual expenses amounted to US$ 76 million, of which US$ 30 million was provided through a World Bank loan, US$ 12 million allocated by the German Bank for Reconstruction and Development (KfW), and US$ 30 million put forward by the Uzbek Government. Three *oblasts* were initially included as pilot sites. At the end of 2002, the Government and the World Bank extended the pilot to two more northern *oblasts*, resulting in an increase of the overall budget.

The Government initiated the transformation of the existing multi-tiered primary care system into a two-tiered system through the closure or redefinition of primary care facilities. The project focused heavily on the first tier of the new primary care system, with limited resources allocated for changes in the CRBs. Four architectural types of SVP were developed, according to the size of the population covered. The first three types were envisaged to have a population coverage of 2000, 2000–4500, or 4500–6000 patients. The fourth type was intended to be used as a training site, in addition to providing health services.

By August 2001, 283 SVPs were operating, 136 of which had been newly constructed and 147 reconstructed. By the end of 2003, 682 SVPs had been put into service, considerably more than the 320 which had been planned. Of the new primary care units, 51% (347) had been newly built and 49% (335) had been reconstructed. However, as the commitment of the Government was defined in terms of the number of SVPs in operation and their establishment was the responsibility of local governments, there were incentives for local governments to build SVPs designed only for a maximum of 4500 patients, irrespective of the actual population served, as this type of SVP was almost half the cost of those with a larger population coverage. In addition, this arrangement resulted in some delayed commitments to establish SVPs in *oblasts* that faced budget shortfalls. To address this issue, the Government allocated additional funds for the *oblasts* included in the primary care reform project. However, there are problems in attracting staff to rural health facilities. As already noted, in 2006, the Ministry of Health estimated that approximately 10% (approximately 300) of all SVPs did not have a physician at all (Langenbrunner, Salikhova & Karimova 2006).

An initial evaluation of the process of construction and reconstruction in 1999 revealed a number of problems. The reconstructed facilities tended to be of lower quality than the newly constructed ones and did not match the standards required for delivering high-quality care. For example, in one of the *oblasts* (Syrdarya), 47% of the SVPs did not have a regular water supply and 24.5%

Table 7.2 Selected indicators from the evaluations of primary care facilities in 1999 and 2004

Oblasts	Indicator	1999 (%)	2004 (%)
Syrdarya	Electricity	100	100
	Water supply	53	67
	Drainage	86	33
Navoi	Electricity	100	100
	Water supply	92	100
	Drainage	97	100
Ferghana	Electricity	100	100
	Water supply	59	94
	Drainage	94	100

Source: World Bank, 2004b.

had no sewerage system. To address this problem, the Project Implementation Bureau employed a new member of staff to develop detailed guidelines on facility building standards and to work with *oblast* implementation bureaus and health authorities on addressing possible shortcomings.

An evaluation of the SVPs in 2004 revealed a notable improvement of the infrastructure of primary care facilities (Table 7.2).

A list of the required furniture, medical equipment and disposables was developed by the Ministry of Health and the World Bank prior to the start of the project. In two steps, in 2000 and 2003, all pilot SVPs were equipped according to this list. An evaluation was carried out after the first step in order to assess the utilization of equipment. Based on the results of the evaluation, the initial list was amended and items were removed if they were rarely used or not used at all. However, a number of items on the list had not been delivered to the SVPs, as no providers of equipment could be identified or as a result of contracts that had not been fulfilled. In the first stage, in 2000, only 89 items were purchased out of the listed 148, while in 2003, 95 of the 114 listed items were purchased. It is not clear how this incomplete provision of equipment affected the quality and the range of services delivered.

To improve access to health services and enable communication with the *oblast* and national emergency centres, 70 ambulances and 95 stationary and 20 mobile radio connection systems were purchased and then delivered to the remote SVPs in the pilot *oblasts*.

In order to improve the quality of basic diagnostic services, the primary care component also equipped laboratories at SVPs and central hospitals. It was hoped that this would reduce hospitalizations and the number of inpatient days. Anecdotal evidence from the period prior to the project suggests that a significant share of inpatient days was spent carrying out basic medical

investigations, many of which could have been undertaken in an outpatient setting. In 1999–2001, the following steps were taken in the pilot *oblasts* to address these issues:

- a list of the required laboratory and diagnostic equipment was developed;
- technical specifications of the equipment were drawn up and approved by the World Bank and the Ministry of Health;
- construction guidelines for laboratory facilities were developed, as evaluations had shown poor correlation between existing facilities in central hospitals and expected functions;
- all pilot laboratories were constructed or reconstructed according to the developed guidelines;
- 35 laboratories in central hospitals were equipped in the three pilot *oblasts*, followed in 2002 by 24 laboratories in the two new pilot *oblasts* that were then included in the project.

The primary health care component of the project also initiated a restructuring of the public health system related to primary care. The project facilitated the establishment of the Institute of Health at the national and *oblast* levels. The World Bank, the Asian Development Bank and other international donors provided technical assistance to the Institute of Health in the form of staff training and the development of educational leaflets.

Component on the training of general practitioners and nurses

The restructuring of the primary care system required a parallel restructuring of the training of health professionals. Existing medical education emphasized specialist training for both physicians and nurses, and no educational programmes existed to address the immediate workforce needs for GPs and nurses in the pilot *oblasts*. The project component on the training of GPs and nurses aimed to address these new workforce needs. The financial contribution to this component amounted to approximately US$ 2 million from the Uzbek Government and a US$ 4.7 million loan from the World Bank.

The project envisaged the following steps to create the educational infrastructure and to meet the new workforce needs:

- establishment of training centres for GPs within the medical schools of the country;
- training of members of the medical faculty in general practice for the retraining of practising physicians (to meet immediate workforce needs) and the training of undergraduate medical students (to meet long-term workforce needs);
- retraining of practising physicians in general practice;

- reforms in undergraduate medical education to include general practice in the curriculum;
- continuing medical education for GPs in the pilot *oblasts*;
- training of nursing staff in the pilot primary care units;
- establishment of a framework for the accreditation of medical education programmes and for the validation and licensing of health professionals.

Initially, eight training centres for GPs were launched at seven medical schools. These training centres were equipped with furniture, computers, medical equipment needed for the delivery of primary care (laboratory, diagnostic) and textbooks. Training centres were based at urban outpatient clinics (polyclinics) to ensure a sufficient number of patients were available for the training. Following the decision to roll out the pilot programme nationally, the number of training centres for GPs was increased, and, by the end of 2004, there were 14 training centres nationwide. In addition, eight outreach training centres at SVPs had been established in the pilot *oblasts*, which serve educational purposes in addition to delivering primary care.

The United Kingdom DFID played a key role in the training of university teachers. The curriculum for GPs was developed in close cooperation with British consultants, who were also involved in the teaching process, exposing faculty members to the concepts of general practice used in the United Kingdom. For a number of reasons, including low levels of remuneration, the attrition rate for graduates of the training programme was high. By the end of 2004, only about half of the 105 trained faculty members remained in their training positions.

After the graduation of the first cohort of trainers in general practice, a training programme for the retraining of practising physicians was established by the British consultants in collaboration with the newly trained trainers. The first 10-month retraining programme was initiated in 1999 and by 2004, 959 physicians had been retrained.

Continuing medical education courses were integrated into the project to fill the knowledge and skill gaps in high-priority areas. Four courses were offered: principles of public health; integrated management of childhood illnesses; antenatal and prenatal care and breastfeeding; and rational prescribing. International agencies greatly assisted in the delivery of these continuing medical education courses and, by 2004, 1370 GPs had participated in them.

With regard to the training of nurses, the project initially focused on equipping and refurbishing two nursing schools in the pilot *oblasts*. These two schools were started by training groups of practising nurses in the principles of general practice, in order to meet the emerging need for generalist nurses.

The World Bank was responsible for equipment and refurbishment, while local governments were responsible for the allocation of buildings. The Ministry of Health issued a permit for the training of generalist nurses in these two nursing schools. In addition, five more nursing schools from the pilot *oblasts* were selected to be equipped and refurbished.

