

## 5. Physical and human resources

### 5.1 Physical resources

#### 5.1.1 Infrastructure

The Ministry of Health's General Directorate of Curative Services is responsible for licensing health care institutions and major medical technologies in Turkey. The Directorate also is in charge of establishing health care institutions of the Ministry of Health and increasing their capacity; licensing private and public sector facilities (except those affiliated with the Ministry of National Defence); and carrying out authorizations and certification proceedings for imported medical devices (Decree No. 181, Article 10, 1983).

Currently, 191 481 beds out of 199 950 are considered to be acute care beds that meet OECD criteria. The remaining 8469 beds are located within diabetes hospitals, psychiatric hospitals, physical therapy and rehabilitation centres, leprosy hospitals and oncology hospitals. Table 5.1 shows trends in the number of hospitals and hospital beds in Turkey since 2000.

Health reform legislation, together with the HTP, has had a major impact on the organization of health care services. Table 5.1 shows that the total number of hospitals decreased slightly from 2000 to 2010 as a result of this process. After the transfer of the SSK hospitals and other public hospitals (excluding those belonging to the Ministry of National Defence) to the Ministry of Health, some were merged to improve efficiency. However, the transferred SSK hospitals subsequently experienced a significant increase in the number of patients treated. Compared with the figure in 2004, approximately 24 million more patients were treated in these hospitals in 2006 (Ministry of Health General Directorate of Curative Services, 2006, 2007), mainly as a result of parallel reforms that facilitated access by certain groups in the population, more efficient use of resources and the performance-based payment system, which created incentives for hospitals to treat more patients (see Chapter 3).

**Table 5.1**  
Hospitals (public and private) and their bed capacities in Turkey, 2000–2010 (selected years)

	2000		2006		2007		2008		2009		2010	
	No. hospitals	No. beds	No. hospitals	No. beds	No. hospitals	No. beds	No. hospitals	No. beds	No. hospitals	No. beds	No. hospitals	No. beds
<i>Acute care hospitals</i>												
General	1 065	125 978	1 032	153 292	1 140	157 162	1 171	157 778	1 219	166 002	1 266	170 710
Health centres	141	1 062	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Obstetric and paediatric hospitals	61	8 528	71	10 353	73	11 473	74	11 527	63	10 662	63	10 554
Chest disease hospitals	30	5 687	23	4 940	22	4 506	22	4 468	19	4 090	18	3 916
Chest and cardiovascular surgery centres	6	977	6	2 056	6	2 058	7	2 403	11	2 983	11	2 950
Cardiology institutes	5	293	5	316	5	331	5	605	1	200	1	116
Paediatric hospitals	9	1 573	10	2 407	10	2 563	8	2 333	6	2 056	7	2 260
Ophthalmology hospitals	6	333	10	357	15	366	18	475	24	559	26	598
Venerae diseases hospitals	2	99	1	79	1	79	1	79	1	79	1	31
Emergency and traumatology hospitals	6	425	5	317	5	320	5	320	3	186	2	115
Occupational diseases hospitals	3	104	2	160	2	152	2	156	2	156	2	156
Renal health and dialysis centres	348	n/a	679	n/a	762	n/a	837	n/a	854	n/a	841	n/a
Dispensary and infirmary beds	13	82	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Dental hospitals	1	12	3	38	4	38	3	55	5	77	5	75
<b>Total</b>	<b>1 696</b>	<b>145 153</b>	<b>1 847</b>	<b>174 315</b>	<b>2 045</b>	<b>179 048</b>	<b>2 153</b>	<b>180 199</b>	<b>2 208</b>	<b>187 050</b>	<b>2 243</b>	<b>191 481</b>
<i>Long-term care hospitals</i>												
Diabetes	3	69	2	64	2	64	2	64	2	66	2	61
Mental health and mental diseases	8	3 627	10	4 443	10	3 507	11	4 359	12	4 742	12	4 692
Bone and bone diseases	3	816	3	762	3	714	3	635	3	686	3	636
Physical therapy and rehabilitation	11	1 340	14	1 642	13	1 704	12	1 660	12	1 660	14	1 736
Leprosy	2	160	2	150	2	150	2	175	1	50	1	50
Oncology	4	829	4	1 475	4	1 004	4	973	5	1 295	5	1 294
Tropical diseases	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Total</b>	<b>31</b>	<b>6 841</b>	<b>35</b>	<b>8 536</b>	<b>34</b>	<b>7 143</b>	<b>34</b>	<b>7 866</b>	<b>35</b>	<b>8 499</b>	<b>37</b>	<b>8 469</b>
<b>Overall total</b>	<b>1 727</b>	<b>151 994</b>	<b>1 882</b>	<b>182 851</b>	<b>2 079</b>	<b>186 191</b>	<b>2 187</b>	<b>188 065</b>	<b>2 243</b>	<b>195 549</b>	<b>2 280</b>	<b>199 950</b>

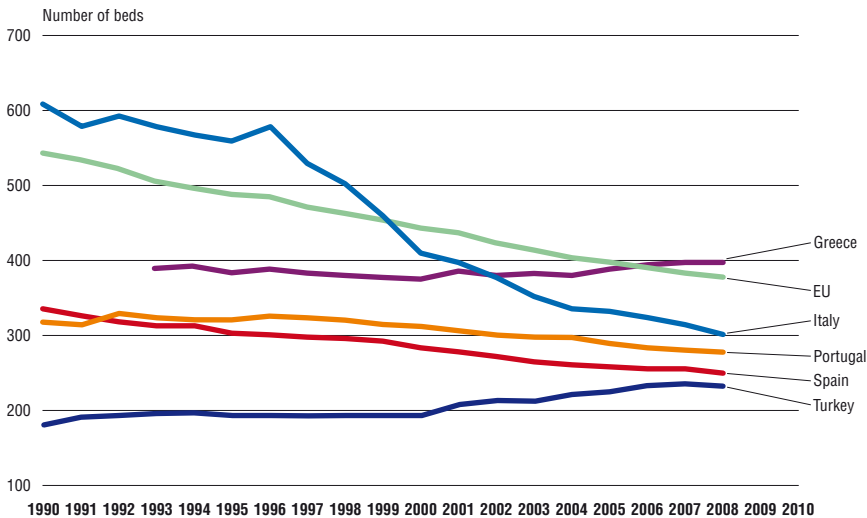
Sources: Ministry of Health, 1988, 2010.

Note: n/a: Data not available.

The number of beds per 1000 population has also gradually increased in Turkey from 2.06 in 1982 to 2.71 in 2010 (Ministry of Health, 2011b). Figures from the WHO Health for All database show that the growth trend in the number of acute beds per 100 000 population is in contrast to the EU average, which has experienced a steady decline since 1990. While Turkey now has a similar number of beds to Spain, its stock is still lower than in countries such as Portugal, Italy and Greece (Fig. 5.1).

**Fig. 5.1**

Beds in acute hospitals per 100 000 population in Turkey and selected countries 1990 – latest available year



Source: WHO Regional Office for Europe, 2011.

In line with increases in health care infrastructure, hospital utilization rates also have steadily increased. In 2002, the hospital utilization rate was 0.079 per inpatient and 1.79 per outpatient, while the figures were 0.106 and 2.98, respectively, for 2006 (Ministry of Health General Directorate of Curative Services, 2006).

