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National Health Systems

Learning Objectives

Upon completion of this chapter, the student should be able to:

1. Describe major types of national health insurance and health services systems;
2. Assess factors in health reform policies in various countries, including developing countries and the former Soviet countries;
3. Apply the experience of different countries to current health reform in the USA;
4. Formulate public health reforms in the context of the New Public Health.

INTRODUCTION

Assuring access to quality health care for all is a basic principle of the New Public Health. There are many personal or community risk factors which affect health status, and medical care is a vital aspect of the broad spectrum of health needs. Despite its value, medical care by itself is not sufficient to produce a high standard of population health. In order to promote optimal health, effective population-level prevention methods as described in previous chapters, availability of and access to care must be seen in the context of the individual and of societal conditions that increase the risk of disease, and application of appropriate measures to reduce those risks to prevent disease and promote health. Some of those interventions are provided by medical care and its preventive aspects. Other key aspects include social, sanitary, environmental, legal, economic, and educational factors. This interrelates with human resources for health (Chapter 14), financing and economics (Chapter 11), organization (Chapter 10), technology, law, and ethics (Chapter 15), and global health (Chapter 16).

The World Health Organization (WHO) defines a health system as: “The people, institutions and resources, arranged together in accordance with established policies, to improve the health of the population they serve, while responding to people’s legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health. It is a set of elements and their relationship in a complex whole, designed to serve the health needs of the population. Health

systems fulfill three main functions: health care delivery, fair treatment to all, and meeting health expectations of the population” (WHO, 2000). The WHO also addresses six basic building blocks for health systems: service delivery; health workforce; information; medical products, vaccines, and technologies; leadership and governance; and financing and a growing emphasis on universal access and reducing inequalities in health (WHO, 2013).

Most industrialized countries have implemented national health programs such as health insurance systems or national health services. Each system developed in the political, social, and historical context of the country and continues to evolve. Developing countries are also struggling to achieve universal access to care and health for all by expanding primary health care and social security plans which provide benefits to workers and for certain vulnerable populations, primarily mothers and children. As they move up the scale of economic development, developing countries also address the problem of how to decrease morbidity and mortality, achieve equity in access to health care, and expand the funding basis for health care through national health insurance. Some countries are experiencing rapid economic development but lag behind in directing increased national wealth towards improving health status. This is often due to a lack of focused political commitment, trained policy analysts, and trained public health professionals (see Chapters 14 and 16).

Each national health system has its own characteristics and challenges. System management requires continuous evaluation based on well-developed information systems, trained health management personnel, and societal involvement through professional organizations and advocacy groups. There is no defined “gold standard” plan for providing universal access to health care that is suitable for all countries. Each country develops and modifies a program of national health appropriate to its own cultural needs and available resources. However, there are evolving sets of patterns in health care, so that countries can and do learn from one another (Box 13.1).

Barriers to care can be geographic, cultural, social, and psychological as well as financial. Removing financial barriers to care is necessary but not sufficient for optimal health and to address the health problems of an individual and of a society. Equity in financial access with universal coverage is vital to population and individual health since

BOX 13.1 Key Elements of National Health Systems

- A tradition of government and non-governmental initiatives to improve the health of the population
- Health targets
- Demographic, epidemiological, economic monitoring
- Public health programs including health promotion
- Universal access by public insurance or service system
- Access to a broad range of health services
- Strategic planning for health and social policies
- Monitoring of health status indicators
- Outreach to special needs of high-risk groups and related issues
- Portability and accessibility of benefits when changing employer or residence
- Efforts to reduce inequality in regional and sociodemographic accessibility and quality of care
- Adequacy of financing
- Cost containment
- Efficient use of resources for a well-balanced health system
- Consumer satisfaction and choice of primary care provider
- Provider satisfaction and choice of referral services
- Public administration and regulation
- Promotion of high-quality service
- Promote patient and staff safety
- Comprehensive primary, secondary, and tertiary levels of care
- Well-developed information and monitoring systems
- Continual policy and management review
- Promote standards and accreditation of services, professional education, training, and research
- Governmental and private provision of services
- Decentralized management and community participation
- Assurance of ethical standards of care for all
- Conduct health systems research
- Preparation for mass casualties from disasters, terrorism and genocide

anyone can have serious illness at any time, and long-term preventive care is essential to good public health standards and quality health care. Inequalities exist in all societies but many have successfully reduced them by poverty reduction, job creation, education, and many other systems that reduce interregional, socioeconomic, and demographic differences in health. Special attention to high-risk groups in the population is essential. Groups may be based on age, gender, occupation, risky lifestyle, location of residence, ethnicity, religion, sexual orientation, economic status, or other factors that increase susceptibility to disease, premature death, or disability. Services should be based on need and not only demand, which can escalate costs by overservicing or, in effect, selective servicing of those with insured access and the knowledge, time, and capacity to make use of a health

system. Health systems planning needs to promote access on patient assessment, but also those services that reach the entire population, especially people at high risk who are often least able to seek appropriate care.

A program that provides equal access for all may not achieve the objective of better health for its population unless it is accompanied by other important governmental activities. These include enactment and enforcement of environmental and occupational health laws; food safety, nutrition, and water standards; improved rural care; higher educational levels; and provision of health information to the public. Additional national programs are needed to promote health generally and to reduce specific risk factors for morbidity and mortality. Responsibility for health lies not only with medical and other health professionals, but also with governmental and voluntary organizations, the family, the individual, and the community.

Individual access to an essential basket of services as a prepaid insured benefit is integral to a successful national health program. Each country addresses this issue according to its means and traditions, but the most cost-effective method of meeting the country's epidemiological and demographic needs should be employed. Payments for heart transplantation may be beyond the means of a health system, but early and aggressive management of acute myocardial infarction is an effective method of saving lives at modest cost and containing the need for more intrusive personal health interventions. Improved diets, smoking reduction, and physical fitness are even more effective and less costly. Prevention is cost-effective and should be integral to the development of service priorities within the basket of services.

Globalization affects health systems around the world not only in the ease of spread of infectious diseases, but in increased access to modern preventive, diagnostic, and treatment modalities. Access to antiretroviral therapy (ART) is changing the face of human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) in many developing countries with support of international and bilateral donors. Adoption of vaccines, such as *Haemophilus influenzae* type b (Hib), rotavirus, and pneumococcal pneumonia vaccines, will save the lives of many hundreds of thousands of children, especially in the low- and middle-income countries. Information technology, migration of medical professionals, and internalization of educational standards are all global health issues affecting national health systems (see Chapters 14–16). Health systems are facing similar problems in population health, with rising population age, obesity and diabetes prevalence, and health care costs. Health systems research capacity is important in each country as it attempts to cope with rapid changes in population health and individual health needs with limited resources.

In this chapter, selected national health systems are presented representing major models of organization and

different parts of the world. These organizational models influence health care system formulation in both developing and developed countries, as well as in countries restructuring their health services. Health care systems and financing are under pressure everywhere, not only to assure access to health for all citizens, but also to keep up with advancing medical technology, and contain the cost increase to sustainable levels. Because a health system is judged by more than its costs and measures of medical services, this chapter includes indicators of the health status of the population, including morbidity and mortality. This topic has developed a complex terminology of its own. Some of the key words are defined in this and other chapters in this text.

Finally, health systems are meant to improve health and quality of life, as measured by quantitative and qualitative methods (see Chapter 3). Since 2000, the Human Development Index (HDI) has provided a standard method of comparison which combines many health indices, including life expectancy at birth, gross domestic product (GDP) per capita, and child mortality, into a summary figure. Table 13.1 provides some of the key indicators discussed in this chapter for some industrialized as well as mid-level and other developing countries.

Selected leading causes of mortality among adults are shown in Table 13.2 for selected countries discussed in this chapter. Mortality rates vary not only within income level but also between income levels. Cancer mortality rates are similar among countries, but mortality rates for cardiovascular and diabetes-related diseases on average are more than three times higher in low-income than in high-income countries. Countries with different health systems have different outcome indicators (see Chapter 3).

In this grouping, Australia and Japan have an outstanding record with low mortality rates in all classes of cases of deaths, with Israel and Sweden coming close, followed by Norway, Canada, and the Netherlands. Nigeria has the highest rates in this group, followed by Russia, suffering from extremely high mortality from non-communicable diseases (NCDs), principally cardiovascular diseases (CVDs). India suffers from high rates of both non-communicable and communicable diseases. The poor performance of the USA in standardized adult mortality rates is a subject for continuing debate politically and in professional discussions, but largely rests on a lack of universal health insurance and poor dietary patterns, especially in some parts of the country. Canada does much better than the USA and somewhat better than the UK, although the UK is doing well in rates of

TABLE 13.1 Human Development Index (HDI) Ranking, Selected Countries, 2000–2012

	HDI Rank 2012	LE at Birth	GDP Spent on	Under-5 Mortality Rate		Maternal Mortality Ratio	
		2011	Health 2011	per 100 live births		per 1,000 live births	
		(years)	(%)	2000	2011	2000	2010
Canada	11	82.0	11.2	6	6	70	12
China	101	76.0	5.2	35	15	61	37
Colombia	91	78.0	6.1	25	18	130	92
Denmark	15	79.0	11.2	6	4	8	12
Finland	21	81.0	8.9	4	3	5	5
Germany	5	81.0	11.1	5	4	7	7
Israel	16	82.0	7.7	7	4	9	7
Japan	10	83.0	9.3	5	3	10	5
Netherlands	4	81.0	12.0	6	4	13	6
Nigeria	153	53.0	5.3	188	124	970	630
Norway	1	81.0	9.1	5	3	8	7
Russian Federation	55	69.0	6.2	21	12	57	34
Sweden	7	82.0	9.4	4	3	5	4
UK	26	80.0	9.3	7	5	12	12
USA	3	79.0	17.9	9	8	14	21

Note: LE = life expectancy; GDP = gross domestic product.

Sources: Human Development Report 2013. Available at: <http://hdrstats.undp.org/indicators/> and <http://hdrstats.undp.org/en/indicators/53906.html> [Accessed 14 April 2013].

World Health Organization. World Health Statistics 2013. Available at: http://apps.who.int/iris/bitstream/10665/81965/1/9789241564588_eng.pdf [Accessed 14 April 2013].

World Bank. Health expenditure total (% of GDP). Available at: <http://data.worldbank.org/indicator/SH.XPD.TOTL.ZS/countries> [Accessed 14 April 2013].

TABLE 13.2 Cause-Specific Age-Standardized Mortality Rates, per 100,000 Population Aged 30–70 Years, Selected Countries, 2008

Countries	All Causes	Cancer	Cardiovascular Diseases and Diabetes	Non-Communicable Respiratory Diseases
Australia	278	125	65	11
Canada	320	138	82	11
China	568	179	199	49
Colombia	493	112	152	21
Denmark	411	170	92	18
Finland	395	113	112	8
France	360	169	65	8
Germany	362	150	102	11
India	1002	108	328	139
Israel	289	125	72	12
Japan	281	119	68	6
Netherlands	323	165	77	12
Nigeria	1632	148	377	90
Norway	315	138	74	15
Russian Federation	1172	180	517	21
Sweden	293	121	71	9
UK	359	144	91	20
USA	460	143	137	24
Low-income countries	1354	154	375	77
Mid-level countries	808	150	273	73
High-income countries	375	141	104	14
World	764	150	245	52

Source: World Health Organization. World Health Statistics 2013. Table 2. Available at: http://www.who.int/gho/publications/world_health_statistics/2013/en/ [Accessed 14 June 2013].

cardiovascular mortality. The differences between all countries grouped by development level are very clear in this comparison; notably, mortality rates from CVDs are highest in the poorest countries, while respiratory causes are high in both the poorest and the mid-level countries.

HEALTH SYSTEMS IN THE INDUSTRIALIZED COUNTRIES

EVOLUTION OF HEALTH SYSTEMS

The tradition of prepayment of health care goes back to ancient times, when municipal doctors were employed by local authorities to provide care for the poor and slaves. In the Middle Ages, the Church provided charitable care for the poor. In the medieval and Renaissance periods, guilds provided prepaid health care to members and their families. These later evolved into the “friendly societies”, as mutual

benefit programs that provided for burials, pensions, and payment for health services for members and their survivors (see Chapter 1).

In the twentieth century, these programs developed through collective bargaining into health insurance plans with private or professionally sponsored insurers, and labor union-sponsored health plans. Governmental responsibility for health systems evolved in public health and health protection systems in the nineteenth and twentieth centuries, and continues to evolve to face new challenges and preventive and treatment capacities.

Social Insurance

Otto von Bismarck, Chancellor of Germany, introduced the first national health insurance plan for workers. It followed previous legislation in Germany establishing workmen’s compensation on railroads (1838) and compulsory miners’ benevolent societies (1854). Workmen’s compensation and

other benefits were extended in 1871 to many workers in other industries, such as those in domestic service, workers in mines, factories, and quarries, and seamen. Bismarck's 1883 compulsory health insurance legislation was intended to improve the health of workers and their families, and especially of potential army recruits, as well as to stave off the political advancement of the social democratic parties. The program was based on the principle of social insurance, involving payroll deductions at the workplace with contributions from the employer and employee, to cover medical care, unemployment benefits, and pensions for workers.

The Bismarckian model established state social insurance with prepayment by workers and their employers. It utilized Sick Funds (Krankenkassen) as insurers to provide payment to the physician, hospital, or other provider. In the years before World War I, many countries in Central and Eastern Europe implemented similar health plans. In the period between the world wars, national health insurance programs were developed in many countries in the industrialized world. In Europe, most countries developed models based on the Bismarckian approach, with compulsory contributions by workers and their employers to a national social security system, which then finances approved Sick Funds that pay for services usually paid through private medical practice with fee-for-service payment. The Bismarckian model is a successful model used widely in Europe and Israel. This model has also influenced post-Soviet health reforms and countries of Eastern Europe.

In 1911, the Liberal government of Great Britain, initiated by Chancellor of the Exchequer David Lloyd George and influenced by the German compulsory health insurance scheme, introduced the National Health Insurance Act. It was compulsory for all wage earners between the ages of 16 and 70. These workers made payments along with their employers and a state contribution. This two-part plan provided a contributory system for unemployment insurance and for medical care against illness for workers and their families. General practitioners (GPs) were paid on a capitation basis rather than a salary, preserving their status as self-employed professionals. Initially this plan covered one-third of the population, but coverage increased to one-half by 1940. Administration was through approved mutual benefit societies (friendly societies), some based on insurance companies and others founded by professional associations and trade unions. European countries and Japan gradually developed compulsory health insurance following World War I, and completed universal coverage following World War II.

The social security model of health insurance for urban workers also became prominent in many countries in Latin America. Social security plans are financed by mandatory contributions of workers and employers, and administered by the state. The Social Security Act of 1935 in the USA was instituted to alleviate the social distress of the Great

Depression. This "New Deal" social experiment of President Franklin Roosevelt provided cash benefits for widows, orphans, and disabled people, as well as pensions for the elderly, and provided a base for future reform including health insurance. Since 1965, this legislation has provided the basis for US medical and hospital coverage of the elderly under Medicare and the poor under Medicaid. Later proposals for national health insurance in the USA have also largely been based on the federal social security funding system.

National Health Service

In some countries, the state directly assumed responsibility for both social security and health care. The welfare state took on measures such as unemployment and disability insurance, and special disability benefits for the blind, widows, orphans, and the elderly through pensions. Several states also instituted child benefits to raise levels of child care and nutrition through general governmental revenues from taxation and other sources.

In 1918, following the Russian Revolution, the new Soviet Union (USSR) introduced its national health plan for universal coverage within a state-run system of health protection. The Soviet model, designed and implemented by Nikolai Semashko, provided free health care for all as a government-financed and -organized service. It developed health services across the vast underdeveloped regions of the USSR with free health services to the population, with a system of primary and secondary care based on the principles of universal and equitable access to care through district organization of services. It achieved control of epidemic and endemic infectious diseases and expanded services into the most remote areas of the country.

In the early days of World War II, the British government established a national Emergency Medical Service to operate hospitals in preparation for the large-scale civilian casualties expected. The plan established national health planning and rescued many hospitals from near bankruptcy resulting from the effects of the Great Depression in the UK. During World War II, a postwar social reconstruction program was developed by William Beveridge, at the behest of the wartime prime minister Winston Churchill. The Beveridge Report of 1942, *Social Insurance and Allied Services*, outlined the nature of the future welfare state including a national health service, placing medical care in the context of general social policy for the total population.

The wartime coalition government approved the principle of a national health service, which had wide public support, despite opposition from the medical profession. In 1948, the Labour government of Prime Minister Clement Attlee under the leadership of the Minister of Health, Aneurin Bevan, implemented the National Health Service (NHS), a nationally financed, universal coverage system

providing free care by GPs, specialists, hospitals, and public health services. The NHS is one of the major successful international models for national health systems and continues to this day, albeit with many challenges and periodic reforms.

National Health Insurance

The Canadian system of tax-based national health insurance is based on provincial health plans meeting federal government requirements for cost-sharing. The program evolved from provincial initiatives led by Tommy Douglas, Premier of the Province of Saskatchewan. Initiated in 1946, provincial plans provided universal insured hospital services under provincial public administration, later followed by medical and other services.

Developed over the period 1946–1971, the plans were promoted by federal governmental cost-sharing, political support, and national standards. The plans were initially financed by taxation and premiums, but later by general tax revenues alone in most provinces; Alberta, British Columbia, and Ontario also have premiums. The Canadian “Medicare” plans are publicly administered by the provinces with federal standards, cost-sharing, and comprehensive coverage. Care is provided by private medical practitioners on a fee-for-service basis under negotiated medical fee schedules. Hospitals may be operated by non-profit voluntary, regional health, or municipal authorities, with payment by block budgets. This Medicare-type plan was later adopted in a number of other countries including Australia. Figure 13.1 indicates the distribution of governmental and private funding of health expenditures by the member countries of the Organisation for Economic Co-operation and Development (OECD).

THE UNITED STATES

The US population in 2012 was 313 million, with a per capita GDP of US\$48,387 (in 2011), an increase from US\$43,800 in 2006. Health expenditures rose from 15.8 to 17.4 percent of GDP between 1990 and 2010 (Table 13.3). In 2011, health expenditures reached 17.9 percent of GDP, US\$8233 per capita, the highest among the OECD countries. The US child mortality rate of 8 per 1000 live births in 2010 was 41st in world ranking. The US life expectancy (total) at birth was 79 years in 2009 (51st in world ranking). In 2011, the infant mortality ranked 48th with a rate of 6 per 1000 live births.

TABLE 13.3 Health Expenditures, USA, 1990–2010

Health Expenditures	1990	2000	2005	2010
Total expenditure per capita, US\$ PPP	2851	4791	6728	8233
Annual growth rate of total expenditure on health per capita, in real terms from previous or to next year	NA	6.0	3.3	2.7
% of GDP spent on health	15.8	16.0	16.4	17.4
Health expenditures (% distribution)	100	100	100	100
Private (%)	60.6	57.0	55.8	51.8
Public (%)	39.4	43.0	44.2	48.2

Note: PPP=purchasing power parity; GDP=gross domestic product; NA=not available.

Source: Organisation for Economic Co-operation and Development. OECD database, 2012. Available at: <http://www.oecd.org/els/health-systems/oecdhealthdata2012-frequentlyrequesteddata.htm> [Accessed 21 April 2013].

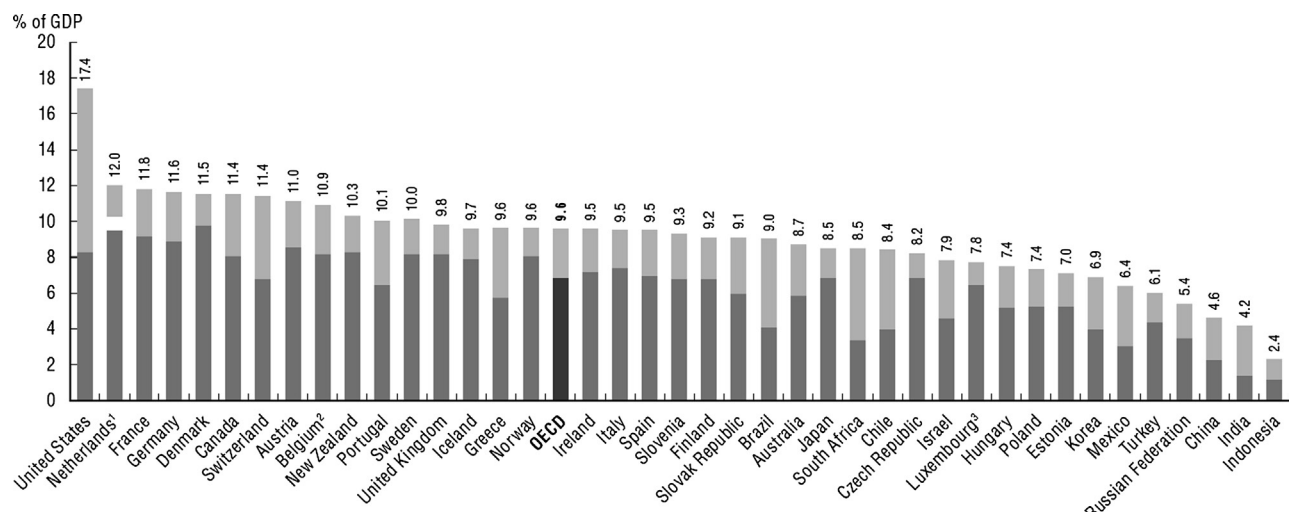


FIGURE 13.1 Total health expenditures as a share of gross domestic product (GDP), Organisation for Economic Co-operation and Development countries, 2009. Note: Some 2010 and 2011 data are available but incomplete. Source: *OECD Report Health at a Glance 2011*. Available at: <http://www.oecd.org/els/health-systems/49105858.pdf> [Accessed 2 January 2014].

