# PART II

# System Resources

# Chapter 4

# Health Services Professionals

## Learning Objectives

- To become familiar with the various types of health services professionals and their training, practice requirements, and practice settings
- To differentiate between primary care and specialty care and identify the causes for an imbalance between primary care and specialty care in the United States
- To learn about the extent of maldistribution in the physician labor force and to comprehend the reasons for such maldistribution
- To outline initiatives under the Affordable Care Act to relieve shortages of primary care providers and coordinated care delivery in team settings
- To appreciate the role of nonphysician providers in health care delivery
- To understand the role of allied health professionals in health care delivery
- To discuss the functions and qualifications of health services administrators
- To assess global health workforce challenges


*"Hmm, they're all beginning to look like me."*

## Introduction

The US health care industry is the largest and most powerful employer in the nation. It constitutes more than 3% of the total labor force in the United States. In terms of total economic output, in 2011, the health care sector in the United States contributed 17.9% to the gross domestic product (World Bank 2013). Although the number of jobs in many areas of the US economy shrank since the beginning of an economic recession in December 2007, the health care sector continued its growing trend. The growth has been most pronounced in the hospital industry. Overall demand for all types of health care services will increase with the aging of the population. Hence, several health care and related occupations are projected to grow substantially. The Bureau of Labor Statistics projected the "healthcare practitioners and technical occupations" to grow by 21.4% and the "healthcare support occupations" by 28.8% during 2008–2018, whereas the entire US workforce was projected to grow by 10.1% during this period (US Bureau of Labor Statistics 2009).

Health professionals are among the most well educated and diverse of all labor groups. Almost all of these practitioner groups are now represented by their respective professional associations, which are listed in Appendix 4–A at the end of this chapter.

Health services professionals work in a variety of health care settings that include hospitals, managed care organizations (MCOs), nursing care facilities, mental health institutions, insurance firms, pharmaceutical companies, outpatient facilities, community health centers, migrant health centers, mental health centers, school clinics, physicians' offices, laboratories, voluntary health agencies, professional health associations, colleges of medicine and allied health professions, and research institutions. Most health professionals are employed by hospitals (40.5%), followed by nursing and personal care facilities (12.1%) and physicians' offices and clinics (10.0%) (Table 4–1).

The expansion of the number and types of health services professionals closely follows population trends, advances in research and technology, disease and illness trends, and changes in health care financing and delivery of services. New and complex medical techniques, equipment, and advanced computer-based information systems are constantly introduced, and health services professionals must continually learn how to use these innovations. Specialization in medicine has contributed to the proliferation of different types of medical technicians. The changing patterns of disease, from acute to chronic, and a greater emphasis on prevention create a greater need for professionals who are formally trained to address the consequences of behavioral risk factors and the delivery of primary care. Increased insurance coverage under the Affordable Care Act (ACA) will also increase the demand for health services professionals.

This chapter provides an overview of the large array of health services professionals employed in a vast assortment of health delivery settings. It briefly discusses the training and practice requirements for the various health professionals, their major roles, the practice settings in which they are employed, and some critical issues concerning their professions. Emphasis is placed on physicians because they play a leading role in the delivery of health care. There has been increased recognition of the role nonphysician practitioners (NPPs) play in boosting the nation's primary care infrastructure.

Table 4–1 Persons Employed in Health Service Sites (139,887 employed civilians in 2009)

| Site | 2000 | | 2009 | |
|---|---|---|---|---|
| | Number of Persons (in thousands) | Percentage Distribution | Number of Persons (in thousands) | Percentage Distribution |
| All employed civilians | 136,891 | 100.0 | 139,887 | 100.0 |
| All health service sites | 12,211 | 100.0 | 15,478 | 100.0 |
| Offices and clinics of physicians | 1,387 | 11.4 | 1,555 | 10.0 |
| Offices and clinics of dentists | 672 | 5.5 | 801 | 5.2 |
| Offices and clinics of chiropractors | 120 | 1.0 | 136 | 0.9 |
| Offices and clinics of optometrists | 95 | 0.8 | 117 | 0.8 |
| Offices and clinics of other health practitioners | 143 | 1.2 | 220 | 1.4 |
| Outpatient care centers | 772 | 6.3 | 1,102 | 7.1 |
| Home health care services | 548 | 4.5 | 967 | 6.2 |
| Other health care services | 1,027 | 8.4 | 1,747 | 11.3 |
| Hospitals | 5,202 | 42.6 | 6,265 | 40.5 |
| Nursing care facilities | 1,593 | 13.0 | 1,869 | 12.1 |
| Residential care facilities, without nursing | 652 | 5.3 | 699 | 4.5 |

*Source:* Data from *Health, United States, 2009*, Table 105.

## Physicians

In the delivery of health services, physicians play a central role by evaluating a patient's health condition, diagnosing abnormalities, and prescribing treatment. Some physicians are engaged in medical education and research to find new and better ways to control and cure health problems. Many are involved in the prevention of illness.

All states require physicians to be licensed to practice. The licensure requirements include graduation from an accredited medical school that awards a Doctor of Medicine (MD) or Doctor of Osteopathic Medicine (DO) degree, successful completion of a licensing examination, governed by either the National Board of Medical Examiners or the National Board of Osteopathic Medical Examiners, and completion of a supervised internship/residency program (Stanfield et al. 2009) The term ***residency*** refers to graduate medical education in a specialty that takes the form of paid on-the-job training, usually in a hospital. Before entering a residency, which may last 2 to 6 years, most DOs serve a 12-month rotating internship after graduation.

The number of active physicians, both MDs and DOs, has steadily increased from 14.1 physicians per 10,000 population in 1950 to 27.3 per 10,000 population in 2009 (Table 4–2). Of the 159 medical schools in the United States, 133 teach allopathic medicine and award a Doctor of Medicine (MD) degree; 29 teach osteopathic medicine and award the Doctor of Osteopathic Medicine (DO) degree (US Bureau of Labor Statistics 2011).

## Similarities and Differences Between MDs and DOs

Both MDs and DOs use accepted methods of treatment, including drugs and surgery. The two differ mainly in their philosophies and approaches to medical treatment. ***Osteopathic medicine***, practiced by DOs, emphasizes the musculoskeletal system of the body, such as correction of joints or tissues. In their treatment plans, DOs stress preventive medicine, and how factors such as diet and environment, might influence natural resistance. They take a holistic approach to patient care. MDs are trained in ***allopathic medicine***, which views medical treatment as active intervention to produce a counteracting reaction in an attempt to neutralize the effects of disease. MDs, particularly generalists, may also use preventive medicine, along with allopathic treatments. About 5% of all active physicians are osteopaths (American Association of Colleges of Osteopathic Medicine 2007). About 42% of MDs and more than one-half of DOs work in primary care (US Bureau of Labor Statistics 2011).

## Generalists and Specialists

Most DOs are generalists and most MDs are specialists. In the US, physicians trained in family medicine/general practice, general internal medicine, and general pediatrics are considered primary care physicians (PCPs) or ***generalists*** (Rich et al. 1994). In general, PCPs provide preventive services (e.g., health examinations, immunizations, mammograms, Papanicolaou smears) and treat frequently occurring and less severe problems. Problems that occur less frequently or that require complex diagnostic or therapeutic approaches are referred to specialists after an initial evaluation.

Physicians in nonprimary care specialties are referred to as ***specialists***. Specialists must seek certification in an area of medical specialization, which commonly requires additional years of advanced residency training, followed by several years of practice in the specialty. A specialty board examination is often required as the final step in becoming a board-certified specialist. The common medical specialties, along with brief descriptions, are listed in Exhibit 4–1. Medical specialties may be divided into six major functional groups: (1) the subspecialties of internal medicine; (2) a broad group of medical specialties; (3) obstetrics and gynecology; (4) surgery of all types; (5) hospital-based radiology, anesthesiology, and pathology; and (6) psychiatry (Cooper 1994). The distribution of physicians by specialty appears in Table 4–3.