In 2003, the process was replicated in seven nursing schools of two additional *oblasts* and one newly built school in one of the pilot *oblasts*. Overall 15 nursing schools had been refurbished and equipped by the end of the project.

Nursing teaching staff from seven nursing schools in the pilot *oblasts* underwent training in general practice nursing. Upon graduation, this group was involved in the retraining of 599 nurses practising in the SVPs of the pilot *oblasts*.

Component on financing and management in primary care

This component aimed to improve health financing and management in primary care in order to raise the efficiency and productivity of health facilities. It envisaged the following measures:

- development and piloting of frameworks for financing, management and information systems
- development and implementation of primary care financing based on capitation
- training and placement of financial managers in the primary care system
- development and implementation of new information systems
- improvement of the management system to allow staffing based on needs.

Major elements of the new financing pilots were related to changes in the way the budget allocated to primary care facilities was calculated, the source of funds, and the financial autonomy of primary care facilities. Previously, primary care units had been considered to be financially part of the *rayon* health system and received funds directly from the *rayon* health authorities (see Chapter 3). The financing of facilities was not linked to outcomes, but to historical factors such as the number of personnel and the size of the facility, so that there was no financial incentive for primary care units to improve efficiency and productivity.

Within the financing pilot schemes, primary care units were given independent legal status and their own bank account. Their budget was calculated on the basis of the population covered, with adjustments for gender and age. The pilot scheme coincided with government attempts to facilitate the regulation of budgetary funds and to allow more flexibility in the use of state funds (see Chapter 4) (Cabinet of Ministers 1999b). New regulations divided state funding

into four line items, with the fourth allowing for more institutional flexibility in the use of resources.

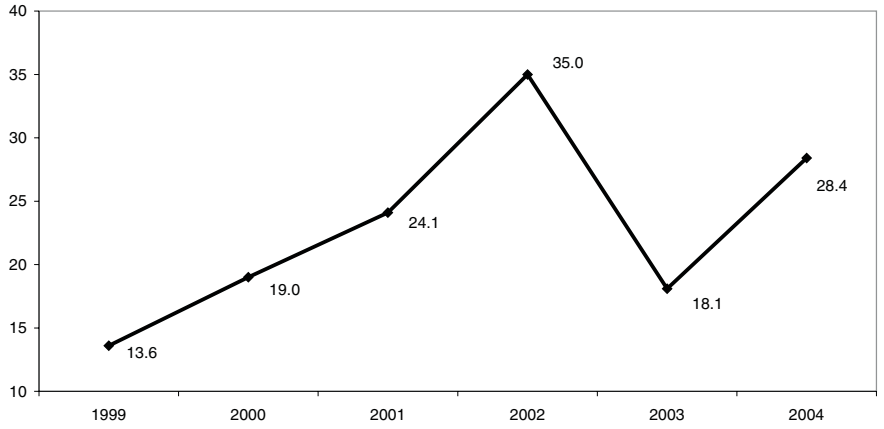
Two new financing mechanisms were originally envisaged. The first model, "partial fund holding", envisaged independent legal status and a bank account for each of the primary care units. Funding was calculated on a capitation basis and primary care units became financially responsible for the package of services they provided.

The second model, "full fund holding", also envisaged full financial responsibility for all the health needs of the covered population. Owing to the lack of necessary arrangements in the secondary and tertiary care systems needed for the full implementation of this model, however, full fund holding was not piloted within the project. The component on financing was therefore mainly concerned with the first model of primary care financing.

In the new model, primary care units received funding directly from the financing departments of *oblast* governments, allowing for the use of unified rates for all primary care units in the respective *oblasts* and thus a more equitable distribution of funds.

The introduction of the new financing mechanism seems to have contributed to an increased allocation for primary care in the *oblast* health budgets. In Ferghana *oblast*, the share of primary care in the *oblast* health budget increased from 13.6% in 1999 to 28.4% in 2004 (for further budget details for Ferghana *oblast* see Fig. 7.2). Although it is unclear which factors contributed to the

Fig. 7.2 Primary care financing as a share of *rayon* health budgets, Ferghana *oblast*, 1999–2004



Source: World Bank, 2004b.

shift, funding for primary care increased steeply in all pilot *oblasts*. Referrals to specialist care apparently decreased by 32.2% and hospitalization by 23.7%.

For the first round of pilot schemes, three control and three pilot *rayons* from each pilot *oblast* were selected. In 1999, 45 primary care units covering some 300 000 population were assigned independent legal status. The programme was subsequently expanded and, by 2004, the number of primary care units involved had reached 635, covering a population of almost 3.5 million people.

Information systems were another focus area of the project component on primary care financing and management. They were deemed to be important for two reasons. First, information systems are necessary to obtain reliable, up-to-date and user-friendly information on morbidity among the covered population. Second, a quick and reliable calculation of primary care budgets (based on per-capita rates and adjusted for age and gender) would be impossible without information systems. With these two issues in mind, the following activities were implemented:

- population databases were developed for the three original pilot *oblasts* and for pilot *rayons* of the two newly added *oblasts*;
- data were entered into the new databases;
- *oblast* information centres were established and 177 personal computers were delivered to *oblast* and *rayon* information centres;
- staff at *rayon* information centres were trained;
- new clinical information forms are currently being introduced.

To facilitate political support for these reforms of state funding, a study tour to Boston was organized for policy-makers from the Ministry of Health, the Ministry of Macroeconomics and Statistics, the Presidential Council and the Parliament, exposing participants to evidence-based policy-making and different systems of health care financing.

Overall, the Government positively evaluated all project components. The successful implementation of the project hinged on clearly defined players, responsibilities and accountability. In the early stages of planning, an explicit management structure including all responsible agencies was outlined by a Governmental Decree (Cabinet of Ministers 1998). A special commission organized within the Cabinet of Ministers became the main coordinating body. This commission was headed by the Deputy Prime Minister and played a crucial role in resolving problems involving agencies outside the health sector. The Ministry of Health was identified as the implementing agency and a special project implementation bureau was organized within the Ministry of Health. Similar structures were organized within the pilot *oblasts*: a coordinating body was set up within the *oblast* administration and *oblast* implementation bureaus

were established within *oblast* health authorities. This framework ensured strict control over the implementation process and the quick mobilization of policy resources when emerging problems needed to be addressed.

Primary care reforms (2005–2010)

The Government of Uzbekistan, the World Bank and the Asian Development Bank have initiated collaborative health projects with a value equivalent to US$ 191.4 million. The Asian Development Bank will provide a US$ 40 million loan, matched by US$ 30 million funding from government sources. A World Bank loan of US$ 40 million will be matched by US$ 75.4 million in government funds. In addition, the JICA will support the project with a grant worth US$ 6.0 million, and USAID bilateral collaboration will continue in the form of technical assistance and training activities within the ZdravPlus project.

In this new health initiative, the World Bank will support government efforts to strengthen the primary care system. The Asian Development Bank will support the strengthening of primary care through project components that are parallel to the World Bank projects. In addition, the Asian Development Bank will bridge gaps in mother and child health not covered by the World Bank-supported "Health II" project, such as policy formulation, integrating the mother and child health delivery system, and institutional capacity building, with an emphasis on efficiency, quality and cost–effectiveness.

The World Bank and the Asian Development Bank designed their projects so that they complement each other and can be implemented in parallel. The first two components of each project are built on the results of the "Health I" project and aim to strengthen the primary care system through equipment and capacity building. The World Bank will be involved in capacity building among GPs, whereas the Asian Development Bank will work more with nurses and midwives. In terms of quality monitoring, the World Bank will focus on general primary care issues, while the Asian Development Bank will be concerned specifically with mother and child health. In addition, the Asian Development Bank will focus on the delivery of mother and child health in primary care units, CRBs and *oblast* hospitals.