The bed occupancy rate for Ministry of Health hospitals was 64.4% in 2010, compared with 61.5% in 2000. In 2010, the bed occupancy rate for all hospitals was 63.9%; the average length of stay was 4.1 days and the ratio of hospitalized patients to those visiting hospitals was 3.5%. Table 5.2 summarizes operating indicators for selected hospitals.

**Table 5.2**

Operating indicators for selected hospitals, 2008

Hospitals <sup>a</sup>	Bed occupancy (%)	Average length of stay (days)	Bed turnover rate (%) (patient) <sup>b</sup>	Turnover interval (days)	Ratio of hospitalized patients (%)	Crude death rate (%)
General	62.2	4.0	56.9	2.4	3.2	1.4
Chest diseases	82.4	8.9	33.6	1.9	5.6	2.8
Obstetrics and paediatric	70.8	2.6	98.0	1.1	7.3	0.3
Mental health and mental diseases	78.5	23.6	12.2	6.5	4.9	0.7
Osteopathic	59.8	10.3	21.1	6.9	3.3	0.0
Chest and cardiovascular surgery	66.9	5.8	41.8	2.9	4.9	3.0
Physical therapy and rehabilitation	81.1	18.2	16.3	4.2	3.6	3.1
Total	63.9	4.1	57.2	2.3	3.5	1.3

Source: Ministry of Health General Directorate of Curative Services (unpublished data).

Notes: <sup>a</sup>Excludes Ministry of National Defence hospitals; <sup>b</sup>Calculated by dividing the total number of patients by the total number of beds.

In line with OECD criteria, the following hospitals are considered to be long-term care hospitals in Turkey: diabetes hospitals, psychiatric hospitals, physical therapy and rehabilitation hospitals, leprosy hospitals and oncology hospitals.

Over the years, the number of beds in acute care hospitals has increased gradually, from 87 494 in 1992 to 191 481 in 2010. The number of beds in long-term care hospitals has increased from 6 841 in 2000 to 8 469 in 2010. At the same time, the share of long-term care beds as a proportion of total beds has decreased over time (from 9% in 1982 to 4.2% in 2010). An overall assessment of all hospitals in Turkey shows that the bed turnover rate is very close to the average of OECD European countries. The rate was 44.2% in 2005 and 57.2% in 2010 (Ministry of Health, 2011b).

### 5.1.2 Capital stock and investment

The Ministry of Health has the highest number of hospitals and largest bed capacity, with 843 hospitals and 119 891 beds in 2010, followed by universities with 62 hospitals and 35 001 beds (Ministry of Health, 2011b). These hospitals, of varying size and age, are distributed throughout the country. The Ministry of Health is also the dominant provider of primary health care services through family health centres, public health centres (see Chapter 6) and family practitioners. There is no inventory on the physical condition and other aspects of capital stock.

Capital investments for public facilities are financed either through the state budget or through revenues generated by the facilities themselves through their revolving funds. For public sector investments, the SPO acts as an approval agency before the allocation of resources from the state budget. For the private sector, there are incentives such as tax exemptions for projects undertaken in underdeveloped areas of the country. Moreover, owing to changes in the health care system since 2004 that lifted barriers and increased the role of the private sector, private infrastructure investment has increased. Despite the fact that private hospitals seem to be highly represented in the total number of hospitals, with 489 hospitals, their bed capacity is not commensurately large. In fact, in 2010 private hospitals made up 34.0% of the total number of hospitals, while private beds formed only 14.0% of total beds. In parallel, private hospitals have seen an increase in the number of patients served, from 4.4 million in 2002 to 46.2 million in 2009, indicating that private hospitals mainly focus on outpatient care rather than inpatient care. The Ministry of Health issued a decree in February 2008 introducing some restrictions on the location of private sector investments. Before that, there were no restrictions on their location and new private facilities only had to meet relevant regulatory criteria. Since February 2008, the Ministry has declared (on an annual basis) a list of approved areas for private health sector investment and hospitals or other health centres can only be built within these designated areas.

In recent years, following revisions to legal arrangements, the public sector can rent facilities from the private sector and operate from these buildings. In addition, there are examples of a new type of private-finance initiatives (known as “build-operate-transfer” initiatives) where the private sector invests in public facilities and operates them for 10 to 50 years before transferring the facility back to the public sector at the end of the agreement term.

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

Procurement of medical equipment and devices in Turkey differs for primary, secondary and tertiary care. Prior to the full implementation of the family practitioner scheme in 2010, medical devices and materials were purchased at the primary care level via provincial health directorates, which bought the medical devices and equipment for primary care units after assessing their requests. With the family practitioner scheme fully in place, medical equipment and devices are now purchased by family physicians working within primary care units (see Chapter 6). The funding for these procurements comes either from the state budget or from revolving funds. The equipment or devices are purchased through a competitive tendering process or are leased from the

private sector. Mobile health care teams work as part of primary health care services and provide services with mobile vehicles in regions without family health centres or public health centres. The medical materials and equipment needed for the provision of these services are provided by the provincial health directorates.

Medical devices and equipment for secondary and tertiary levels of care are purchased or leased through a public competitive tendering process. Minimum standards for the required equipment are advertised by the hospital and a minimum of three proposals are required to perform the tender. The decision is made according to the most appropriate proposal. Medical goods are purchased from the bid that is cheapest and corresponds to standards that are advertised by the purchaser. For the required equipment, each hospital establishes a procurement commission and follows the rules outlined in the Public Procurement Law. Hospitals can purchase these medical goods through either the public budget or their revolving funds. As the Ministry of Health procures quite a large number of medical devices and services for its facilities, the Ministry has devised the Medical Device Service Procurement Tenders Module for more detailed monitoring.

A specialized committee for medical devices was established in 1993 with the remit of specifying the procurement procedures for medical devices and deciding on investment permits. The committee meets every two weeks with representatives from Ministry of Health hospitals, Ministry of National Defense, medical and science/engineering faculties of the Higher Education Board and the SPO. Its members assess the applications from various institutions for the procurement of expensive high-technology medical devices, with special emphasis on factors such as infrastructure, human resources and the capacity of the institution prior to drafting its recommendations. The Ministry of Health's General Directorate of Curative Services functions as the secretariat of the commission.

Purchasing medical devices with a unit value of more than 150 000 YTL (€75 000) or installing integrated units of medical devices with this value requires the permission of the specialized committee. Permission is not required for repair and maintenance work, spare parts or consumables, but permission is a prerequisite for modifications exceeding 150 000 YTL if the functions of a medical device or a system will be changed.

Decisions on medical device requirements and the method of procurement for hospitals are based on the most cost-efficient method of procurement (purchasing and leasing), number of potential patients, availability of personnel

and repair–maintenance requirements. The hospital procurement committee may open a tender without ministerial approval for medical devices up to 150 000 YTL; however, the Ministry should be informed after procurement.

Medical technologies for diagnosis, treatment and medical interventions can be funded from local sources (hospital revolving funds, donations and grants, and provincial private administrations), the general state budget and from transfers from the central revolving fund held by the Strategy Development Department (see Chapter 3). If a hospital can finance the required medical devices from its own revolving fund, then it publicizes a tender and procures the device according to public sector procurement rules. If the revolving fund cannot finance the medical device, then funds from the Ministry of Health general budget and the Strategy Development Department’s central revolving fund are alternative sources. If the tendering process cannot be completed even though an allocation has been made from the general budget for a hospital, the money is transferred to the relevant provincial private administration until the tender has taken place. Following the completion of the tender, the money is transferred to the hospital.