## Work Settings and Practice Patterns

Physicians practice in a variety of settings and arrangements. Some work in hospitals as medical residents or staff physicians. Others work in the public sector, such as federal government agencies, public health departments, community and migrant health centers, schools, and prisons. Most physicians,

**Table 4–2** Active US Physicians, According to Type of Physician and Number per 10,000 Population

| Year | All Active Physicians | Doctors of Medicine | Doctors of Osteopathy | Active Physicians per 10,000 Population |
|---|---|---|---|---|
| 1950 | 219,900 | 209,000 | 10,900 | 14.1 |
| 1960 | 259,500 | 247,300 | 12,200 | 14.0 |
| 1970 | 326,500 | 314,200 | 12,300 | 15.6 |
| 1980 | 427,122 | 409,992 | 17,130 | 19.0 |
| 1990 | 567,610 | 539,616 | 27,994 | 22.4 |
| 1995 | 672,859 | 637,192 | 35,667 | 25.0 |
| 2000 | 772,296 | 727,573 | 44,723 | 27.0 |
| 2001 | 793,263 | 751,689 | 41,574 | 27.4 |
| 2009 | 838,453 | 972,400 | 70,480 | 27.3 |

*Source:* Data from *Health, United States, 1995,* p. 220; *Health, United States, 2002*, p. 274; *Health, United States, 2006*, p. 358; and *Health, United States, 2012*, p.308.

however, are office-based practitioners, and most physician contacts occur in physician offices. An increasing number of physicians are partners or salaried employees, working in both hospitals and various outpatient settings, such as group practices, freestanding ambulatory care clinics, and diagnostic imaging centers.

Figure 4–1 shows that, in 2010, physicians in general/family practice accounted for the greatest proportion of ambulatory care visits, followed by those in internal medicine and pediatrics. Physicians in obstetrics and gynecology tend to spend the most hours in patient care per week, even exceeding those in surgery. Surgeons, however, have the highest average annual net income. Operating expenses and malpractice insurance premiums are the highest in obstetrics/gynecology.

## Differences Between Primary and Specialty Care

***Primary care*** may be distinguished from ***specialty care***, according to the time, focus, and scope of the services provided to patients. The five main areas of distinction are as follows:

1. In linear time sequence, primary care is first-contact care and is regarded as the portal to the health care system (Kahn et al. 1994). Specialty care, when needed, generally follows primary care.
2. In a managed care environment in which health services functions are integrated, PCPs serve as gatekeepers, an important role in controlling cost, utilization, and the rational allocation of resources. In the gatekeeping

Exhibit 4–1 Definitions of Medical Specialties and Subspecialties

| | |
|---|---|
| Allergists | Treat conditions and illnesses caused by allergies or related to the immune system |
| Anesthesiologists | Use drugs and gases to render patients unconscious during surgery |
| Cardiologists | Treat heart diseases |
| Dermatologists | Treat infections, growths, and injuries related to the skin |
| Emergency Medicine | Work specifically in emergency departments, treating acute illnesses and emergency situations, for example, trauma |
| Family Physicians | Are prepared to handle most types of illnesses and involve the care of the patient as a whole |
| General Practitioners | Similar to family physicians—examine patients or order tests and have X-rays done to diagnose illness and treat the patient |
| Geriatricians | Specialize in problems and diseases that accompany aging |
| Gynecologists | Specialize in the care of the reproductive system of women |
| Internists | Treat diseases related to the internal organs of the body, for example, conditions of the lungs, blood, kidneys, and heart |
| Neurologists | Treat disorders of the central nervous system and order tests necessary to detect diseases |
| Obstetricians | Work with women throughout their pregnancy, deliver infants, and care for the mother after the delivery |
| Oncologists | Specialize in the diagnosis and treatment of cancers and tumors |
| Ophthalmologists | Treat diseases and injuries of the eye |
| Otolaryngologists | Specialize in the treatment of conditions or diseases of the ear, nose, and throat |
| Pathologists | Study the characteristics, causes, and progression of diseases |
| Pediatricians | Provide care for children from birth to adolescence |
| Preventive Medicine | Includes occupational medicine, public health, and general preventive treatments |
| Psychiatrists | Help patients recover from mental illness and regain their mental health |
| Radiologists | Perform diagnosis and treatment by the use of X-rays and radioactive materials |
| Surgeons | Operate on patients to treat disease, repair injury, correct deformities, and improve the health of patients |
| General Surgeons | Perform many different types of surgery, usually of relatively low degree of difficulty |
| Neurologic Surgeons | Specialize in surgery of the brain, spinal cord, and nervous system |
| Orthopaedic Surgeons | Specialize in the repair of bones and joints |
| Plastic Surgeons | Repair malformed or injured parts of the body |
| Thoracic Surgeons | Perform surgery in the chest cavity, for example, lung and heart surgery |
| Urologists | Specialize in conditions of the urinary tract in both sexes and of the sexual/reproductive system in males |

*Source:* Data from Stanfield, P.S. 1995. *Introduction to the Health Professions,* 2nd ed. Boston, MA: Jones & Bartlett Learning.

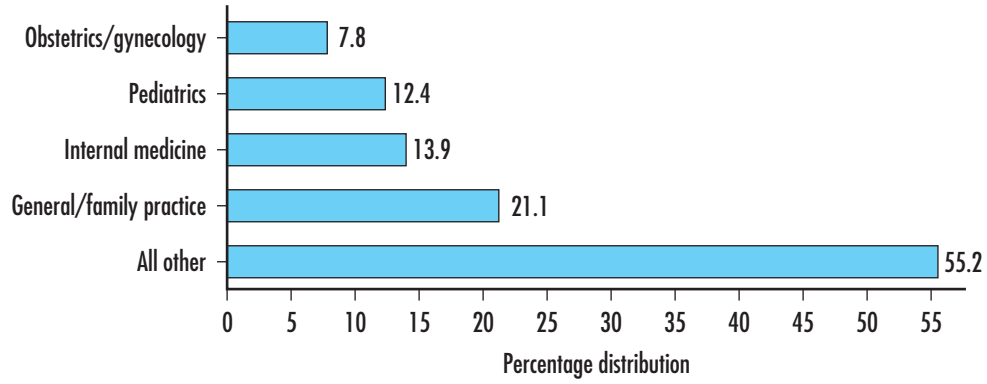
**Table 4–3** US Physicians, According to Activity and Place of Medical Education, 2010

| Activity and Place of Medical Education | Numbers | Percentage | Distribution |
|---|---|---|---|
| Doctors of medicine (professionally active)* | 794,862 | 100.0 | |
| Place of medical education: | | | |
| US medical graduates | 595,908 | 75.0 | |
| International medical graduates | 198,954 | 25.0 | |
| **Activity** | | | |
| *Patient care* | 752,572 | 100.0 | |
| *Office-based practice* | 565,024 | 76.9 | 100.0 |
| General and family practice | 77,098 | | 13.6 |
| Cardiovascular diseases | 17,454 | | 3.1 |
| Dermatology | 9,272 | | 1.6 |
| Gastroenterology | 10,466 | | 1.0 |
| Internal medicine | 110,612 | | 19.6 |
| Pediatrics | 53,054 | | 9.4 |
| Pulmonary diseases | 7,846 | | 1.4 |
| General surgery | 24,327 | | 4.3 |
| Obstetrics and gynecology | 34,083 | | 6.0 |
| Ophthalmology | 15,723 | | 2.8 |
| Orthopaedic surgery | 19,325 | | 3.4 |
| Otolaryngology | 7,964 | | 1.4 |
| Plastic surgery | 6,180 | | 1.1 |
| Urological surgery | 8,606 | | 1.5 |
| Anesthesiology | 31,819 | | 5.6 |
| Diagnostic radiology | 17,503 | | 3.1 |
| Emergency medicine | 20,654 | | 3.7 |
| Neurology | 10,547 | | 1.9 |
| Pathology, anatomical/clinical | 10,688 | | 1.9 |
| Psychiatry | 25,690 | | 4.5 |
| Radiology | 7,032 | | 1.2 |
| Other specialty | 39,081 | | 6.9 |
| *Hospital-based practice* | 187,548 | 23.1 | 100.0 |
| Residents and interns | 108,142 | | 57.7 |
| Full-time hospital staff | 79,406 | | 42.3 |

*Excludes inactive, not classified, and address unknown.

*Source:* Data from *Health, United States, 2012*, p. 309.

Figure 4–1 Ambulatory Care Visits to Physicians According to Physician Specialty, 2010.




*Source:* Data from *Health, United States, 2012*, pp. 278–279.

model, specialty care requires referral from a primary care physician.

3. Primary care is longitudinal. In other words, primary care providers follow through the course of treatment and coordinate various activities, including initial diagnosis, treatment, referral, consultation, monitoring, and follow-up. Primary care providers serve as patient advisors and advocates. Their coordinating role is especially important in continuity of care for chronic conditions. Specialty care is episodic and, thus, more focused and intense.
4. Primary care focuses on the person as a whole, whereas specialty care centers on particular diseases or organ systems of the body. Patients often have multiple problems, a condition referred to as ***comorbidity***, which requires balancing of the multiple requirements, addressing changes in health conditions over time, and drug and disease interactions. Specialty care tends to be limited to illness episodes, the organ system, or the disease process involved. Comorbidities may necessitate referrals to multiple specialists, which present challenges in care coordination by PCPs.
5. The difference in scope is reflected in how primary and specialty care providers are trained. Primary care students spend a significant amount of time in ambulatory care settings, familiarizing themselves with a variety of patient conditions and problems. Students in medical subspecialties spend significant time in inpatient hospitals, where they are exposed to state-of-the–art medical technology.