In 2011, the USA stood third among the leading nations in the HDI. It has steadily improved in HDI since 1975 and ranks above the average for OECD countries. In health indicators, however, the USA is near the middle of the 32 OECD nations in death rates from all causes, mainly heart disease, cancer, and stroke. With declining birth rates and increasing longevity, the population is aging, with more than 12 percent aged 65 and over. Nearly 40 percent of the population is now in non-working dependent age categories (over 65 or under 15).

The USA has a federal system of government, with each of the 50 states having its own elected government with legislative, judicial, enforcement, and taxing powers. The US Constitution gives primary responsibility for health and welfare to the states, but direct federal services are provided to the armed forces, veterans, and Native Americans. However, the federal government has established a major leadership role in health by developing national standards, regulatory powers, and information systems. It also serves as a major agency for financing research, health services, and training programs.

Federal Health Initiatives

In 1798, the federal government under President John Adams established the US Marine Hospital Service to provide hospitals in the major port cities to provide prepaid care for sick and disabled merchant seamen. This later became the Marine Hospital Service and then the US Public Health Service Commissioned Corps as a uniformed service headed by the US Surgeon General (1873). It then became the location for the United States Public Health Service (USPHS) services for Native Americans, military personnel and their families, the National Institutes of Health (NIH), the Centers for Disease Control and Prevention (CDC), and other federal programs of research, service, and teaching.

In the late nineteenth and early twentieth centuries the US Federal Department of Agriculture Extension Service promoted nutrition and hygiene education throughout the rural areas of the country. Later legislation provided federal grants to establish state, municipal, and county health departments. Health hazards caused by poor food and drug standards, lack of care for the elderly and the poor, dangerous automobiles, environmental pollution, and health service deficiencies led to government intervention to protect the public interest. The Food and Drug Control Act of 1906 was promulgated to regulate and control commerce. In 1921, the Sheppard–Towner Act established the federal Children’s Bureau that administered grants to assist states to operate maternal and child health programs, which were later incorporated into the Social Security Act.

In 1927, the Committee on the Costs of Medical Care, a commission funded by several private foundations, recommended that the USA implement a universal national health program based on medical group practices with voluntary

prepayment. From the 1920s, labor unions won health insurance benefits through collective bargaining, which became the main basis for prepayment for health care in the USA until today. These initiatives were slowed due to the Great Depression from 1929 to 1939, but resumed during and after World War II. The Social Security Act of 1935 increased social support for millions of individuals living with disabilities or occupational injuries, as well other vulnerable groups such as widows, orphans, and elderly people. This act successfully alleviated some of the Depression’s most devastating effects.

With the coming of war and implementation of compulsory registration for conscription, significant percentages of eligible males were considered unfit for the draft because of physical unfitness and reasons such as the lack of six adjacent teeth due to poor dental health, just as a high percentage of draftees had been rejected in World War I owing to goiter from iodine deficiency. In 1941, before the USA had actually joined World War II, President Roosevelt initiated mandatory fortification of “enriched” salt with iodine, flour with iron and vitamin B complex, and milk with vitamin D which became nearly universal national standards.

During World War II (1941–1945) millions of Americans in the armed forces and their dependants, previously with limited access to prepaid health care, were enrolled in a national plan for free health care (Emergency Maternity and Infant Care for the Wives and Children of Servicemen or EMIC). At the same time, health benefits through voluntary insurance for workers were vastly expanded in place of wage increases, which were forbidden by federal wartime regulation. At the end of the war, millions of veterans were eligible for health care through the Veterans Health Administration, which established a national network of federal hospitals and primary care services for this sole purpose.

In 1946, President Truman attempted to bring in national health insurance but the legislation (the Wagner–Murray–Dingell Bill) failed in the US Congress. One section of the bill was approved, enabling the federal government to initiate a program of categorical grants to upgrade countrywide hospital facilities under the Hill–Burton Act. Another section provided massive federal funding for health to strengthen the NIH, established after World War II. The NIH promotes research and strengthens public and private medical schools, teaching hospitals, and research facilities. In the 1950s, the federal government also established the Centers for Disease Control (CDC) and increased public health grants providing assistance for state and local public health activities.

From the 1940s through the 1960s, voluntary health insurance became the major method of prepayment for health care needs, mostly through employment contracts. The private insurance industry developed rapidly, with minimal governmental regulation to ensure fair pricing and payment. During the 1970s and 1980s, employers grew concerned about health insurance costs for their workers

and pressed the government to restrain health care costs. Federal initiatives included public insurance for the elderly and the poor, promoting efficiency in payment for hospital care. Later on, the promotion of health maintenance organizations (HMOs) and managed care was also emphasized.

Medicare and Medicaid

In the mid-1960s, despite the growth of voluntary and employment-based health insurance, a large percentage of elderly and poor Americans lacked health insurance. In 1965, President Lyndon Johnson introduced Medicare for the aged (over age 65), disabled people, and people on renal dialysis as Title XVII of the 1935 Social Security Act. This brought some 10 percent of the population under a limited form of national health insurance.

Medicaid, Title XIX of the Social Security Act, also enacted in 1965, provided federal cost-sharing for acceptable state health plans for the poor, with local authority participation. These two plans brought some 25 percent of Americans into public systems of health insurance. Limitations included variable definitions of poverty in each state, and co-payments for Medicare beneficiaries. Medicare covers hospitalization, skilled nursing home care, medical appliances, and other benefits with co-payments. In 2006, a drug benefit program was added.

In 1997, Title XXI of the Social Security Act the State Children's Health Insurance Program (SCHIP) was initiated to provide federal funds to assist approved state plans to extend health insurance for children. This program provides health coverage for families that are ineligible for Medicaid owing to their income status but cannot afford to purchase independent insurance. While funding for SCHIP is provided by both federal and state governments, each state runs its own SCHIP program under the broad guidelines of the federal government and the specific guidelines created by each state. Congress initially authorized SCHIP for 10 years, from 1998 to 2007. It was vetoed by President George W. Bush in October 2007. A congressional effort to override the veto failed by 13 votes (273 to 156, with two-thirds approval required) 15 days later. In 2009, President Barack Obama signed the Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA) expanding the health care program to an additional 4 million children and pregnant women.

In 2006, 67.9 percent of the US population was covered under private health insurance, mostly employment based, 13.6 percent under Medicare, and 12.9 percent under Medicaid, while 15.8 percent were uninsured. In 2010, 55.3 percent of the US population was covered by employer-sponsored insurance, 14.5 percent under Medicare, 15.9 percent under Medicaid, 9.8 percent under other private coverage, and 4.2 percent under military plans, while 16.3 percent were uninsured. Medicare and Medicaid brought many previously uninsured people under health insurance

coverage. Public funding for health care in the USA includes Medicare, Medicaid, and SCHIP, research and medical education, and promotion of community health centers and services in impoverished or underserved areas (see [Table 13.3](#)). The percentage of public funding in the USA rose from under 25 percent of total health expenditures in 1960 to approximately 45 percent of total health expenditures in the years 1995–2004. This figure was 47.7 percent in 2009.

The population enrolled in Medicare increased from 19 million in 1966 to 49.4 million or 16 percent of the US population in 2013, including over 9 million disabled people under the age of 65. The Medicaid-enrolled population increased from 28.2 million in 1991 to 72.6 million in 2012 or some 23 percent of the US population. This contributed to growth of health expenditures in the public sector, a concern for both critics and supporters of public health care programs. Medicaid beneficiaries must be US citizens or legal permanent residents, and may include low-income adults, their children, and people with certain disabilities. Poverty alone does not necessarily qualify someone for Medicaid. Enrollment is projected to reach 78.0 million in 2019.

A federal–state Children's Health Insurance Program (CHIP) provides health coverage to nearly 8 million children in families with incomes too high to qualify for Medicaid. Each state receives an annual allotment of federal funds, available as a federal match based on the state's expenditures. In general, states have 3 years to use each fiscal year's allotment, after which unspent federal funds may be redistributed.

In 1997, Congress created the Medicare+Choice plan (now known as Medicare Advantage), which gives Medicare enrollees the choice of various health plans. It was also created in the hope of controlling Medicare costs. The Medicare Prescription Drug Improvement and Modernization Act of 2003, signed into law by President George W. Bush, included prescription drugs for Medicare enrollees. The Patient Protection and Affordable Care Act (PPACA, widely known as the Affordable Care Act or "Obamacare") will expand both eligibility for and federal funding of Medicaid beginning on 1 January 2014. Despite a seriously flawed start-up, this plan will allow all US citizens and legal residents with income up to 133 percent of the poverty line, including adults without dependent children, to qualify for coverage.

Medicare costs are increasing at a faster rate than the economy, especially since the start of the recession which began in 2008. Medicare spending grew 6.2 percent to US\$554.3 billion in 2011, or 21 percent of total national health expenditures. Financing of Medicare comes from two trust funds: the Hospital Insurance and the Supplementary Medical Insurance (SMI). Taxes paid by employees and employers support the Hospital Insurance trust fund, which finances inpatient care. This trust fund is expected to be depleted by the year 2019. The SMI is supported by general

income tax revenues and enrollee premiums, and covers physician services, outpatient and hospital services, and prescription drugs. The federal government faces the challenge of making appropriate reforms in Medicare in order to avoid consuming more federal revenues and taking from other federal programs, especially as the postwar “baby boom” generation becomes eligible for Medicare benefits.

The Changing Health Care Environment

From the 1960s through the 1990s, rapid cost increases were attributed to many factors, including an increasing elderly population, high levels of morbidity in the poor population, the spread of AIDS, rapid innovation and costly medical technology, specialization, high laboratory costs, and large-scale public investment in medical education and research and health facility construction. Other equally important factors were high levels of preventable hospitalizations, the institutional orientation of the health system, high administrative costs due to multiple private billing agencies in the private insurance industry, high incomes for physicians, especially for specialists, and high medical malpractice insurance costs. The pressure for cost constraint came from government, industry, and the private insurance industry.

Most hospitals are owned and operated by non-profit agencies, including federal, state, and local governments, voluntary organizations, and religious organizations. Privately owned hospitals operating for profit increased from 7.8 percent of community, short-term hospital beds in 1975 to 12.7 percent in 1996 and to 20.6 percent in 2013. Private medical practice, with payment by fee-for-service, was the major form of medical care until the 1990s. HMOs and other forms of managed care have grown rapidly to become the predominant method of organizing health care in the USA.

Prepaid group practice (PGP) originated from company-provided contract medical care, especially in remote mining camps. The Community Hospital of Elk City, Oklahoma, established in 1929, is considered the first real medical cooperative or prepaid group practice. Later, many rural cooperatives were formed to provide prepaid medical care. Union-sponsored health services were developed to provide medical care in poor mining areas in the Appalachian Mountains, as well as in an urban cooperative in Washington, DC in 1937. In the 1940s, New York City sponsored the Health Insurance Plan of Greater New York to provide prepaid medical care for residents of urban renewal and low-income housing areas. This was later supported by organized union groups such as municipal employees and garment industry workers.

PGP became best known in the Kaiser Permanente network developed for workers of Henry J. Kaiser Industries, at the Boulder Dam and Grand Coulee Dam construction sites in the 1930s. This experience was applied in Kaiser's rapidly growing industries in the San Francisco Bay area

during World War II when salaries were frozen but health benefits were expanding. Kaiser Permanente health plans expanded rapidly in many other states and now provide care for millions of Americans. Initially opposed by the organized medical profession and the private insurance industry, PGP gained acceptance by providing high-quality, less costly health care. It became attractive to employers and unions alike, and later to governments seeking ways to constrain increases in health costs.

Since the 1970s, the generic term health maintenance organization (HMO) has been used, especially by the federal government seeking to promote this concept. The HMO model links health insurance and medical care in the same organization, and the concept was promoted through the HMO Act by President Richard Nixon in 1973. The HMO including both HMOs and other forms of prepaid insurance plans, later called “managed care”, has become an accepted, if often criticized, part of medical care in the USA and an important alternative to fee-for-service, private practice medicine (Figure 13.2). In 2011, 70.2 million Americans, or 22.5 percent of the total US population, were registered in HMO plans.

In recent years, the terms accountable care organization (ACO), patient-centered medical home (PCMH), and population health management system (PHMS) have come into wide use to denote organizations that take responsibility for comprehensive care for enrolled patients, with payment based on a form of capitation rather than fee-for-service. The ACO comes in different models, but many include a hospital base and may be linked to independent practice associations (IPAs), which may include specialty groups, or hospital medical staff organizations, or a network of hospitals linked with other providers as organized delivery systems.

This approach to health reform in the USA is based on evidence of cost-effective care with emphasis on prevention and reduced hospitalization as given to millions of Americans by well-established care systems such as Kaiser Permanente and the Cleveland Clinic. These are not for profit, based on group practice, led by doctors who are salaried rather than fee-for-service, and subject to rigorous annual professional review. It may provide a set of models adaptable on a wider scale to improve quality and cost-effective care to improve the health of Americans (Devers and Berenson, 2009; Shortell, 2010).

In order to encourage more efficient use of hospital care, the method of payment was changed during the 1980s. In 1983, a prospective payment system, called diagnosis-related groups (DRGs), was adopted for Medicare, with payment by categories of diagnosis (HCFA, 1998). This replaced the previous system of paying by the number of hospital days, or per diem. DRGs encourage hospitals to diagnose and treat patients effectively and expeditiously and to discharge them as quickly as their condition allows.

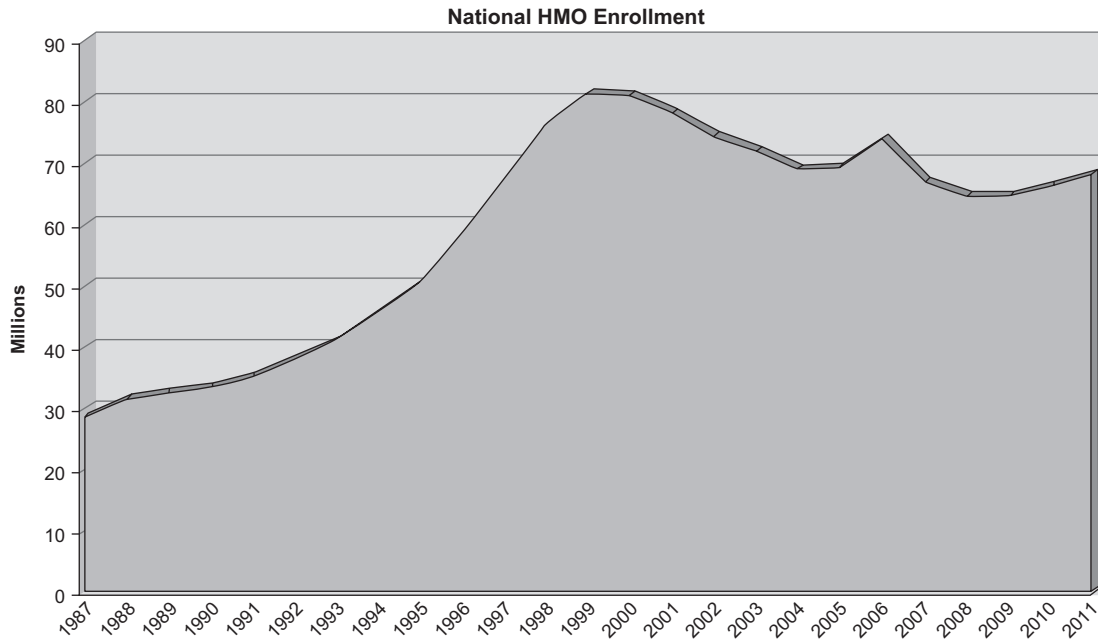


FIGURE 13.2 National health maintenance organization (HMO) enrollment, 1987–2011. *Source: Managed Care Fact Sheets. National HMO enrollment graph 1987–2011. Available at: http://www.mcol.com/factsheet_hmo_enrollment_graph [Accessed 31 March 2013].*

Payment for Medicare and Medicaid patients was shifted to this method. In many states this has also become standard for patients with private health insurance. Between 1980 and 1990, because of the DRG payment system and HMOs or managed care systems, which promote alternatives such as home and ambulatory care, hospital utilization was reduced in the USA. While total costs of health care increased during this period, without the reduction in hospital utilization the increase would have been considerably higher.

During the late 1980s, managed care expanded from non-profit HMOs of the Kaiser Permanente type to include both non-profit and for-profit systems operated by the insurance industry. Managed care plans of the HMO type operate their own clinics and staff (i.e., the staff model). Other managed plans operate on a not-for-profit or a for-profit basis. These are IPAs, which operate with physicians in private practice, or preferred provider organizations (PPOs), which cover care with doctors and other providers associated with the plan providing services to the enrolled members or beneficiaries at negotiated prices (see Chapter 12).

Following the failure of the Clinton national health insurance proposal in 1993, managed care experienced tremendous growth as employers sought to provide their employees with comprehensive coverage at reasonable costs. Managed care systems have been able to cut costs in health care in ways that governments could not. In 1996, 74 percent of insured American workers were enrolled in managed care plans, compared to 55 percent in 1992. In California, with a long tradition of HMOs such as Kaiser Permanente, enrollment at the end of 2006 was 65 percent

of the total state population. In the USA as a whole, in addition to the nearly 58 million people enrolled in HMOs, another 91 million people are enrolled in PPOs, with 25 percent of Medicaid and 10 percent of Medicare beneficiaries in managed care plans.

The search for cost containment led to the development of a series of important innovations in health care delivery, payment, and information systems. HMOs have demonstrated that good care provision can be operated efficiently with lower hospital admission rates than care provided on a fee-for-service basis. The managed care systems brought about profound changes in health care organization in the USA. The number of plans declined from 572 in 1990 to 412 in 2004 as a result of mergers. A total of 149 million people (Table 13.4) or 51 percent of the insured population and 49 percent of the total US population are enrolled in managed care. More than 70 million Americans have been enrolled in HMOs and almost 90 million have been part of PPOs (National Conference of State Legislatures, 2013).

Managed care coverage peaked in 2001 and has subsided slightly since owing to negative publicity of the private for-profit insurance operators apparently making tight restrictions on access to care to reduce costs; thus, the capitation payment method is criticized by supporters of open-ended fee-for-service. Proponents of managed care point to high-quality programs such as the Harvard Pilgrim Managed Care plan and the ACOs, which have been very successful in growing and sustaining high-quality care within reasonable cost parameters. Such programs have pioneered

TABLE 13.4 Enrollees in Managed Care Coverage by Type of Health Insurance Plan, USA, 2011

Numbers of Enrollees by Insured System (millions)	Total US (millions)	US (%)	Managed Care (millions)	Managed Care (%)
Medicare	48.0	15.4	12.2	25.5
Medicaid	45.8	14.7	32.6	71.2
Military	4.0	1.3	4.0	100.0
Commercial	162.8	52.3	161.1	99.06
Uninsured	50.7	16.3	0.0	0.0
Total	311.3	100.0	210.0	67.5

Source: MCOL. Managed care fact sheet. Managed care penetration 2011; September 2011. Available at: http://www.mcol.com/managed_care_penetration [Accessed 31 March 2013].

computerization of medical records, utilization review, preventive practices as part of regular medical care, and quality promotion. The topic of managed care remains a central issue for the federal government in the search for universal coverage health insurance at affordable costs.

Hospitals and other specialty services are competing for contracts with managed care organizations and establishing community service systems of their own in order to compete for “market share” of insured clients. In many locales, excess hospital beds have become an economic burden, forcing many hospitals to downsize or become part of larger hospital chains or a local multihospital of vertically integrated health networks (see Chapter 10). Hospitals have responded by establishing contracts with managed care organizations and by reducing bed capacity; others have closed as they were unable to compete for sufficient patient flow.

Federal and state legislative initiatives are attempting to define patients’ rights in managed care because of public complaints with limitations of managed care. In response to widespread criticism regarding managed care restricting access to specialty services and shortened hospital stays, in 1998 the US Congress passed a bipartisan-sponsored law that requires minimum 48-hour maternity stays. Many other pieces of legislation to protect consumers’ rights and choice of doctor have been proposed in Congress and in state legislatures.

Health Information

The USA has developed extensive information systems of domestic and international importance. The CDC publishes the *Morbidity and Mortality Weekly Report (MMWR)*, which sets high standards in disease reporting and policy analysis. The US National Center for Health Statistics (NCHS), Health Care Financing Administration (HCFA), USPHS, Food and Drug Administration (FDA), NIH, and many non-governmental organizations (NGOs) carry out

data collection, publication, and health services research activities important for health status monitoring. National nutrition surveillance, via the National Health and Nutrition Examination Survey (NHANES; see Chapter 8), and other systems of health status monitoring are reported in the professional literature and in publications of the CDC. National monitoring of hospital discharge information facilitates the understanding of patterns of utilization and morbidity. These information systems are vital for epidemiological surveillance and managing the health care system.

The Surgeon General in the USA has a high rank akin to the military services, but reports to the Department of Health and Human Services (DHHS) and is head of the USPHS. Periodic Reports of the Surgeon General have an important influence on health systems not only in the USA but also internationally. The 1965 US Surgeon General’s *Report on Smoking*, linking smoking and lung cancer, had a major impact on public knowledge and behavior. This classic report made the issue of smoking a major public health challenge due to the very strong evidence of links with lung cancer, cardiovascular and other diseases. Other reports that have made important contributions to the evolution of public health include:

- 1988 – Nutrition and Health
- 1996 – Physical Activity and Health
- 1998 – Tobacco Use Among US Racial/Ethnic Minority Groups
- 2001 – Mental Health: Culture, Race, and Ethnicity
- 2001 – Women and Smoking
- 2001 – Youth Violence
- 2004 – Bone Health and Osteoporosis
- 2004 – The Health Consequences of Smoking
- 2006 – The Health Consequences of Involuntary Exposure to Tobacco Smoke
- 2007 – Children and Secondhand Smoke Exposure
- 2010 – How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease

- 2011 – Call to Action to Support Breastfeeding
- 2012 – National Strategy for Suicide Prevention: Goals and Objectives for Action.
- 2012 – Preventing Tobacco Use Among Youth and Young Adults.