With regard to the component on financing, the Asian Development Bank will focus on broader financing frameworks and the development of health management information systems, while the World Bank will roll out its primary care financing pilot scheme and introduce pilot hospital financing schemes. The Asian Development Bank will work on strengthening the blood safety issues (namely the blood transfusion service) in the country and the World Bank will work on strengthening public health through institutional capacity building and preventive activities on HIV/AIDS and tuberculosis.

Table 7.3 Division of project activities by areas and external donors

Project area	Funded by
Scaling up primary health care reforms in rural areas and extending them to urban areas	World Bank – scaling up reforms to 8 new *oblasts* and completing the restructuring in the 3 *oblasts* started by project "Health"
	Asian Development Bank – scaling up reforms to 3 new *oblasts* if World Bank funds do not allow this and extending them to urban areas
Reproductive and child health	Asian Development Bank – developing services in 6 *oblasts*
Improved management of pharmaceuticals and the supply chain	World Bank
Human resources development and improving the quality of services	World Bank – training of physicians
	Asian Development Bank – training of nurses, paediatricians and obstetricians/ gynaecologists
Scaling up the financing and management reforms at the primary care level, and initiating reforms at the secondary level	Joint funding, as in the restructuring of primary health care
Developing long-term management information systems and capacities for financing and health management	Joint funding, as in the restructuring of primary health care
Restructuring of the public health system	World Bank
Addressing HIV/AIDS, tuberculosis and other communicable diseases	World Bank
Improving the system of monitoring and evaluation	World Bank
Rationalization and restructuring of secondary care facilities, particularly of units that are first referrals of primary care facilities	Joint funding, as in the restructuring of primary health care

Source: Ministry of Health, personal communication.

The contribution of the JICA will be in the areas of nursing education and health care delivery systems.

Table 7.3 outlines the division of project areas between the World Bank and the Asian Development Bank.

The joint project will be implemented over a period of five years between 2005 and 2010.

The "Health II" project will scale up project "Health", with a limited number of important extensions and refinements. Five new *oblasts* will have primary care facilities equipped by the World Bank and the remaining three by the Asian Development Bank if World Bank funds are not sufficient. The rural primary care models of the original "Health" project will be extended to new pilot schemes in urban areas. The new training centres for GPs, launched within project "Health", will allow the national replication of training in general practice. In extending the project, greater emphasis will be placed on access to pharmaceuticals, continuing medical education and quality improvement.

The financing and management pilot schemes will also be replicated nationally. Some extensions, such as physician bonus schemes, will be developed to address the unequal geographical distribution of physicians. In addition, new provider payment pilots for hospital services will be initiated and a new rationalization strategy will focus on the consolidation of hospital services and facilities.

A new component, improving public health services, is hoped to contribute to the control of emerging communicable diseases and the difficult issue of managing chronic noncommunicable diseases, and will improve public health services, including surveillance and health promotion.

Project "Health II" (World Bank)

Project "Health II" (World Bank 2004b) was initiated with the aim of replicating project "Health" nationwide. Its objectives are very similar to those of project "Health" and include improvements in the quality and cost–effectiveness of services. The project consists of four components.

- Primary care development: roll-out of the primary care reforms initiated by project "Health" to the remaining eight *oblasts* of the country.
- Financing and management: implementation of financing and management mechanisms to increase the effectiveness and efficiency of services.
- Improving public health services: initiatives to review and improve public health.
- Project management, monitoring and evaluation: local capacity building in monitoring and evaluation.

Component on primary care development

Similar to the primary care component of project "Health", this component will equip new and reconstructed SVPs. Again, the Government will be responsible for the building and reconstruction of SVPs.

The restructuring of primary care will be further expanded into urban areas in the form of pilot initiatives. Up to 30 urban polyclinics will be selected as pilot sites and patients will be free to enrol in them.

The component will intensify the training of GPs and laboratory technicians. The training of GPs will encompass both the undergraduate level, where it will involve changes of the curriculum, and the retraining of practising physicians.

Continuing medical education will be provided and regulated by two newly established centres: the Centre for Evidence-Based Medicine and the Centre for Continuing Medical Education, which are expected to play key roles in improving the quality of primary care services.

In a follow-up to a medical workforce survey conducted within project "Health", a new and more comprehensive workforce survey will be conducted, which will be used for the planning and restructuring of Uzbek medical education.

Component on financing and management

The nationwide scaling up of the rural financing and management pilot schemes initiated under project "Health" will be a major component of project "Health II". Two more initiatives related to financing will be implemented: case-based financing pilot schemes at the secondary care level and a physician bonus system will be developed to address geographical physician shortages.

The management information system developed within project "Health" will be replicated nationally. In addition, capacity building in health management will be supported at both undergraduate and postgraduate levels. Allocation discrepancies will be addressed by the development of national health accounts.

Component on improving public health services

This component aims to improve the control of communicable and noncommunicable diseases through improved public health services, and the extension of surveillance and health promotion activities. The initiatives within this component are broadly divided into the following three areas:

- capacity building
- prevention of HIV/AIDS, tuberculosis and STIs
- strengthening the public health infrastructure.

The development of a national public health strategy, the establishment of a school of public health, and support for health promotion and community-driven health programmes will form part of the capacity building efforts.

A specific programme, consisting of the development of an integrated electronic surveillance database for communicable conditions, the training of laboratory staff and the refurbishment of selected laboratories will be put in place, in collaboration with the United States Centers for Disease Control (CDC).

The component will also support the implementation of the national strategy on HIV/AIDS and the nationwide extension of the Directly Observed

Table 7.4 Performance indicators for the "Health II" project (World Bank)

Components	Performance indicators
Primary health care development	An increase by 10% in the number of pregnant women covered by prenatal care
	An increase by 10% in the number of newborns who receive hepatitis B immunization
	An increase by 10% in primary health care utilization and access
	Training of 2700 GPs who work in SVPs
	An increase in the availability of essential pharmaceuticals at primary care level, as measured by the number of essential drugs stocked
Financing and management	A decrease by 10% in hospital referrals and admissions
	Training of 520 health policy experts and financial managers
	Recurrent expenditures on primary care should be at least 20% of total public expenditures on health
	The share of expenditure for primary and outpatient care should be at least 40%
Improving public health services	100% of pregnant women should have access to HIV testing and to treatment for prevention of mother-to-child transmission
	An increase by 10% in the number of people at risk covered by HIV prevention activities
	Adoption of a National Strategic Plan and scaling up of the DOTS strategy throughout the country
	Training of at least 50 public health specialists and public health nurses
	A number of implemented community-based grant projects
Project management, monitoring and evaluation	The establishment of a monitoring and evaluation system, with a minimum of 2 facility surveys and 2 household surveys

Note: DOTS: Directly Observed Treatment Short-course.

Treatment Short-course (DOTS) approach in the management of tuberculosis. Approximately US$ 2.5 million will be allocated for these purposes.

Component on project management, monitoring and evaluation
This component is primarily concerned with the implementation of the Strategic Monitoring and Evaluation Plan, which had been previously developed. It will also support regular surveys and evaluations to assist in the implementation of the project. Explicit performance indicators were established for three of the project components (Table 7.4).

Project "Woman and Child Health Development" (Asian Development Bank)

The Woman and Child Health Development Project, supported by the Asian Development Bank (Asian Development Bank 2004), is expected to be implemented over five years, from 2005 to 2009. It has two broad objectives:

- to support the government reform agenda in primary health care
- to improve the efficiency of the woman and child health care delivery system.

The project is divided into four components (areas) (see Table 7.5), which are identical or complementary to the World Bank project:

- strengthening woman and child health services (US$ 33.38 million)
- strengthening finance, information and management (US$ 3.40 million)
- building a blood safety programme (US$ 13.58 million)
- improving project management (US$ 2.16 million).

The component on strengthening woman and child health services consists of the subcomponents listed here.