The existing accounting and information systems are not equipped to monitor the total amount of spending from these three different sources for the procurement of medical devices, medical consumables and pharmaceuticals. However, as spending items have been recorded in detail since 2002, spending for pharmaceuticals, medical materials and devices from revolving fund sources can be tracked in detail. In 2006, US\$ 1 093 087 000 was spent on these items, of which US\$ 710 355 000 was for medical materials, US\$ 270 104 000 for pharmaceuticals, US\$ 66 619 000 for medical devices and US\$ 46 008 000 was for repairs and maintenance (Ministry of Health General Directorate of Curative Services, 2007).

There are legal arrangements to monitor and inspect the medical devices and laboratories of private hospitals.<sup>27</sup> Medical devices and advanced technologies used in government and private hospitals are monitored by the General Directorate of Curative Services. Private organizations are obliged to notify the Ministry of Health about the procurement of high-technology equipment; however, the flow of information is not very good. Furthermore, medical devices operating with ionizing radiation must be licensed by the Turkish Atomic Energy Agency (*Türkiye Atom Enerjisi Kurumu*). Unfortunately, this process does not operate effectively at the moment. The Agency is trying to apply various control mechanisms to oversee purchasing, selling, manufacturing,

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<sup>27</sup> Law No. 992, enacted 1927, revised 1968.

import, export, transportation, storage and utilization of radiation-generating or radiation-emitting ionizing radiation sources; disposal of waste materials; and licensing and auditing radiation sources. Table 5.3 lists the number of selected medical devices by region.

**Table 5.3**

Items of diagnostic imaging technologies by region, 2010

Region	Population	No. CT	CTs per million population	No. MRI	MRIs per million population
Mediterranean	9 423 231	111	11.78	80	8.49
Western Anatolia	7 018 194	95	13.54	72	10.26
Western Black Sea	4 518 786	57	12.61	41	9.07
Western Marmara	3 164 048	42	13.27	32	10.11
Eastern Black Sea	2 516 167	32	12.72	24	9.54
Eastern Marmara	6 841 607	69	10.09	52	7.60
Aegean	9 693 594	128	13.20	93	9.59
South-eastern Anatolia	7 592 772	65	8.56	47	6.19
Istanbul	13 255 685	197	14.86	178	13.43
North-eastern Anatolia	2 202 106	19	8.63	14	6.36
Central Anatolia	3 849 267	48	12.47	32	8.31
Mid-eastern Anatolia	3 647 531	45	12.34	31	8.50
All regions	73 722 988	908	12.32	696	9.44

Source: Ministry of Health, 2011b.

Notes: CT: Computed tomography scanner; MRI: Magnetic resonance imager.

As can be seen from Table 5.3, there are variations in the distribution of diagnostic imaging devices among regions. The Istanbul region is the most advantaged and south-eastern Anatolia the least advantaged region. As the majority of state hospitals, private institutions and university hospitals are located in the Aegean and Istanbul regions, the quantity and ratio of devices in those regions are high.

The Turkish Court of Accounts (*Sayıştay Başkanlığı*) published a performance assessment report in March 2005 on the *Management of Pharmaceuticals, Medical Consumables and Medical Devices in Ministry of Health Hospitals*. The main points and recommendations of the report can be summarized as follows (Turkish Court of Accounts, 2005).

- During the appointment of hospital personnel, the Department of Biomedical Engineering Services must be consulted in order to match staff skills with the availability of medical devices. Where this cannot be done, there is a risk of underutilization of medical equipment. However, current data collection and planning practices do not allow for the effective use of this consultation strategy.



- The Ministry of Health and hospitals already organize systematic and periodical training programmes, but there should be more training activities on the use and operation of medical devices. Intensive training activities will facilitate appropriate familiarization with new advancements in medical technologies by staff and also avoid a potential loss of working hours arising from the inaccurate operation of medical devices.
- Hospitals do not make use of Biomedical Engineering Services in their procurement, maintenance and repair of medical devices. Cost-decreasing, effective solutions will become possible in the procurement, maintenance and repair of medical devices if such services are utilized. Medical device registration cards containing life-cycle records of devices and files containing their history of maintenance and repair should be kept and an efficiency analysis should be conducted by comparing this information against the economic life-cycle of the device.
- The efficiency of high-technology medical devices will increase and unnecessary use will be avoided if the Ministry of Health identifies medical standards and guidelines pertaining to the diagnosis and treatment of diseases.

#### 5.1.4 Information technology

The use of information and communication technologies has grown very rapidly in recent years. However, despite these changes, the number and proportion of households with access to the Internet is still considerably low. According to recent figures, the percentage of households with Internet access is 30% (TURKSTAT, 2009a).

Despite the fact that almost all secondary health care institutions and the majority of primary health care facilities use some form of information technology (IT), quantitative data on the use of this technology in primary and secondary health care services are not available. Following the introduction of revolving funds in primary health care facilities in 2003, investments in computers and Internet access have gained momentum and a parallel growth has been experienced in the use of IT. For example, the use of IT has become mandatory for the family practitioner scheme (Ministry of Health, 2006b).

Specific initiatives are under way to establish a central basic database and information system with reliable access for all health care institutions and Ministry of Health health care personnel, as well as the public. In recent years,

in parallel with the reform initiatives, data collection has been centralized and stored in databases through various health information system modules created at the Ministry of Health. Some examples of these modules are the Turkish Healthcare Information System/e-Health (*Türkiye Sağlık Bilgi Sistemi*), the Core Resource Management System (*Çekirdek Kaynak Yönetim Sistemi*), the Basic Health Statistics Module (*Temel Sağlık İstatistikleri Modülü*), the Patient Follow-up System (*Hasta Takip Sistemi*), the Green Card Information System (*Yeşil Kart Bilgi Sistemi*), the Public Procurement Information System (*Sağlık Bakanlığı İhale Bilgi Sistemi*), the Communication Centre System (*Sağlık Bakanlığı İletişim Merkezi*), the Medical Device and Material Registration System (*Tıbbi Cihaz ve Malzeme Kayıt Sistemi*), the Family Medicine Information System (*Aile Hekimliği Bilgi Sistemi*), the Geographical Information System (*Coğrafi Bilgi Sistemi*) and the Uniform Accounting System (*Tek Düzen Muhasebe Sistemi*) (Ministry of Health, 2006b).

These systems provide reliable sources of information to health care institutions, Ministry of Health personnel and the public. The public can access only health information and health statistics, while public health care institutions and Ministry of Health personnel can access only information for which they have the relevant level of authorization. Moreover, individuals can directly contact the Ministry of Health with questions and complaints, such as finding out about the family practitioner on duty at a specific clinic or reporting any problems relating to the health care system. This direct communication is seen as essential contact between the health care system and the individuals it serves.

The HTP clearly states that Turkey's health information system should provide a health inventory, store individuals' medical records, enable the flow of information between referral steps and collect data on primary health care (Ministry of Health, 2003b). After its publication, the Ministry of Health's Department of Data Processing drafted an *Action Plan for a Health Care Information System in Turkey*, which outlined a national strategy for the health sector (Ministry of Health, 2004b). This was followed by the *e-Transformation in Health Report* published in 2006 (Ministry of Health, 2006b). In line with the national strategy, the Ministry of Health initiated and completed a number of IT projects, including the Family Practice Information System, the National Health Data Dictionary, the Health Coding Reference Server, the Tele-education and Tele-practice, the Green Card Information System, the Physician Information Bank, the Core Resource Management System, the Basic Health Statistics Module, the Uniform Accounting System and the Patient Follow-up System.