The Surgeon General continues to promote awareness of knowledge on important public health issues including physical activity and health, mental health, oral health, youth violence, bone health and osteoporosis, underage drinking, and sexual health. Reductions in smoking and obesity continue to be priority issues. Media coverage of health-related topics is extensive, and is important to promote health consciousness in the public. The sheer volume of information may make it difficult to discern which information is most relevant, and much misinformation appearing on Internet sites can also create trends counter to public health such as refusals to vaccinate children. Public levels of health knowledge are growing steadily but vary widely with social class and educational levels.

The CDC created the National Center for Public Health Informatics (NCPHI) in 2005 to provide leadership and coordination of shared systems and services, to build and support a national network of integrated, standards-based, and interoperable public health information systems. This is meant to strengthen capabilities to monitor, detect, register, confirm, report, and analyze, as well as to provide feedback and alerts on important health events. This will enable partners to communicate evidence that supports decisions that impact health. Electronic medical and personal health records are now widely used. They both protect patient privacy and confidentiality and serve legitimate clinical and public health needs. US health costs are rising, increasing from 17.4 percent of GDP in 2010 to 17.9 percent of GDP in 2011. At the same time, acute and chronic health threats challenge the US and global capacity to address them with efficient and effective disease prevention.

Health Targets

Despite rapid increases in health care expenditures during the 1970s and 1980s, improved health promotion activities, and rapidly developing medical technology, the health status of the US population has improved less rapidly than that in other western countries. Infant mortality in the USA remains high in comparison to other OECD countries and ranked 34th among all countries in 2012 (estimated). Even the rate of infant mortality of the white population of the USA was higher than that of 16 countries that spent much less per person and a lesser percentage of gross national product (GNP) per capita on health care.

The 1979, the US Surgeon General's Report *Healthy People* set forth a series of national health targets for a wide variety of public health issues. The program defined 226

objectives in 15 program areas within the three categories of prevention, protection, and promotion. These goals and objectives were formulated based on research and consultation by 167 experts in different fields who participated in a conference by the USPHS. Consensus was based on position papers, studies, and conferences involving the national governmental health authority, the National Academy of Sciences' Institute of Medicine (IOM), and professional organizations, such as the American Academy of Pediatrics (AAP) and the American Congress of Obstetricians and Gynecologists (ACOG). Many private individuals and organizations contributed to this effort, including state and local health agencies, representatives of consumer and provider groups, academic centers, and voluntary health associations.

These targets (Table 13.5) are periodically assessed as performance indicators of the US health system and then updated. Progress made during the 1980s included major reductions in death rates for three of the leading causes of death: heart disease, stroke, and unintentional injuries. Infant mortality decreased, as did the incidence of vaccine-preventable infectious diseases.

TABLE 13.5 Healthy People 2020

Framework	Specific groups or activities with measurable targets
Vision	A society in which people lead healthy, long lives
Mission	Identify nationwide health improvement priorities Increase public health and awareness of the determinants of health, disease, and disability and the opportunities for progress Provide measurable objectives and goals that are applicable at the national, state, and local levels Engage multiple sectors to take action to strengthen policies and improve practices that are driven by the best available evidence and knowledge Identify critical research, evaluation, and data collection methods
Overarching goals	Attain high-quality, longer lives free of preventable disease, disability, injury, and premature death Achieve health equity, eliminate disparities, and improve the health of all groups Create social and physical environments that create good health for all Promote quality of life, healthy development, and healthy behaviors across all life stages
Progress indicators	General health status Healthy related quality of life and well-being Determinants of health Disparities

Source: United States Department of Health and Human Services. Healthy People 2020 Framework. Available at: <http://www.healthypeople.gov/2020/Consortium/HP2020Framework.pdf> [Accessed 19 May 2013].

Healthy People 2000, published in 1992 by the Surgeon General, detailed 332 specific health targets, in six groups, for the year 2000, in the areas of health promotion, health protection, preventive services, surveillance and data systems, and age-related and special population groups (see Chapter 11). The final reviews of *Healthy People 2000* showed significant decreases in mortality from coronary heart disease (CHD) and cancer. *Healthy People 2020* is renewing this effort to establish national targets which are adopted by state-level governments and strongly influence policy in health insurance systems (Table 13.5). The 2010 “Obamacare” program will include over 30 million previously uninsured Americans in health insurance within better regulated private insurance or in state-run Medicaid plans (see Chapter 10).

In 2000, the DHHS released *Healthy People 2010*, with two main goals: to “increase the quality and years of healthy life” and to “eliminate health disparities”. These goals focus on 28 specific areas developed by over 350 national membership organizations and 250 state health, mental health, substance abuse, and environmental agencies. A midcourse review of *Healthy People 2010* shows that 60 percent of the objectives are either being met or moving forward. The USA is moving towards the goal to “increase the quality and years of healthy life”, although there are still clear gender, race, and ethnic discrepancies. Reducing health disparities continues to be a challenge in the USA.

Many states have adopted these targets as their own measures of health status and performance. Annual publications by the USPHS, in cooperation with the NCHS, make available a wide set of data for updating health status and process measures relating to these national health goals. The value of working towards health targets is widely accepted. *Healthy People 2020* has defined similar overarching goals (see Table 13.5).

Health promotion has received wide public, governmental, and professional support in the USA over the past decades. In part, this reflects a long tradition of education on health matters in the rural agricultural sector and school health education. Nutrition and antismoking consciousness has grown in part because of wide media attention to many important epidemiological studies.

Consumer advocacy has been a potent factor for change in the USA in the twenty-first century, and especially since the 1960s. It has contributed to strengthened governmental regulation in a wide area of public health-related fields (see Chapter 2). These include automobile safety features and emission control, environmental standards, Mothers Against Drunk Driving, nutritional labeling, vitamin and mineral fortification of basic foods, and legal action against cigarette manufacturers. Food fortification, pioneered in the USA, is not mandatory as in Canada, but is nevertheless nearly universal, and mandatory for those foods labeled “enriched” (see Chapter 8). This is accepted in the general

population based on advocacy, informed public opinion, and an innovative, highly competitive food industry. Despite much public controversy, fluoridation of community water supplies covers 67 percent of the population, a higher coverage than in most industrialized countries.

Advocacy groups can also promote regression in public health measures, as with groups currently fighting against immunization on the grounds of disinformation and opposition to vital vaccination programs. Some opposed to abortion have greatly affected public policy and promote sometimes violent activities against proponents and providers of abortions. Groups opposed to hospital births have sparked a widespread home birthing movement, which may lead to dangerous complications. Research and wide media coverage of health issues encourage a high level of individual and community consciousness of health-related issues and a climate receptive to health promotion.

Social Inequalities

Lack of universal access and the lack of empowerment it brings encourages an alienation or non-engagement with early health care. This promotes inappropriate reliance on emergency department care and hospitalization in response to undertreated health needs. With large numbers of uninsured people and many lacking adequate health insurance, access to and utilization of preventive care are below the levels needed to achieve social equity in health. This is especially true for maternal and child health and for NCDs such as diabetes, cancer, and heart disease.

Infant mortality rates in the USA vary greatly by race and ethnicity. As measured by the infant mortality rate in 2007, the rate among non-Hispanic black mothers was 2.4 times as high as the rate for white non-Hispanic mothers. A significantly higher rate of infant mortality exists among Puerto Rican and American Indian populations compared to the national average. This is primarily due to higher levels of preterm births and preterm-related causes of death. Efforts to improve immunization coverage of US infants to meet national health targets have been partially successful with efforts directed towards poor population groups. Vaccination against measles was 90 percent in the USA in 2009. The rate has been steadily decreasing since 2004, when it was 93 percent. Vaccination against diphtheria, tetanus, and pertussis (DTP) has also decreased, from 85.5 percent in 2004 to 83.3 percent in 2009. Vaccination against influenza has increased, from 58.7 percent in 2005 to 67.7 percent in 2009. In 2002, a program called the Racial and Ethnic Adult Disparities in Immunization Initiative was introduced to tackle the low levels of influenza and pneumococcal vaccinations among minorities aged 65 and over. In 2009, President Obama allocated US\$2.3 billion in Recovery Act funds to improve preventive health care for children and vulnerable groups. Of that amount, US\$300 million was directed towards vaccination efforts.

The US Department of Agriculture's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) enables millions of poor Americans to have good nutritional security (see Chapter 8). The WIC program covers pregnant women (through pregnancy and up to 6 weeks after birth or after pregnancy ends), breastfeeding women (up to the infant's first birthday), non-breastfeeding postpartum women (up to 6 months after the birth of an infant or after pregnancy ends), infants (up to their first birthday), and children (up to their fifth birthday). WIC serves 53 percent of all infants born in the USA. The benefits include supplemental nutritious foods; nutrition education and counseling at WIC clinics; and screening and referrals to other health, welfare, and social services such as completion of immunization and special needs counseling.

School lunch programs and nutrition support for pregnant women and children in need have reduced some of the ill-effects of poverty in the USA, but a lack of health insurance affects these groups severely. NCD and trauma are also diseases of poverty, with higher rates of morbidity and mortality in virtually all categories compared to higher income groups.

Health disparities are a complex problem that goes beyond the issue of uninsured Americans. Low-income and illegal immigrants face challenges accessing medical insurance. New immigrants to the USA who obtained citizenship after August 1996 must wait 5 years before they are eligible for Medicaid. The structure of the medical system plays an important role in an individual's ability to obtain medical care. This includes convenience of appointment making and office hours, waiting times, and transportation. A lack of health literacy also plays a role in an individual's ability to seek medical attention. Individuals not fluent in English experience communication gaps. In 2003, it was estimated that an excess of US\$58 billion a year is spent on health care in the USA as a result of low health literacy. In certain areas of the country, medical facilities are scarce. Minorities are underrepresented in medical professions. Black, Latino, and Native American populations make up approximately 6 percent of the physician workforce, although these populations represent over 26 percent of the population in the USA.

Health disparities remain an important social and political issue in the USA. The Office of Minority Health of the DHHS was established in 1986 to address issues of health disparities among racial and ethnic minorities. One of the main goals of Healthy People 2020 is to eliminate health disparities.

Health care reform was a contentious issue in the debates surrounding the 2012 presidential election, with proposals for the introduction of the PPACA (Obamacare). The US Supreme Court declared the legislation constitutional in 2012. Republican legislators, the majority in the House, continue efforts to repeal the legislation, which will come into effect in 2014 with the addition of millions of Americans to health insurance coverage and much improved protection for those insured under private insurance. From 1 January 2014, insurers will no longer be permitted to deny

coverage for pre-existing conditions, and all Americans will be required to have health insurance under the PPACA. Insurance rates began to fall in 2013, and state insurance regulators indicate rates for 2014 over 50 percent lower on average than those currently available. With competitive pricing and federal subsidies health insurance costs should be even lower. When the health insurance marketplaces were established (in October 2013), consumers are able to shop among alternative insurance plans that meet federal standards, either through state-established insurance bureaux or through the federal alternatives registry to seek their best advantage coverage. Consumer education campaigns are being conducted to educate the public.

Important health disparities exist in America in relation to region of residence, with the southern states having high rates of obesity, stroke, and CHD mortality, which are thought to be due to customary diets rich in fat and salty foods. State health departments will need to address these issues in order to reduce gaps in life expectancy due to lifestyle factors which are grounded in tradition and poverty as well as a lack of health insurance.

The Dilemma of the Uninsured

Universal access is widely accepted as essential to reduce the social inequalities in health even when income gaps are high. Conversely, increasing family disposable income for the poor is an effective way of reducing health inequalities. The two are complementary and equally important in social policy in the USA.

High percentages of the population are without any, or have inadequate, health insurance. Loss of health coverage with change of place of employment and the rapidly increasing cost of private health insurance generated widespread pressure for a national health program. The business community, too, had lost confidence in voluntary health insurance as costs of health insurance mounted rapidly as a cost of employment in an increasingly competitive international business climate.

The Clinton health care plan (1994) was based on federally administered compulsory universal health insurance through the place of employment, with alternative plans available to choose from at different costs. A state could opt to form its own health insurance program and even designate its own department of health to fulfill this function. Physicians could contract with health insurance plans to provide care on a fixed-fee schedule, or in HMOs, whether based on group or individual practice.

The Clinton health plan failed in Congress. Apathy or frank opposition was widespread among the majority of the population who already had good insurance benefits under their employment-based health insurance plans or Medicare. Their interest was in the status quo, and the insurance industry and organized medical community used this to defeat the bill. Federal legislation protecting workers' health rights

under collective bargaining prevented states from mandating health insurance benefits. Federal assistance and waivers for state health insurance allow states to opt for managed care for Medicaid beneficiaries. Medicare and Medicaid waivers also allow states to include these beneficiaries in state health plans, but universal access to care would require enabling legislation in Congress. At the same time, conservative attacks on public programs such as Medicare keep the issue of national health insurance on the public agenda.

Many employers have switched to promoting managed care coverage, while offering indemnity plans as options to the employees but with additional premiums. The movement to managed care became an avalanche in the 1990s, with a high percentage of the population insured at their workplace becoming members of HMOs or other forms of managed care. The swing to managed care produced major effects in the health care system, not only for doctors increasingly pressed to join HMOs or PPOs, but also for hospitals and for the consumer who had to adjust to the rules of managed care. Restrictions on access to specialists and new procedures generated public and political criticisms leading to a decline in enrollment from 1999 to 2005, with an increase in 2006, but this economically driven changeover has had profound effects on the US health system.

In 2008, President Clinton's wife Hillary Rodham Clinton promoted a health care plan in her bid for the Democratic presidential nomination. When Obama took office, Democratic-controlled Congress spent a year crafting legislation to require most companies to cover their workers; mandate that everyone have coverage or pay a fine; and require insurance companies to accept all comers, regardless of any pre-existing conditions, and assist people unable to afford insurance. Congress passed the measure in 2010.

In 1996, many states introduced legislation to regulate HMOs, of which 56 laws were enacted in 35 states. Criticisms of for-profit HMOs are appearing frequently in the popular media, and there is a growing backlash of opinion against imposed limitations on specialist referrals, emergency department visits, hospitalization, and some therapeutic interventions (e.g., bone marrow transplants for terminal cancer cases). Some of these have also generated legal suits for malpractice, with large settlements. A 1998 Commission on Health Quality appointed by President Clinton produced a bill of rights for patients that called for additional information on health plans and for the right of appeal to an independent panel on health plan decisions regarding denials of coverage for emergency care or access to specialists.

The non-profit PGP type of HMO uses over 90 percent of premiums for patient care, whereas the for-profit plans spend higher proportions of premiums for administration, including very high salaries for executive staff. The growth trend of managed care will certainly continue, but perhaps with greater regulation of for-profit HMOs to ensure access to services based on medical criteria in the patient's interest and quality assurance.

In 2010, US health care spending increased to nearly US\$2.6 trillion, or US\$8402 per person, which was 17.9 percent of GDP. Prescription drug spending growth increased to 10.0 percent of total expenditures, in part due to Medicare Part D covering prescription drugs for older adults. Most other major health care services experienced slower growth since 2008 than in previous years.

The 2010 national health expenditures of US\$2.6 trillion or for hospital care were 31.4 percent; for nursing home care, 5.5 percent; and for physician and clinical services 19.9 percent of total expenditures (Health United States, 2012 Table 113). This represents a long term shift in distribution of expenditures from acute hospital care toward ambulatory and long term care services and a slowing of the rate of growth in total expenditure especially since 2008 and the great recession.

Summary

The USA has managed to achieve many of the targets set by the 1979 Surgeon General's *Healthy People* report. At the same time, average annual increases in health care expenditures in the USA slowed markedly from the 1986–1990 period, which had average annual increases of 11 percent, falling to under 8.1 percent annually in 1995 and to 3.9 percent in 2010. This is due partly to lower general inflation rates (below 3 percent), but also to cost-containment measures being adopted by government insurance (Medicare and Medicaid), the health insurance industry, the growth of managed care, and rationalizing the hospital sector by downsizing and promoting lower cost alternative forms of care.

National health insurance was delayed by congressional rejection of the Clinton health plan, but President Obama's struggles to pass a health care bill resulted in the Affordable Care Act (PPACA). Several possibilities exist to extend health insurance coverage, including state health insurance initiatives with federal waivers and cost-sharing, or a federal plan based on Medicare or the Veterans Health Administration program. In the mid- to late 1990s, employers promoted managed care options for their workers, so that managed care grew rapidly through market mechanisms. State governments are acting to regulate this by legislation, such as requiring minimum hospital stays for obstetrics cases, limiting managed care programs from certain kinds of contracts for services, and establishing appeals mechanisms for managed care members. Increased access to Medicaid may be fostered by states raising the income levels defining poverty to increase health insurance coverage under Obamacare.

The term *non-system* is often applied to health care in the USA. There are many stakeholders and providers, high costs, and poorer results than health systems in other industrialized countries. Much of this implied criticism is justified. The US health system is a diffuse and incomplete system with good to outstanding quality of care for the majority with insurance but very inadequate care for the over 30 percent with none or poor levels of health

insurance. Social and regional inequalities in health status are still present, but not necessarily greater than in some countries with universal access to health care. Furthermore, there are many parallel programs in the USA that have important positive public health content, such as universal school lunch programs; nutrition support for poor women, infants, and children (the WIC program); food stamps for the working poor; fortification of basic foods; free care in emergency departments, urgent hospital care for the poor, Medicare for the elderly, and Medicaid for the poor.

Nevertheless, equitable universal access is lacking, and the system is the costliest in the world. In 2012, costs were an estimated US\$2.7 trillion but without the best levels of health as measured by process indicators, such as immunization and prenatal care coverage, nor the best in outcome measures such as infant and other mortality rates. Life expectancy at birth in the USA increased by 7.9 years between 1960 and 2004, substantially less than the increase of over 14 years in Japan or 8.9 years in Canada. In 2009, the life expectancy increased to 78.2 years, well below the 2009 OECD average of 81.6 years (OECD, 2012).

Social inequalities in these health status indicators are further evidence of failures of the US health system to reach its full potential, despite its being the most expensive system in the world and its high quality for those with access (Davis, 2008). The advent of Obamacare in 2014 will, over some years, bring affordable health insurance to millions of Americans and is expected to level off the increase in health expenditures. It is not the universal health plan of Canadian or European tradition, but it is a huge step forward in the USA, where the working poor are in large measure excluded from health protection. However, the struggle for universal coverage and cost containment remain formidable challenges in the USA.

CANADA

Canada is a federal country with 10 provinces and three northern territories, a population of 34.5 million, and a gross national income (GNI) per capita of US\$45,550 in 2011. Life expectancy in 2011 was 82.0 years. The International Human Development Index (HDI) rating for Canada was 11th in 2009, a drop from its position as 4th in 2005–2006, after having increased steadily since 1975, but it remains well above the OECD average. Canada's total health expenditure as a percentage of GDP is almost two percentage point higher than the average of 9.5 percent in OECD countries. Total health expenditures as a percentage of GDP have been steadily increasing since 2005, reaching 11.2 percent in 2011. The percentage of total expenditures from the public sector has remained relatively constant, at 70 percent, from 2005 to 2013.

The Canadian constitution sets responsibility for health at the provincial level of government, except for the aboriginal Indian and Inuit populations, armed forces, prisoners, Royal Canadian Mounted Police, and veterans. Despite

many geographic, historic, cultural, and political similarities to the neighboring USA, Canada developed its own unique national health insurance program.

Starting in the 1930s, federal grants-in-aid were given to the provinces for categorical health programs, such as cancer and public health programs. Based on this precedent, Canada's national health program is a system of provincial health insurance with federal government financial support and standards. It developed in stages between 1946 and 1971, first with hospital and diagnostic services and subsequently with medical care insurance, now collectively known as Medicare. It brought all Canadians into a system of publicly financed health care, while retaining the private practice model of medical care. Hospital care is provided mostly through non-profit, non-governmental hospitals.

The Canadian health program differs markedly from those of the UK and the USA. Each national health system is an important part of the political and cultural traditions of the country. Each within its own tradition is attempting to constrain the rate of cost increases and preserve, or develop universal coverage. Comparisons are attempted using various health indicators and can be controversial but the Canadian universal health service or insurance coverage seems to have improved the health status of the population more rapidly than similar indicators for the total US population, but not necessarily for the insured US population. After decades of emphasis on developing national health insurance, Canada became a leading innovator in health promotion since the 1970s.

Initiatives for national health insurance in Canada go back to the 1920s, but definitive action occurred only after World War II. The development of national health insurance was partly the result of the experience of the Great Depression of the 1930s, a strong agrarian cooperative movement, and the collective wish for a better society following the war. In 1946, the recently elected social democratic government of Saskatchewan, a large wheat-growing province of 1 million people on the western prairies, under the leadership of Tommy Douglas, the founder of Canada's Medicare program, established a hospital insurance plan. This plan provided free hospital care for all residents of the province on a prepaid basis under public administration. Within several years, other provinces developed similar plans, and in 1956, the federal government passed legislation (the Hospital Insurance and Diagnostic Services Act) to provide a cost-sharing plan for provinces, adopting universal, publicly administered hospital insurance plans. By 1961, all 10 provinces and the (then) two territories had implemented hospital insurance plans meeting federal criteria in a two-tiered national health insurance plan; that is, universal provincial health plans with federal standards and cost-sharing.

In 1961–1962, Douglas and the province of Saskatchewan again led the way by implementing a universal plan for medical services (Medicare). This was opposed by a bitter, 23-day doctors' strike which resulted in some compromises, but the universal plan came into effect, paying doctors' bills

on a fee-for-service basis. Again, this was based on the principles of universal coverage, comprehensive benefits, and public administration.