## The Expanding Role of Hospitalists

Since the mid-1990s, an increasing amount of inpatient medical care in the United States has been delivered by ***hospitalists***, physicians who specialize in the care of hospitalized patients (Schneller 2006). Hospitalists do not usually have a relationship with the patient prior to hospitalization. Essentially, the

patient's primary care provider entrusts the oversight of the patient's care to a hospitalist upon admission, and the patient returns to the regular physician after discharge (Freed 2004). Approximately 21,100 to 22,900 hospitalists practice in the United States (Association of American Medical College 2012).

The growth of the number of hospitalists is influenced by the desire of hospital executives, HMOs, and medical groups to reduce inpatient costs and increase efficiency, without compromising quality or patient satisfaction. Published research shows that using hospitalists does, in fact, achieve these goals (Wachter 2004). Research findings have also put to rest initial concerns from PCPs, who were accustomed to the traditional method of rounding on their hospitalized patients. The debate over hospitalists has largely shifted from quality and efficiency to optimizing hospitalists' skills and expanding their roles (Sehgal and Wachter 2006). The American Board of Hospital Medicine (ABHM), founded in 2009 as a member board of the American Board of Physician Specialists (ABPS), is the only board of certification for hospital medicine.

## Issues in Medical Practice, Training, and Supply Medical Practice

Research has shown that the way physicians practice medicine and prescribe treatments for similar conditions varies significantly. Physicians have at their disposal an increasing number of therapeutic options because of the exponential growth in medical science and technology. Conversely, increasing health care costs continue to threaten the viability of the health care delivery system. The responsibilities placed on physicians to perform difficult balancing acts between the availability of the most advanced treatments, uncertainties about their potential benefits, and whether the higher costs of treatment are justified have created a confusing environment. Hence, support has been growing for the development and refinement of standardized clinical guidelines to streamline clinical decision making and improve quality of care (discussed in Chapter 12). However, there have been some criticisms about the applicability, flexibility, and objectivity of some guidelines. Although the number of conditions for which guidelines are available is steadily increasing, guidelines for combinations of conditions are not often available. Furthermore, many of the recommendations incorporated in the most well accepted clinical guidelines permit much flexibility to practicing physicians, making it difficult to determine whether the care physicians decide to give complies with recommendations in the guidelines (Garber 2005). In addition, the changing nature of chronic diseases and comorbidities is creating new challenges in the disease-centered reactive practice patterns (Starfield 2011). A better care model such as the Chronic Care Model requires patient-centered, longitudinal, coordinated, evidence-based, and information system–supported care, which could facilitate physician–patient interaction and patient self-management (Coleman et al. 2009).

### Medical Training

The principal source of funding for graduate medical education is the Medicare program, which provides explicit payments to teaching hospitals for each resident in training. The government, however, does not mandate how these physicians should be trained.

Emphasis on hospital-based training in the United States has produced more

specialists than PCPs. Meanwhile, the health care delivery system is evolving toward primary care orientation. The increasing prevalence of chronic diseases further highlights the deficiency of the medical training model in the United States, which focuses mainly on acute interventions. Medical training in primary care needs to be refocused on patient-centered care (see Chapter 7), general internal medicine, and longitudinal clinical experiences (Julian et al. 2011).

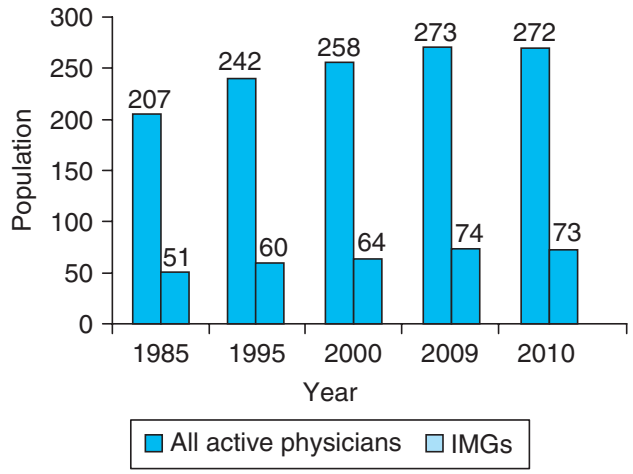
## Health Care Reform and Supply of Health Care Professionals

Aided by tax-financed subsidies, the United States has experienced a steady increase in its physician labor force (see Table 4–2 and Figure 4–2). In 2009, for example, there were 273 physicians per 100,000 population (US Census Bureau 2012). The number of active physicians under age 75 is expected to grow from approximately 817,500 in 2005 to 951,700 by 2020 (HRSA/BHP 2006). The growth, however, has been mainly for specialists.

The ACA places significant emphasis on the delivery of preventive care and coordination of services. A large influx of newly insured individuals seeking care will strain the existing primary care infrastructure and result in personnel shortages in primary care (Schwartz 2011). By 2025, an additional 52,000 PCPs would be needed (Petterson et al. 2012). The problem is that the primary care workforce is shrinking. Only 32% of physicians currently practice primary care, much below the recommended minimum of 40% (COGME 2010). Moreover, almost one-quarter of the primary care workforce are 56 or older and "near retirement," and less than one-quarter of medical students are choosing primary care (COGME 2010).

To alleviate the shortages, the ACA will invest $230 million to increase the number of medical residents, nurse practitioners, and physician assistants trained in

Figure 4–2 Supply of US Physicians, Including International Medical Graduates (IMGs), per 100,000 Population, 1985–2010.




*Source: Health, United States, 2012*, p. 327.

primary care (The White House 2012). In July 2013, $12 million in ACA funding was awarded to train more than 300 new primary care residents during the 2013–2014 academic year; 32 teaching health centers in 21 states received funding (U.S. Department of Health and Human Services 2013).

## Maldistribution

***Maldistribution*** refers to either a surplus or a shortage of the type of physicians needed to maintain the health status of a given population at an optimum level. Even surpluses are not desirable because they result in increased health care expenditures without a positive return in health outcomes. The United States faces maldistributions in terms of both geography and specialty.

### Geographic Maldistribution

One of the ironies of excess physician supply is that localities outside metropolitan areas (that is, counties with < 50,000 residents) continue to have physician shortages. Non-metropolitan areas have 59 PCPs/100,000 population compared to 94 PCPs/100,000 population in metropolitan areas (General Accounting Office 2003). Rural areas, particularly, lack an adequate supply of both PCPs and specialists even though residents in rural areas are sicker, older, and poorer than those in nonrural areas. Whereas 20% of the US population lives in rural areas, only 9% of physicians practice there (AHRQ 2005).

Health Professional Shortage Areas (HPSAs) are designations by the Department of Health and Human Services (DHHS) for urban or rural areas, population groups, or medical or other public facilities that have a shortage of providers in primary care, dental care, and mental health care. As of January 2013, there were approximately 5,900 designated primary care HPSAs, 4,600 dental HPSAs, and 3,800 mental health HPSAs (DHHS 2013).

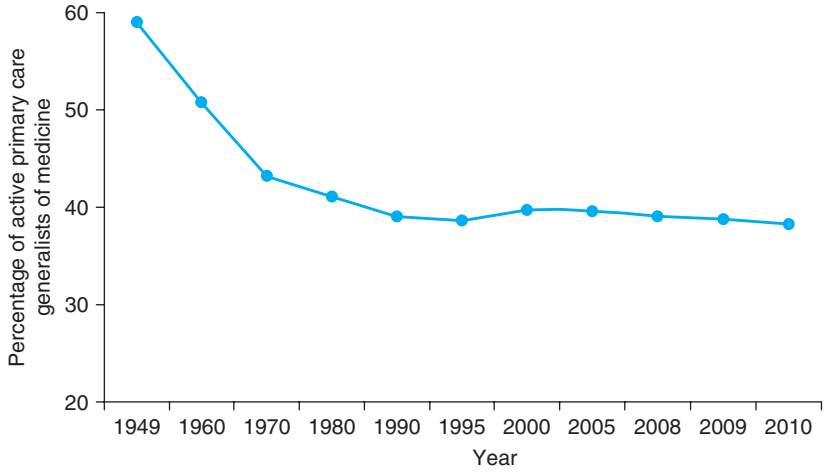
Several federal programs have demonstrated success in increasing the supply of primary care services in rural areas. Some of these programs are discussed in Chapter 11. They include the National Health Service Corps, which makes scholarship support conditional on a commitment to future service in an underserved area; the Migrant and Community Health Center Programs, designated to provide primary care services to the poor and underserved using federal grants; and the support of primary care training programs and Area Health Education Centers.