- Support the reorganization of primary care, with a specific focus on strengthening referral links for woman and child health between primary care units and CRBs.
- Capacity building for woman and child health services at the primary care and *oblast* levels through procurement of equipment and the provision of training. In selected *oblasts*, 81 CRBs and 6 *oblast* paediatric and maternity homes will be equipped with an essential package for woman and child health services.
- The subcomponent on continuing medical education will focus on strengthening education for nurses and midwives. It will provide training to nurses and midwives at CRBs and SVPs, with a focus on public health,

prevention, nutrition, and basic curative care. Some 10 000 nurses and midwives are expected to undergo training. The project will also be involved in the retraining of approximately 2500 physicians dealing with obstetrics and paediatrics.

- The subcomponent on quality monitoring will support the development of clinical pathway protocols and referral frameworks for woman and child health care. Supervisory capacity at the national and *oblast* levels will be built for the monitoring and improvement of woman and child health care.
- The subcomponent on health education will involve the Institute of Health in the development and dissemination of health education materials on woman and child health.

The project component on strengthening finance, information and management in the Uzbek health system consists of the subcomponents listed below.

- The first subcomponent will support the national implementation of the primary care financing and management scheme piloted under project "Health" through training and capacity building. It will also pilot hospital financing based on DRGs.
- The subcomponent on management information systems aims to build a population-based health database in five *oblasts*, in coordination with project "Health II". It will also be responsible for the development of the Uzbek National Health Data Dictionary, a computer training centre at the Institute of Health, and an internal electronic network for the Ministry of Health. The subcomponent will also assist in the development of a blood bank information system.
- Support will be provided to the Ministry of Health to update and strengthen national protocols ("*prikaz*") related to mother and child health.

The component on blood safety issues aims to reform the blood storage and transfusion system to improve efficiency and screening for blood-borne infections (such as HIV/AIDS and hepatitis). The component aims to restructure the framework for blood storage and transfusion, improve protocols and facilitate the establishment of a sustainable national budget for blood safety. It envisages that the subcomponents detailed here will come into being.

- The first subcomponent will help the Government to establish a national framework on blood safety that covers both organizational and management issues.
- A new *oblast* blood safety framework will be established and tested in one of the *oblasts*. A defined package of equipment will be procured for the

Table 7.5 Performance indicators for the Woman and Child Health Development Project (Asian Development Bank)

Areas	Selected performance indicators or targets
Improved health status of women and children	Reduce the maternal mortality rate in all project sites by 20% between 2004 and 2009
	Reduce the infant mortality rate in all project sites by 25% between 2004 and 2009
	Reduce the under-5 mortality rate in all project sites by 25% between 2004 and 2009
	Reduce the incidence of moderate iron deficiency anaemia among pregnant women to 22% by 2009 (27% in 1996)
	Increase the contraceptive prevalence among married women to 70% by 2009 (65% in 2002)
	Reduce the incidence of stunting among children under 5 years old to 25% by 2009
	Reduce the incidence of infectious diseases by 2009 (including a stabilization of HIV/AIDS incidence rates)
Improved efficiency, equity and financing	Unified allocation of health care resources across *oblasts* and *rayons* by 2009
	Improve recurrent resource allocations (other than salaries) for primary health care and woman and child health to 20% by 2009 (15% in 2000)
	Ensure financial self-sufficiency for the blood safety programme by 2009
	Budgeting process in the SVPs, based on capitation, and SVPs in every *oblast* are permitted to retain savings in every *oblast* by 2009
	Use of the new hospital payment mechanism in pilot *oblasts* by 2009
	Decrease hospital referrals from SVPs and hospital admissions by 10% by 2009
	Reduce the average length of hospital stays for normal deliveries to 5 days by 2009 (9 days in 2000)
Strengthening woman and child health services	Increase the percentage of pregnant women receiving first antenatal care by a trained health professional in the first 3 months of pregnancy to 50% by 2009
	Increase the percentage of pregnant women with anaemia receiving iron supplements by 10% by 2009
	Increased use of birth spacing counselling by 20% by 2009
	Increase the percentage of newborns receiving hepatitis B vaccination to 20% by 2009 (8% in 2001)
	Increase the percentage of infants under 3 months old exclusively breastfed to 20% by 2009 (9% in 2002)

(cont.)

Table 7.5 (cont.)

Areas	Selected performance indicators or targets
Building a blood safety programme	Increase blood collection to 10 000 litres per million population per year by 2009 (8000 litres per million population in 2002)
	90% of blood used for transfusions screened for infectious diseases by 2009 (60% in 2000)
	National blood safety programme established by 2007
	National policy and legislation developed by 2007
	National quality system and standards according to WHO guidelines created by 2008
	100% voluntary unpaid blood donation by 2009
	6 comprehensive *oblast* blood centres created (none in 2002)
	Patient-oriented hospital blood banks established by 2009
	Clinical protocols for safe blood use established by 2007

Note: WHO: World Health Organization.

National Blood Centre, the Regional Blood Centre and hospital blood banks. The project will also provide reagents and supplies for the first year.

- The final subcomponent will support the replacement of paid donors with voluntary, unpaid blood donation.

Secondary care

Reform initiatives at the secondary care level have so far been limited to gradual policy changes related to the restructuring of hospitals and a reform of financing. The restructuring of hospitals was mostly concerned with reductions in hospital capacities (see Section 6.4). Financing reforms entailed the gradual replacement of state funding with other sources of financing and were preceded by the development of a package of state-guaranteed free services. Out-of pocket payments have now become one of the main sources of health financing (see Chapter 3).

Emergency services

The restructuring of emergency services has been one of the major health reforms in Uzbekistan and has benefited from the largest single investments in the Uzbek health sector in recent years (see Section 3.3 and Section 6.5). In the first phase of reforms, supported by grants from the Spanish and Japanese

governments, the National Emergency Centre in Tashkent and *oblast* and *rayon* or urban branches were established and the National Centre was fully renovated and equipped. In the second phase (2004–2006), regional emergency care centres were being equipped with the help of the Islamic Bank of Development, and emergency care departments at CRBs or urban hospitals were being equipped supported through a grant from the Kuwait Government.

The network of emergency facilities is now much better equipped than other health facilities in the public sector. As the delivery of emergency care is also formally free of charge, patients who would not otherwise have done so, seem to have increasingly accessed emergency services.

Tertiary care

Tertiary care research institutions in Uzbekistan represent a unique combination of medical science and practice. In contrast to tertiary clinics not involved in research, these institutions have earmarked funding for research and view research as one of their core functions (see Chapter 6). Until 2003, the tertiary care research institutions were mostly undergoing the same changes as providers of secondary care. In 2003, a Presidential Decree initiated a pilot scheme on reforming tertiary care research institutions (President of Uzbekistan 2003). The Decree stated that the aim of the next stage of reforms was to meet the needs of the population in specialized and tertiary care through the creation of specialized centres and clinics equipped with modern technologies for diagnostics and treatment.

The Decree specified the following criteria for the selection of institutions as specialized centres:

- the personnel includes highly qualified and acknowledged experts;
- the institutions use complex modern equipment and methods for diagnostics and treatment.

Four institutions were initially included as pilot institutions in the reform of tertiary care: the Research Centre for Urology, the Research Centre for Surgery, the Research Centre for Cardiology and the Regional Centre for Microsurgery in Ophthalmology. These four institutions were transformed into national specialty centres in their respective fields. All centres, with the exception of the Research Centre for Cardiology, incorporated inpatient and outpatient clinics prior to the transformation. In order to increase capacity for cardiology patient care, an urban hospital was merged with the Research Centre for Cardiology.

The State Property Commission and the Ministry of Finance are, on behalf of the Government, shareholders in these national centres, although their share is entrusted to the centres' management. The centres have mixed financing,

consisting of funds from the state budget, their revenues and other external sources (such as grants and sponsoring funds). In contrast to other tertiary institutions that receive state funding according to four line items and have to spend it accordingly, the state budget of the national centres is allocated through the Ministry of Health as a single line item. The Decree calls on the Ministry of Finance to gradually decrease state funding for the pilot centres, with a shift to self-financing by 2008. This will be followed by a preferential sale of the government share to personnel at the centres. The pilot centres are also granted a 10-year tax break on all types of taxes, as well as on customs fees for imported equipment. In 2004, all four pilot centres had to self-finance 80% of their institutional budget. The Centre for Microsurgery in Ophthalmology was able to finance 84.2% of its budget, but the other three centres were unable to meet this objective. The Centre for Cardiology self-financed 68% of its budget, the Centre for Urology 42%, and the Centre for Surgery 23.5% (MoH 2004b).