Following the controversies over this plan, a federal Royal Commission on Health Services (the Hall Commission) recommended the establishment of similar plans with federal cost-sharing. In 1966, the federal government introduced its Medicare Act, providing federal cost-sharing of approved provincial plans. Federal reimbursement to the provinces included 25 percent of national average medical care expenditures per capita and 25 percent of the actual expenditures by each individual province. This provided higher than national average rates of support to poorer provinces as well as portability between provinces. By 1971, all provinces had implemented such plans.

Reform Pressures and Initiatives

The Canadian health program established universal coverage for a comprehensive set of health benefits without changing the basic practice of medicine from individual medical practice on a fee-for-service basis. Poorer provinces were able to use the cost-sharing mechanism to raise standards of health services, and a high degree of health services equity was achieved across the country.

Rapid increases in health care costs led to a review of health policies in 1969 (the Federal-Provincial Committee on the Costs of Health Services). The resulting report stressed the need to reduce hospital bed to population ratios and develop lower cost alternatives to hospital care, such as home care and long-term care. Federally-led initiatives during this period extended coverage to include home care and long-term nursing home care, while restricting federal participation in cost-sharing to the rate of increases in GNP. Since then, many provincial and federal reports

have examined the issues in health care and recommended changes in financing, cost-sharing, hospital services, and development of primary care and other community services.

In 1974, a new approach to health was outlined by the Federal Minister of Health, Marc Lalonde, in a landmark public policy document, *New Perspectives on the Health of Canadians*. This report described the health field theory, in which health was seen as a result of genetic, lifestyle, and environmental issues, as well as medical care itself (see Chapter 2). As a result, health promotion became a feature of Canadian public policy, with the objective of changing personal lifestyle habits to decrease cross-cutting risky behaviors such as smoking, obesity, and physical inactivity. The pioneering work in nutrition from the National Nutrition Survey published in 1971 led to the 1979 adoption of federal mandatory enrichment regulations for basic foods with essential vitamins and minerals (see Chapter 8). This and other initiatives in the 1980s led to the Ottawa Charter on Health Promotion (see Chapter 2).

In the mid-1980s, physicians' organizations pressed for the right to bill patients above the rates paid for by Medicare, but this was forbidden by national legislation (the Medical Care Act), passed unanimously by the Federal Parliament. This act penalizes provincial governments which allow extra billing by physicians by withholding federal funding. The Canada Health Act was passed by the Federal Parliament in 1984. This act outlines specific principles and requirements for all Canadian provinces and territories on health care, in order to qualify for federal public funding. Annual reports are published outlining the status of health care for provinces and territories. Those who do not adhere to the requirements are subject to withholding of transfers or penalties.

Canadian health expenditures showed high rates of cost increase, approximately 4 percent annually, during the 1980s (Figure 13.3). GDP grew at 3 percent per year but

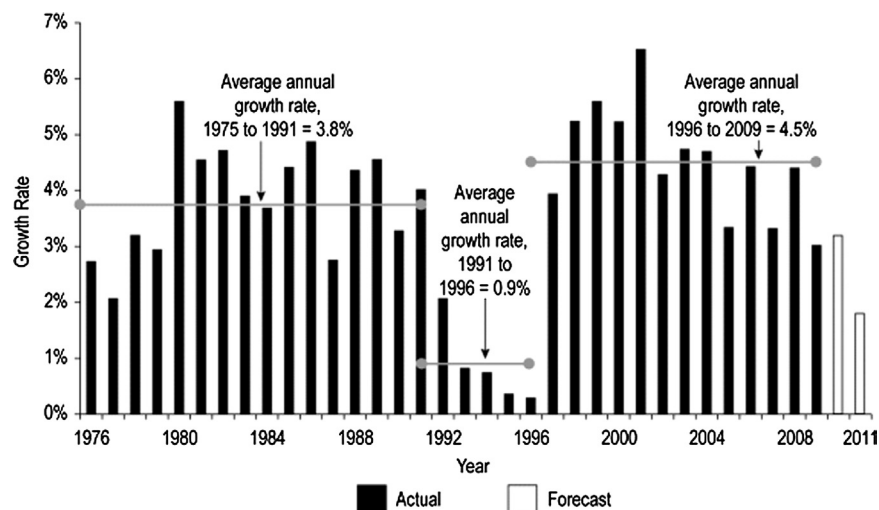


FIGURE 13.3 Health expenditures, Canada, 1976–2011. Source: CIHI Canadian Institute Health Information. *National Health Expenditures 1975–2011*. Available at: https://secure.cihi.ca/free_products/nhx_trends_report_2011_en.pdf [Accessed 30 May 2013].

declined in 2011 to 2.0 percent. National expenditures on health rose from 5.4 percent of GDP in 1960 to 7.0 percent in 1980, 8.9 percent in 1990, stabilizing at 8.8 percent in 2000, but again rising to 9.8 percent in 2005, and reaching 11.3 percent in 2011 (Figure 13.3).

During the late 1990s, the rate of increase in health care costs was reduced by politically painful measures of retrenchment, especially in hospitals. In the period 1975–1991, when the rate of growth of health expenditures was averaging 4 percent (7.4 percent 1998–2008), Canada was second only to the USA in percentage of GNP expended on health. In 1998 it was the fourth highest in the world (9.2 percent of GNP in 1996), after the USA, Germany, and France. In 2005, Canada's percentage of GDP spent on health was above the OECD average, but well below the USA (16 percent) and seven other OECD countries. In 2009 Canada's health care spending, at 11.4 percent of GDP, was below that of five other OECD countries but remained above the OECD average of 9.4 percent. However, the current figure, 11.3 percent, is still well below that of the USA (17.9 percent).

In 2006, Stephen Harper, leader of the Conservative Party, was elected Prime Minister of Canada. Many criticize his leadership for failing to address the lack of family physicians and long waiting times. Canada spent \$191.6 billion on health care in 2010, up from an estimated \$182.1 billion in 2009 and \$171.8 billion in 2008, growing by an estimated \$9.5 billion or 5.2 percent since 2009, according to the Canadian Institute for Health Information (CIHI).

Hospitals, drugs, and physician services, in that order, continue to account for the largest share of health dollars. In 2010, spending on hospitals was expected to reach \$55.3 billion, spending on drugs \$31.1 billion, and spending on physicians \$26.3 billion. For the past two decades, there has been an increase in the share of spending on drugs and a decrease in the share of spending on hospitals. However, more recent trends show that spending patterns may be shifting.

In 2010, the total spending on health care in Canada represented an increase of \$216 per Canadian, bringing total health expenditure per capita to an estimated \$5614. After removing the effects of inflation, Canada's health care spending per person increased by 1.4 percent in 2010, the lowest annual growth rate seen in 13 years.

Financing of total health expenditures in 2005 was 70 percent from public sector sources, including federal, provincial, and municipal governments and workers' compensation, and has held at a stable rate since 1996. Federal government cost-sharing in health expenditures has gradually declined since the 1970s, so that provincial governments are facing difficulty with continued financing at current levels, and are under pressure to control rates of increase. This has led many provinces to reduce the hospital bed supply, from 6.9 beds per 1000 in 1979 to 4.7 in 1995 and to 3.5 in 2003. This figure steadily declined until it dropped to 3.3

beds per 1000 population in 2008 and to 1.8 acute beds per 1000 population in 2011.

The Canada Health and Social Transfers (CHST), established in 1997, is the mechanism for federal transfer of money to provinces and territories through cash contributions and tax transfers. As long as the provinces and territories adhered to the ideology of the Canada Health Act, money could be allocated to various social programs. In 2004, the CHST was split into the Canada Health Transfer (CHT) and the Canada Social Transfer (CST). By creating the CHT and the CST, the federal government can allocate cash contributions and tax transfers in a way that is accountable and transferable to provinces and territories in order to maintain the goals and obligations set forth by the Canada Health Act.

The Public Health Agency of Canada and the position of Chief Medical Officer were established in 2004, following severe criticism of public health organization in Canada over the confused management of the 2003 outbreak of severe acute respiratory syndrome (SARS). From 2006 onward as part of the review of public health deficiencies, fifteen MPH programs opened universities across Canada (Massé 2012, see Chapter 14).

Provincial Health Reforms

In the 1970s, a growing emphasis on health promotion and development of alternatives to acute hospital care led the province of Manitoba to institute reforms in the delivery of services. It established district health systems in rural areas in order to strengthen services and attract health personnel and their families to remain in these areas rendering more comprehensive and integrated services. This model integrated the organization of hospitals, nursing homes, home care, preventive services, and medical practice, reaching many of the rural areas of the province over the next decades. This evolved into the regional health systems model. Following the 1970s' Castonguay–Nepveau Commission Report, Quebec implemented Community Health Centers (CLSCs) throughout the province. In the 1990s, Saskatchewan began development of similar integrated district health service and regionalized hospital systems. Other provinces have since followed suit, each using a unique formula to regionalize and consolidate services, and increase the provision of services in the community setting. Ontario, the economically largest province, but the last to regionalize, recently introduced 14 local health integrated networks to manage services to its 12 million inhabitants.

In most provinces, regional health authorities (RHAs) are autonomous health care organizations responsible for health administration within a defined geographic region of a province or territory. The regions have appointed or elected boards of governance responsible for funding and delivering community and institutional health services within the regions. RHAs fund and provide core services including public

health, home care and community-based services, mental health services and long-term care institutions, alcohol and substance abuse programs, and hospitals within provincial standards of the Ministry (Department) of Health. Provincial and territorial ministries collect taxes to finance the health care system and develop regional funding envelopes; regional health boards allocate funds to service organizations based on their own needs assessments and policy priorities.

Continuing care, including home and nursing homes (long-term care), and prescription drugs are integral components of provincially insured health systems. Services provided are based on residence in the province and are not transferrable between provinces. Manitoba Continuing Care, implemented in 1974, is an integrated community-based public sector funded program with a single entry point for home care and nursing home care. Assessment for admission is based on assessed health need; there are no income-based or ability-to-pay restrictions. Home care has developed as an appropriate and cost-effective alternative to

both hospital and long-term care (Box 13.2). Services above the assessed health need are the responsibility of the client and not funded through the program. The program serves as an important adjunct to earlier hospital discharge. The range of services includes short-term (medical and postsurgical), long-term, and palliative care.

Health Status

Criticism of the Canadian health system focuses on long waiting times (in comparison to the USA) for diagnostic and surgical procedures, lesser access to high-tech equipment and procedures, and reduction in hospital staff positions. Such comparisons, however, are not substantiated by objective analyses or in measurable health indicators. Waiting times have reportedly been reduced in recent years and the supply of high-tech equipment such as computed tomography (CT) and magnetic resonance imaging (MRI) scanners has increased in comparison to other OECD countries.

BOX 13.2 Manitoba Home Care Program

The Manitoba Home Care Program was established in 1974, as an integral component of the publicly funded health system enabling people to remain at home as an appropriate community-based alternative to care in hospital or nursing homes. Home Care is provided free of charge to permanent Manitoba residents who are Canadian citizens or landed immigrants. Services are based on assessed need, taking into account other resources available to the individual including families, and other community resources/programs.

Regional health authorities are responsible for program management and deliver the services including assessment for and coordination of nursing home admissions within the policy framework and standards of the Department of Health. Accreditation Canada is the established body for standards and the accrediting process for home care programs of the regional health authorities.

In 2011/2012, of the \$4.7 billion (\$3800 per capita) provincial health expenditures for insured health services, 6.5 percent (\$300 million) or \$244 per capita was for home care. In comparison, long-term care (nursing home) and acute care hospital costs were \$482 and \$1754 per capita, respectively. The cost of insured health services in 2011–2012 was \$4000 per capita. The percentage distribution of costs for acute care, long-term care, and mental health was 46 percent, 13 percent, and 5 percent, respectively. However, the federal Canada Health Act for hospital and medical services is not applicable to extended health care or home care programs; therefore, there is no portability of services between provinces.

Eligibility and admission to the program are based on a functional needs assessment by the assigned health professional (case manager) with reassessments at predetermined intervals. The program requires the designation of a relative or close friend as the primary contact person as needed from

time to time. In some situations a family member living in another province is the contact person. Services may include nursing, personal care (bathing, dressing, feeding), physiotherapy, occupational therapy, and homemaking and respite care. Other services such as speech therapy, social work, and dietitian services may be accessible. Supportive services may include day care in a funded health facility; other community services include meals on wheels and friendly visitor services.

In 2011, of the 17,202 assessments for eligibility, 15,481 were admitted and 14,710 were discharged. There is a monthly average of nearly 24,000 individuals receiving services, with the majority of services provided by a home care attendant, and about one-third of the clients receive registered nurse services.

The Manitoba Health Care Appeal Board was established to ensure that residents of Manitoba have access to an independent arms-length appeal process for publicly funded insured health services including home care. If a person is not satisfied with certain decisions regarding a financial or service delivery matter, an appeal may be made to the Board.

Since 1974 results of periodic extensive external reviews by internationally recognized management consultants have consistently shown the program to be a cost-effective appropriate alternative to facility care. Shortly after its implementation, the program was recognized as an important model for health systems by the World Health Organization.

Sources: Joan Bickford MSN, Former Chief Public Health Nurse, Manitoba Health, Province of Manitoba, Canada. Personal communication; 2013. Government of Manitoba. Health expenditures. Available at: http://www.gov.mb.ca/finance/budget12/papers/r_and_e.pdf
Manitoba Health. Annual statistics 2010–2011. Available at: <http://www.gov.mb.ca/health/annstats/as1011.pdf>
Accreditation Canada. <http://www.accreditation.ca/about-us/>
Health Canada. Home and community care. Available at: <http://www.hc-sc.gc.ca/hcs-sss/home-domicile/commun/index-eng.php>

Since the implementation of Medicare, Canada's position in major health status indicators has improved in comparison to other countries. Infant mortality rates were higher than those in the USA until the 1960s (28 versus 22 per 1000), but lower in the 1990s (6 versus 7 per 1000 in 1997). Canada's infant mortality rate was 5.3 deaths per 1000 live births in 2004, but increased to 6.0 deaths per 1000 live births in 2009 and declined to 5 per 1000 live births in 2011, lower than in the USA (6.5) and the OECD average (5.4). Canada ranked 42nd and the USA 50th in international ranking of infant mortality rates in 2013 (estimated) for 224 countries.

In 2005, Canada's maternal mortality rate (MMR) was 7 per 100,000 live births, compared to 7 for the UK and 11 for the USA. In 2012, the Canadian MMR increased to 12 per 100,000 live births. In 2007, Canada's life expectancy at birth was 80.7 (81 years in 2011) compared to 78 years in the USA; the Canada–USA gap decreased from 2.7 years in 1993 for men to 1.8 years in 2007, and the difference among women stayed at 2.9 years. Canada ranks among the 15 OECD countries with the lowest total mortality rate.

In Canada, public health is generally identified with the following discrete functions: population health assessment, health promotion, disease and injury control and prevention, health protection, surveillance, and emergency preparedness and epidemic response. Immunization coverage for infants was reported in 2011 as more than 95 percent. Canada has made major progress in reducing tobacco consumption. The rate of daily smokers among adults fell by half, from 34.4 percent in 1980 to 17.3 percent in 2011, with the second lowest percent of the population consuming tobacco (14.3 percent) among the OECD countries. Smoking prevalence in 2011 among those aged 15–19 years was 12 percent compared to 21 percent for the age group 20–24 years; in 2000 the prevalence had been 25 percent and 32 percent, respectively.

Canada is fifth lowest among the OECD countries in rates of hospitalization for circulatory system disease, as cerebrovascular disease is lower in Canada than in many OECD countries (Table 13.6), reflecting both prevention programs and outpatient and home management of stroke patients. The main causes of death in Canada are cancer, and circulatory, respiratory, digestive, and infectious diseases. Obesity is a growing health concern, with approximately 24.2 percent of the population obese in 2008. The aboriginal Canadian populations suffer higher rates of poor health status from immunization-preventable diseases and alcohol- and tobacco-related illness (see Chapter 7).

Summary

Canada's health system successfully established universal tax-supported national health insurance in North America. Prior to the advent of universal coverage, Canada was on a similar track to the USA but the country has since bypassed

TABLE 13.6 Hospital Discharge Rates, per 1000 Population, Life Expectancy at Age 65, Selected Countries, 2009^a

	Circulatory		Total	Life Expectancy	
	Diseases	Cancers		at 65	
				Females	Males
Canada	10.9	6.1	84	21.3	18.1
Denmark	19.9	13.9	170	19.1	16.3
France	22.2	19.9	263	20.8	17.4
Germany	36.0	24.5	237	20.8	17.6
Israel	13.3	6.1	146	21.2	17.7
Netherlands	16.7	10.7	117	20.8	17.4
Sweden	25.4	14.1	166	20.8	17.1
UK	13.2	9.4	138	20.8	18.1
USA	19.5	6.7	131	20.0	17.3

Note: ^aOr nearest year.

Source: Organisation for Economic Co-operation and Development. Health at a glance 2011: OECD indicators. Available at: http://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2011_health_glance-2011-en [Accessed 13 June 2013].

the USA in increased longevity and lower cause-specific mortality rates for CVD, cancer, and stroke, as well as child mortality, all at considerably lower per capita expenditures.

The Canadian health program has important lessons for health care reform internationally. Universal health insurance was implemented without changing the basic mix of services or the way they are funded, but with inadequate attention to the public health portion of the system until the SARS episode of 2003, when serious deficiencies in public health organization and training were revealed. These are all issues that need to be considered in the Canadian experience.

Canada pioneered the idea of health promotion from the 1970s in such areas as Healthy Cities, fitness, and food enrichment. The primary functions that are the focus of the Canadian public health system include population health assessment and surveillance, health promotion, prevention-oriented services for disease control, health protection, and emergency readiness. These have helped to achieve positive results in reduced smoking, falling rates of cardiovascular morbidity and mortality, food fortification, and increased health consciousness of the political leadership and the general population over a number of decades. Pioneering reform in integrated regional health management, provincial insured home care and nursing home programs is now widespread across the country, based on the Manitoba model developed in the 1970s, which has received international recognition.

The Canadian health insurance model can be regarded as a success, although with some drawbacks. It has tended

to freeze the medical private practice model, and was slow in implementing reform measures. Despite transfer of tax points from federal to provincial governments, the provinces have difficulty coping with health costs, which are the largest item of provincial budgets. The principle of universal health insurance delivered by provincial plans under federal regulation and cost-sharing has been preserved. The quality of care is high, and Medicare is one of the most popular public institutions in Canada, of which most Canadians, including physicians, are proud. Reforms carried out during recent decades appear to be succeeding in controlling the rate of increase in costs.

The health status of Canadians is rated among the highest in the world. Despite the financial burden and the need for economic analysis with priority selection, the Medicare program remains highly popular with the Canadian public, the federal and most of the provincial political leadership remains committed to universal, publicly administered health care, and this is likely to continue. The Canadian model is a success from many points of view and is of importance as a working model for reform for other countries, particularly the neighboring USA.

THE UNITED KINGDOM

The UK's population in 2011 was 62.6 million and the GDP per capita was US\$35,441 [purchasing power parity (PPP)], ranking it economically 16th, well below Scandinavia, North America, and many European countries. Health expenditures as a percentage of GDP (9.3 percent, 2009) parallel the OECD trend for selected countries (Figure 13.4). In 2010–2011, the UK ranked 28th among OECD countries in the HDI, a large decrease from 16th position in 2005–2006. In 2011, the total life expectancy was 80.2 years and the child mortality rate was 6 per 1000 live births.

The UK is a parliamentary democracy with a royal head of state, House of Commons and House of Lords, which unites England, Wales, Scotland and Northern Ireland. The UK is a national entity with a central unitary state government but with decentralized authorities for Scotland, Wales and Northern Ireland, each of which has a parliament or house of assembly with limited autonomy and governing powers.

National health initiatives have evolved slowly since the mid-nineteenth century. The NHS has developed and maintained high professional and technical standards, despite modest levels of funding of the service. Immunization coverage in 2008–2009 was 93 percent for DTP, 93 percent for poliomyelitis (polio), and 85 percent for measles [through the measles–mumps–rubella (MMR) vaccine], with a second dose of measles vaccine at school entry.

The UK developed a unique and important model of health care as a tax-financed public service that is widely influential in other national health systems. The NHS

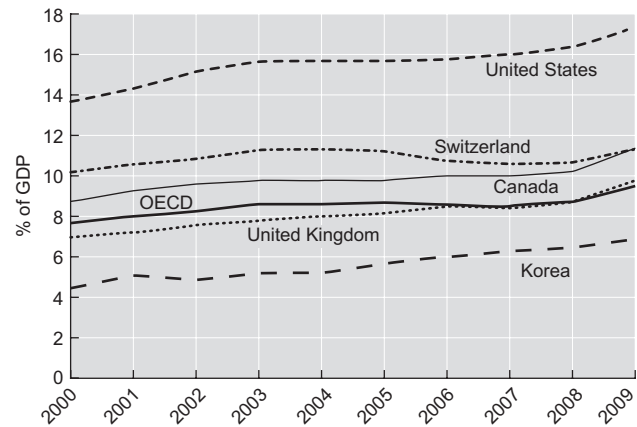


FIGURE 13.4 Health expenditures, percentage of gross domestic product (GDP), selected Organisation for Economic Co-operation and Development countries, 2000–2009 Source: OECD Indicators. *Health at a glance, 2011*. Available at: <http://www.oecd.org/health/health-systems/49105858.pdf> [Accessed 14 June 2013].

is popular with the British public and was successful in achieving its initial goals. It has undergone periodic reforms since its inception in 1948, surviving many changes of government and political philosophy and continues with a current reform process.

The National Health Service

As described earlier, the UK developed its present NHS over many decades. This program evolved from previous milestones including reform of the Poor Laws of the eighteenth to nineteenth centuries, the friendly societies, the National Health Insurance Act of 1911 for workers and their families, the Emergency Medical Service of World War II, and the (William) Beveridge Report of 1942. In 1946, under the Labour government of Clement Attlee, Parliament approved the National Health Service Act, with implementation in 1948, under the leadership of Aneurin Bevan.