### Specialty Maldistribution

Besides geographic maldistribution of physicians, a considerable imbalance exists between primary and specialty care in the United States. Approximately 42% of physicians work in primary care; the remaining 58% are specialists (US Bureau of Labor Statistics 2011). In other industrialized countries, only 25% to 50% of physicians are specialists (Schroeder 1992).

Figure 4–3 illustrates trends in the supply of PCPs. The proportion of active PCPs has been continually declining since 1949 and has reached its lowest point in recent years. Also, a decreasing number of physicians have been entering primary care. According to one study, only 21.5% of third-year internal medicine graduating residents reported general internal medicine as their ultimate career plan. Most of the residents reported subspecialty career plans (West and Dupras 2012). Moreover, about one in six general internists leave their

Figure 4–3 Trend of US Primary Care Generalists of Medicine.




*Source:* Data from U.S. Department of Labor, Bureau of Labor Statistics. Occupational Employment and Wages – May 2012. http://www.bls.gov/oes/current/oes_stru.htm

practice by midcareer either due to dissatisfaction or by moving into a subspecialty of internal medicine (Bylsma et al. 2010). An increasing number of international medical graduates (IMGs) practicing in the United States have helped alleviate PCPs shortages to some extent.

Growth of new medical technology is one major driving force behind the increasing number of specialists. Because the population increases at a significantly slower rate than technological advancements, the gap between primary and specialty care workforces continues to expand.

Higher incomes of specialists relative to PCPs have also contributed to an oversupply of specialists. In recent years, reimbursement systems designed to increase payments to PCPs have been implemented, but wide disparities between the incomes of generalists and specialists continue (Table 4–4). Specialists also have more predictable work hours and enjoy higher prestige among their colleagues and the public at large (Rosenblatt and Lishner 1991; Samuels and Shi 1993). High status and prestige are accorded to specialties engaged in employing the

Table 4–4 Mean Annual Compensation of US Physicians by Specialty, May 2012

| | |
|---|---|
| Anesthesiologists | 232,830 |
| Family and general practitioners | 180,850 |
| Internists, general | 191,520 |
| Obstetricians and gynecologists | 216,760 |
| Pediatricians, general | 167,640 |
| Psychiatrists | 177,520 |
| Surgeons | 230,540 |
| Physicians and surgeons, all other | 184,820 |

*Source:* US Department of Labor, Bureau of Labor Statistics. *Occupational Employment and Wages* – May 2012. http://www.bls.gov/oes/current/oes_stru.htm (accessed August 14, 2013).

Table 4–5 Percentage of Total Enrollment of Students for Selected Health Occupations, 2008–2009

| Race | Allopathic | Osteopathic | Dentistry | Pharmacy | Nursing Baccalaureate |
|---|---|---|---|---|---|
| All races | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| White, non-Hispanic | 61.7 | 70.0 | 59.9 | 58.9 | 75.2 |
| Black, non-Hispanic | 7.1 | 3.5 | 5.8 | 6.4 | 12.4 |
| Hispanic | 8.1 | 3.7 | 6.2 | 4.1 | 5.4 |
| American Indian | 0.8 | 0.7 | 0.7 | 0.5 | 0.7 |
| Asian | 21.7 | 17.1 | 23.4 | 22.1 | 6.3 |

Data from *Health, United States, 2010*, p. 352.

latest advances in medical technology. Such considerations influence medical students' career decisions.

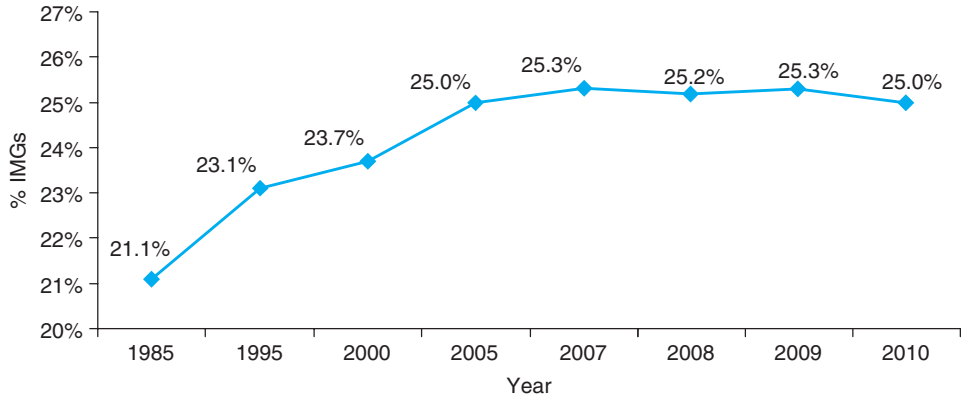
The medical education environment in the United States is organized according to specialties and controlled by those who have achieved leadership positions by demonstrating their abilities in narrow scientific or clinical areas. Medical education in the United States emphasizes technology, intensive procedures, and tertiary care settings, which are generally more appealing to medical students than the more rudimentary primary care.

The imbalance between generalists and specialists has several undesirable consequences. Having too many specialists has contributed to the high volume of intensive, expensive, and invasive medical services, as well as to the rise in health care costs (Greenfield et al. 1992; Rosenblatt 1992; Schroeder and Sandy 1993; Wennberg et al. 1993). Seeking care directly from specialists is often less effective than using primary care because the latter attempts to provide early intervention before complications develop (Starfield 1992; Starfield and Simpson 1993). Higher levels of primary care professionals are associated with lower overall death and lower mortality rates due to diseases of the heart and cancer (Shi 1992, 1994). PCPs have been the major providers of care to minorities, the poor, and people living in underserved areas (Ginzberg 1994; Starr 1982), and can play a major role in overcoming disparities in health. Hence, the underserved populations suffer the most from PCP shortages.

## International Medical Graduates

The ratio of IMGs to population has steadily grown over time (Figure 4–2) and so has the proportion of IMGs to total active physicians practicing in the United States (Figure 4–4). About 25% of professionally active physicians in the United States are IMGs, also known as foreign medical graduates (Cohen 2006). This translates to more than 150,000 active IMGs in the US physician workforce (Gastel 2006). An estimated one-fourth of all

Figure 4–4 MG Physicians As a Proportion of Total Active Physicians.




*Source:* Data from *Health, United States, 2012*, p. 309.

residency positions are filled by IMGs (AMA 2013), and an increasing number of IMGs are filling family practice residency slots (Koehn et al. 2002). In 1995, only 6.3% of IMGs entered family practice residencies; by 2003, the number had increased to 15.8% (Boulet et al. 2006). IMGs comprise 37% of total physicians in internal medicine, 28% anesthesiology, 32% in psychiatry, and 28% in pediatrics (AMA 2013).

## Dentists

***Dentists*** diagnose and treat dental problems related to the teeth, gums, and tissues of the mouth. All dentists must be licensed to practice. The licensure requirements include graduation from an accredited dental school that awards a Doctor of Dental Surgery (DDS) or Doctor of Dental Medicine (DMD) degree and successful completion of both written and practical examinations. Some states require dentists to obtain a specialty license before practicing as a specialist in that state (Stanfield et al. 2009). Nine specialty areas are recognized by the American Dental Association: orthodontics (straightening teeth), oral and maxillofacial surgery (operating on the mouth and jaws), oral and maxillofacial radiology (producing and interpreting images of the mouth and jaws), pediatric dentistry (dental care for children), periodontics (treating gums), prosthodontics (making artificial teeth or dentures), endodontics (root canal therapy), public health dentistry (community dental health), and oral pathology (diseases of the mouth). The growth of dental specialties is influenced by technological advances, including implant dentistry, laser-guided surgery, orthognathic surgery (surgery performed on the bones of the jaw) for the restoration of facial form and function, new metal combinations for use in prosthetic devices, new bone graft materials in "tissue-guided regeneration" techniques, and new materials and instruments.

Many dentists are involved in the prevention of dental decay and gum disease.

Dental prevention includes regular cleaning of patients' teeth and educating patients on proper dental hygiene. Dentists also spot symptoms that require treatment by a physician. Dentists employ dental hygienists and assistants to perform many of the preventive and routine care services.