The SSI has started to use MEDULA to monitor its reimbursement procedures (see section 4.2.2). All health care facilities providing services to the organization have to use the system to obtain approval for completed medical procedures before payment. The system also collects utilization data.

## 5.2 Human resources

Developments in the Turkish health care sector increased the importance of effective and efficient human resources management on a national scale as a prerequisite to achieving reform goals. Table 5.4 summarizes the number and densities of selected key health care personnel in 2010.

**Table 5.4**  
Health care workforce in Turkey, 2010

<b>Physicians</b>	
Total number active (all categories/public and private sectors)	118 641
Per 100 000 population	167.0
GPs per 100 000 population	53.0
Specialized physicians per 100 000 population	86.0
In public sector (%)	80.5
In private sector (%)	19.5
<b>Nurses</b>	
Total number (all categories/public and private sectors)	114 772
Per 100 000 population	156.0
In public sector (%)	15.0
In private sector (%)	85.0
Ratio of doctors to nurses	1.08
<b>Midwives</b>	
Total number (public and private sectors)	50 343
Per 100 000 population	68.0
<b>Auxiliary workers</b>	
Total number (public and private sectors)	94 443
Per 100 000 population	128.1
<b>Dentists</b>	
Total number (public and private sectors)	21 432
Per 100 000 population	29.0
In private sector (%)	60.6
<b>Pharmacists</b>	
Total number (public and private sectors)	26 506
Per 100 000 population	36.0

Sources: Ministry of Health, 2011b; Ministry of Health General Directorate of Personnel, 2011.

## 5.2.1 Trends in levels of human resources

Despite a significant increase in the number of health care personnel, there is still scarcity across most categories. In addition to insufficient numbers, geographical distribution is still a considerable problem. Table 5.5 below highlights the trends in the numbers of various health care personnel between 2001 and 2009.

**Table 5.5**  
Health care personnel in Turkey, 2001–2010

	2001	2002	2003	2004	2005	2006 <sup>a</sup>	2007 <sup>a</sup>	2008	2009	2010
Specialized physicians	41 907	43 660	46 563	53 344	53 103	54 075	54 439	56 973	60 655	63 563
GPs	34 974	36 545	35 559	33 255	36 585	33 753	34 559	35 763	35 911	38 818
Hospital residents (specialty training)	13 876	14 985	15 641	17 627	17 010	18 201	19 404	20 415	22 075	21 066
Active physicians	90 757	95 190	97 763	104 226	106 698	106 029	108 402	113 151	118 641	123 447
Dentists	15 866	17 108	18 073	18 363	18 771	18 089	19 278	19 959	20 589	21 432
Pharmacists	22 922	22 322	23 632	24 615	21 344	24 280	23 977	24 778	25 201	26 506
Auxiliary personnel	45 560	49 324	50 432	57 723	58 599	57 698	78 439	83 993	92 061	94 443
Nurses	75 879	79 059	82 246	82 616	83 411	85 550	94 661	99 910	105 176	114 772
Midwives	41 158	41 513	41 273	42 649	43 429	43 616	47 175	47 673	49 357	50 343

Sources: Ministry of Health Health Statistic Yearbooks 2001–2010; Ministry of Health 2011b; <sup>a</sup>Ministry of Health General Directorate of Personnel, 2011 (December for 2006 and March for 2007).

Under the HTP, arrangements such as compulsory medical service for newly qualified doctors and the employment of contracted personnel, substitute nurses and midwives have ensured a significant improvement in the geographical distribution of health care personnel. The duration of compulsory medical service for physicians after graduation depends on the particular branch of medical residency and the region, and takes about one to two years. Turkey's regions are classified under the National Development Index. After their six-year medical education and also after completion of specialist training, physicians pick a region on the list and serve in relatively deprived areas of the country. Although some measures have been taken to attract health personnel to deprived areas, such as bonus payments and higher salaries, there are still distribution problems. It is envisaged that the recent increases in current staff numbers will alleviate some of these problems. In 2010, the population per nurse was 642, per midwife 1 464, per family practitioner 1 899, and per specialized physician (including residents) 1 160. The highest ranking province in terms of the number of people per specialized physician was 13.9 times higher than the lowest ranking province in December 2002. In contrast, this figure fell to 4.8 times higher in 2010. A similar trend is observed for family practitioners

(8.6 times higher in 2002, falling to 1.8 times in 2010) and nurses and midwives (7.9 times higher in 2002 to 3.2 times in 2008) (Ministry of Health General Directorate of Personnel, 2011).

The scarcity of physicians is cause for continuing debate between the government and professional organizations, as the latter persistently argue that the number of physicians in Turkey is not sufficient. A legislative proposal is now on the agenda to issue work permits to foreign physicians educated in Turkey. This measure would override the current legislation, which does not allow physicians of other nationalities to practise in the country. The Ministry of Health also recognizes medical diplomas obtained by Turkish citizens abroad. In 2005, 27 physician and 45 nurse diplomas obtained abroad were recognized.

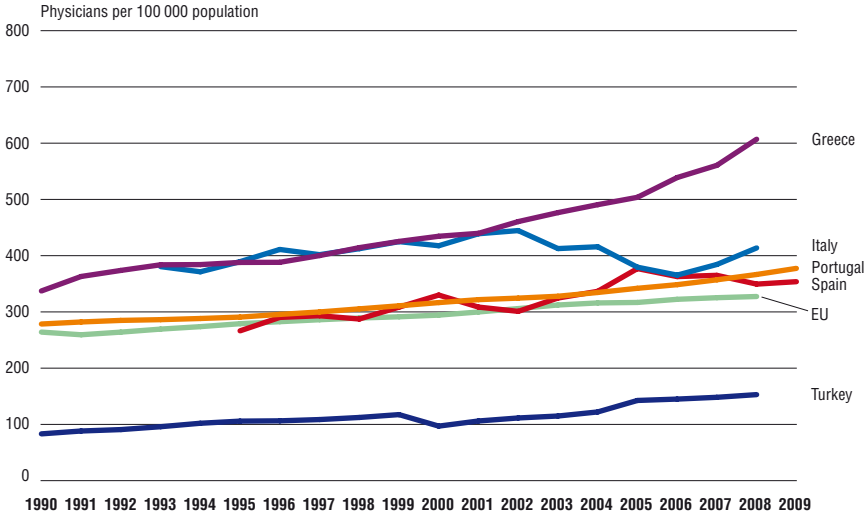
A comparative analysis with other European countries clearly shows the scarcity of health care personnel in Turkey. In particular, while the number of physicians per 100 000 people (158.2 in 2008) has grown moderately but steadily over the last two decades, it is still significantly below that of other Mediterranean countries such as Greece, Italy, Spain and Portugal as well as that of the EU average (Fig. 5.2).<sup>28</sup> Similarly, the number of nurses per 100 000 people (139.7 in 2008) is the lowest among the selected Mediterranean countries featured in Fig. 5.3 and among the countries of the WHO European Region. Among the countries of the WHO European Region, Turkey has the second lowest ratio of physicians per 100 000 population (Fig. 5.4) and the lowest ratio of nurses (Fig. 5.5). Another striking feature regarding the numbers of health care personnel is the low nurse/physician ratio (1.33), including nurses and midwives, in 2007 (Mollahaliloğlu et al., 2007). Efforts to increase the quantity of health care personnel in Turkey should be coupled with activities that will also improve the allied health care personnel/physician ratio. Historically, national health policies have given priority to secondary health care services and there has been the most demand for services from specialist physicians. The better earning capacity, prestige and career opportunities of specialist physicians have encouraged family practitioners to become specialists. For example, there are more incentives to specialize in medical branches, there is greater social respect for specialists and specialists are more frequently preferred for higher-ranking management positions. The imbalance in the nurse/physician ratio can be attributed to the lack of effective human resources planning and management, which for many years has tended to prioritize physicians over nurses and to neglect the gaps in nursing and other health care personnel.