THE NHS operates through four systems which are funded from allocations by the British Parliament to the NHS England which gives block grants to the independently administered individual systems: National Health Service (England); Health and Social Care in Northern Ireland (HSCNI); NHS Scotland; and NHS Wales. These separate organizations operate free health services with many common features.

The NHS is financed through general tax revenues to provide a comprehensive service to the entire population. The NHS was originally organized as three parallel services: the hospital service with salaried doctors, the GP (and dental) services provided by independent practitioners with capitation payment, and the public health service with salaried staff. The hospital and general practice services were operated by separate public boards or councils; the public health service was administered by the local authorities.

Reforms in the 1970s and 1980s

During several stages of reform in the 1970s and 1980s, the NHS was reorganized, reducing the number of administrative levels in an attempt to achieve integration and coordination between highly specialized and fragmented services. The 1974 reform established regional health authorities, and integrated area health authorities (AHAs) beneath them to replace the previous multiplicity of hospital management committees, boards of governors, and local health authority committees. The AHAs were non-elected lay bodies that absorbed public health and hospital management functions, consolidating many previously overlapping jurisdictions. Multidisciplinary management teams were introduced at the AHA and district levels, with decision-making by consensus, stressing professional managerial competency.

A further reorganization in 1982 abolished the AHAs, placing the managerial responsibility at the district health authority (DHA) level, with a stress on further decentralization of management authority to hospital and community service structures. Reviews of the NHS were conducted during the Conservative government led by Margaret Thatcher, focusing on managerial efficiency, government and business viewpoints, the growth of the private sector, consumer group advocacy issues, and protection of consumer rights.

Despite the aging of the population, the number of acute care hospital beds in the UK has been steadily decreasing from 3.0 per 1000 population in 2004, to 2.7 in 2007, and 2.4 in 2010. The average length of stay in acute care hospitals fell from 8.5 days in 1980 to 5.0 days in 1996. However, this figure grew to 8.0 in 2000, gradually decreasing to 7.0 in 2007, and reaching 6.6 in 2010. While the supply of physicians is below that of other European OECD countries, the supply of nurses is above OECD levels. Numbers of psychiatric beds were also reduced in these years. Overall geriatric and nursing care beds decreased slightly between 2004 and 2008. There has been an increase in medical practitioners (from 2.3 per 1000 population in 2004 to 2.49 in 2007 and 2.79 in 2011) and nurses (from 9.2 per 1000 population in 2004 to 9.6 in 2010) in the UK.

Access to advanced technology such as CT scanners (8.9 per million in 2011 versus 12.5 in France and 40.9 in the USA) and MRI scanners (5.9 versus 7.5 in France and 34.5 in the USA in 2012) has increased in the past decade, but remains well below OECD averages. Community care services of all kinds increased during this period. Health expenditures increased from 3.9 percent GDP in 1960 to 5.6 percent in 1980, 6.0 percent in 1990, 7.3 percent in 2000, 8.3 percent in 2005, and 9.4 percent in 2011.

Reforms Since 1990

In 1990, the National Health Service and Community Care Act attempted to further rationalize management of the

NHS. Three types of statutory health authority were redefined: regional health authorities (RHAs), district health authorities (DHAs), and family health service authorities (FHSAs). The RHAs and DHAs became the primary administrative levels, while the FHSAs manage contracts with GPs. The NHS operations in England, Wales, Scotland, and Northern Ireland operate under similar arrangements.

The 14 RHAs assess health needs, set strategic directions for service development, monitor quality of management and care, and allocate resources to promote cost-effective services. They also promote medical audits and specific program development (e.g., transplantation services), and provide assistance to health providers such as hospitals with management problems. The RHAs do not provide services. The DHAs operate under the authority of boards similar to those of the RHAs, and are the major purchasers of services from hospitals and other providers. They contract with hospitals for services based on assessed need and on satisfaction with hospital performance. They may also operate NHS hospitals or other services, such as ambulances.

Reforms since 1990 include the introduction of competition between providers, the development of community health services, and further reduction of the supply of hospital beds. These were intended to introduce greater choice for the patient and the primary care provider (the GP), with incentives for efficiency and quality of care.

FHSAs under the 1990 Act are governed by boards similar to the RHAs and DHAs. The FHSAs are responsible for contracting with GPs, general dental practitioners, optometrists, and community pharmacists. The role of FHSAs expanded to include formulation of policies, supervision of facilities and services, and remuneration of contracting providers. Patients register with GPs and are referred to hospitals and specialists in accordance with medical needs. GPs have traditionally been paid on a capitation basis for the patients registered with them, and the patient has the right to change GP. Capitation is the allocation of funds per person registered as a service beneficiary for a specified period to cover care for a range of services. Weighted capitation is allocation per person, with adjustments made for factors such as age, gender, and regional standardized mortality rates (SMRs), which reflect both need and demand for health services. SMRs are used as a proxy for morbidity in capitation allocation (see Chapter 3). GPs are paid extra premiums for performance indicators; for example, specific preventive services such as immunization, Papanicolaou (Pap) smears, and mammogram screening. In 2008, a pay-per-performance program called Advancing Quality was introduced in 24 NHS hospitals in the Northwest of England (population 6.8 million), and a clinically significant reduction in hospital mortality was observed compared to other hospitalized populations in other regions; the largest reduction was observed for heart diseases and especially for pneumonia (1.9 percentage points) (Sutton et al., 2013).

A major innovation was been allowing the FHSAs to administer budgets for fundholder GPs, in the form of per capita payments including both GP and hospital services. GPs are increasingly working in health centers, along with district public health nurses. By 1995, about one-third of GPs worked as fundholders with per capita payment by the NHS for ambulatory and hospital care. This empowered GPs to negotiate with the hospitals, reduce waiting times, and improve other health care conditions for their patients, placing the hospital in the position of having to compete for the referral work of the GP. Experiments with financing of hospital care through the GPs were designed to raise the quality of care and promote cost containment. The GP fundholder movement seems to be a successful program, although it has not been well evaluated.

Hospitals are encouraged to become NHS trusts, which are non-profit public corporations governed by boards of trustees and appointed by the national government, usually representing the local authorities. Hospital trusts must demonstrate management capacity and viability to operate as economic units. They must compete for referrals, striving for patient and GP satisfaction. Hospitals are no longer funded directly by the NHS, but derive their income from providing services to the health authorities, fundholding GPs, private insurance, and self-paying patients, paid for services by a DRG system. This permits them to operate as independent economic units, enabling them to charge for services, determine staff conditions, raise capital by borrowing money and, within limits, buy or sell land or facilities.

Financing of the NHS continues to be through governmental allocations from general tax revenues. Some revenues come from other sources, including user fees, such as for prescription drugs or dental services. Operating budgets are allocated to RHAs to cover costs of hospital, community health, and primary care services. The allocation is determined on the basis of population size and adjusted by SMRs, with some local weighting factors based on service utilization. The DHAs are, in turn, funded by the RHAs, using similar criteria. RHAs administer GP fundholding units, whereas FHSAs are funded to pay for contracting primary care services. Capital allocations to replace and modernize facilities and equipment are based on long-term planning at the RHA level.

Market reforms in the UK are still developing. Despite being the subject of continuous critical scrutiny in the press and at political levels, the NHS continues to have support of the general public and all political parties and has provided universal access and maintained high quality at reasonable costs. Health expenditures increased under Tony Blair's government. Widespread criticisms, focused on the idea that the NHS was being operated at lower levels of expenditures than in most industrialized countries, and of underfunding of important areas such as hospital bed supply, led the Blair government to increase funding modestly and increase the bed supply.

In 2005, the cabinet officer responsible for the NHS put forward a series of proposed changes, including greater funding for disadvantaged areas of the country, changes in hospital financing methods from a block budget to an incentive-based budget, greater flexibility in funding for primary care trusts (PCTs) and GPs to innovate in developing programs, and greater choice of hospitals by patients.

Public support for the NHS is an important element in its durability. The values of the NHS were described in a 2007 review by the Nuffield Trust as including:

- universalism – compulsory coverage
- equity – social justice, fairness
- democracy – accountability, answerability
- choice – autonomy, freedom
- respect for human dignity – honesty, consideration, fair dealing
- public service – public service ethos, altruism, non-commercial motives
- efficiency – cost-effectiveness, waste avoidance
- promotion of desirable outcomes and processes
- accountability.

Social and Regional Inequalities

Social and Regional inequalities in the health status of the population of Britain, which were part of the justification for the establishment of the NHS in 1946, have persisted. The Black Report (by Douglas Black in 1980) documented this problem, and subsequent reports indicate the persistence and even worsening of social inequalities into the 2010s. There are sharp differences in mortality rates from preventable diseases including cancers, stroke, coronary heart disease, lung and liver diseases, with local authorities such as Manchester, Liverpool, and Blackpool having high rates, while local authorities in southern England have very much lower low rates after age adjustment. Many of these differences originate in poverty-related reasons, such as poor diet, obesity, alcohol consumption, and smoking. The NHS has not been able to reduce the inequalities, in part because of slow adoption of population-based strategies of intervention (NHS, 2013).

Changes in definitions and distribution of the population in the different social classes may explain some of the differences; however, there is a widening of the gap between the social classes, with continuous increase in the SMR of class V and continuous decline in SMRs for classes I and II (see Chapter 4). Many studies show higher mortality from all causes by social class, and health profiles for every local authority and region across England are now published by the Department of Health and public observatories. Higher cause-specific mortality in lower socioeconomic classes is seen especially for CVD, trauma, and cancer.

This social gap is not easily explained on the grounds of the classic health risk factors alone. The health gap

correlating to economic disparities may be due to poor diet, high rates of smoking, lower rates of physical activity, and social and working conditions offering less reward, personal satisfaction, and control of life events than for the higher social classes. There are also regional differences in SMRs in the UK; the reasons for these are not always well understood but may relate to a variety of social, economic, lifestyle, and environmental risk factors.

In 1998, Donald Acheson, a senior professor of public health in the UK, reported on the Blair government-initiated inquiry into social disparities in health in Britain. His report confirmed the findings of the Black Report and evaluated findings of the many studies of social gradients in health status since that report was issued. The Acheson Report has been a factor in government policies in tax and welfare reform, preschool child care programs, and tobacco legislation, as well as in some aspects of NHS reform.

Health Promotion

During the 1950s and 1960s, mortality from CVD increased in the UK, as in most industrialized countries. These rates began to decline in the 1970s in the USA, Canada, and other European countries, but remained high in the UK for another decade, with CHD mortality declining substantially only since 1985. This delay in the reduction of CVD mortality may be explained by then prevailing conservative attitudes towards treatment of acute myocardial infarction in the UK, such as aggressive, intervening methods of treatment and intensive care units. The NHS was also slow in responding to changing health promotion and risk factor reduction approaches. The UK continued to have much higher mortality rates from CVD as well as lung and cervical cancer than Western European countries. These and other public health issues, including relatively low immunization coverage levels, led to the formulation of health promotion strategies in the Department of Health.

In the late 1980s and early 1990s, a number of major initiatives sought to improve prevention and health promotion activities in the UK, including greater public awareness of healthy nutrition and smoking risks. Mortality rates from stroke declined from 1970 to 2010 by 72 percent, from 151 to 42 per 100,000 population. Ischemic heart disease fell from a peak in 1972 of 277 per 100,000 to 77 per 100,000 in 2010 (a decline of 72 percent). Cancer of cervix and lung mortality rates, although still higher than western European rates, have been declining precipitously since the mid 1980s.

Regional variation remains high, with rates in England and Wales for men and women under age 75 ranging from 7 to 25 per 100,000 population by county or borough in London. Higher mortality rates are seen in Scotland, Northern Ireland, and the Midlands than in southern England.

CVD standardized mortality rates have continued to decline across the UK, but in 2010 at 164 per 100,000

population remained above those of France (119 per 100,000 in 2009) and Israel (119 per 100,000 in 2010) although below that of Sweden (164 per 100,000) (WHO European Region, Health For All database, January 2013). Much of this decrease is attributed to declining tobacco consumption and improvements in medical care. Incentive payments to GPs resulted in a sharp increase in preventive care practices such as blood pressure and cholesterol control and immunization rates. Local authorities are required to have specialized staff to promote motor vehicle safety, which contributed to a reduction in road crash mortality from over 24 per 100,000 population in 1970 to just over 3 per 100,000 in 2010. A new Water Act and Environmental Protection Act of 1990 increased the supervisory and regulatory role of the national government in these areas of public health.

The Health of the Nation report (Secretary of State for Health, 1991) placed health promotion and national health targets as a major focus of a national health program. Declining mortality from the major causes of death (CVD, cancer, and trauma) may reflect an increasing effectiveness of health promotion activities in the UK. Rates of stroke mortality have decreased steadily since 1980, and the number of deaths from diseases of the cardiovascular system has also decreased steadily from 2000 to 2010, but rates of overweight and obesity continue to increase.

Health Reforms

Between 1991 and 1997, the Conservative government introduced the option of holding budgets for general practices for prescribing and elective secondary care. The Labour government of Tony Blair, elected in 1997, undertook further reform in the NHS, especially in methods of financing primary care and the market forces of GP fundholding. The government increased NHS funding by 4 percent above inflation over the period 1999–2003 to strengthen clinical service sectors, which had suffered from excessive cutbacks in the previous decade, mainly going towards improvement in salaries and medical equipment.

In 1999, the Blair government initiated a new reform of the NHS, establishing primary care groups (PCGs) throughout the country with GP groups serving population groups of between 30,000 and 250,000 people. The PCGs replaced the purchasing of services previously performed by the fundholding GPs and the health authorities.

NHS policy in England is directed from the center by the Department of Health. The Department of Health has provided new tools to improve monitoring with the Commission for Health Improvement and the National Institute for Clinical Excellence (NICE) established in 1999, now called the National Institute for Health and Care Excellence. GPs gained online appointment systems and patients have access to a free 24-hour telephone nurse consulting service, improving access and patient contact.

NHS funding was increased in 2000; this mainly went towards increasing staff salaries and capitation payments. Family doctors have benefited most, with more than doubling of their incomes. In 2004, an additional payment was added to the basic capitation payment to family practitioners based on their performance on 146 quality indicators relating to clinical care for 10 NCDs, organization of care, and patient experience. Fundholding was reintroduced in 2005.

Hospital reform became the prominent issue in public assessment of the NHS, particularly in reducing waiting times. This was to be achieved through a combination of targets and, since 2003, financial incentives to promote an incentives-based system. Payment by results started in 2006 and provides for competition for hospital trusts, increasing local control and the range of non-hospital treatment options.

The NHS had been relatively underfunded but increased funding during the Blair government brought overall health expenditures of the NHS to above the European Union (EU) average from 2002. The growth in expenditures between 1997 and 2009 declined from 9.9 percent to 9.4 percent of GDP in 2011. Private health care expenditures decreased by 5.7 percent between 2008 and 2010 but in 2011 increased to slightly above the usual annual growth of 6 percent.

Primary Care Trusts

Primary care trusts (PCTs) are local health organizations charged with providing and commissioning services to a geographic population. They are supervised by 10 regional Strategic health authorities (SHAs). The number of PCTs was reduced to 152 in 2006 to match the geographic division of other social services bodies. They are based on the registered populations of enrolled GPs in the geographic area and are responsible for primary care, hospitalizations, community health promotion, dental care, and health promotion.

The NHS health has used trusts to manage NHS hospitals as well as for community care and mental health services. A new system is in process of development, and all NHS trusts are expected to become foundation trusts by 2014 under an NHS trust development authority.

PCTs are budgeted through a capitation formula with many factors taken into consideration, with adjustments for age, mortality, in- and out-migration between geographic areas, ethnic mix, prison populations, army personnel and their dependants, and other factors. Incentive payments for immunization and preventive procedures such as Pap smears and mammography have become part of the capitation base budget. Only HIV/AIDS is identified separately.

In 2006, the Department of Health published its Seventh White Paper, promising a “fundamental shift” towards integrated services provided in local communities. It was intended to improve access and local coordination among services, provide cost-effectiveness in reducing hospitalization, improve quality of care, and save money in the long

term through an on emphasis of prevention to avoid costly illnesses. It abolished the original fundholding scheme (where GPs held budgets and bought services on behalf of their patients) and set up PCTs with the aim of improving the quality of local services. The PCTs set up GP contracts with new quality incentives built in, and from 2000 promoted a policy very similar to GP fundholding. Further health reforms occurred in 2012 with new legislation under the Health and Social Care Act.

PCTs pay for hospital care from the allocations for geographic areas with resident populations and for community hospital and office visits, and so on. DRGs are used but are called case-mix groups. Community health services are part of the Hospital and Community Health Service (HCHS). Chiropody, family planning, and screening are part of this component. Community health services include district nurses, community psychiatric nurses, health promotion programs, community dental health, and health visitors (i.e., public health nurses).

Electronic medical records are now used by almost all GPs in the UK. This has contributed to implementation of the performance measurement system to evaluate practice on a national level system, called The Quality and Outcomes Framework (QOF). This system is used both to calculate payments and as a public source of quality of care information, providing a base for comparison against individual GP previous performance and comparison to other practices locally and nationally, with data accessible at <http://qof.hscic.gov.uk/index.asp>. These also affect GP payments for the performance of specified services; 83 percent of incentive payments claimed in the first years of the program.

The indicators, particularly those in the clinical areas, represent a mixture of process measures and intermediate outcome measures. In general, intermediate outcome indicators are more difficult to achieve and so represent a greater workload. Most clinical measures are process in nature (registers, improving systems), but many include intermediate measures such as lowering blood pressure, lipid and glucose levels in heart disease, stroke, hypertension, diabetes, and kidney disease patients.

Successive governments of the different political parties have supported the NHS, and despite criticism, it remains a popular institution with the British public, surviving many changes in political leadership over the past 65 years. Reform has enabled the NHS to evolve with experience and to meet the changing economic and health needs of the country.

Changing epidemiological patterns have also led the UK Department of Health and the NHS to develop health promotion strategies. These have helped to reduce high rates of mortality from CVD and trauma, and may help to reduce the social and regional inequalities in health still present after over half a century of universal access. NHS reforms in the early 1990s and in the 2000s have promoted local

community participation and clients' rights with the PCTs, and GP satisfaction with much higher incomes and control (as "gatekeepers") over use of secondary and tertiary care.

Numerous innovations in organization, incentive funding, information technology, and quality promotion with clinical guidelines appear to have had beneficial effects on access to care, shortening waiting times for primary and specialty care, and probably improving the quality of care as well. Health promotion activities such as smoking regulation, physical activity, and dietary change to combat obesity have been active elements of the Department of Health and NHS for over a decade. Modest progress has been made in smoking cessation. The percentage of the population aged 15 and over who are daily smokers has been decreasing steadily since 2000, from 27 percent in 2000 to 21.5 percent in 2009. However, obesity has not been sufficiently reduced. In terms of body weight, the proportion of the population that is overweight steadily increased from 29 percent in 1980 to 40 percent in 2001, and then gradually decreased to 36.7 percent in 2010. The percentage of the population that is obese was 7 percent in 1980, followed by a steady increase to 24.5 percent in 2008, dropping to 23 percent in 2009, and increasing to a record high of 26 percent in 2010.

In March 2012, the Health and Social Care Act was passed, an Act of Parliament in the UK. This act was one of the most extensive reforms of the NHS. It is controversial and has been criticized for being too costly. The mandate is to give local authorities a stronger role in shaping services, and widen the focus on education, research, and training. Previously, all NHS planning and delivery was done by the Department of Health, strategic health authorities (SHAs), and PCTs. Under this act, NHS providers are no longer performance managed by the SHAs. In 2013 this plan includes the abolition of PCTs and SHAs, and the introduction of clinical commissioning groups (CCGs). These CCGs are to replace the PCTs and SHAs, which will become foundation trusts by 2014. The NHS planning and delivery functions of the Department of Health, the PCTs, and the SHAs will be merged into the authority of a commissioning board called NHS England. This reform is still in process and its outcome and effects will be much studied in the coming decade. This reform is meant to introduce cross-cutting themes (Box 13.3). Ministers in the Department of Health are still accountable to the NHS.

The UK's constitutional arrangements allow a powerful executive to implement wide-ranging reforms at great speed, often with limited consultation. After seven or more major reorganizations since the NHS was founded in 1948 and a widespread feeling of "reform fatigue", the Conservative Party pledged, prior to the 2010 general election, "no more top-down reorganizations of the NHS". However, this pledge did not survive the election. The 2012 reform has created an extremely complex system with many unclear lines of accountability. The legislation is extremely permissive and the eventual result is uncertain. At some stage it

BOX 13.3 Cross-Cutting Themes of the Health and Social Care Act 2012

- Improving quality of care
- Tackling inequalities in healthcare
- Promoting better integration of health and care services
- Choice and competition
- Role of the Secretary of State
- Reconfiguration of services
- Establishing new national bodies
- Embedding research as a core function of public service
- Education and training

Source: UK Department of Health. *Health and Social Bill explained*. 17 February 2012. Available at: <http://webarchive.nationalarchives.gov.uk/20130805112926/http://healthandcare.dh.gov.uk/factsheets/> [Accessed 3 January 2014].

will have to be revised significantly to create a workable system (see Box 13.4). An animated description of the NHS in England, setting out the extent of the confusion, can be viewed at the King's Fund website.

Studies of deaths from potentially avoidable causes include CVDs in men and lung cancer in women. They accounted for approximately 24 percent of all deaths registered in England and Wales in 2011, but the rates fell by 28 percent (from 243.2 to 175.8 per 100,000 population) between 2001 and 2011. Avoidable mortality rates were significantly higher in Wales than in England throughout this period and rates varied across the regions of England, with higher rates in the North of England and lowest rates in the South and East of England (Office for National Statistics, 2013).