***Dental hygienists*** work in dental offices and provide preventive dental care, including cleaning teeth and educating patients on proper dental care. Dental hygienists must be licensed to practice. The licensure requirements include graduation from an accredited school of dental hygiene and successful completion of both a national board written examination and a state or regional clinical examination. Many states require further examination on legal aspects of dental hygiene practice.

***Dental assistants*** work for dentists in the preparation, examination, and treatment of patients. Dental assistants do not have to be licensed to work; however, formal training programs that offer a certificate or diploma are available. Dental assistants typically work alongside dentists.

Most dentists practice in private offices as solo or group practitioners. As such, dental offices are operated as private businesses, and dentists often perform business tasks, such as staffing, financing, purchasing, leasing, and work scheduling. Some dentists are employed in clinics operated by private companies, retail stores, or franchised dental outlets. Group dental practices, offering lower overhead and increased productivity, have slowly grown. The federal government also employs dentists, mainly in the hospitals and clinics of the Department of Veterans Affairs and the US Public Health Service. Mean annual earnings of salaried dentists were $166,910 in 2012 (US Bureau of Labor Statistics 2012).

The emergence of employer-sponsored dental insurance caused an increased demand for dental care because it enabled a greater segment of the population to afford dental services. The demand for dentists will continue to grow with an increase in populations having high dental needs, such as the elderly, and an increase in public awareness of the importance of dental care toward general health status. Demand will also be affected by the fairly widespread appeal of cosmetic and esthetic dentistry, the prevalence of dental insurance plans, and the inclusion of dental care as part of many public-funded programs, such as Head Start, Medicaid, community and migrant health centers, and maternal and infant care.

## Pharmacists

The traditional role of ***pharmacists*** has been to dispense medicines prescribed by physicians, dentists, and podiatrists and to provide consultation on the proper selection and use of medicines. All states require a license to practice pharmacy. The licensure requirements include graduation from an accredited pharmacy program that awards a Bachelor of Pharmacy or Doctor of Pharmacy (PharmD) degree, successful completion of a state board examination, and practical experience or completion of a supervised internship (Stanfield et al. 2009). After 2005, the bachelor's degree was phased out, and a PharmD, requiring 6 years of postsecondary education, became the standard. The mean annual earnings of pharmacists in 2011 were $114,950 (US Bureau of Labor Statistics 2012).

Although most pharmacists are generalists, dispensing drugs and advising providers and patients, some become specialists. Pharmacotherapists specialize in drug therapy and work closely with physicians. Nutrition-support pharmacists determine and prepare drugs needed for nutritional therapy. Radiopharmacists, or nuclear pharmacists, produce radioactive drugs used for patient diagnosis and therapy.

Most pharmacists hold salaried positions and work in community pharmacies that are independently owned or are part of a national drugstore, discount store, or department store chain. Pharmacists are also employed by hospitals, MCOs, home health agencies, clinics, government health services organizations, and pharmaceutical manufacturers.

The role of pharmacists has expanded from primarily preparing and dispensing prescriptions to include drug product education and serving as experts on specific drugs, drug interactions, and generic drug substitution.

Under the Omnibus Budget Reconciliation Act of 1990, pharmacists are required to give consumers information about drugs and their potential misuse. This educating and counseling role of pharmacists is broadly referred to as ***pharmaceutical care***. The American Council on Pharmaceutical Education (ACPE; 1992) defined pharmaceutical care as "a mode of pharmacy practice in which the pharmacist takes an active role on behalf of patients, by assisting prescribers in appropriate drug choices, by effecting distribution of medications to patients, and by assuming direct responsibilities collaboratively with other health care professionals and with patients to achieve the desired therapeutic outcome." This concept entails a high level of drug knowledge, clinical skill, and independent judgment and requires that pharmacists share with other health professionals the responsibility for optimizing the outcome of patients' drug therapy, including health status, quality of life, and satisfaction (Helper and Strand 1990; Schwartz 1994; Strand et al. 1991). Pharmacists are often consulted by physicians to identify and prevent potential drug-related problems and resolve actual drug-related problems (Morley and Strand 1989).

Certain provisions within the ACA could impact pharmacists either directly or indirectly. For Medicare recipients in particular, the ACA emphasizes medical care delivery by teams of health care professionals in a coordinated delivery environment. As a result, accountable care organizations (ACOs) are emerging in certain parts of the country (see Chapter 9). Pharmacists are expected to be an integral part of the team environment of care delivery, not just as dispensers of prescriptions.

## Other Doctoral-Level Health Professionals

In addition to physicians, dentists, and some pharmacists, other health professionals have doctoral education, including optometrists, psychologists, podiatrists, and chiropractors.

***Optometrists*** provide vision care, such as examination, diagnosis, and correction of vision problems. They must be licensed to practice. The licensure requirements include the possession of a Doctor of Optometry (OD) degree and passing a written and clinical state board examination. Most optometrists work in solo or group practices. Some work for the government, optical stores, or vision care centers as salaried employees.

***Psychologists*** provide patients with mental health care. They must be licensed

or certified to practice. The ultimate recognition is the diplomate in psychology, which requires a Doctor of Philosophy (PhD) or Doctor of Psychology (PsyD) degree, a minimum of 5 years' postdoctoral experience, and the successful completion of an examination by the American Board of Examiners in Professional Psychology. Psychologists may specialize in several areas, such as clinical, counseling, developmental, educational, engineering, personnel, experimental, industrial, psychometric, rehabilitation, school, and social domains (Stanfield et al. 2009).

***Podiatrists*** treat patients with diseases or deformities of the feet, including performing surgical operations, prescribing medications and corrective devices, and administering physiotherapy. They must be licensed to practice. Requirements for licensure include completion of an accredited program that awards a Doctor of Podiatric Medicine (DPM) degree and passing a national examination by the National Board of Podiatry. Most podiatrists work in private practice, but some are salaried employees of health service organizations.

***Chiropractors*** provide treatment to patients through chiropractic (done by hand) manipulation, physiotherapy, and dietary counseling. They typically help patients with neurological, muscular, and vascular disturbances. Chiropractic care is based on the belief that the body is a self-healing organism. Chiropractors do not prescribe drugs or perform surgery. Chiropractors must be licensed to practice. Requirements for licensure include completion of an accredited program that awards a 4-year Doctor of Chiropractic (DC) degree and passing an examination by the state chiropractic board. Most chiropractors work in private solo or group practice.

## Nurses

Nurses constitute the largest group of health care professionals. The nursing profession developed around hospitals after World War I, primarily attracting women. Before that time, more than 70% of nurses worked in private duty, either in patients' homes or for private-pay patients in hospitals. Hospital-based nursing flourished after the war as the effectiveness of nursing care became apparent. Federal support of nursing education increased after World War II, represented by the Nursing Training Act of 1964, the Health Manpower Act of 1968, and the Nursing Training Act of 1971; however, state funding remains the primary source of financial support for nursing schools.

Nurses are the major caregivers of sick and injured patients, addressing their physical, mental, and emotional needs. All states require nurses to be licensed to practice. Nurses can be licensed in more than one state through examination or endorsement of a license issued by another state. The licensure requirements include graduation from an approved nursing program and successful completion of a national examination. Educational preparation distinguishes between two levels of nurses. ***Registered nurses*** (RNs) must complete an associate's degree (ADN), a diploma program, or a baccalaureate degree (BSN). ADN programs take about 2 to 3 years and are offered by community and junior colleges. Diploma programs take 2 to 3 years and are still offered by a few hospitals. BSN programs take 4 to 5 years and are offered by colleges and universities (Stanfield et al. 2009). ***Licensed practical nurses*** (LPNs)—called licensed vocational nurses (LVNs) in some states—must complete a state-approved program in practical nursing and a national

written examination. Most practical nursing programs last about 1 year and include classroom study, as well as supervised clinical practice. Head nurses act as supervisors of other nurses. RNs supervise LPNs.

Nurses work in a variety of settings listed in the introduction to this chapter. In addition, they also work in home health care, hospice care, and a variety of long-term care settings. A few work as private-duty nurses in patients' homes. Nurses are often classified according to the settings in which they work: hospital nurses, long-term care nurses, public health nurses, private-duty nurses, office nurses, and occupational health or industrial nurses. With the remarkable growth in various types of outpatient settings (see Chapter 7), hospitals and nursing homes now treat much sicker patients than before. Hence, the ratio of nurses to patients has increased, and nurses' work has become more intensive. The growing opportunities for RNs in supportive roles, such as case management, utilization review, quality assurance, and prevention counseling, have also expanded the demand for their services.