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<sup>28</sup> However, it should be noted that Greece is generally considered to have an oversupply of doctors (Economou, 2010).

**Fig. 5.2**

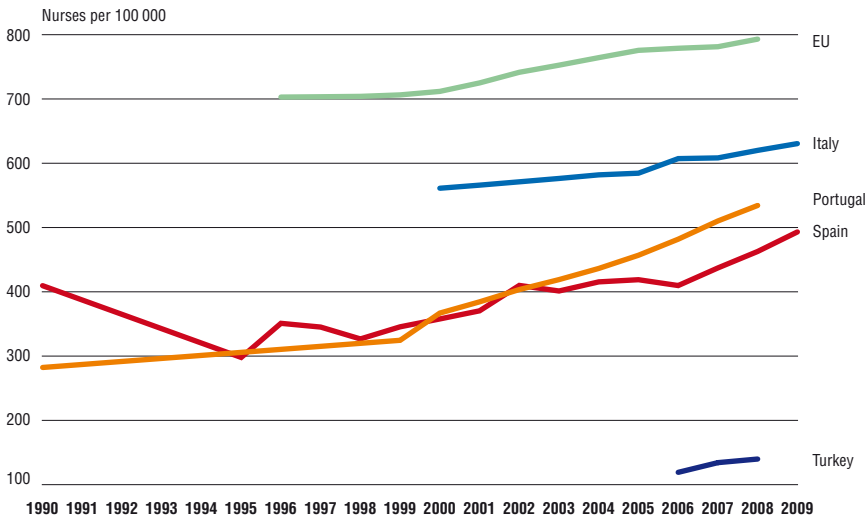
Number of physicians per 100 000 population in Turkey and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2011.

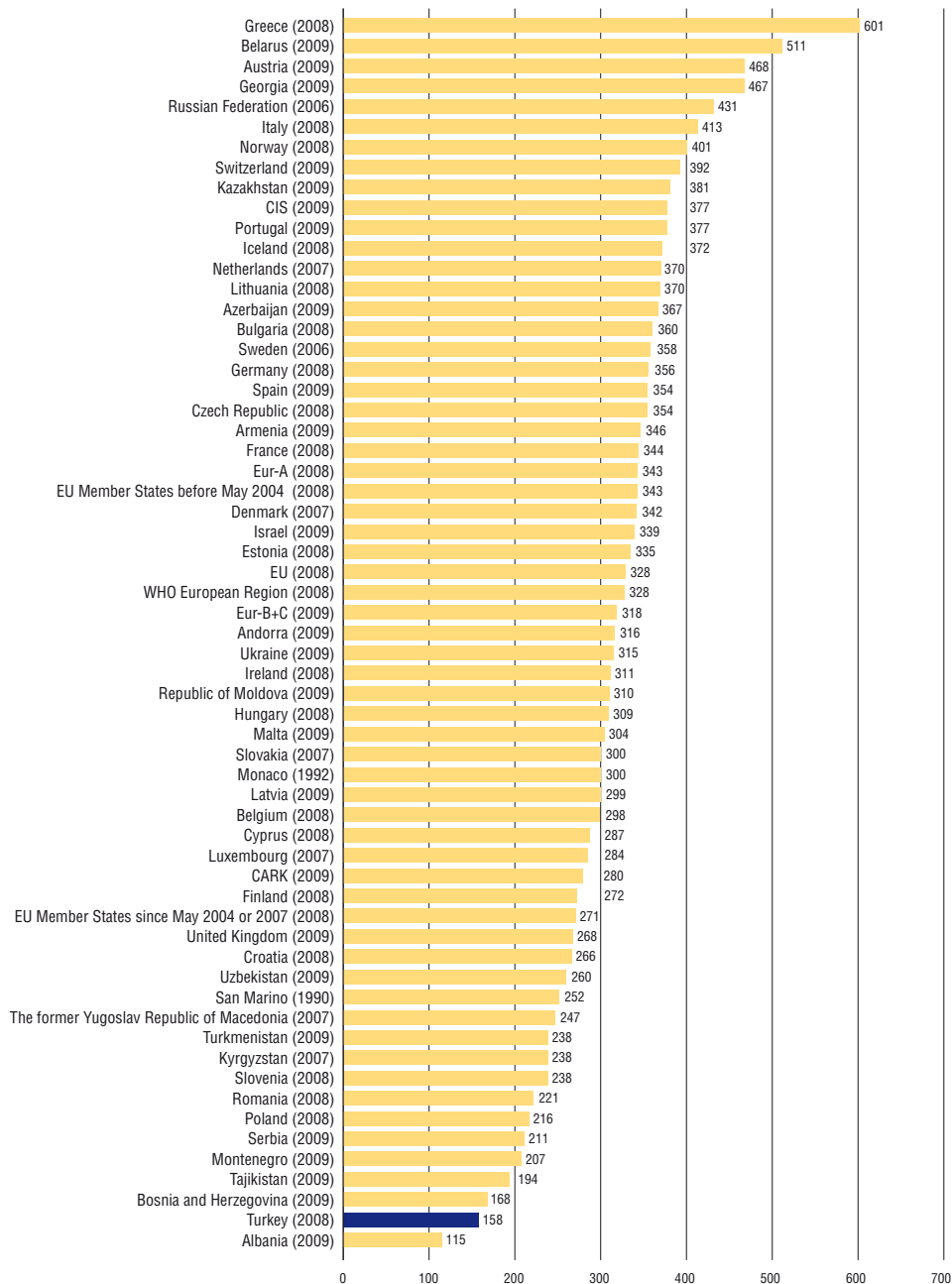
**Fig. 5.3**

Number of nurses per 100 000 population in Turkey and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2011.  
 Note: Data for Greece not available.