Summary

The NHS has succeeded in its mission of providing universal access in a tax-financed and relatively economical service. It has guaranteed access to health care for all, but has failed to alleviate social class inequalities in health status. This has fostered new efforts and resource allocation to needier geographic areas and to health promotion efforts as in other industrialized countries to reduce the burden of CVD, cancer, and other diseases that disproportionately affect the poor. Health promotion activities have been successful in reducing tobacco use, but work remains to be done in combating overweight and obesity.

The Beveridge model NHS has been influential in the Nordic countries since the 1950s and in countries of southern Europe (Greece, Italy, Portugal, Spain, and Turkey) in their various reform programs since the 1970s. The NHS continues to evolve, and is an important and successful international model of health care systems, and one of the most cost-effective. It has adopted many measures of health promotion and increased service efficiency. Despite many criticisms, the NHS remains one of the most important and respected social

BOX 13.4 National Health Service Reform of 2013: Clarity Needed

The proposed new NHS reform promised to hand power to general practitioners (GPs) who, it was claimed, knew best what their patients needed as the previous primary care trusts purchased services on behalf of a defined population but were criticized as bureaucratic and remote. Draft legislation expanded this simple idea into an incomprehensible 300 page document. But barely concealed within it was a major drive to open delivery of care to the full force of the market, implementing the plans of Conservative politicians of two decades previously.

This was presented as enabling small non-governmental organizations (NGOs) to provide services such as mental health and palliative care. Ministerial reassurances attracted support from some general practitioners and heads of NGOs, although these were contradicted by the draft legislation. Given the confusion, the government instituted a “listening pause”, and then reintroduced the legislation with a few cosmetic changes. Regulations published a few days before the legislation came into force in April 2013 required that almost all health care delivery be subject to competitive tendering, but lacked clarity as to what this meant in practice.

The resulting system is one of remarkable complexity with confusion about responsibility. Clinical commissioning groups (CCGs), now with only token involvement of GPs, are responsible for purchasing some aspects of care. However, they are subject to detailed oversight by a new body, NHS England, which is responsible for purchasing general practice and more complex services. CCGs obtain technical support from soon to be privatized clinical support units, seen by some as the basis for future competing insurers. They are also advised by

clinical senates, designed to provide advice on complex clinical issues. This system is overseen by two regulatory bodies, the Care Quality Commission, responsible for quality of care, and Monitor, responsible for competition (overlapping with the Office of Fair Trading, which covers all sectors of the economy).

Delivery of care is becoming a very mixed economy. As predicted, most contracts (mainly community services so far) have gone not to niche NGOs but to large multinational corporations. NHS hospitals are increasingly becoming independent foundation trusts, responsible for their own budgets. Since 2010, cuts in NHS funding have left many with severe financial problems, with debts from earlier private finance initiatives for capital development. Many have responded by cutting staffing, with resulting problems of quality and accountability.

The demise of primary care trusts means that the public health function no longer has a home, and is fragmented among a new body, Public Health England, and departments of local government. Some public health staff involved in purchasing care have moved to CCGs.

Sources: Martin McKee, *Professor of European Public Health, London School of Hygiene and Tropical Medicine. Personal communication; 19 July 2013.*

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institutions of the UK. Recent reforms such as the Health and Social Care Act of 2012 remain to be evaluated and the impact on the NHS hospital system is yet to be determined.

THE NORDIC COUNTRIES

The Nordic countries share common principles of a “Nordic welfare model” with features of universality (right to social protection), a strong public sector, and tax funding based on legislative rights of citizens, equal treatment, and high social benefits. Church-based philanthropy and charity have not played much of a role in welfare provision. The roots of the municipal welfare model roots go back to the early eighteenth century, long before the emergence of organized philanthropy and charity.

The Nordic countries have working committees to focus on joint cooperative projects in the health sector and many institutions. The work concerns the common interests between these countries and related matters with the EU.

Each of the health care systems in the Nordic countries has its own characteristics, and reforms are in progress in each country. Denmark, Finland, Norway, and Sweden, with social democratic governments both before and after World

War II, in many ways pioneered the welfare state. They were later influenced by the UK's NHS, but with strong regional or local governmental organization and taxation have had more emphasis on a decentralized program of health services. Their achievements in social welfare and health care over many decades have been widely acclaimed successful models for social protection in prosperous industrial economies. In 2010, the HDI ranks for the Nordic countries – Denmark 15, Finland 21, Norway 1, and Sweden 8 – were among the highest in the world, with a steady increase in life expectancy (Figure 13.5). Total health expenditures per capita have increased moderately on an annual basis. Expenditures on health have remained less than 11 percent, and are similar among the Nordic countries (Table 13.7).

Most (74–85 percent) of the health system revenues are from public sources (Table 13.8). Commonly, between 50 and 70 percent of health system revenues are generated from personal income taxes levied at the regional (Sweden, Norway, Denmark) or municipal (Finland) levels of government. Most of the remainder comes from general revenues raised by the national government through value-added or excise taxes and personal or corporate income taxes. The national funds are distributed as block grants to minimize

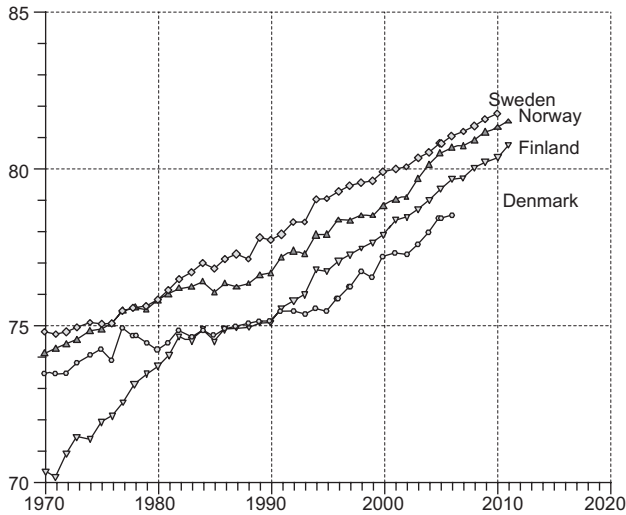


FIGURE 13.5 Life expectancy at birth in years, Nordic countries, 1970–2011. Source: World Health Organization, European Region. Health for All database; January 2013. Available at: <http://data.euro.who.int/hfad/b/>

TABLE 13.7 Total Expenditures on Health as Percentage of Gross Domestic Product, Nordic Countries, Canada, USA, and UK, Selected Years, 1985–2010

	1985	1990	1995	2000	2005	2010
Denmark	8.5	8.3	8.1	8.3	9.1	11.1
Finland	7.1	7.7	7.5	6.6	7.5	8.9
Norway	6.6	7.6	7.9	8.4	9.1	9.4
Sweden	8.6	8.3	8.1	8.4	9.1	9.8
Canada	8.1	8.9	9.4	8.8	9.8	11.4
UK	5.8	5.9	6.8	7.0	8.2	9.6
USA	10.4	12.4	13.7	13.7	15.8	17.6

Source: Organisation for Economic Co-operation and Development. OECD health data 2012. Available at: <http://www.oecd.org/health/healthdata>

interregional inequalities, with additional grants for medical education. National sickness funds pay for ambulatory visits. Municipal governments pay for long-term care for the elderly. Patient co-payments provide 2–3 percent of Sweden's county health expenditures and were introduced in Finland in 1993. The user fees are not a significant hardship because of the widespread prosperity and well-established social security systems of the Scandinavian countries.

The Nordic countries have traditionally emphasized maternal and child health and have achieved very low rates of infant mortality. Immunization coverage in 2011 for Hib vaccine ranged from 91 to 98 percent. They have higher rates of mortality from CVD than do countries in southern Europe. This is thought to be related to traditional dietary patterns with high-fat diets, along with smoking and heavy

TABLE 13.8 Public Expenditure on Health as Percentage of Health Expenditures, Nordic Countries, Canada, USA, and UK, 1985–2010

	1985	1990	1995	2000	2005	2010
Denmark	85.6	82.7	82.5	82.4	84.1	85.1
Finland	78.6	80.9	71.7	71.3	75.4	74.5
Norway	85.8	82.8	84.2	82.5	83.6	85.5
Sweden	90.4	89.9	86.6	84.9	81.2	81.0
Canada	75.5	74.5	71.2	70.4	70.2	71.1
UK	85.8	83.6	83.9	78.8	81.7	83.2
USA	39.6	39.4	45.1	43.0	44.2	48.2

Source: Organisation for Economic Co-operation and Development. OECD health data 2013. Available at: <http://www.oecd.org/health/healthdata>

TABLE 13.9 Acute Care Beds per 1000 Population, Nordic Countries, Canada, USA, and UK, Selected Years, 1985–2010

	1985	1990	1995	2000	2005	2010
Denmark	4.7 ^a	4.1 ^a	3.9 ^a	3.5	3.1	2.9
Finland	4.8	4.3	3.0	2.4	2.2	1.8
Norway	4.7	3.8	3.3	3.1	2.9	2.4
Sweden	4.6	4.1	3.0	2.5	2.2	2.0
Canada	4.5	4.1	3.9	3.2	2.8	1.7 ^b
UK	NA	NA	NA	3.1	2.9	2.4
USA	4.2	3.7	3.5	3.0	2.7	2.6 ^b

Note: ^aReported in previous OECD reports; ^b2009 data. NA = not available.

Source: Organisation for Economic Co-operation and Development. OECD health data 2012. Available at: <http://www.oecd.org/health/healthdata>

alcohol usage. These risk factors have been the subject of much successful effort at health promotion and are slowly declining. All Nordic countries have greatly reduced the supply of acute care hospital beds, as shown in Table 13.9.

Sweden

In 2011, Sweden's population was 9.5 million, and the 2011 gross national income (GNI) per capita was US\$36,143 purchasing power parity (PPP). The 2011 infant mortality rate was 2 per 1000 live births, and life expectancy at birth was 82.0 years. In 2005, crude birth rate was 11 per 1000 population, with 100 percent of births taking place in medical facilities, and the maternal mortality rate averaged 4 per 100,000 between 2000 and 2010. Immunization coverage in infancy in 2011 was over 95 percent.

Sweden's health insurance system evolved over many decades, and with the Health Care Act became compulsory and universal in 1955, covering compensation for medical clinics, hospital services, and private ambulatory care. Swedish health care is tax financed, with funding mainly from employers and government, but patients are charged a co-payment for services. Health expenditures as a percentage of GDP ranged between 8.1 and 8.6 percent from 1985 to 2000, increasing to 9.6 percent in 2011. The publicly financed health system covers public health and preventive services, inpatient and outpatient hospital care, primary health care, inpatient and outpatient prescription drugs, mental health care, dental care for children and young people, rehabilitation services, disability support services, patient transport support services, home care, and long-term and nursing home care (Commonwealth Fund, 2011).

The county or municipality is the principal level of government responsible for management of health care. There are 20 county councils and three large municipalities with populations ranging from 60,000 to 1.5 million. The counties or municipalities, which have an income tax base of financing, provide over 70 percent of funding for health care, with 11 percent coming from the national government, 5 percent from national insurance, 2–3 percent from patient fees, and the remainder from miscellaneous sources. Current reforms include improved primary care coupled with a reduction in the hospital bed supply. Primary care is provided in health centers staffed by salaried GPs, nurses, and other staff serving about 15,000 clients, but about 12 percent is provided by private physicians. Sweden has a system of economic equalization to compensate for uncontrollable factors such as age differences and rate differences for certain costly disease conditions.

Sweden has traditionally had a very high ratio of hospital beds to population. In 1985, this included 4.6 acute care beds, 6.2 long-term care beds, and 2.4 mental hospital beds per 1000 population. The acute care beds were reduced to 2.0 per 1000 by 2010. Hospitalization was a common form of care, especially in areas with a sparse population and long distances to hospitals and doctors. Reduction in hospital bed supplies has been a long-term strategy in Sweden since the 1940s, and emphasized since the 1960s, with a steady reduction in medical, surgical, and community care beds, as well as psychiatric beds. Long-term social care for the elderly has been transferred to social service agencies. This was accomplished while maintaining high-quality service and improving national health indicators, such as infant mortality rates and maternal mortality rates, which are among the lowest in the world.

Recent reforms in Sweden allowed contracting out for public sector services. This strengthened the role of primary care providers, who are now able to select more efficient and user-friendly services. Hospitals operate as economic units, balancing revenues and expenditures, and must compete for patients in the new public market for health care. Public

institutions must also compete with the private sector and, in some instances, purchase services from private providers. This has helped to reduce waiting times for operations and led to bankruptcy of inefficient or unacceptable hospitals.

Sweden, like other Nordic countries, has refocused health planning on the principle that all people should have equal access to the same conditions for good health, with a renewed emphasis on vulnerable groups such as immigrants and single parents and their children. It includes a focus on avoidable hospital days for non-communicable long-term conditions (e.g., asthma, diabetes, heart failure, and hypertension) and acute conditions (bleeding ulcers, diarrhea, and inflammatory conditions).

Denmark

In 2010, Denmark's population was 5.5 million; in 2011 the GNI per capita was US\$33,518 (PPP). The 2011 infant mortality rate was 3 per 1000 live births, life expectancy at birth was 79.0 years, and the HDI was 0.01, ranking 15th highest of 177 countries. The crude birth rate was 11 in 2005, with 100 percent of births occurring in medical facilities. The maternal mortality rate was 12 per 100,000 (2010); in 2000 it was 8.0. Immunization coverage in infancy in 2011 was 91 percent for polio and DTP, and declined from 99 percent in 2000 to 87 percent in 2011 for measles.

In 1803, the predecessor of the National Board of Health was established; from 1858 local boards of health began to be set up. There is a long history of decentralized health services, which have been the responsibility of local towns and municipalities since the early years of the eighteenth century.

Reforms focus on ensuring continuity of care across administrative sectors, with easy access to unified prevention, primary care, and rehabilitation services. The focus is on improved service for multiproblem situations, the disadvantaged, the chronically ill, and at-risk children. Denmark has not built any institutional accommodation since 1987 but has developed subsidized housing and extensive home care services for older people. The percentage of GDP spent on health increased from 8.1 percent in 1980 to 11.1 percent in 2010. Between 1990 and 2010, acute care beds declined from 4.1 to 2.9 per 1000 population.

Norway

In 2012, Norway's population was 4.96 million; the GNI per capita was US\$48,688 (PPP 2005). The 2011 under-five mortality rate was 3 per 1000 live births, and life expectancy at birth was 81.3 years. The HDI for Norway of 0.955 in 2012 made it the number one country in the world. The crude birth rate was 12 in 2011. In 2011, 99 percent of all births were in medical facilities. The maternal mortality rate was 7 per 100,000 in 2010 and immunization coverage in infancy in 2011 was over 93 percent.

Norway, with a GDP 43 percent above the average in the EU, is one of the richest countries in the world. Health expenditures in 2011 were US\$8967 (PPP) per capita. The percentage of GDP spent on health rose from 6.6 percent of GDP in 1985 to 9.4 percent in 2010. The proportion of government expenditures spent on health stayed stable at just over 86 percent and is similar to that of the other Nordic countries. Norway is the only Nordic country where central government is directly involved in the decision-making process for tertiary care services. Sweden, Denmark, and Finland delegate this to regional authorities or municipalities.

The trends in health reform over the past few decades may be summarized as:

- 1970s – reducing inequalities and building up health services
- 1980s – cost containment and decentralization
- 1990s – efficiency and leadership
- 2000s – structural changes in delivery and organization with a focus on reducing inequalities.

Primary care is the responsibility of the local municipalities; five regional health authorities are responsible for specialist care; with ownership of hospitals transferred to central government. Hospital services are organized as enterprises, with day-to-day operations run by a general manager and an executive board. National reforms have focused on responsibility for providing service, priorities, patient rights, and cost containment.

Finland

Finland is a republic with a population of 5.4 million people in 2011, a GNI per capita of US\$32,510 (PPP), and an HDI of 0.892, ranking 21st out of 177 countries. Finland has achieved one of the lowest infant mortality rates in the world, declining from 22 per 1000 live births in 1960 to 2 per 1000 in 2011. Maternal mortality averaged 5 per 100,000 live births (2000–2012). Child care is provided free by the municipalities. Immunization coverage rates include 97 percent for polio, 99 percent for DTP, and 97 percent for MMR for 1-year-old children (2011). Despite high immunization coverage, Finland experienced an outbreak of polio due to use of an inadequately immunizing inactivated polio vaccine (IPV) in the 1980s. Longevity increased by 5.5 years for men and 5.1 years for women from 1971 to 1991, with a life expectancy of 81.0 years overall in 2011, an increase from 68 years in 1960.

Finland has three tiers of government. Strong municipal governments provide primary, secondary, and tertiary care services, as well as public health, education, and other social services. The states subsidize municipalities to provide these services, with management by locally elected officials. Taxes on income are shared between the municipal

and national governments. Universal access to care is guaranteed.

Health policy is determined at the level of the national government, which regulates capital investment in health facilities and subsidizes municipalities, which are responsible for providing health and social services. State and municipal governments together collect approximately half of total taxation, which is high compared to other countries, reaching 46 percent of GDP. The economy was in recession during the early 1990s with a decline in GDP; as a result, the percentage of GDP spent on health care rose sharply, from 6.3 percent in 1980 to 7.7 percent in 1990, falling to 6.6 percent in 2000 and rising to 8.9 percent in 2010.

The constitution provides social protection for the people made up of preventive social and health policy, social welfare and health services, and sickness, unemployment, old age, and other benefits.

Public health care services consist of primary care provided by municipal health centers and specialized hospital care. A health center can be run by more than one municipality on a cooperative basis. Primary care includes well child care, school health care, medical rehabilitation, and dental care. Services may be purchased from private providers. Finland has 20 districts which provide specialized hospital care and includes a central and a regional hospital. There are five university hospitals. There is a fee paid at the time of visit to the health center for municipal services but with a cap on the annual amount the person is charged, while fees for long-term care are based on the person's income.

High rates of mortality from CVD, injury, and suicide affect middle-aged men disproportionately. The widely

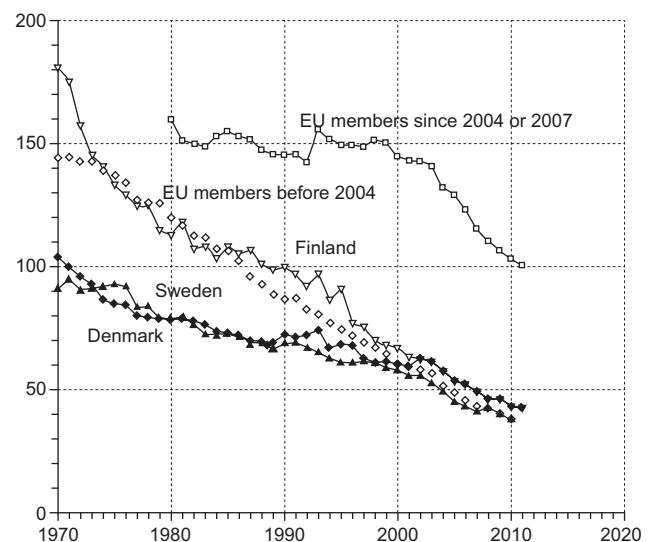


FIGURE 13.6 Nordic countries, standardized death rate, cerebrovascular diseases, all ages per 100,000 population, 1970–2011. Note: EU=European Union. Source: World Health Organization, European Region. Health for All database; June 2013. Available at: <http://data.euro.who.int/hfad/>

known North Karelia project (see Chapter 5) to promote reduction in risk factors for heart disease stimulated national efforts and contributed to substantial reductions in mortality rates from these diseases (Figure 13.6). Cardiovascular mortality rates declined 52 percent from 1970 to 1996, in part because of changes in diet with less meat and greater vegetable consumption. Hospital discharge rates for CVDs declined significantly (Table 13.10). Smoking rates for men in the early 1970s reached 50 percent but declined to 22 percent in 2009, with 16 percent of women smoking (Table 13.11). Overall alcohol consumption is low, but binge drinking is common and relates to the high suicide and trauma rates.

Finland had high hospital bed ratios up until the 1980s when it changed health policy, recognizing the limitations of hospital care and placing greater emphasis on primary care, preventive and social services, and health promotion. Hospital bed supplies are still being reduced, with shorter lengths of stay and increasing ambulatory care and outpatient care. Mental hospital beds were decreased by 50 percent during the 1980s. The total hospital bed to population ratio declined from 15.6 in 1980 to 9.3 per 1000 population

TABLE 13.10 Hospital Discharge Rates, Cerebrovascular Diseases, Nordic Countries and European Union (EU), Selected Years, 1990–2005

	1990	1995	2000	2005	2010
Denmark	430	394	452	384	362
Finland	681	820	658	561	NA
Norway	Na	382	319	342	306
Sweden	613	617	506	451	NA
EU before 3004	Na	339	348	351	NA

NA = not available.

Source: World Health Organization, European Region. Health for All database; January 2013. Available at: <http://data.euro.who.int/hfad/>

TABLE 13.11 Tobacco Consumption, Daily Smokers 15 Years and Older, Percentage of Population, Selected Years, Nordic Countries, 1980–2009

	1980	1990	1995	2000	2004–2005	2009
Denmark	50.5	44.5	35.5	30.5	26.0	19.0
Finland	26.1	25.9	24.0	23.4	21.8	18.6
Norway	36.0	35.0	33.0	32.0	25.0	21.0
Sweden	32.4	25.8	22.8	18.9	15.9	14.9

Source: Organisation for Economic Co-operation and Development. OECD health data 2011 – Version: October 2007, data available from 1980–2009. Available at: <http://www.oecd.org/els/health-systems/oecdhealthdata2012-frequentlyrequesteddata.htm> [Accessed 14 June 2013].

in 1995 and to 6.2 in 2011. Acute care hospital beds per 1000 decreased from 4.9 to 4.0 from 1980 to 1995 and 2.9 in 2005 (OECD data report, 2007).