Between 2001 and 2011, the total full-time equivalent (FTE) RN workforce increased by 506,580. In 2011, registered nurse was one of the largest occupations in the United States, with more than 2.6 million RNs earning an average salary of $67,930 per year. Projections of the future need for nurses indicate there will be a deficit of 340,000 nurses in 2020 (Auerbach et al. 2007). To make the nursing profession more attractive, health services organizations need to initiate measures, such as creating incentive packages to attract new nurses, increasing pay and benefits of current nurses, introducing more flexible work schedules, awarding tuition reimbursement for continuing education, and providing on-site daycare assistance.

A nationwide shortage of primary care providers inspired the Advanced Nursing Education Expansion Program, an ACA component that allocates $30 million to support academic training programs for nurse practitioners and certified nurse midwives. The funds help pay for instructors and for students' housing and living expenses.

## Advanced Practice Nurses

The term ***advanced practice nurse*** (APN) is a general classification of nurses who have education and clinical experience beyond that required of an RN. APNs include four areas of specialization (Cooper et al. 1998): clinical nurse specialists (CNSs), certified registered nurse anesthetists (CRNAs), nurse practitioners (NPs), and certified nurse midwives (CNMs). NPs and CNMs are also categorized as NPPs and will be discussed in the next section. Besides being direct caregivers, APNs perform other professional activities, such as collaborating and consulting with other health care professionals; educating patients and other nurses; collecting data for clinical research projects; and participating in the development and implementation of total quality management programs, critical pathways, case management, and standards of care (Grossman 1995).

The main difference between CNSs and NPs is that CNSs work in hospitals, whereas NPs work mainly in primary care settings. CNSs can specialize in specific fields, such as oncology, neonatal health, cardiac care, or psychiatric care. Examples of their functions in an acute care hospital include taking social and clinical history at the time of admission,

conducting physical assessment after admission, adjusting IV infusion rates, managing pain, managing resuscitation orders, removing intracardiac catheters, and ordering routine laboratory tests and radiographic examinations. They generally do not have the legal authority to prescribe drugs. NPs, on the other hand, may prescribe drugs in most states. CRNAs are trained to manage anesthesia during surgery, and CNMs deliver babies and manage the care of mothers and healthy newborns before, during, and after delivery. The requirements for becoming an APN vary greatly from state to state. In general, the designation requires a graduate degree in nursing or certification in an advanced practice specialty area.

## Nonphysician Practitioners

The terms ***nonphysician practitioners*** (NPPs), nonphysician clinicians (NPCs), and midlevel providers (MLPs) refer to clinical professionals who practice in many of the areas similar to those in which physicians practice but who do not have an MD or a DO degree. NPPs receive less advanced training than physicians but more training than RNs. They are also referred to as ***physician extenders*** because in the delivery of primary care, they can, in many instances, substitute for physicians. However, they do not engage in the entire range of primary care or deal with complex cases requiring the expertise of a physician (Cooper et al. 1998). Hence, NPPs often work in close consultation with physicians. Efforts to formally establish the NPP role began in the late 1960s, in recognition of the fact that they could improve access to primary care, especially in rural areas.

NPPs include physician assistants (PAs), NPs, and CNMs. The expansion of health insurance coverage and the growth of the nation's population will continue to drive the demand for NPPs (Jacobson and Jazowski 2011). As of 2010, the rate of new NPs is increasing at 9.44% per capita compared to 1.7% for physicians. Approximately 12,600 NPs and PAs graduated in 2008, up from 11,200 in 2006.

### Nurse Practitioners

The American Nurses Association defines ***nurse practitioners*** as individuals who have completed a program of study leading to competence as RNs in an expanded role. NPs constitute the largest group of NPPs. As of 2011, the United States had approximately 105,780 NPs (US Bureau of Labor Statistics 2012).

Close to 6,000 new NPs are trained every year in 325 colleges and universities (American Association of Nurse Practitioners 2013). The training of NPs may be a certificate program (at least 9 months in duration) or a master's degree program (2 years of full-time study). States vary with regard to licensure and accreditation requirements. Most NPs are now trained in graduate or postgraduate nursing programs. In addition, NPs must complete clinical training in direct patient care. Certification examinations are offered by the American Nurses Credentialing Center, the American Academy of Nurse Practitioners, and specialty nursing organizations.

NPs work predominantly in primary care, whereas PAs are evenly divided between primary care and specialty care. Another main difference between the practice orientation of NPs and PAs is that NPs are oriented toward health promotion and

education; PAs are oriented more toward a practice model that focuses on disease (Hooker and McCaig 2001). NPs spend extra time with patients to help them understand the need to take responsibility for their own health.

NP specialties include pediatric, family, adult, psychiatric, and geriatric programs. NPs have statutory prescribing authority in almost all states. NPs can also receive direct reimbursement as providers under the Medicaid and Medicare programs.

## Physician Assistants

The American Academy of Physician Assistants (1986) defines ***physician assistants*** "as part of the healthcare team . . . [who] work in a dependent relationship with a supervising physician to provide comprehensive care." In 2011, there were approximately 83,640 jobs available for PAs in the United States (US Bureau of Labor Statistics 2012). The number of PA jobs exceed the number of PAs and about 15% of PAs work more than one job.

PAs are licensed to perform medical procedures only under the supervision of a physician who may be on site or off site. The major services provided by PAs include evaluation, monitoring, diagnostics, therapeutics, counseling, and referral (Fitzgerald et al. 1995). As of 2011, 165 accredited PA training programs were operating in the United States, with a steady growth in enrollment (US Bureau of Labor Statistics 2011). PA programs award bachelor's degrees, certificates, associate degrees, or master's degrees. The mean length of the program is 26 months (Hooker and Berlin 2002). PAs are certified by the National Commission on Certification of Physician Assistants. In most states, PAs have the authority to prescribe medications.

## Certified Nurse Midwives

***Certified nurse midwives*** are RNs with additional training from a nurse midwifery program, in areas such as maternal and fetal procedures, maternity and child nursing, and patient assessment (Endicott 1976). CNMs deliver babies, provide family planning education, and manage gynecological and obstetric care and can substitute for obstetricians/gynecologists in prenatal and postnatal care. They are certified by the American College of Nurse-Midwives (ACNM) to provide care for normal expectant mothers. They refer abnormal or high-risk patients to obstetricians or jointly manage the care of such patients. There are approximately 45 ACNM-accredited nurse-midwifery education programs in the United States (US Bureau of Labor Statistics 2007).

Midwifery has never assumed the central role in the management of pregnancies in the United States that it has in Europe (Wagner 1991). Physicians, mainly obstetricians, attend most deliveries in the United States, but some evidence indicates that, for low-risk pregnancies, CNMs are much less likely to use available technical tools to monitor or modify the course of labor. Patients of CNMs are less likely to be electronically monitored, have induced labor, or receive epidural anesthesia. These differences are associated with lower Caesarean section rates and less resource use, such as hospital stay, operating room costs, and use of anesthesia staff (Rosenblatt et al. 1997).

# Allied Health Professionals

The term ***allied health*** is used loosely to categorize several different types of professionals in a vast number of health-related

technical areas. Among these professionals are technicians, assistants, therapists, and technologists. These professionals receive specialized training, and their clinical interventions complement the work of physicians and nurses. Certain professionals, however, are allowed to practice independently, depending on state law.

In the early part of the 20th century, the health care provider workforce consisted of physicians, nurses, pharmacists, and optometrists. As knowledge in health sciences expanded and medical care became more complex, physicians found it difficult to spend the necessary time with their patients. Time constraints, as well as the limitations in learning new skills, created a need to train other professionals who could serve as adjuncts to or as substitutes for physicians and nurses.

Section 701 of the Public Health Service Act defines an ***allied health professional*** as someone who has received a certificate; associate's, bachelor's, or master's degree; doctoral-level preparation; or post-baccalaureate training in a science related to health care and has responsibility for the delivery of health or related services. These services may include those associated with the identification, evaluation, and prevention of diseases and disorders, dietary and nutritional services, rehabilitation, or health system management. Further, these professionals are other than those who have received a degree in medicine, dentistry, veterinary medicine, optometry, podiatry, chiropractic, or pharmacy; a graduate degree in health administration; a degree in clinical psychology; or a degree equivalent to one of these.

Allied health professionals can be divided into two broad categories: technicians/assistants and therapists/technologists. The main allied health professions in the United States are listed in Exhibit 4–2. Formal requirements for these professionals range from certificates gained in postsecondary educational programs to postgraduate degrees for some professions.