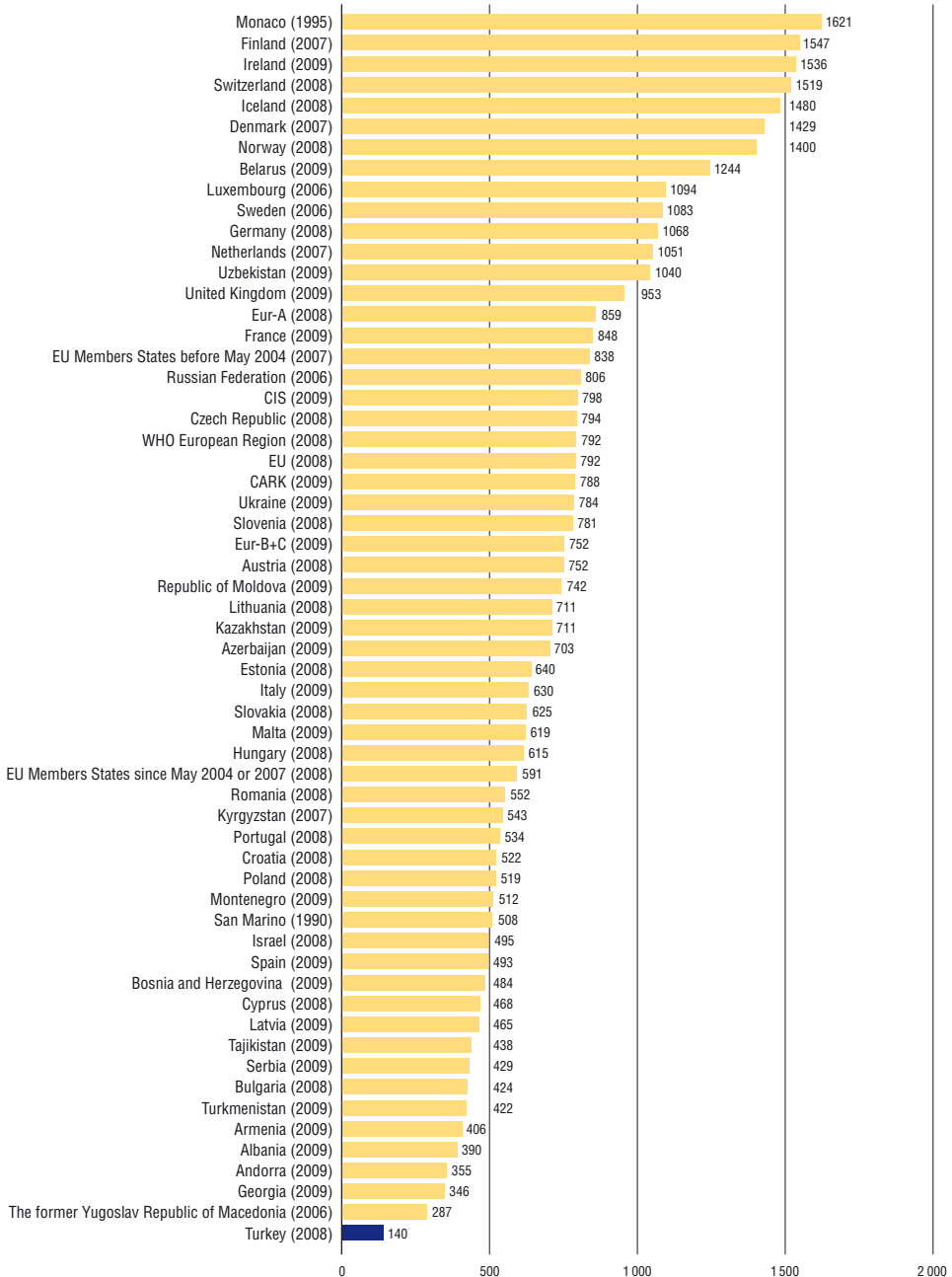
**Fig. 5.4**  
 Number of physicians per 100 000 population in the WHO European Region, latest available year



Source: WHO Regional Office for Europe, 2011.

**Fig. 5.5**

Number of nurses per 100 000 population in the WHO European Region, latest available year



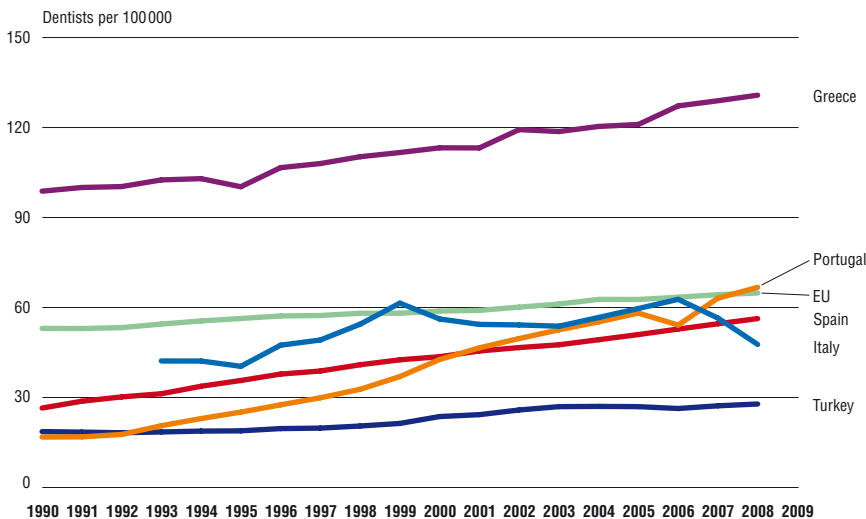
Source: WHO Regional Office for Europe, 2011.



Fig. 5.6 shows the number of dentists per 100 000 population in Turkey and some selected Mediterranean countries. Again, there is a significant difference between the countries, with Turkey having the lowest number (27), Spain, Portugal, Italy and the EU average clustering at around the 50–65 mark and Greece having by far the highest number (130) in 2008. Most dentists in Turkey work in the private sector. The SSI covers dental care in private practice if the patient cannot be treated in public facilities. Although the number of dentists may seem low compared with other European countries, as far as the supply–demand balance is concerned, this number is sufficient to meet the country’s needs as there are no waiting lists.

**Fig. 5.6**

Number of dentists per 100 000 population in Turkey and selected countries, 1990 to latest available year

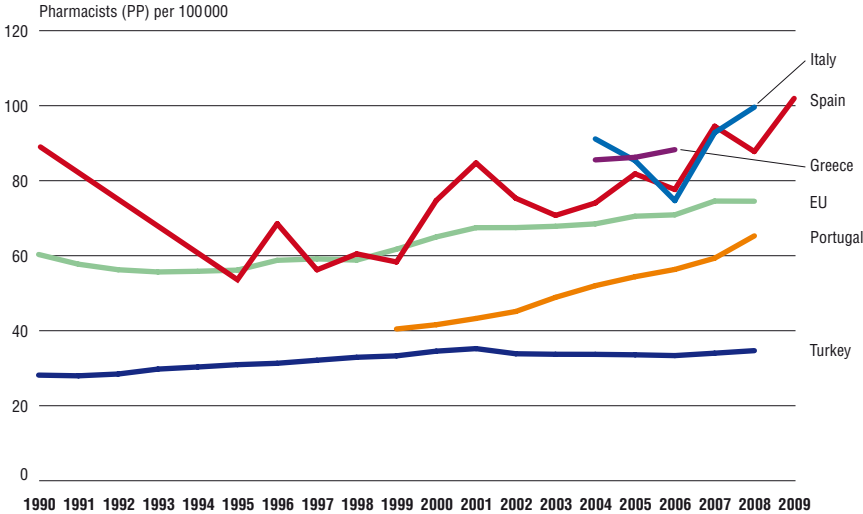


Source: WHO Regional Office for Europe, 2011.

Lastly, Fig. 5.7 highlights the number of pharmacists per 100 000 population in Turkey and selected Mediterranean countries within Europe. According to data from the WHO Health for All database (WHO Regional Office for Europe, 2011), other countries tend to cluster around the 75–100 mark, while in 2007 Turkey had approximately 35 pharmacists per 100 000 population, which is sufficient to meet demand. Most pharmacists work privately.