Reform in primary care services during the 1980s reduced inefficiency, bureaucracy, and waiting times, and raised consumer satisfaction. A combination of capitation and fee-for-service payment is used. During 1993, reforms in health care financing converted national support for municipal health services to block grants based on capitation formulae to the municipalities, which now fund both the hospitals and primary care services. This allows the municipalities greater freedom in seeking a new balance of services and redirecting resources from the hospital to the primary care sectors. Local health centers provide most medical and health-related services, including rehabilitation and addiction services. Recent health reform activities have emphasized guaranteed access to care within maximum time-frames with uniform criteria for non-emergency care. Oral health care is supported by public funding that covers the total population.

Hospital-based physicians are permitted to practice privately. Over 90 percent of GPs work in publicly operated health facilities, but nearly one-third also conduct private practices in their off-duty time. GP satisfaction with the changes in the health system, with the combination of capitation and fee-for-service, is reportedly high.

The search for greater efficiency now includes a mix of planned and market economies in health. The strong tradition of publicly operated health services will continue despite introduction of market elements, but regional inequalities may be an undesired result. Health reform in Finland continues with decentralized service management and central planning and financial support. Finland emphasizes *Health in All* policies, whereby health and social issues are included in all local and national planning (Ministry of Social Affairs and Health, Finland and European Observatory on Health Systems and Policies, 2006).

WESTERN EUROPE

The countries of continental Western and Central Europe pioneered national health insurance through place of employment, with the national government regulating conditions of insurance, establishing fee schedules, and setting national health policies. The generic type is termed the Bismarckian national health insurance program, and is characteristic of Germany, France, the Netherlands, Belgium, Luxembourg, Austria, and Switzerland, each having distinct characteristics and mixed features of social insurance with national service elements. These have been termed “sickness insurance”, based on the solidarity principle of workers’ benefits, including old-age pensions, disability benefits, and compensation for loss of working capacity. The funds have maintained a treatment-oriented approach, and only

under exceptional circumstances have they undertaken disease prevention, much less health promotion.

Germany

Germany is a federal state with a century-old tradition of social protection legislation. Most aspects of management are delegated to self-governing insurers and associations of providers. The population of Germany in 2010 was 81.8 million, and life expectancy at birth in 2011 was 81.0 years; infant mortality (2011) was 3.0 per 1000 live births, and maternal mortality was 7.0 per 100,000. In 2011, the GNI per capita was US\$35,431 (PPP) and Germany ranked 22nd of 177 countries on the HDI (0.920), just above the OECD average. Immunization coverage for infants was over 90 percent in 2011.

Bismarckian Health Insurance

Germany's system of national health insurance is based on Chancellor Otto von Bismarck's plan, which introduced care for low-income workers financed through a social security system by employer and employee contributions. The Sickness Insurance Act of 1883 provided that all workers earning below a designated level be insured by a Sick Fund, with employer–employee contributions. This is also known as statutory health insurance (SHI) or as the Bismarckian system, based on making health insurance mandatory for certain employees.

The Sick Funds (*Krankenkassen*) might be owned by unions or employer associations, which can operate their own health services to provide comprehensive medical and hospital services for enrolled members and their families. The Sick Funds or mutual benefit societies may also provide cash benefits for accidental injuries, burial benefits, and widows' pensions. This plan was later extended to cover virtually the entire population and remains the foundation of Germany's health and social insurance up to the present time.

In 1911, a framework for social insurance was introduced with adoption of the Imperial Insurance Regulation. In 1923 the Imperial Committee of Physicians and Sickness Funds (later known as the Federal Joint Committee) was created as the authority responsible for decisions regarding benefits and the delivery of outpatient care. Later, the Sick Funds became obliged by law to provide hospital care not only to their members but also to family dependants, and coverage extended to include health care benefits for pensioners. Health care benefits were gradually extended further and in 2004 the unemployed, students, disabled, and recipients of social welfare were incorporated into the statutory health plan.

The statutory health insurance system is characterized by three main principles: solidarity – the willingness of the

healthy people to pay for the sick and availability of a universal and comprehensive benefit package; decentralization and organization of the health care system from the bottom up; and the principle of corporatist organization, namely representation of employees and employers on the management boards of Sick Funds.

In Germany, health care is governed at the national level by the Federal Assembly, the Federal Council, and the Federal Ministry for Health and Social Security as the key authorities liable for passing health reforms concerning statutory health insurance. The federal government is responsible for setting the health policy for delivery of medical services. The corporatist level consists of 292 non-profit, quasi-public Sick Funds and associations of SHI-contracted physicians and dentists on the provider side. The 16 *Länder* are accountable for planning and management of the hospital sector, policy development, and implementation for social and nursing care services, including prevention and monitoring of transmissible diseases, pharmaceuticals and drugs, and environmental hygiene.

The entire German population is entitled to health care services; in 2003, 88 percent were covered by SHI, 10 percent by private health insurance companies, and the remaining 2 percent by specific governmental schemes (military, police, social welfare, and assistance for immigrants seeking asylum). Thirty-seven percent of SHI insured were members of general regional funds (AOK), 33 percent were insured by substitute funds, 21 percent were members of company-based sickness funds (BKK), and 6 percent were covered by guild funds (IKK).

Statutory health insurance is the core of the German health care system. Outpatient care is provided by private for-profit care providers characterized by a monopoly and no gatekeeping functions. Physicians and other health professionals working in hospitals or institutions for nursing care or rehabilitation are paid salaries. Private physicians and dentists are paid on a fee-for-service basis with the fee schedule determined by the Federal Ministry of Health and Social Security. Inpatient care is delivered by a mixture of public and private providers. The Sick Funds represent the collectors, purchasers, and payers of SHI and long-term care insurance. Sick Funds are self-governed and based on mandatory membership.

As a result of amalgamations, the number of Sick Funds decreased from 1200 in 1993 to 292 in 2004. By law, they have the right to raise contributions, and to negotiate prices and quality assurance with providers of care with whom they contract. Sick Fund membership is mandatory for employees whose gross income does not exceed a specified upper level of the gross salary per month (in 2005) in order to prevent high-earning voluntary members from leaving the SHI. Contributions for SHI are dependent on income, and not on risk. From 1949 to 2004, contributions were shared equally between employees and their employers. In

2005, the contribution rate for employees was increased to 54 percent, with employers obliged to pay the remaining 46 percent. For people earning below a threshold minimum salary, the employers pay a standard rate of 11 percent contributions for all Sick Funds. Since 2004, pensioners have had to pay the full contribution rate. In 1995, mandatory insurance for long-term care was introduced. The long-term care insurance scheme is run by the Sick Funds and private health insurers. There is a uniform co-payment for outpatient services and products and co-payment of €10 per inpatient day for a maximum of 28 days.

Since reunification of East and West Germany in 1990, several health care reforms have been launched with the main focus on expenditure control and improving technical efficiency by enhancing managed competition and taking measures to avoid adverse effects on equity and quality. In 2004, the total government expenditure as a percentage of GDP was 47 percent, whereas in 2010 the total health spending as a percentage of GDP was 11.6 percent, placing Germany among the OECD countries with highest expenditure on health. Only the USA (15.3 percent), Switzerland (11.6 percent), and France (11.1 percent) allocated more of their GDP to health than Germany in 2005 (OECD).

Health Insurance Reform

Since 2009, universal health insurance (SHI) has been mandatory for all citizens and permanent residents. It covers preventive services, inpatient and outpatient hospital care, physician services, mental health care, dental care, optometry, prescription drugs, medical aids, rehabilitation, hospice and palliative care, and sick leave compensation. Preventive services include regular dental checkups, well-child checkups, basic immunizations, checkups for NCDs, and cancer screening at certain ages. A separate mandatory insurance scheme, LTCI, covers long-term care in the whole population.

This is a public–private health care system. In 2008, public expenditures covered 76.8 percent of total health expenditures, private spending 13 percent, and out-of-pocket expenditures 10.2 percent. Although the insurance system pays for these services and prescription drugs, user fees are charged for both medical visits and prescription drugs.

Hospitals are paid on a per diem basis, including salaried physician services. Hospital bed supply and discharge rates are high (227 per 1000 population compared to the OECD average of 163 per 1000), with low hospital occupancy rates.

Traditionally, the German citizen had no right to choose the Sick Fund and was assigned to the appropriate fund based on geographic and/or job characteristics. However, since 2002, every SHI member has a choice of Sick Fund membership at any time of the year, but a minimum membership period of 18 months is required before being able

to switch to another Sick Fund. The company-based funds (BKK) and the guild funds (IKK) have the right to remain closed, but if they decide to open, they are obliged to contract with all applicants. Only the farmers', sailors', and miners' funds remained closed with assigned membership.

In order to assure competition and to balance income-level differences in contribution rates among the funds, a risk structure compensation scheme was launched in two stages during 1994–1995. In 2001, disease management programs were introduced as a new instrument to avoid “cream-skimming” among the Sick Funds, as well as providing incentives for care of the insured chronically ill. Since 2004, the Sick Funds have been obliged to receive a fixed amount from the federal budget for several benefits relevant to family policies, such as maternity benefits, sick pay for parents caring for sick children, and in vitro fertilization, and in 2007 the scheme became “morbidity oriented”.

State governments have the authority to plan hospitals. By 1985 legislation, hospital capital costs were funded by state and local governments through a certificate of need. In 2002, 54 percent of hospitals were public; most were operated by municipalities, with 38 percent by non-profit NGOs, and 8 percent by for-profit corporations. Until 2003, hospitals, except for university hospitals, traditionally provided inpatient care only. Since then, hospitals have been able to treat patients with diseases requiring highly specialized treatment on an outpatient basis. In 2005, Germany's acute care hospital bed supply had declined from 8.4 per 1000 in 1991 to 6.3, compared to 3.7 in France and 3.9 among the original members of the EU in 2004. The average length of stay for acute care hospitals in 2004 was 8.6 days and bed occupancy rate was 75.6 percent, in comparison with most other EU countries which had an average of 6.7 days and 75.5 percent bed occupancy. Acute care bed supply declined to 5.7 and average length of stay declined to 7.5 days in 2009.

One of the major reforms in the German health care system concerns the hospital payment system. Operating costs were paid on a per diem basis by the Sick Funds at standard rates for all patients but differing among hospitals. There were no incentives for hospitals to reduce the costs of utilization. In 1986, global budgeting was introduced for hospitals, intended to promote cost-effective services, outpatient treatment, and hospital financing for greater ambulatory care and coordination of medical care. Germany has a high hospital bed supply and low occupancy rates. In 1988, and again in 1993, health reform laws were passed trying to restrain health cost increases. These included a law limiting fee increases, the supply of physicians, and use of expensive technologies in ambulatory care. Since 2004, hospitals have been reimbursed on the basis of DRGs; in 2005, the acute hospital cases were classified in 878 DRGs. Mandatory quality assurance carried out by external authorities was initiated in 2004 to provide transparency and improve quality of care.

The professional associations and hospitals have had a strong role in determining the costs of health care by negotiating high salary levels and promoting an emphasis on high technology, high levels of surgery, and overlapping services. Patients have a choice of physician but may be obliged to join one of the 294 Sick Funds according to the choice of their employer or their professional grouping.

Germany pioneered social security-based health insurance. Its health system coped well with the challenge of integrating the former East German health system and population. Germany's health care standards are among the highest in the world; life expectancy rates are improving steadily but continue to be below those of France and the EU, although well above neighboring countries of Eastern Europe (Figure 13.7). Mortality rates from cerebrovascular disease and heart disease are well above those of France and the original EU members, while cancer mortality is slightly lower. Health promotion approaches are not part of Sick Fund responsibilities, but are being developed in recent health reforms.

The Netherlands

In 2011, the Netherlands had a population of 16.7 million, with a GNI per capita of US\$37,282 (2011) and life expectancy of 81.0 years (2011), among the world's highest. Health expenditures in 2011 were 9.2 percent of GDP, just above the OECD average of 9.0 percent. The crude birth rate was 11.5 live births per 1000 population in 2011. The infant mortality rate declined from 18 in 1980 to 3 per 1000 live births in 2011, compared to US rates of 26 and 6 per 1000, respectively. Maternal mortality was 6 per 100,000 live births in 2000–2010. Immunization coverage in infancy in 2011 was 96–97 percent for DTP, polio, and measles. The Netherlands experienced two outbreaks of polio among non-immunized religious groups from imported polio virus in 1987 and 1992 and a large mumps outbreak in 2008.

The health care system of the Netherlands is a combination of public and private financing, with private delivery of care. The system evolved from medieval guilds and mutual benefit associations to health insurance through employer–employee payments to non-profit Sick Funds or private insurance plans. By 1933, health insurance offered by such groups covered 41 percent of the population. National health insurance was introduced in 1941 (by Germany). Sick Funds were established on a geographic basis covering a majority of the population. Physicians are paid on a fee-for-service basis for insurance patients and by capitation for Sick Fund patients.

A new health insurance system was created in 2006, replacing the former fragmented insurance system, and includes occupational disease and workplace injuries. It is a private insurance system with statutory safeguards covering the total population, covering long-term nursing care, acute care, and supplementary insurance. It is described as a hybrid model between public and private insurance. The medical insurers (30 companies) are required to accept all applicants and offer the same insurance coverage under the same terms and conditions. The insured person pays a nominal premium and an income-related contribution. At the year's end, those who made little use of the system receive a rebate of part of the premium. The tax system levies the income-related contribution through the employers.

Municipal health services are responsible for public health services on behalf of local and regional authorities (governments). Lifestyle factors are seen as important aspects of public health policy on smoking, alcohol abuse, physical activity, nutrition, diabetes, and mental depression.

Preventive and health promotion targets for improving health include smoking, problem drinking, overweight, diabetes, and depression as key areas of reducing health inequalities. More than 70 percent of care expenditures are for treatment of those with NCDs. The private insurance system for personal health services limits opportunities

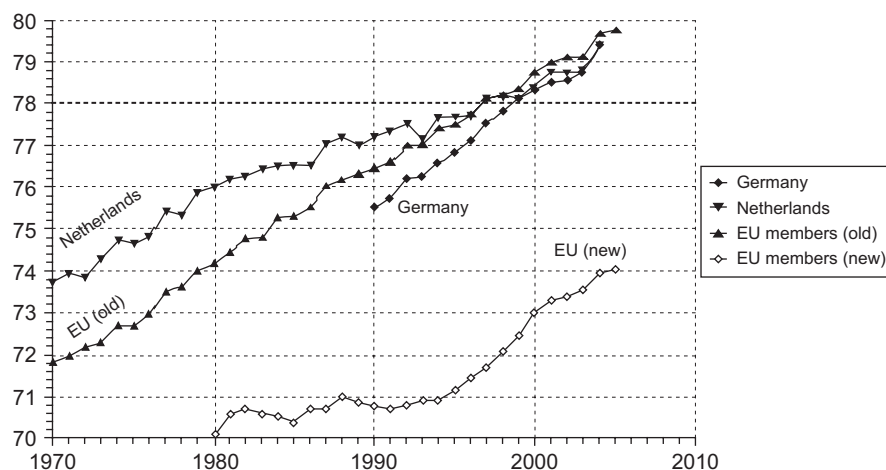


FIGURE 13.7 Life expectancy at birth in years, Germany, the Netherlands, and European Union (EU), 1970–2005. Source: World Health Organization, European Region. Health for All database; November 2007. Available at: <http://data.euro.who.int/hfad/>

for prevention-oriented activities for lifestyle-related conditions. In the absence of objectives and targets, providers and insurers determine the types and levels of preventive health services.

Patients must have a referral from their GP before seeing a specialist (i.e., the GP as gatekeeper). This helps to prevent unnecessary referrals, strengthening the role of the GP and helping to control health care costs. Most specialists are hospital based and are paid on a fee-for-service basis. Most hospitals are not-for-profit and paid on a block budget negotiated with the private insurers. The supply of hospital beds is closely regulated by the government, as is technology investment, restraining cost increases for the hospital sector.

Reform of the health system in the Netherlands emphasizes competition and market-based approaches to private insurance. Health expenditures as a percentage of GDP increased from 6.7 percent in 1972 to 8.4 percent in 1982, remained relatively stable until 1990 at 8.0 percent, and subsequently increased to 12.0 percent in 2011. The acute care hospital bed-to-population ratio was reduced from 5.5 in 1970 to 3.1 beds per 1000 population in 2011.

Mortality patterns show the Netherlands population to be at relatively high risk for cancer, but at lower risk than most northern European countries for CVD. The Dutch health system has been successful in restraining cost increases compared with the USA, while providing universal coverage, preserving primary care medical services, and achieving health status measures among the best in the world.

RUSSIA

The Russian Federation is the largest country in the world, stretching from Europe to the Pacific Ocean. Russia has a highly urbanized (74 percent) and educated (99.6 percent), multiethnic population of 143.0 million people (2012) and abundant natural resources. Following the collapse of the former Soviet Union, the Russian Federation went through tumultuous times but then developed an economic growth pattern based mainly on oil and other resources. The Russian Federation GDP per capita grew at an average 6.6 percent between 2001 and 2008, with inflation and widespread poverty, especially in rural areas. After the economic crisis in 2008 there was a drop in GDP but during 2010–2012 GDP stabilized at an average growth rate of 4.2 percent. GNI is estimated at US\$14,461 (PPP) for 2012. Owing to the recession the unemployment rate rose to 8.4 percent but decreased to 6 percent in 2012 (equal to the 2007 level). Immigration from neighboring countries such as the Central Asian Republics helps to moderate the depopulation trend to some extent. In 2012 the HDI of 0.788 placed Russia in 55th position, with a life expectancy at birth of 69.8 years (females 75.6 and males 64.0 years).

Russia's population decline since the beginning of 1990s was largely due to low birth rates and premature deaths from

stroke, CHD, violence, traffic accidents, and alcoholism. Life expectancy is slowly improving with the improving social conditions. The government took measures to influence birth rates in the country through financial support for parents after they give birth to a second child (this Maternal Capital Program has been implemented since 2007). CVDs are the most frequent cause of death in Russia. SMRs are high compared to Western European countries, which have been experiencing declining mortality rates especially since the 1960s.

CVDs cause 57 percent of all deaths in Russia, of which 49.3 percent are from CHD and 35.4 percent from cerebrovascular disease; most of these deaths occur among people of working age (Petrukhin and Lunina, 2012). The high incidence of CHD among men reflects the gap between the life expectancy of men and women. Stroke mortality in Russia declined by one-third from 2003 to 2010 (from 317 to 215 per 100,000), while CHD mortality fell by only 16 percent (from 415 to 349 per 100,000).

According to the National Statistic Committee of Russia, the total number of deaths due to CVD in 2011 was 1.1 million, whereas the total number of births was 1.7 million. CVD mortality among Russian men remains five times higher than rates in Western Europe and more than double the rates in Central European countries (Health for All database, January 2013). Up to 70 percent of men and 30 percent of women smoke in Russia. Mortality rates from CVD vary in different regions of the country: rates are higher in the north-west regions of Russia (over 1200 deaths per 100,000 in 2009), whereas in southern regions the rates are significantly lower (309 per 100,000 in Chechnya and 167 per 100,000 in Ingushetia in 2009). Figure 13.8 compares CVD SMRs in the Russian Federation with the EU and countries of Central Asia.

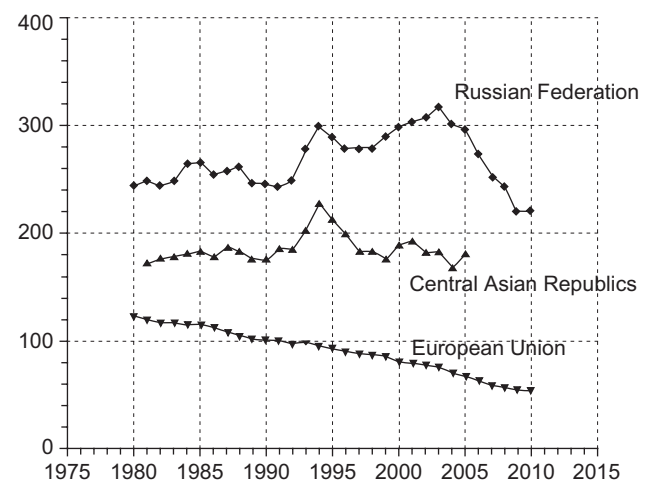


FIGURE 13.8 Standardized death rate, cerebrovascular diseases, all ages, per 100,000 population, Russia, European Union members, and Central Asian Republics (CARC), 1980–2010. Note: Three-year moving averages. Source: World Health Organization, European Region. Health for All database; 2013. Available at: <http://data.euro.who.int/hfadb/>

Excessive alcohol consumption and binge drinking also result in high motor vehicle death rates and other trauma, and homicide and suicide rates which are among the highest in the world. The situation with HIV infection is not improving. The number of officially registered HIV-positive cases (in 2011) was 695,484, for an HIV prevalence rate of 393.9 cases per 100,000 population. The rates doubled in 5 years. The most affected age group is between 18 and 24 years old. The HIV epidemic in the Russian Federation is concentrated in high-risk population groups with the principal driving forces being injection drug use and unsafe sex. But there has been a four-fold increase (from 10 to 41 percent) in cases of heterosexual HIV transmission since 2001, whereas the number of HIV transmissions via unsafe drug use has been decreasing (from 95 to 56 percent). Tuberculosis (TB) case notification rates more than doubled from 34.2 to 90.4 per 100,000 population between 1990 and 2000, but decreased by 8.5 percent from 2001 to 2003, and have been decreasing since 2008 (to 77.4 per 100,000 in 2010). Multidrug-resistant strains of TB are present in as much as 20 percent of cases in some regions of Russia.