Exhibit 4–2 Examples of Allied Health Professionals

- Activities Coordinator
- Audiology Technician
- Cardiovascular Technician
- Cytotechnologist
- Dental Assistant
- Dietary Food Service Manager
- Exercise Physiologist
- Histologic Technician
- Laboratory Technician
- Legal Services
- Medical Records Technician
- Medical Technologist
- Mental Health Worker
- Nuclear Medicine
- Occupational Therapist
- Occupational Therapy Assistant
- Optician
- Pharmacist
- Physical Therapist
- Physical Therapy Assistant
- Physician Assistant
- Radiology Technician
- Recreation Therapist
- Registered Dietitian
- Registered Records Administrator
- Respiratory Therapist
- Respiratory Therapy Technician
- Social Services Coordinator
- Social Worker
- Speech Therapist
- Speech Therapy Assistant

Typically, technicians and assistants receive less than 2 years of postsecondary education. They require supervision from therapists or technologists to ensure that treatment plans are followed. Technicians and assistants include physical therapy assistants (PTAs), certified occupational therapy assistants (COTAs), medical laboratory technicians, radiologic technicians, and respiratory therapy technicians.

Technologists and therapists receive more advanced training. They evaluate patients, diagnose problems, and develop treatment plans. Many technologists and therapists have independent practices. For example, physical therapy is practiced in most US states without the requirement of a prescription or referral from a physician. Many states also allow occupational therapists and speech therapists to see patients without referral from a physician.

## Therapists

***Physical therapists*** (PTs) provide care for patients with movement dysfunction. Educational programs in physical therapy are accredited by the Commission on Accreditation of Physical Therapy Education. Of the 212 physical therapist education programs in the United States, in 2009, 12 awarded master's degrees and 200 awarded doctoral degrees. Currently, only graduate degree physical therapy programs are accredited. Master's degree programs typically are 2 to 3 years in length, while doctoral degree programs last 3 years. To obtain a license, PTs must also pass the National Physical Therapy Examination or a similar state-administered exam (US Bureau of Labor Statistics 2013).

***Occupational therapists*** (OTs) help people of all ages improve their ability to perform tasks in their daily living and working environments. They work with individuals who have conditions that are mentally, physically, developmentally, or emotionally disabling. A master's degree in occupational therapy is the typical minimum requirement for entry into the field. In 2009, 150 master's degree programs or combined bachelor's and master's degree programs were accredited, and 4 doctoral degree programs were accredited by the Accreditation Council for Occupational Therapy Education (US Bureau of Labor Statistics 2011).

Speech–language pathologists treat patients with speech and language problems. Audiologists treat patients with hearing problems. The American Speech-Language-Hearing Association is the credentialing association for audiologists and speech–language pathologists.

## Other Allied Health Professionals

Medical dietetics includes dietitians or nutritionists and dietetic technicians who ensure that institutional foods and diets are prepared in accordance with acceptable nutritional standards. Dietitians are registered by the Commission on Dietetic Registration of the Academy of Nutrition and Dietetics. Dispensing opticians fit eyeglasses and contact lenses. They are certified by the American Board of Opticianry and the National Contact Lens Examiners. Social workers help patients and families cope with problems resulting from long-term illness, injury, and rehabilitation. The Council on Social Work Education accredits baccalaureate and master's degree programs in social work in the United States.

Many programs are accredited by the Committee on Allied Health Education and Accreditation under the American Medical

Association, including anesthesiologist assistants, cardiovascular technologists, cytotechnologists (study changes in body cells under a microscope), diagnostic medical sonographers (work with ultrasound diagnostic procedures), electroneurodiagnostic technologists (work with procedures related to the electrical activity of the brain and nervous system), emergency medical technician–paramedics (provide medical emergent care to acutely ill or injured persons in prehospital settings), histologic technicians/technologists (analyze blood, tissue, and fluids), medical assistants (perform a number of administrative and clinical duties in physicians' offices), medical illustrators, medical laboratory technicians, medical record administrators (direct the medical records department), medical record technicians (organize and file medical records), medical technologists (perform clinical laboratory testing), nuclear medicine technologists (operate diagnostic imaging equipment and use radioactive drugs to assist in the diagnosis of illness), ophthalmic medical technicians, perfusionists (operate life support respiratory and circulatory equipment), radiologic technologists (perform diagnostic imaging exams, such as X-rays, computed tomography, magnetic resonance imaging, and mammography), respiratory therapists and technicians (treat patients with breathing disorders), specialists in blood bank technology, surgeon's assistants, and surgical technologists (prepare operating rooms and patients for surgery).

Certain health care workers are not required to be licensed, and they usually learn their skills on the job; however, their roles are limited to assisting other professionals in the provision of services. Examples include dietetic assistants, who assist dietitians or dietetic technicians in the provision of nutritional care; electroencephalogram technologists or technicians, who operate electroencephalographs; electrocardiogram technicians, who operate electrocardiographs; paraoptometrics, including optometric technicians and assistants, who perform basic tasks related to vision care; health educators, who provide individuals and groups with facts on health, illness, and prevention; psychiatric/mental health technicians, who provide care to patients with mental illness or developmental disabilities; and sanitarians, who collect samples for laboratory analysis and inspect facilities for compliance with public health regulations. Increasingly, these practitioners seek their credentials through certifications, registrations, and training programs.

As the number of older people continues to grow and as new developments allow for the treatment of more medical conditions, more allied health professionals will be needed. For example, home health aides will be needed as more individuals seek care outside of traditional institutional settings. Jobs for LPNs, LVNs, and pharmacy technicians are also expected to increase by a substantial number, roughly 168,500 and 108,300, respectively (US Bureau of Labor Statistics 2013).

To meet the growing demand for allied health professionals, the ACA has provisions for the forgiveness of existing education loans. The program includes allied health professionals who are employed full-time in a federal, state, local, or tribal public health agency or other qualified employment location, including acute care and ambulatory care facilities, settings located in Health Professional Shortage Areas, or medically underserved areas (Redhead and Williams 2010). The law also includes Mid-career Training Grants (Section 5206) for

the Health Resources and Services Administration (HRSA) to support scholarships for mid-career professionals in public health or allied health working in federal, state, tribal, or local public health agencies or clinical health care settings to further their education in health.

## Health Services Administrators

Health services administrators are employed at the top, middle, and entry levels of various types of organizations that deliver health services. Top-level administrators provide leadership and strategic direction, work closely with the governing boards (see Chapter 8), and are responsible for an organization's long-term success. They are responsible for operational, clinical, and financial outcomes of their entire organization. Middle-level administrators may have leadership roles for major service centers, such as outpatient, surgical, and nursing services, or they may be departmental managers in charge of single departments, such as diagnostics, dietary, rehabilitation, social services, environmental services, or medical records. Their jobs involve major planning and coordinating functions, organizing human and physical resources, directing and supervising, operational and financial controls, and decision making. They often have direct responsibility for implementing changes, creating efficiencies, and developing new procedures with respect to changes in the health care delivery system. Entry-level administrators may function as assistants to middle-level managers. They may supervise a small number of operatives. For example, their main function may be to oversee and assist with operations critical to the efficient operation of a departmental unit.

Today's medical centers and integrated delivery organizations are among the most complex organizations to manage. Leaders in health care delivery face some unique challenges, including changes in financing and payment structures, as well as having to work with reduced levels of reimbursement. Other challenges include pressures to provide uncompensated care, greater responsibility for quality, accountability for community health, separate contingencies imposed by public and private payers, uncertainties created by new policy developments, changing configurations in the competitive environment, and maintaining the integrity of an organization through the highest level of ethical standards.

Health services administration is taught at the bachelor's and master's levels in a variety of settings, and the programs lead to several different degrees. The settings for such academic programs include schools of medicine, public health, public administration, business administration, and allied health sciences. Bachelor's degrees prepare students for entry-level positions. Mid- and senior-level positions require a graduate degree. The most common degrees are the Master of Health Administration (MHA) or Master of Health Services Administration (MHSA), Master of Business Administration (MBA, with a health care management emphasis), Master of Public Health (MPH), or Master of Public Administration (or Affairs; MPA). The schools of public health that are accredited by the Council on Education for Public Health (CEPH) play a key role in training health services administrators in their MHA (or MHSA) and MPH programs (CEPH 2011). The MHA programs, however, compared to the MPH programs, have more course requirements to furnish skills in business management

(both theory and applied management) and quantitative/analytical areas, considered crucial for managing today's health services organizations. This disparity has been viewed as a concern that the schools of public health need to address (Singh et al. 1996).