**Fig. 5.7**

Number of pharmacists per 100 000 population in Turkey and selected countries, 1990 to latest available year



Source: WHO Regional Office for Europe, 2011.

## 5.2.2 Human resource planning

There are a number of institutions responsible for developing human resources policies for health care: the SPO, the Higher Education Council, the State Department of Personnel and the Ministry of Health. The Ministry of Health provides information to the Ministry of Finance and the State Department of Personnel on the staffing requirements of all relevant health-related institutions. A committee, comprising two representatives from the state department of Personnel and the Ministry of Finance and a representative from the relevant institution, examines the estimates of reported need and the rationales underpinning them. The analysis is then communicated to the Ministry of Health and the Office of the Prime Minister. Coordination and secretariat services for this committee are provided by the state department of personnel. The Ministry of Finance gives final approval on spending.

According to the current legislation, the General Directorate of Health Education (*Sağlık Eğitimi Genel Müdürlüğü*) is responsible for workforce planning on behalf of the Ministry of Health. However, apart from this Directorate, the General Directorate of Personnel, the General Directorate of Basic Health Care Services, the General Directorate of Curative Services,

the Strategy Department, the ICT Department, the Department of European Coordination and the School of Public Health also undertake certain activities in this area.

As mentioned, Turkey has a shortage of health care personnel at almost all workforce levels. Entry into the health care professions is organized by the central university examinations system and applications are restricted, with quotas in university departments. The *numerus clausus* is in place mainly because the number of medical schools in Turkey is not adequate to fully respond to the excessive demand by students who take the university entrance examination. Medical specialization education is provided by either university or Ministry of Health teaching hospitals. These hospitals also have quotas for applicants and entry is achieved through the central medical specialization examination. Health care personnel other than physicians who want to work in the public sector enter the central public personnel selection examination and are placed according to their scores in this examination.

There are no closed or restricted areas for health care personnel. Appointment of Ministry of Health personnel is made by the Ministry and there are certain incentives such as increased wages for those working in deprived areas. Each facility has its own number of personnel determined by the number of beds and other specific characteristics, and appointments are made to fill any positions that become vacant.

Professional cross-border mobility is not an important issue at the moment. The number of health care personnel migrating to foreign countries is negligible and there is not a considerable brain drain, although there is a lack of research on this issue. Recruitment of medical staff from abroad is not permitted in Turkey.

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

Institutions from the public and private sectors, foundations, professional chambers and associations undertake training of health care professionals. Training can be classified into three stages: undergraduate, graduate and continuous professional education. According to the current legislation, the Ministry of Health is a coordinating authority and should cooperate with the Higher Education Council on the training of health care personnel. However, this coordination does not work as effectively as it should.

University faculties and colleges provide undergraduate education (e.g. four years for nursing and two years for a medical secretary). Only faculties and colleges that provide four-year courses can offer postgraduate education. Teaching hospitals affiliated with either universities or the Ministry of Health are responsible for providing specialized education for physicians. In order to pursue postgraduate training, undergraduates need to have succeeded in national university examinations before being placed in university departments according to their grades and choices. In 2010–2011, there were 69 medical faculties, 66 teaching hospitals for medical specialization (belonging to the Ministry of Health), 27 faculties of dentistry, 15 faculties of pharmacy, 84 schools of nursing, 1 school of health administration and 49 colleges for allied health personnel (Ministry of Health, 2010, 2011b; Student Selection and Placement Centre, 2009).

Medical education in medical faculties has been standardized since 2002 through the National Core Education Regulation. Education lasts six years (5500 training hours), with a hospital internship taking up the last 52 weeks of the programme. Between 2000 and 2006, 29 672 new students were enrolled in medical faculties and 28 215 of these graduated. After completing a medical undergraduate degree, a physician can practice within the health care system as a “practitioner” without having to undertake further education. These physicians usually work at the primary care level. Moreover, a continuous training programme has been designed for physicians operating in the family practitioner scheme. After this training, such physicians are given the title of family practitioner and will constitute the backbone of the new primary care system.

The proposed new family medicine training system consists of three stages (Yardımcı et al., 2007):

*First stage.* Ten days of training with three days allocated for the training of trainers and seven days is for the training of participants. Approximately, 11 000 trainees have attended training so far.

*Second stage.* One year’s training to be provided through distance learning methods; 75% will cover theoretical aspects and 25% will cover practical aspects. Training content will consist of 40 modules. This training has not been launched as yet.

*Third stage.* Details have not yet been clarified. The training will be conducted via the central medical specialization examination and will be provided on a part-time basis so that active family physicians are able to participate.

Medical specialization requires further education following completion of the undergraduate degree. The duration of training for each specialty differs according to the specific requirements of the specialty. After graduation from a medical faculty, a candidate for specialization enters the central medical specialization examination (*Tipta Uzmanlık Sınavı*) carried out twice a year. Candidates are placed according to their grades and choices in teaching hospitals. After meeting the requirements of the medical specialty, graduates can work as specialists. Currently, there is compulsory medical service in deprived areas for these qualified physicians. The duration of the compulsory service usually is one to two years, although this depends on the official “development level” of the regions to be served.

Consequently, the difference between “physicians” and “specialized physicians” in terms of training and practice is as follows. A physician is a health professional who has graduated from a six-year basic medical education programme. In the last year of medical school (that is, in the sixth year), the medical student becomes an intern. Upon graduation, the physician practises in a primary care facility or a hospital providing primary care services. A specialist physician is a health professional who has additional specialty medical education consisting of between three and seven years, depending on the specialized branch of medicine.

Dentistry education lasts five years, with three years of preclinical and two years of clinical education. The curricula of dentistry faculties mainly focus on the provision and protection of oral and dental health, treatment of dental and gum diseases, dental surgery and mentoplasty, and prosthetic replacement of missing teeth. Dentistry faculties also provide postgraduate education and select students via their own examinations rather than through a centralized examination as in the case of medical faculties. During 2010–2011, there were 1998 students enrolled in the country’s 27 dentistry faculties (Ministry of Health, 2010, 2011b).

Pharmacy education now lasts five years (previously it was four years) and covers subjects such as obtaining pharmaceutical raw materials of synthetic, semisynthetic and biological origin, analysing and evaluating their physical, chemical and biological properties, high-quality pharmaceutical production, and the analysis, quality control and storage of pharmaceuticals. Postgraduate

education is also provided by the pharmacy faculties, based on their own selection process. In 2010–2011, there were 15 faculties of pharmacy, which produced 815 graduates (Ministry of Health, 2010, 2011b).

University education in nursing lasts four years, equivalent to 4600 hours. A minimum of one-third of this programme should be theory-based and at least half should be practical education. Since 1972, graduates of nursing schools can also proceed to PhD programmes. Nursing degrees can be followed up with specialization opportunities in several branches such as internal medicine, surgical nursing, gynaecology and obstetrics, psychiatry, paediatrics, public health, management in nursing and professional principles. Before May 2007, there were also vocational nursing schools that corresponded to lycées and graduates of these schools could work as nurses without university education. However, in line with the EU harmonization process (Law No. 5634), nursing education was restricted to university education in May 2007. In the past, nursing was defined as a female occupation by law, but after 2007, the occupation was extended to both sexes. All other health care personnel such as physiotherapists or dieticians also undertake four-year degree programmes in universities, and graduates can continue with postgraduate education.