A council is to become the main managerial body of the centres. Members of the council are to be elected by the personnel of the respective centres. The director of the respective centre, who will be appointed by the central Government upon nomination by the Ministry of Health, will become the chairman of the council.

The centres have the right to:

- use and manage the state property included in the centres' assets
- determine staff numbers and types
- determine remuneration levels based on the workload and complexity of performed tasks.

8 Assessment of the health system

This chapter assesses the Uzbek health system in relation to several key characteristics. The chapter first looks at the stated objectives of the health system, and evaluates Uzbekistan's health system with regard to access and coverage, allocative efficiency, equity and technical efficiency. It should, however, be noted that the lack of valid and reliable health system data presents a major challenge for such an assessment.

8.1 The stated objectives of the health system

In Uzbekistan, the overall aims and objectives of the health system are formulated in terms of general principles. More detailed objectives are developed as part of specific programmes (see Chapter 7). The general principles of the Uzbek health system were stated in a number of government documents. Article 3 of the Law on Health Protection of 1996 outlined the following general principles:

- compliance with human rights norms in health protection
- accessibility of health services to all population strata
- prevention as a priority for the health sector
- social protection for citizens in case of illness
- bridging the gap between medical science and practice.

The reforms following the Law on Health Protection aimed to address some of these principles. The Law on Health Protection encompasses some aspects of human rights norms. For instance, the law contains an anti-discrimination clause, guaranteeing access to health care and health protection irrespective of religion, nationality, age, gender, views and social status (Article 13).

The document further outlines the rights of adolescents, foreigners, military personnel, people with disabilities and others, with regard to health protection (see Chapters 2 and 7).

The Presidential Decree on the Next Steps of the Health Reforms addresses the general principles of accessibility and prevention through reform initiatives in primary and emergency care (see Chapters 6 and 7).

The principles outlined in the Law on Health Protection were translated by follow-up documents into structural and process objectives, such as new facilities or new financing mechanisms. These structural objectives are closely monitored by the central Government. A strong central administrative monitoring process and direct accountability with regard to the achievement of objectives ensure that objectives are met.

The lack of health system data on how these structural and process initiatives have worked in relation to the principles outlined in the Law on Health Protection only allows for limited conclusions on the achievement of these stated principles. In addition, the long-term national objectives were not measurable, as they were not set against health outcomes or health-related outputs. If they had been, these initiatives would have utilized the strong administrative and accountability framework to its fullest potential. They could have further increased the efficiency and effectiveness of the health system and allowed for greater innovation.

8.2 Access to health services

In assessing access to, and coverage of, health care in Uzbekistan, this subsection considers geographical and financial factors. Understanding of the term "access" differs in various national or cultural contexts. In Uzbekistan, a generally accepted definition of access does not exist and reliable evidence on current levels of access is lacking. Much of this subsection is therefore based on anecdotal evidence or theoretical frameworks.

Geographical access

Soviet health care had established an extensive geographical network of health facilities that provided access and coverage to virtually all populated areas, no matter how small or remote they were. The economic collapse after the break-up of the Soviet Union made it difficult to maintain this extensive network and the governments of the countries formerly belonging to the Soviet Union were

forced to find a balance between available resources and the desired level of access.

In Uzbekistan, the decision was made to maintain geographical access of the whole population to primary care services, closely following the Soviet model. Ongoing primary care reforms aim to ensure equal geographical access to restructured primary care units throughout the country (see Chapters 6 and 7). For this purpose, a mapping and geographical placement of primary care units in relation to populated areas was carried out as part of the reform process.

With regard to access to SVPs, two trends can be observed since the start of the reforms in the mid-1990s. Geographical access to non-physician staffed primary health facilities has decreased substantially during this period. The number of FAPs declined by almost half in the period 1997–2005. On the other hand, access to nominally higher quality primary care seems to have improved, with a 25% increase in the number of physician-staffed SVPs in 1996–2005 (see Chapter 6).

In defining geographical access, mere quantitative characteristics of available facilities might not reflect actual access. There might be a clustering of facilities that would result in an uneven distribution. In the case of Uzbekistan, however, the planned placement of SVPs seems to have ensured equitable geographical access in rural areas. However, there are significant differences in terms of per capita health expenditure across *oblasts* and many SVPs face staffing shortages. In contrast to the rural primary care system, urban primary care has not undergone major changes or closures of facilities. It is therefore safe to assume that geographical access to primary care services in urban areas has remained similar to the period prior to reforms.

Maintaining the same geographical access to inpatient secondary care that existed in the Soviet period was not a government priority. In the period 1997–2005, the number of rural hospitals was reduced by almost half and the number of urban hospitals by 20%, while overall hospital bed capacity was reduced by almost 50% (see Chapter 6). These reductions might have exacerbated problems of geographical access.

When considering the reductions in bed capacity and in the number of hospitals, the Soviet framework of inpatient care should, however, be kept in mind. A significant share of inpatient care in the Soviet Union was unnecessary and could easily be dealt with at the primary care level (see Section 2.1). The reduced geographical access to inpatient care might therefore have been partially compensated for by increases in physician-staffed SVPs. In addition, the framework of Uzbek health care revolves around the administrative divisions of the country at the *oblast*, *rayon*, and urban levels, and inpatient care at each of these levels was maintained. Each urban or *rayon* unit has at least one CRB,

urban or *rayon* hospital. It can therefore be assumed that geographical access to inpatient care was largely maintained, despite the closure of hospitals. Tertiary inpatient care was not affected by any major facility closures, although access to tertiary care might have been affected by bed capacity reductions.

Financial access and coverage

Health care financing is possibly the most important factor affecting access to and coverage of health care. This subsection reviews funding schemes and coverage for three care delivery modes: primary care, specialized care, and emergency care. It also discusses how three financing mechanisms, which have recently been introduced into the Uzbek health system, have affected financial access: capitation, voluntary health insurance and formal user charges.

Public primary care facilities in Uzbekistan are expected to provide universal and free coverage for the whole population. However, when assessing coverage and access in the public primary care system, there are two issues of concern.

First, comprehensive pharmaceutical coverage for outpatient care is not a part of the state-guaranteed package of primary care services, except for small predefined groups of the population and certain clinical conditions (see Chapter 3). Third-party pooling schemes insuring against pharmaceutical expenses do not exist in Uzbekistan. It can be assumed that the current system of out-of-pocket payments disproportionately affects low-income groups. Furthermore, this lack of coverage for outpatient pharmaceuticals might reduce the utilization of nominally free primary care services.

The existing list of 20 pharmaceuticals or medical aids for which the Government controls the prices and ensures universal access aims to improve access to both essential medications and primary care services. However, the list has not been updated since it was drawn up in 1994 (see Section 6.6). Significant advances in health technology assessment and epidemiological and cost–effectiveness research could result in substantial benefits, if they were used in defining the list.

The second concern relates to capitation payments. The capitation funding scheme that is currently being expanded nationwide has many positive elements, as well as several inherent features relevant to access that should be addressed to ensure the full benefits of the scheme. Under the new scheme, primary care providers have incentives to refer patients to other levels of care or to restrict access to existing services. Capitation payments are not affected by the number of visits or referral rates. Given the limited coverage for specialized care and the wide use of out-of-pocket payments, referrals could impede patient access to

health services for both financial and non-financial reasons, disproportionately affecting low-income groups.

The funding scheme for specialized care in Uzbekistan closely reflects government efforts to shift costs to non-budgetary sources (see Chapter 3). State coverage for secondary and tertiary care has been limited to predefined population groups and conditions, which have not necessarily been linked to poverty status (see Section 3.2). In the absence of third-party pooling schemes, most of the revenue burden is placed on direct payments. Significant access differences therefore exist between the covered population groups and the rest of the population. As no information is currently available on current or unmet needs, it is difficult to assess these accessibility issues.