Educational preparation of nursing home administrators is a notable exception to the MHA model. The training of nursing home administrators has largely been influenced by government licensing regulations. Even though licensure of nursing home administrators dates back to the mid-1960s, regulations favoring a formal postsecondary academic degree are more recent. Passing a national examination administered by the National Association of Boards of Examiners of Long-Term Care Administrators (NAB) is a standard requirement; however, educational qualifications needed to obtain a license vary significantly from one state to another. Although about one-third of the states still require less than a bachelor's degree as the minimum academic preparation, an increasing number of practicing nursing home administrators have at least a bachelor's degree. The problem is that most state regulations call for only general levels of education rather than specialized preparation in long-term care administration. General education does not furnish adequate skills in all the domains of practice relevant to nursing home management (Singh et al. 1997). However, various colleges and universities offer specialized programs in nursing home administration.

## Global Health Workforce Challenges

A 2006 World Health Organization (WHO) Report identified 57 countries that were facing a health workforce crisis, meaning that each country had less than 23 health workers per 10,000 people (WHO 2006). Most of these countries are poor and predominately in sub-Saharan Africa. The report also pointed out that a provider shortage of 4.3 million doctors, midwives, nurses, and support workers existed (WHO 2006). Another publication emphasized that the shifting from acute to chronic health problems is placing different demands on the health care workforce, as addressing chronic diseases requires different resources and skill sets (WHO 2005). The increased prevalence of chronic conditions globally introduces the need for the workforce to adopt a patient-centered approach, improve communication skills, ensure safety and quality of patient care, monitor patients across time, use available technology, and consider care from a population perspective (WHO 2005).

In Europe, while the number of physicians per capita is increasing, it appears to be insufficient to accommodate the growing needs of an aging population (Lang 2011). In addition, there are far more specialists than generalists in recent years, as well as projected shortages of nurses, physiotherapists, and occupational therapists (Lang 2011). The situation is similar in the United States, where the number of older adults is expected to double between 2005 and 2030 (Institute of Medicine 2008). An aging health workforce is also an important issue to consider. The United States is hoping to enhance the geriatric workforce, as well as the retention of geriatric specialists (Institute of Medicine 2008). There is a growth in the number of non-MDs providing care in order to address these shortages (Riegel et al. 2012).

A growing public health concern is the migration of health professionals from developing countries to the United States,

United Kingdom, Canada, and Australia. For example, IMGs make up 25% of the US physician population (this includes US citizens who go to medical schools abroad) (AMA 2010). WHO has developed the Global Code of Practice on the International Recruitment of Health Personnel, which sets principles and voluntary standards for countries to consider in workforce development and recruitment. Components of the code are (WHO 2013):

- greater commitment to assist countries facing critical health worker shortages with their efforts to improve and support their health workforce;
- joint investment in research and information systems to monitor the international migration of health workers in order to develop evidence-based policies;
- member states should meet their health personnel needs with their own human resources as far as possible and thus take measures to educate, retain, and sustain their health workforce; and
- migrant workers' rights are enshrined and equal to domestically trained health workers.

The opposite of this migration appears to be another growing trend in the form of medical tourism (see Chapter 3). The industry and economic impacts of medical tourism remain unknown, and this is a field for increased research (Connell 2006).

## Summary

Health services professionals in the United States constitute the largest labor force. The development of these professionals is influenced by demographic trends, advances in research and technology, disease and illness trends, and the changing environment of health care financing and delivery. Physicians play a leading role in the delivery of health services. The United States has a maldistribution of physicians both by specialty and by geography. The current shortage of health care workforce, especially PCPs, is likely to continue into the future, considering the growth and aging of the population, the growing burden of chronic diseases and the implementation of ACA. Various policies and programs have been used or proposed to address both physician imbalance and maldistribution, including regulation of health care professions, reimbursement initiatives targeting suitable incentives, targeted programs for underserved areas, changes in medical school curricula, changes in the financing of medical training, and a more rational referral system.

In addition to physicians, many other health services professionals contribute significantly to the delivery of health care, including nurses, dentists, pharmacists, optometrists, psychologists, podiatrists, chiropractors, NPPs, and other allied health professionals. These professionals require different levels of training. They work in a variety of health care settings as complements to or substitutes for physicians. Health services administrators face new challenges in the leadership of health care organizations. These challenges call for some reforms in the educational programs designed to prepare adequately trained managers for the various sectors of the health care industry.

## ACA Takeaway

- A large influx of newly insured individuals seeking care will strain the existing primary care infrastructure.
- $230 million will be invested to increase the number of medical residents, nurse practitioners, and physician assistants trained in primary care.
- For Medicare recipients in particular, the ACA emphasizes medical care delivery by teams of health care professionals in a coordinated delivery environment.
- The Advanced Nursing Education Expansion Program allocates funds to support academic training programs for nurse practitioners and certified nurse midwives.
- To meet the growing demand for allied health professionals, the ACA provides for loan forgiveness for individuals who choose to work in certain locations.

## Test Your Understanding

### Terminology

*advanced practice nurse*
*allied health*
*allied health professional*
*allopathic medicine*
*certified nurse midwives*
*chiropractors*
*comorbidity*
*dental assistants*
*dental hygienists*
*dentists*
*generalist*
*hospitalist*
*licensed practical nurses*
*maldistribution*
*nonphysician practitioners*
*nurse practitioners*
*occupational therapists*
*optometrists*
*osteopathic medicine*
*pharmaceutical care*
*pharmacists*
*physical therapists*
*physician assistants*
*physician extenders*
*podiatrists*
*primary care*
*psychologists*
*registered nurses*
*residency*
*specialist*
*specialty care*

## Review Questions

1. Describe the major types of health services professionals (physicians, nurses, dentists, pharmacists, physician assistants, nurse practitioners, certified nurse midwives), including their roles, training, practice requirements, and practice settings.
2. What factors are associated with the development of health services professionals in the United States?
3. What are the major distinctions between primary care and specialty care?

4. Why is there a geographic maldistribution of the physician labor force in the United States?
5. Why is there an imbalance between primary care and specialty care in the United States?
6. What measures have been or can be employed to overcome problems related to physician maldistribution and imbalance?
7. Who are nonphysician primary care providers? What are their roles in the delivery of health care?
8. In general, who are allied health professionals? What role do they play in the delivery of health services?
9. Provide a brief description of the roles and responsibilities of health services administrators.

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# Appendix 4–A

## List of Professional Associations

Academy of Nutrition and Dietetics
American Academy of Nurse Practitioners
American Academy of Physician Assistants
American Art Therapy Association, Inc.
American Association for Practical Nurse Education and Service
American Association for Rehabilitation Therapy
American Association for Respiratory Care
American Association of Colleges of Nursing
American Association of Colleges of Osteopathic Medicine
American Association of Colleges of Pharmacy
American Association of Dental Schools
American Association of Homes and Services for the Aging
American Association of Medical Assistants
American Chiropractic Association
American College of Emergency Physicians
American College of Health Care Administrators
American College of Healthcare Executives
American College of Nurse-Midwives
American Corrective Therapy Association
American Council on Pharmaceutical Education
American Dance Therapy Association
American Dental Assistants Association
American Dental Association
American Dental Association SELECT Program
American Dental Hygienists' Association
American Health Care Association
American Hospital Association
American Medical Association
American Medical Technologists
American Nurses Association
American Occupational Therapy Association
American Optometry Association
American Organization of Nurse Executives
American Osteopathic Association
American Pharmaceutical Association
American Physical Therapy Association
American Psychiatric Association
American Psychological Association
American Public Health Association
American Registry of Radiologic Technologists
American School Health Association
American Society of Clinical Pathologists
American Society of Hospital Pharmacists
American Society of Radiologic Technologists
American Speech–Language–Hearing Association
American Therapeutic Recreation Association
Association of American Medical Colleges
Association of Physician Assistant Programs
Association of Schools and Colleges of Optometry
Association of Schools of Public Health
Association of Surgical Technologists
Association of University Programs in Health Administration

Council on Podiatry Education
Council on Social Work Education
Dental Assisting National Board, Inc.
Environmental Management Association
Healthcare Financial Management Association
International Society for Clinical Laboratory Technology
National Academy of Opticianry
National Association for Music Therapy
National Association of Boards of Pharmacy
National Association of Chain Drug Stores
National Association of Emergency Medical Technicians
National Association of Social Workers
National Board for Respiratory Care
National Board of Podiatry
National Certification Agency for Medical Laboratory Personnel
National Commission for Health Certifying Agencies
National Council for Therapeutic Recreational Certification
National Council for Therapy and Rehabilitation through Horticulture
National Environmental Health Association
National League for Nursing
National Nursing Centers Consortium
National Registry of Emergency Medical Technicians
National Society of Cardiovascular Technology
National Society of Pulmonary Technology
National Therapeutic Recreation Association
Opticians Association of America
Society of Nuclear Medicine