There is no standardized practice with regard to the continuous education of health care personnel. In line with its own needs, the Ministry of Health organizes in-service training programmes in order to meet ad hoc requirements. Among these, the most important is the Family Medicine Certificate Programme (see section 5.2.3). In addition, the Ministry of Health has organized other certificate programmes in emergency medicine, blood transfusion, family planning, intensive care nursing and emergency care nursing.

In some cases, professional associations, universities and hospitals design their own health service training programmes. For example, the Turkish Medical Association undertakes training programmes in collaboration with relevant institutions and universities and organizes training workshops, conferences and certification programmes in order to ensure the continuity of medical education and professional development. The Turkish Medical Association gives credits for certain continuous medical training programmes. This practice is voluntary and no sanction/reward system is exercised. Moreover, the School of Public Health (formerly the Turkish Institute of Health (TUSAK)) organizes in-service training at national and international level for the purpose of improving health care services and capacity building. In addition, the School offers health

management and health business administration training via Internet-based distance learning methods to Ministry of Health personnel. Since mid 2008, the School has provided training to a total of 8250 trainees through this method.

There are no health education accreditation institutions in Turkey. All new programmes have to be approved by the Higher Education Council. However, this approval does not ensure consistency in the curricula of different departments training the same professionals. As there are no accreditation institutions, there are obvious disparities in terms of the quality of education and working conditions between developed and developing areas and between university and Ministry of Health teaching hospitals. Within the framework of the HTP, initiatives to establish a national accreditation institution have begun. Standardization activities are being carried out by the Medicine and Health Council, a subcommittee of the Inter-Universities Institution.

In general, training of health professionals does not yet conform to EU standards for the purposes of mutual recognition. However, certain changes have been made in the education of nurses and pharmacists (see above) to bring them into line with EU standards.

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

According to the Basic Law on Health Care Services (Law No. 3359), the Ministry of Health is responsible for ensuring the coordination of the education of health care personnel and their employment within the health care system. Accordingly, the Ministry of Health plans employment to achieve a balanced distribution of health care personnel and carries out in-service training for staff in cooperation with universities and other public institutions to improve quality and to meet the needs of the country. The degrees of health care practitioners are registered by the Ministry immediately after graduation from an undergraduate or graduate programme, but there is no periodic re-licensing afterwards. There is no compulsory education and certification system supporting the postgraduate professional development of health care personnel.

#### **5.2.5 Career paths for doctors**

Doctors can work either as practitioners in health facilities after completing the six-year undergraduate degree or can undertake further education and become specialists. For the latter, a graduate has to be successful in the central medical specialization examination. Practitioners may also obtain certificates in certain fields rather than specialization areas through certain training programmes

such as the dialysis course certificate programme and the emergency medicine certificate programme. Physicians holding these certificates can work in relevant hospital units.

Doctors can also become clinic directors, assistant directors and chief residents in Ministry of Health hospitals. Appointments for positions in Ministry of Health training and research hospitals are made in accordance with principles outlined in the Basic Law on Health Care Services. Candidates for such positions are chosen from among professors, associate professors and specialized physicians in the relevant field. Positions are announced by the Ministry of Health and applicants provide necessary documentation including their publications and other scientific work. The Ministry forms an evaluation committee comprising five people in the relevant field. Three of the five people are clinic chiefs working in different Ministry of Health teaching hospitals and the other two are academics from universities. Specialized physicians without professor or associate professor status must pass special examinations to become clinic directors, assistant directors and chief residents. After appointment to these positions, the Ministry of Health assesses the scientific capacity and performance of doctors at five-year intervals. At the end of the assessment, those fulfilling the predetermined scientific and performance criteria are re-appointed. Those who fail to fulfil the criteria are transferred to positions as specialized physicians. Moreover, the chief physicians<sup>29</sup> in teaching and research hospitals, service and laboratory directors or chief assistants, associate professors or professors of medicine can be appointed and these positions may also be held by specialized physicians, physicians with a PhD in medicine or physicians who have an undergraduate, postgraduate or PhD degree in law, public administration, economics, management or health care management.

Design and delivery of certificate programmes mainly depend on requests by the participant, but hospital managers can play a decisive role in Ministry of Health hospitals. The participation of physicians in training workshops, symposia and conferences to improve their skills is supported at ministerial level. However, hospital management has the right to intervene in physicians' participation in these activities in specific circumstances. Physicians can also attend private special certificate programmes and programmes designed and credited by the Turkish Medical Association. Moreover, the Turkish Civil Servants Law (Law No. 657) allows physicians to go abroad to improve their training and skills. After their return, they must complete a period of compulsory service that is twice as long as the period they spent abroad.

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<sup>29</sup> The hospital manager in the highest position is called the "chief physician".



In universities, after graduating from a specialization programme, a physician may remain at the university and continue his/her academic career (if there is a vacancy). Universities are free to fill these positions using their own criteria. An academic career has three main steps: assistant professorship, associate professorship and professorship. The Higher Education Council sets the general rules for these positions and also organizes examinations at the associate professorship level. However, in recent years, it has become almost the norm, particularly for long-established and esteemed universities, to require additional scientific work for candidates to be appointed to these positions.

Prior to January 2010, physicians could work on a part-time basis in both the public and the private sector. However, in recent years, following the implementation of reforms, particularly the introduction of the performance-based payment system creating better financial incentives in the public sector, the number of part-time practising physicians has decreased considerably, from 89% in 2002 to 8% in 2010 (Ministry of Health General Directorate of Personnel, 2011). As mentioned in Chapter 3, the Full Time Law<sup>30</sup> prohibits doctors from working in both the public and private sectors. However, after a Supreme Court challenge, as of July 2010 the new arrangements now require only Ministry of Health doctors to practise exclusively in the public sector, while university-based doctors can still practise in both sectors as long as their daily public commitments are fully met.

### 5.2.6 Career paths for other health staff

The career paths of other health care staff are similar. After completing an undergraduate degree, these graduates can continue to postgraduate education or start working in the public or private sector. For public sector employment, graduates must take national examinations, and selection for vacant positions is based on individuals' scores in these examinations. In some cases, additional examinations and interviews are carried out by the relevant departments. Facilities in the private sector follow their own procedures in recruiting staff.

Generally, health care staff, other than physicians, prefer to work in the public sector because of limited employment opportunities outside this sector. However, low salaries in the public sector are a demotivating factor despite the fact that staff working in public hospitals and primary care units can obtain additional remuneration through the revolving funds of their institutions as part of the performance-based payment system. A number of studies analysing motivational factors for health care personnel have concluded that low salaries,

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<sup>30</sup> Law no 5947, enacted on 21st January 2010.

intensive workloads and long working hours were among the major reasons for low levels of satisfaction among health care staff (Aykanat & Tengilimoğlu, 2003; Gürbüz et al., 2000; Şahin & Şahin, 2000).

### **5.2.7 Career paths for pharmacists**

Pharmacy education is carried out by pharmacy faculties within universities. Pharmacies are private entities in Turkey and hospitals have their own pharmacies only to serve inpatients. There are no incentives to open pharmacies in rural areas nor is there an explicit policy on regulating location, leading to a geographically unbalanced distribution of pharmacies. There were 26 506 pharmacies in 2010 with 0.36 pharmacies per 1000 inhabitants (Ministry of Health, 2010, 2011b). After 2005, with radical changes in the reimbursement system, pharmacies were affected considerably both in terms of profit margins and the changing operational environment (see Chapter 6).