Health reforms introduced the concept of formally free and accessible emergency care for all. The extensive network of emergency facilities is tasked with providing such care (see Chapter 7). Although no data are readily available on the amount of public funding earmarked for the delivery of emergency care, anecdotal evidence suggests that emergency care facilities are comparably well equipped. Pharmaceutical procurement for the emergency care network is considered to be far superior to that of other public primary and secondary facilities charged with providing the state-guaranteed benefits package.

In the Uzbek health system, the implementation of formally "free emergency care for all" seems to result in undesirable effects. As secondary and tertiary care generally require out-of-pocket payments, since there is no third-party payer reimbursement system for inpatient care, and as they have only limited pharmaceutical coverage, perverse incentives are in place for the use of emergency services. These incentives lead to a redirection of patients from other levels of care to the emergency services. This not only results in efficiency losses, but is also likely to limit access for those in real need of emergency care.

While voluntary health insurance does not yet account for a significant share of health funding in Uzbekistan, its volume is expected to grow rapidly, as it could help fill the gap in risk pooling for services not otherwise covered. This might result in income-related access differentials.

User charges are often hailed as preventing moral hazard in publicly funded health systems. However, they might also become barriers that impede the utilization of health services for those in need. While the rapid introduction of user charges in Uzbekistan overcame the moral hazard pertinent to the free Soviet health system, it seems to have resulted in an unintended reduction of demand.

Evidence suggests that user charges can limit access to necessary care, disproportionately affecting low-income groups. This is particularly pronounced in Uzbekistan, as exemptions are not directly linked to income levels, although

some proxies for income levels, such as disabilities or selected chronic conditions, have been incorporated as eligibility criteria for the basic benefits package. In a transition economy such as Uzbekistan, it might be difficult to measure actual individual incomes.

8.3 Equity issues

Equity has become a key element in the assessment of health systems. This subsection outlines the Uzbek health system in relation to two types of equity: vertical and horizontal.

Vertical equity

A tax-based public system represents the core of the current health system in Uzbekistan, with a limited share of private health care. Indirect taxes contribute to regressive vertical equity, as the affluent pay proportionally less than the poor, while direct taxes contribute to progressive vertical equity, as the affluent pay proportionally more than the poor. The Uzbek health system might be described as one leaning towards the regressive end of the vertical equity continuum. This is because it is estimated that health expenditures from the public budget draw proportionally from state budget revenue sources, where direct taxes make up 18% of the state budget, compared to indirect taxes (including resource taxes), which account for 47% (see Chapter 3).

The fee-for-service based private industry and user charges in the public sector further contribute to this regressive vertical equity in the Uzbek health system. The private sector functions independently from the public health sector and private industry revenue is not directly used to subsidize care for the poor. Although in theory up to 20% of care in the private sector should be accessible to defined population groups who would then be reimbursed by public funds (President of Uzbekistan 1998), in practice all public money is directed towards public health facilities. As no indirect subsidies exist, care provided by the private sector is therefore generally not accessible to low-income groups. Patients turn to the private sector for superior quality of care, although technical quality might not necessarily be of a higher standard.

In contrast, revenue from user charges in the public sector indirectly subsidizes health care for the poor. The bulk of this revenue is invested in infrastructure, equally benefiting poor and affluent users. A Kakwani Progressive Index, a measure of progressiveness or regressiveness of taxation, could not be found for Uzbekistan.

Horizontal equity

The transition economy in Uzbekistan consists of both a formal and an informal sector. Estimates of the size of the "grey" economy vary from source to source. Considering only the formal economy with its unified national tax rates, the Uzbek health system might be described as a system of horizontal equity – people with the same income pay the same amount for health care. Private health care and user charges in the public sector and the "grey" economy, however, make the system more inequitable. As these elements are difficult to quantify, it is difficult to place the Uzbek health system in the continuum of horizontal equity.

8.4 Quality of health services

Health systems that offer high-quality care bring about health improvements and raise public trust in the system. In general, the perceived quality of care might either facilitate or impede access to health services.

In Uzbekistan, quality health care has become a government priority and, since the second half of the 1990s, significant external and internal resources have been mobilized for the upgrading and restructuring of primary care, secondary and tertiary care, and emergency services (see Chapters 3 and 7). While reliable evidence on how these investments have affected access to health care is not available, it is hoped that the investments in facilities, equipment and training have improved access to quality health care, resulting in increased public trust.

Investments in medical equipment, training and restructuring, however, are not sufficient to bring about health improvements, which are the ultimate objective of health systems. Clinical practice is central to the achievement of this objective. Modern medicine has moved from clinical practice based on opinions or personal experience towards practice based on a combination of systematic reviews and judgements that take account of contextual and individual factors. It has been suggested that the quality of care in the former Soviet Union lags far behind that in western European countries, even when resource variations are taken into account (Rowland 1991). Although reliable evidence on the quality of care in Uzbekistan does not exist, it is generally acknowledged that it needs substantial improvements and that some current practices are detrimental to health, such as the administering of unsafe or superfluous injections.

Several important steps were recently made in this direction, the most important being the launch of the Centre for Evidence-Based Medicine. The

centre has already produced several clinical guidelines based on international recommendations (see Section 4.2, Health technology assessment). In addition, a number of initiatives were carried out by international agencies to raise the awareness of policy-makers, including a USAID ZdravPlus-led regional international conference on quality improvement in Tashkent in 2004.

Three elements seem to be important for further improving the quality of care in the Uzbek health system. First, the capacity of the Centre for Evidence-Based Medicine should be further expanded both qualitatively and quantitatively, as it currently employs only six staff. Second, the Centre could go beyond adopting international guidelines and also cover health technology assessments and quality-improvement programmes. Third, initiatives for changing clinical behaviour should become a key part of quality initiatives. All three constituents of medical quality should be reflected in quality-improvement initiatives: content (guidelines and protocols), delivery (delivery processes), and monitoring and evaluation (outcomes). The Uzbek health system with its strong administrative control mechanisms might be well placed to reap rapid benefits from well-developed and implemented quality initiatives, which would improve access to quality services, and a significant opportunity is now available in the shape of the two primary health care loans from the World Bank and the Asian Development Bank. The three clinical care improvement projects launched in 2003 in Ferghana *oblast* should represent a good platform for the identification and solving of broader health system issues, and the replication of improvements nationwide.

8.5 Efficiency of the health system

Allocative efficiency

Three elements are important for the evaluation of allocative efficiency in health systems:

- health needs should be assessed and quantified at the level of the health system;
- exact data on health expenditure and resource allocation should be available: how much, how, and where resources are spent on health;
- medical services addressing the needs of the population should exist, be generally recognized and effectively utilized.

Over recent years, fulfilment of health needs has begun to be assessed quantitatively, and this can be used to determine standards of care. For example, according to modern quality standards, patients with diabetes should have an

annual retinal check-up, a dental check-up every six months, be on aspirin if older than 30 years, and so on. If the number of diabetic patients is known, these standards would allow estimation of the health needs of this population with regard to diabetes, which would help the design and delivery of a health system that is capable of meeting these needs, such as with regard to the number of dentists or ophthalmologists. In Uzbekistan, such health needs assessment methods are not applied. Instead, more aggregate proxies for health needs are used as a basis for resource allocation.

Different resource allocation processes for the public and private sector in Uzbekistan lead to different allocative efficiencies for the two sectors. Public resource allocation follows a planned process, in which resource allocations are carried out according to established standards and protocols, often based on geographical and population indicators. The private industry, on the other hand, mostly follows market forces.

With regard to allocative efficiency, public resource allocation in Uzbekistan differs at the primary, secondary and tertiary levels. In the public primary health care sector, resource allocation has been increasingly linked to the size of the covered population (see Chapters 6 and 7). Conceptually, population size represents a proxy for health needs, as there is a comparatively even geographical distribution of income and education variables within Uzbekistan's territorial units. Exceptions are large urban units, such as Tashkent, where anecdotally certain neighbourhoods attract more affluent groups with distinct health needs and health-seeking behaviour.

Financing of secondary and tertiary inpatient care is still generally based on norms, inputs, and past expenditures (see Section 3.6). This mode of financing should theoretically result in health delivery that is more responsive to inpatient health needs, that is, to high allocative efficiency. However, this would only be the case if there was no physician-induced demand and if out-of-pocket payments and other barriers to access did not exist.

Market forces are the determinants of resource allocation in the private sector and at the four pilot tertiary care institutions (see Chapters 6 and 7). In these cases, resources are tailored to actual demand, but not to health needs, resulting in low allocative efficiency.

Allocative efficiency in the Uzbek context also depends on health spending by levels of care. According to Ministry of Health data, public spending on inpatient care decreased significantly since the mid-1990s, from 75.9% of all public spending in 1995 to 51.1% in 2004. For the first nine months of 2005, inpatient expenses accounted for 44.6% (MoH, personal communication). Corresponding to this decreased spending on inpatient care, public funds were shifted towards primary care services. As most health needs could and should

be addressed at the primary care level, this shift of funds should have resulted in higher allocative efficiency.

While it is possible to assess allocative efficiency in Uzbekistan in general terms, more precise estimates are difficult due to the lack of data and evidence. Regular health needs assessments are not part of the system, and data on the quality of medical services are lacking.

Technical efficiency

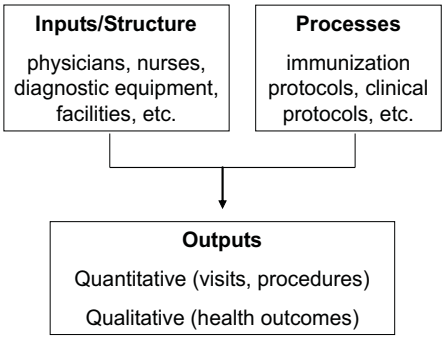
Conceptually, health systems can be described as a production process with inputs, processes and outputs (see Fig. 8.1).

In describing technical efficiency in the Uzbek health system, two output perspectives will be taken into account, a quantitative and a qualitative perspective.

Quantitative perspective

The first perspective is more technical, much easier to evaluate, and focuses on quantitative outputs, such as the number of visits, operations, consultations, or home visits. The Soviet health system heavily relied on these types of efficiency measures for planning and evaluation. It collected, for example, data on the number of visits per physician per day, and the ratio of physicians or nurses to beds in general hospitals. This quantitative perspective has been maintained as the prevalent method of measuring efficiency in the Uzbek health system.

Fig. 8.1 The production process in health systems



Source: Authors' compilation.

At the time of writing, however, no data were available on the technical efficiency of individual institutions or the health system as a whole. Nevertheless, it is possible to make some assumptions about recent changes in technical efficiency. Two initiatives implemented after independence are likely to have resulted in increased technical efficiency of inpatient care in the public sector: the introduction of user charges for inpatient care and the drawing up of new treatment protocols. User charges have affected the Soviet "culture", in which inpatient care was considered to be of higher quality, and more preferable, than primary care, and have led to a significant decline in demand. The reduced demand for inpatient care, however, is also due to an increased inability to pay, as a consequence of the economic transition.

The second initiative that may improve the technical efficiency of inpatient care concerns new protocols drawn up by the Ministry of Health, limiting the number of hospital days and the time required for inpatient diagnostic procedures. Soviet inpatient care was known for long inpatient stays and often many days were required to get through the diagnostic procedures prior to the start of treatment. The average inpatient stay per admission has been reduced from 12 days in 2000 to 10.6 days in 2005 (UNDP Uzbekistan & Uzbek State Committee on Statistics 2006).

Technical efficiency in the reformed primary care system may also have increased, due to new financing mechanisms based on capitation which give incentives to improve efficiency for organizing consultations and immunizations. An increased number of outpatient visits and improved immunization rates may be proxies that indicate increased efficiency (World Bank 2005).

Qualitative perspective

The qualitative perspective focuses on health outcomes as an output of health systems. This approach is most suitable in relation to the ultimate aim of health systems: improved population health. Numbers of visits or operations do not necessarily correlate with better health outcomes and may be of limited value.

From the qualitative perspective, estimates on technical efficiency differ depending on the type of health outcome being considered. Different technical efficiencies seem to exist in the current Uzbek health system with regard to communicable and noncommunicable conditions. In terms of communicable disease control, strong processes and structural indicators were developed and implemented by the Soviet health system, and these protocols have been maintained in the Uzbek health system. Despite the difficult economic context, the country has achieved high immunization and vaccination rates for a number of infectious conditions. The immunization rates for tetanus, measles and

diphtheria in Uzbekistan, for example, are comparable to the EU15 average (WHO Regional Office for Europe 2007).

However, health outcomes for a number of other infectious conditions (such as tuberculosis and HIV/AIDS) and most noncommunicable conditions (such as cardiovascular or respiratory conditions) fare poorly when compared to health systems in western Europe. In 2003, tuberculosis rates in Uzbekistan were eight times higher than the EU15 average; the age-standardized death rate for liver diseases and cirrhosis was four times higher; and the age-standardized death rates for circulatory system diseases and ischaemic heart disease in the age group 0–64 was almost five times higher than the EU15 average (WHO Regional Office for Europe 2007). Although these indicators are influenced by a large number of factors outside the health system, they still seem to indicate a low technical efficiency of the health system in Uzbekistan. Furthermore, morbidity indicators for noncommunicable conditions in Uzbekistan are most likely to be an underestimate, due to access limitations (such as out-of-pocket payments and lack of pharmaceuticals) and misdiagnosis (i.e. the poor quality of care).

Advanced health systems have succeeded in improving health outcomes for these conditions partly as a result of the development and implementation of clinical processes and protocols. A number of similar initiatives were implemented in Uzbekistan, including the programme on Integrated Management of Childhood Illnesses. Strengthening, expanding and improving this approach, in order to develop, implement and monitor clinical processes and health outcomes, might help to improve technical efficiency in the Uzbek health system.

9 Conclusions

After the break-up of the Soviet Union, all the former Soviet republics set out to build independent political, economic and health systems. In Uzbekistan, major health reforms started in the second half of the 1990s. In 1996, a document (the Law on Health Protection) was developed that outlined a vision for the health system. In line with this vision, the Uzbek health system underwent significant transformations, structural changes, and financial reforms. A strong governmental commitment to the reforms helped to achieve many of the objectives. However, there remain a number of challenges for the Uzbek health system.

The establishment of a state-guaranteed benefits package was an important element of the health reforms. It aims to direct limited resources to priority areas, and to improve overall efficiency and effectiveness, as well as access to and quality of health services. However, countries in transition with comparatively small health care budgets might leave a significant proportion of the population without guaranteed coverage for essential services. In Uzbekistan, a number of essential services were left outside the state-guaranteed benefits package for the majority of the population, including secondary and tertiary services and outpatient pharmaceuticals. This has created many challenges, such as increasing the pressure on emergency services which are comparatively well equipped and formally free of charge. At present, emergency services seem to fulfil a safety net function and face an overload of patients, giving rise to an ineffective use of resources. Patients who need secondary or tertiary care services or outpatient pharmaceuticals, but fall outside the defined benefit groups, are more likely to enter emergency care services at a later stage, with complications and possibly higher costs. Overall, access to secondary and tertiary care seems to have deteriorated in recent years and out-of-pocket

payments (both formal and informal) present a major barrier to accessing health services and pharmaceuticals, in particular for low-income groups.

While decentralization in the public sector might have improved efficiencies at individual health care institutions, lack of coordination has introduced systemic inefficiencies, such as a duplication of laboratory diagnostics and medical services. However, if well applied, advances in IT and quality assurance mechanisms should have reduced inefficiencies. The system-wide introduction of fee-for-service arrangements and informal payments has placed incentives on increased quantities of services, without due respect to whether they are appropriate or not.

Quality improvement is another major challenge for the Uzbek health system and significant steps have been taken to raise the awareness of policy-makers. Through projects supported by international agencies, local capacity for the improvement of clinical quality improvement and high-quality medical services is developing. For this, three integrated elements are essential: up-to-date medical information accessible to all health professionals; continuing medical education programmes with an emphasis on self-learning; and quality-improvement programmes that continually monitor quality indicators.

Currently three types of barriers to up-to-date medical information exist in Uzbekistan. First, only large health care providers and educational institutions have good access to the Internet and other forms of medical information, such as international peer-reviewed journals. Second, even where there is technical access to the Internet, medical information is often not accessible, as health care providers or health professionals cannot afford subscription fees for international journals or databases. The increased availability of free access resources, such as through Health InterNetwork Access to Research Initiative (HINARY) or National Institute for Health and Clinical Excellence (NICE) might help in addressing this problem. The final and most significant barrier to accessing medical information is the language barrier. Most health professionals in Uzbekistan are not proficient in English and therefore have limited ability to access up-to-date international information sources. The development of local medical resources on the Internet might be a way of addressing this issue in the short term, while strong emphasis on English proficiency and integration of English learning sources into the curriculum of medical schools will be vital for long-term quality-improvement strategies.

Some steps have been taken to integrate self-learning into the licensing and revalidation processes. The planned continuing medical education system that aims to make use of portfolios and other self-learning activities could contribute to higher quality care. Also, to achieve quality improvements in predefined areas in the short run, specific quality-improvement programmes are being developed.

Continuous monitoring of relevant quality indicators needs to remain an integral part of these programmes.

In line with the concepts of continuing quality improvement and lifelong learning, under- and postgraduate medical education should develop evidence-based and self-learning modes of teaching. The high cost of updating medical information could be circumvented through a wider use of Internet sources (such as PubMed) and electronic materials (such as educational software).

More resources should be allocated for health service research that would enable better evaluation of reform initiatives, more efficient use of resources and more informed decision-making. This would facilitate the shift towards evidence-based management practices and contribute to local capacity development.

One of the prerequisites for a shift towards evidence-based management is improved data collection, which would also cover the qualitative aspects of health care, such as through using regular patient satisfaction surveys and ensuring compliance with best practices. Given the limited resources available, data-collection processes could initially focus on certain priority areas, such as maternal and child health or cancer. At present, the health information system remains burdensome and fragmented.

The sanitary-epidemiological system is another aspect of the Uzbek health system that has so far not been targeted by health reforms, leaving a crucial gap in tackling noncommunicable diseases, lifestyle risk factors and socioeconomic determinants of health.

Following the introduction of fee-for-service payments and other market mechanisms, health care providers seem to have – on occasion – taken advantage of information asymmetries. Although medical services fall within the range of services covered by the Agency for Consumer Protection, no specific frameworks are in place to protect against medical fraud or inappropriate care. The establishment of such a framework could help to improve the efficiency and quality of health care in Uzbekistan and contribute to protecting patients' rights.

10 Appendices

10.1 References

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10.2 Useful web sites

Andijan State Medical Institute
http://www.andmi.uz

Apteka.uz
http://www.apteka.uz

Eurasianet Uzbekistan
http://www.eurasianet.org/resource/uzbekistan/index.shtml

European Union's relations with Uzbekistan
http://ec.europa.eu/comm/external_relations/uzbekistan/intro/index.htm

Global Fund to Fight AIDS, Tuberculosis and Malaria (country web site)
http://www.theglobalfund.org/programs/countrysite.aspx?countryid=UZB

Government of Uzbekistan
http://www.gov.uz

Medical Diagnostics Services
http://www.mds.uz

Ministry of Health
http://www.gov.uz/en/section.scm?sectionId=2330; http://www.mzr.uz/

Ministry of Finance
http://www.mf.uz

Open Society Institute Assistance Foundation – Uzbekistan
http://www.soros.org/about/foundations/uzbekistan

OSCE Project Coordinator in Uzbekistan
http://www.osce.org/tashkent/

Tashkent Medical Academy
www.tma.uz

School of Public Health, Tashkent Medical Academy
www.sph.uz

Tashkent Pharmaceutical Institute
http://www.pharmi.uz

UNAIDS (country web site)
http://www.unaids.org/en/Regions_Countries/Countries/uzbekistan.asp

UNICEF (country web site)
http://www.unicef.org/uzbekistan/

UNDP (country web site)
www.undp.uz

WHO (country web site)
http://www.who.int/countries/uzb/en/

World Bank's Mission in Uzbekistan
http://www.worldbank.org.uz

Development Assistance Database of Uzbekistan
www.dad.uz

ZdravPlus
http://www.zplus.kz/

10.3 Principal legislation

Law on the adoption of the Constitution of the Republic of Uzbekistan, 8 December 1992

United Nations Resolution on protection of individuals with mental disorders and improvement of mental care (46/119), 1992

Law on Cabinet of Ministers of the Republic of Uzbekistan, 6 May 1993

Law on Courts, 3 September 1993

Decree No. 404 on immediate initiatives to improve the provision and distribution of pharmaceuticals and medical devices in the country, 6 August 1994

Decree No. 181 on state quality control of the pharmaceuticals, medical aids and substances for medical-preventive nutrition, 25 May 1995

Law on Health Protection, 26 August 1996 (N 265-I)

Decree No. 687 of 1 October 1996

Decree No. 532 on the improvement of financing mechanisms of health care delivery institutions, 2 December 1997

Decree No. 236, 1 June 1998

Presidential Decree on the State Programme for the Reform of the Health Care System of Uzbekistan, 10 November 1998

Decree No. 100 on implementation of the primary care reform initiatives in Ferghana *oblast*, 9 March 1999

Decree No. 414 on improvements of the financing of state institutions, 3 September 1999

Law on Psychiatric Services, adopted by Parliament, 2000 (initiated in 1993 by the Ministry of Health)

Decree on the State Programme of Mother and Child, 5 February 2001

Decree No. 521 on confirming the storage, distribution, retail and registration principles of narcotic, psychotropic medications and their precursors, 28 November 2001

Presidential Decree on the improvement of research activities, 20 February 2002

Cabinet of Ministers' Decree No. 77 on measures to improve research activities, 4 March 2002

Presidential Decree PF 3080 on the further development of computerization and the introduction of information technologies, 30 May 2002

Cabinet of Ministers' Decree No. 200 on the further development of computerization and the introduction of information technologies, 6 June 2002

Decree No. 6/25, 28 June 2002

Law on donation of blood and its components, 30 August 2002 402-II

Law on the appeal of citizens, 13 December 2002

Presidential Decree on the next steps of health reforms, 26 February 2003

Decree No. 90, 27 February 2003

Decree No. 96 on the review of the appeals process, 3 March 2003

Decree No. 508, 18 November 2003

Decree No. 535, 6 December 2004

Cabinet of Ministers' Decree No. 30 on year of health, 25 January 2005

Presidential Decree on improving the framework for legal protection of entrepreneurs, 14 June 2005 (PF 3619)

Presidential Decree on additional measures for further development of informational technologies, 8 July 2005 (PK 117)

Law on amendments to tax code, issued by the Legislative Chamber on 1 December 2005, approved by the Senate on 3 December 2005

Presidential Decree on improving reimbursement mechanisms for health professionals, 1 December 2005 (PK 229)

Cabinet of Ministers' Decree No. 276 on improving reimbursement mechanisms for health professionals, 21 December 2005

Presidential Decree on measures to improve the coordination and management of science and technology development, 7 August 2006

Decree No. 207, 2 October 2006

Law on amendments to the tax code of Uzbekistan, 29 December 2006 (ZRU 74), issued by the Legislative Chamber on 29 November 2006, approved by the Senate on 1 December 2006

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 .

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.

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 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.

10.5 About the authors

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- 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.

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Bosnia and Herzegovina (2002[g])
Bulgaria (1999, 2003[b], 2007)
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