This crisis in health is not only related to the period of economic transition in the 1990s, but goes deep into the former Soviet health system. The “old” state-operated service provided free universal health care with ample, indeed excessive, resources in medical personnel, hospital beds, polyclinics, and other services, but with quantity compromising quality since the epidemiological transition to a predominance of NCDs and changes in the health profile of the population. The system operated as a state monopoly, with the central government controlling budgets, setting mandatory norms, and totally controlling personnel training and research. The system lacked mechanisms for epidemiological or economic analysis and accountability to the public. Medical standards, research, and education were very isolated from the outside world with poor access to literature and professional contacts. The epidemiological transition from predominance of infectious to non-infectious diseases was addressed by further increases in the quantity of services. Policy and funding favored hospitals over ambulatory care and individual routine checkups over community-oriented preventive approaches.

Health expenditures have increased from 2.5 percent of GDP in 1992 to 5.1 percent of GDP in 2010, while other industrialized European countries expend an average of 9.9 percent of GDP on health. The Russian per capita GNI declined from US\$3220 in 1991 to US\$2410 in 1996, but subsequently increased to US\$14,461 (PPP) in 2011. Russia has traditionally maintained a very high hospital bed-to-population ratio, which has been declining since 1990.

After the 1991 breakup of the Soviet Union, the Russian Federation entered a period of political, economic, and social reform with important effects on the national health system and health of the population. In 1993, a

compulsory (mandatory) national health insurance (MHI) plan was adopted to augment funding and promote decentralized management of health care and movement towards a market economy in health. The health issues are, however, complex, and changing methods of financing medical care services alone may worsen the health situation by reducing access to care.

The Soviet Model

Before the 1917 revolution, Russia was a largely rural country with higher mortality rates than European countries. Public medical care and other social services for the rural poor majority were established in Czarist Russia in 1864 under the local district assemblies (*Zemstvos*) providing tax-financed services for medical and hospital care. Health insurance was established in 1912 based on the Bismarckian social security model, covering about 20 percent of industrial workers.

Following World War I, the 1917 October Revolution, and the Civil War, Russia was racked by mass epidemics and starvation. In 1918, reconstruction planning included the Soviet concept of health care formulated by Nikolai Semashko, based on the principles of government responsibility for health; universal access to free services; a preventive approach to the “social diseases”; quality professional care; a close relation between science and medical practice; continuity of care between health promotion, treatment of the sick, and rehabilitation; and community participation.

The state undertook to provide free medical services for all, through a governmental unified health system. The “social diseases” referred to all diseases related to the poor living and working conditions of the workers, mainly infectious and occupational diseases as well as maternal and child health problems, and were the focus of special attention and measures of prevention and control. Epidemic control was successfully implemented on an urgent basis, especially for TB, typhoid fever, typhus, malaria, and cholera. Community prevention approaches were enforced, often with use of punishment measures. Prophylactic measures such as quarantine were implemented, urban sanitation and hygiene improved, and malarial swamps drained in the huge territories of the USSR, resulting in the elimination of malaria by 1960.

Medical prevention of social diseases focused on routine checkups for the working population. From the 1920s, emphasis was placed on prevention and control of infectious diseases. In order to meet the needs of the system of providing health care throughout the country, increases in the supply of hospitals, polyclinics, doctors, and nurses were a national priority. In 1937, all insurance and hospital-based Sick Funds were closed, and hospitals and other health facilities nationalized and organized under district health management. Virtually all health personnel became

public employees. Parallel services were provided within industries and for special categories, especially party leadership, some ministries, defense and security personnel, miners, workers in heavy industries, and transport workers.

General government revenues provided financing of health services as part of national plans for social and economic development. The central administration directly employed staff, paid salaries, and provided supplies for all health care facilities and research and training institutes. Directors of health facilities therefore administered their allotted resources, supplies, and human resources with no opportunity for program management or internal accounting of service costs. The health system was developed, financed, and managed under strong central government control, with payments based on norms such as for hospital beds and staffing. Mandatory norms for facilities and personnel were enacted by the Commissariat (later Ministry) of Health, under strict regulation of the central authorities of the Communist Party, and later by the Ministry of Finance. These norms were revised periodically at Party Congresses, with expansion of services being the major policy orientation. The policy of continuing to increase the supply of hospital beds and medical personnel was reiterated in the mid-1980s and continued into the 1990s, but has been reduced since 2000.

During World War II, the Soviet health system was mobilized for the war effort, effectively providing care for huge numbers of military and civilian casualties. Some 20 million Soviet military personnel and civilians were killed in World War II. Despite the harsh conditions for both military and civilian populations, no mass epidemics occurred. External observers including Garrison in the 1920s, Sigerist in the 1940s, Field in the 1960s, and more recently Roemer (1991, 1993), as well as Russian medical historians Yervinski, Smirnov, and others, noted the remarkable achievements of reducing epidemic diseases, meeting wartime demands, and bringing health care to the whole country. Postwar stabilization allowed health services to be restored and trained personnel lost in the conflict to be replaced.

In order to assure equal access, each province (*Oblast*) operates a complete health system including medical institutes for training and for research, laboratories, and specialty services. Each district (*Rayon*) also has a health system with sanitary epidemiological stations (*Sanepid*), hospitals, polyclinics, and specialized treatment facilities according to national norms based on population size. The *Sanepid* supervises water, sewage, air, and ground quality; conducts epidemiological investigations of infectious disease outbreaks; and monitors child health and nutrition status. *Med-sanchast* clinics located in industrial plants provide on-site medical and occupational health services, and prophylactic health centers provide a variety of medical rehabilitation services, sanatoria, and vacation benefits. Originally, polyclinics in each district were linked as outreach facilities

to the district hospital with staff rotation between them to promote continuity of care and improve professional education. However, this became impractical because of rapid expansion of the number of polyclinics. Prevention of disease continued to be based on routine screening checkups for workers and other specified groups.

With universal access of the population to preventive and curative care, control of infectious disease was achieved and the health status of the population dramatically improved. A strong system of epidemiological surveillance and control evolved and successfully defended the huge population through the challenges of Russian history of the twentieth century with the social disruption, starvation, migration, mass imprisonment, and executions in the gulags in the 1920s and 1930s. The enormous losses of soldiers and civilians during World War II (13.7 percent of the total population) were followed by the dramatic return to society of millions of prisoners from the *Gulag* prison system after Stalin's death in 1953. During the 1950s, the Soviet model of a state-operated health system was widely promoted and emulated in countries of Eastern Europe, Central Asia, newly independent countries in Africa, Asia, and the Middle East, and in Latin America. It also influenced the development of the Alma-Ata approach of Health for All based on universal access to primary health care.

As a response to the increasing prevalence of NCDs in the mid-1960s, the Communist Party Plenum in 1983 decided to implement annual *Dispanserizatsia* or checkups as a uniform program for the general population, provided in polyclinics, hospitals, and specialized clinics. The checkups and treatment involved clinical care, follow-up ambulatory or hospital care, sanatoria, and a change of work if necessary. The screening program increased demands for hospitalization because of limited ambulatory diagnostic resources, placing the major focus of care on hospitalization and institutional care. In the mid-1980s, the Ministry of Health enunciated the continued direction of health policy as concentrating on "development of preventive medicine and improvement of health care facilities through a program for building general and specialized hospital establishments". With central control of financing, the state set mandatory norms for personnel and hospital beds, and controlled medical education to produce the human resources to operate the system. The state monopoly on health, however, led to stagnation with a bias of the system towards hospital care, without financial or epidemiological accountability for efficiency and effectiveness. The focus on hospitalization and institutional care has begun to change and the per capita acute hospital bed supply has declined since the mid-1980s to under 8 per 1000 by 2005 (Figure 13.9).

In 2005, President Vladimir Putin established priority projects in education, health, housing, and agriculture. Priority health projects were intended to improve the health status of the population, increase accessibility, and improve the

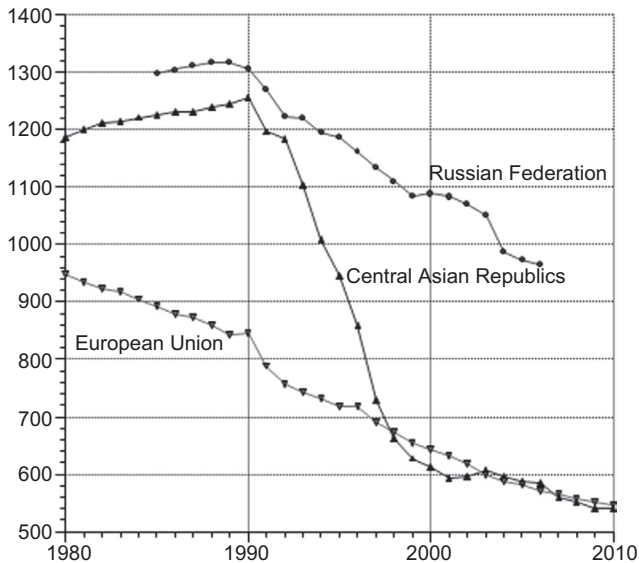


FIGURE 13.9 Acute care hospital beds per 1000 population, Russia, European Union, and Central Asian Republics (CARK), 1980–2010. Source: World Health Organization, European Region. Health for All database; March 2013. Available at: <http://data.euro.who.int/hfad/>

quality of medical care. There was an emphasis on strengthening primary care as well as health promotion and disease prevention activities, and projects to improve accessibility to tertiary care. These included upgrading ambulatory care, additional immunization programs, new check-up programs for infants and pregnant women, and AIDS prevention and treatment. Primary care centers are being re-equipped with cardiograph and ultrasound equipment. Salaries for GPs and nurses have been improved to attract young staff.

Epidemiological Transition

Despite major improvements during the Soviet period (1917–1991), mainly due to control of infectious diseases, the health status of the population dramatically deteriorated in the last quarter of the twentieth century.

Life expectancy improved up to the 1960s, but has since lagged well behind other countries (Figure 13.10). Very high mortality rates from CVDs and trauma are primarily responsible for low and declining life expectancy. CVD mortality is twice as high as in OECD countries, and mortality rates from transport accidents in the Russian Federation were twice as high as in countries of the European Region in 2010. By 2000, life expectancy at birth for males had fallen to less than 55 years, almost 14 years fewer than in 1990. However, there has been a slight increase in life expectancy and decline in mortality in Russia since 2005 (Table 13.12).

Even before the impact of the collapse of the Soviet system was felt in 1991, mortality rates in Russia were much higher than those in other industrialized countries. SMRs in Russia were 1.5 times higher for total mortality, and Table 13.13 shows even higher rates in categories such as

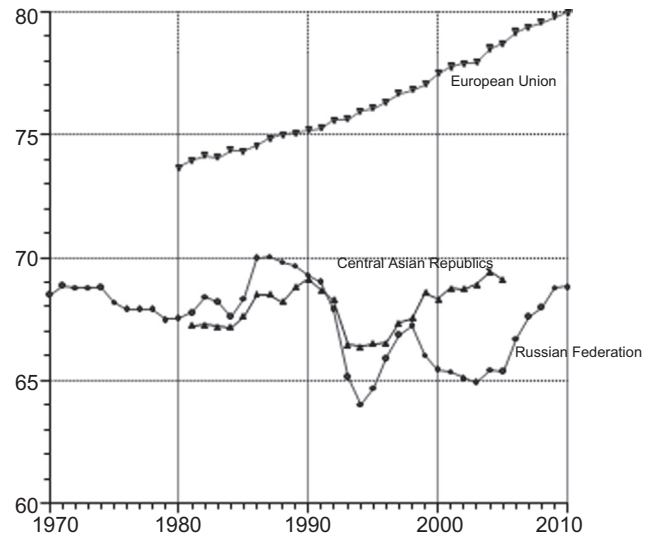


FIGURE 13.10 Life expectancy at birth in years, Russia, European Union, and Central Asian Republics (CARK), 1970–2010. Source: World Health Organization, European Region. Health for All database; March 2013. Available at: <http://data.euro.who.int/hfad/>

TABLE 13.12 Life Expectancy at Birth, by Gender, Russian Federation, Selected Years, 1970–2011

Year	Males	Females	Total	European Region Total
1970	63.1	73.6	68.8	
1980	61.5	73.1	67.6	
1990	63.8	74.3	69.2	72.0
2000	50.0	72.5	65.3	
2011	63.0	75.0	69.0	76.0

Sources: World Health Organization. World health statistics, 2012 and 2013. Part 3. Statistical indicators. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf [Accessed 18 March 2013].

World Health Organization, European Region. Health for All database; January 2013. Available at: <http://data.euro.who.int/hfad/>

cerebrovascular disease, trauma, and infectious diseases, with alcohol binge drinking and violence as major factors.

The crude birth rate declined from 17.2 per 1000 in 1987 to 8.4 per 1000 in 1999, rising to 12.4 in 2010. The total fertility rate declined from 2.0 in 1989 to 1.1 in the period 2000–2005 and then increased to 1.6 in 2010. Infant mortality rates fell from 22 per 1000 in 1980 to 16 in 1998, and 10.0 in 2011, still twice the rates in Western European countries. Abortion is the main method of birth control, and modern methods are not widely available or trusted. Maternal mortality in Russia declined from 68 per 100,000 live births in 1980 to 44 in 1998, and to 34.0 per 100,000 live

TABLE 13.13 Death by Cause, Rates per 100,000 Population, Russian Federation, Selected Years, 1992–2011

	1992	1995	2000	2005	2007	2008	2009	2010	2011
Deaths – all causes	1217	1498	1529	1610	1464	1462	1417	1419	1348
Circulatory system	647	791	846	908	834	836	801	806	749
Neoplasm	202	203	205	201	203	204	207	205	203
Accidents, poisonings and injuries:	173	237	219	221	183	172	158	152	132
Transport injuries	30	26	27	28	28	25	21	20	20
Alcohol poisonings	18	30	26	29	18	17	15	13	8
Drowning	9	14	11	10	9	8	7	8	6
Suicides	31	41	39	32	29	27	27	23	21
Homicides	23	31	28	25	18	17	15	13	12
Respiratory system	58	74	70	66	55	56	56	52	51
Digestive system	33	46	44	66	62	64	63	64	61
Infectious/parasitic diseases	13	21	25	27	24	24	24	24	23

Source: State Committee of the Russian Federation, Statistics (GOSKOMSTAT). Available at: http://www.gks.ru/bgd/regl/b12_12/IssWWW.exe/stg/d01/05-08.htm

TABLE 13.14 Age-Standardized Mortality Rate per 100,000 Population for Selected Causes of Death, Russia and Other Countries, 2008

Country	Non-Communicable Diseases (Total)	Cardiovascular Diseases and Diabetes (Total)	Cancer (Total)	Trauma (Total)
Russia	797	517	180	159
Poland	546	219	219	54
Germany	394	102	150	25
Denmark	440	92	170	53
USA	418	137	143	53
UK	401	91	144	25
Israel	337	72	125	24
Sweden	358	79	121	32
Canada	346	82	138	32
France	336	65	169	38
Japan	273	68	119	36

Note: Data are standardized to the world population.

Source: World Health Organization. World health statistics 2013. Part 3. Statistical indicators. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf [Accessed 18 March 2013].

births in 2010, compared with rates under 15 in the industrialized countries (WHO, 2013).

The decline in health status since 1990 cannot be blamed solely on the current economic crisis, or entirely on the health care system. The worsening mortality pattern is due to a combination of factors: stress, alcohol abuse, smoking, violence, lack of a balanced diet, lack of modern health care technology, environmental pollution, and a general mood of anxiety and depression related to the dramatic decline in economic and political stability since 1990 (Tables 13.13

and 13.14). On average, males are surviving only slightly beyond pension age at 60 years.

A combination of factors encouraged a medical bias towards care of individual patients and failure to apply the successful experience of the 1930s to the control of epidemics of NCDs. The concept of prevention took on a primarily medical orientation, stressing routine checkups. Health policy continued to promote increased supplies of doctors, polyclinics, and an emphasis on hospital beds. The number of medical graduates per 100,000 population was declining

TABLE 13.15 Human Resources for Health (Selected) per 10,000 Population, Selected Countries and Years, 2005–2010

	Midwives		Dentists	Pharmacists
	Physicians	and Nurses		
Canada	19.8	104.3	12.6	9.2
China	14.2	13.8	0.4	2.5
Israel	35.6	51.8	8.8	6.7
Japan	21.4	41.4	7.4	13.6
Russian Federation	43.1	85.2	3.2	80.5
UK	27.4	101.3	5.3	6.6
USA	24.2	98.2	–	–

Source: World Health Organization. World health statistics 2013. Part 3. Statistical indicators. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf [Accessed 18 March 2013].

but has been stable since 2000. Table 13.15 shows a comparison of human resources in Russia to other countries.

A hospital sector with a passive strategy of treatment and long hospital stays was unable to keep up with technological advances and consumed a large share of the very limited amount of funds allocated to health care.

Post-Soviet Reform

The Russian Federation continues to provide basic social security and health care for all citizens. Until 1993, when compulsory health insurance was established, all social benefits were funded from the general budget of the government. The health insurance scheme was based on mandatory payment by employers to regional health insurance funds.

Since the early 1990s, the World Bank has played a significant role in influencing policy makers in Russia promoting health insurance to partially replace state funding of health services, as well as decentralization and privatization of health and social services. Decentralization of management of most state health services and financing of health care increased regional and local health autonomy. The sudden and nearly complete decentralization of authority and funding hampered central management by the Ministry of Health in its capacity to develop new policies for public health issues. Central management of the sanitary epidemiological service was hampered by limited funding to expand the immunization program or to promote nutrition and other health promotion initiatives.

Decentralization of compulsory health insurance through regional systems allowed local change in health management issues and shifting from obsolescent inflated national

norms for hospital beds and personnel. Epidemiological, economic, and cost-effectiveness analysis is vital to reform in health care, especially in harsh economic conditions. Calculation of the cost of a service is fundamental. Regional and municipal authorities now have more financial responsibility and power to reallocate funds and shift priorities from institutional treatment to prevention and ambulatory care, but lack trained health management personnel to challenge old assumptions, such as the norms for hospital beds and human resources, still used as guidelines.

The deteriorating health situation is a part of a health care system in decline. The structure continued to focus on inpatient services, with less attention to ambulatory and primary health care, disease prevention, and health promotion. The per capita hospital bed supply and average length of stay are much greater than in the EU. In addition, public funding of health care has declined considerably, and the collection of informal user fees by public health providers has reduced the access of the poor to health care. Public sector funding for health care is through the federal, regional, and municipal levels and the 3.1 percent payroll tax. International reports, including by those of the WHO, OECD, and United Nations (UN), show that the federal level allocates 3.2 percent of expenditures to health.

Development of information systems, training of leadership personnel in modern management theory and practice, and reduction of the hospital sector with transfer of resources to primary care are needed to improve health care efficiency and quality. Access to international literature and the Internet will help to improve the quality of continuing education in the health sector. Reforms based, in part, on reallocation of existing resources, will require additional funding to meet the cost of the transition and raise the quality of care.

Health reforms are essential to preserve universal access and to raise population health status, medical care, and public health to international standards. Changes in financing of health care, adoption of international health targets, and changes in workforce development programs are needed. But these depend on a new set of priorities and new standards at the national, oblast (province/state in Russia), and local health authority levels of government. Decentralization and diffusion of the overly centralized system require epidemiological information and dialogue on health issues to raise health awareness and management practices to meet the health needs of the people.

The sanitary epidemiological stations are a force with the potential to expand their traditional roles to lead health promotion activities at the community and district levels, raising public awareness and knowledge of health issues. This will mean a change in attitude from being defenders of the old system to responders to community needs. That means redefining objectives, instituting training programs for new personnel, modernizing technology for laboratories, and environmental quality and enforcement issues.

Training for modern behavioral epidemiological data collection, analysis, and distribution is essential to promote knowledge of risk factors and their control. Policy, provider, and community levels need to define cost-effective programs to meet local conditions. Wide distribution of relevant data to government and the general public is needed to help change knowledge, attitudes, beliefs, and practices related to risk factors.

Future Prospects

The Russian health system has important assets with potential for change. Health expenditures per capita, traditionally low in the USSR, but despite a modest increase in 2009-2010 to just over 6 percent, remain well below western country standards, and declined in 2011. Allocation of resources will need to represent a reordering of priorities and allocating funds to promote primary care, upgrading salaries and equipment, and revision of the role of the existing polyclinic system. A system of grants to local authorities specifically directed towards strengthening primary care and health promotion would help to downsize and upgrade the hospital sector in terms of equipment and upgrade primary care, with the government of Russia developing new approaches towards reallocating rising expenditures and more effective management of financing the health system. There is a multichanneled system of financing in place, based on the state budgets, the compulsory insurance system, household expenditures, services by other governmental and industrial complexes, and voluntary insurance.

Bureaucratic segmentation of services presents a formidable barrier to reform. Privatization is not a solution and will not help to reduce the current burden of excess mortality in the Russian Federation. Instead, a reform process should build on the main existing structure of sanitary epidemiological stations and polyclinics but with major revision of content and quality standards.

OECD recommendations (2012) for reform in the Russian health system include the following: “The first objective concerns ensuring that patients can access the care that they need under the Government Guarantee Package on a timely basis. The second concerns the quality of care and whether it is adapted to patient needs. The third key goal concerns the resources allocated to the public health care system and whether this is sustainable over the longer haul. The final key issue concerns the scope for easing any overall resource constraints on the public health care system through improved efficiency of health care provision.”

Necessary health reforms include major refocusing on a number of key issues:

- preserving universal access to health care for the population
- control of privatization in health care

- health promotion regarding smoking reduction, alcohol abuse, nutrition, physical activity, trauma prevention, and NCDs
- sustained increased level of funding for health
- pooling of regional health budgets and health insurance
- national standards and guidelines for a regional “basket of services” for all
- replacement of obsolescent financing norms of the Ministry of Finance
- reduced hospital bed supply with upgrading of hospital quality and greater emphasis on ambulatory and home care
- development of polyclinics with preventive and curative services for defined populations, with capitation funding and incentives for improved quality and efficiency of services
- financing patient care on a capitation basis
- control of corruption and under-the-table payments
- raising standards of care and quality of services
- increased contact with the international community through health literature and professional meetings.

Summary

The Soviet health system brought health care to a vast, underdeveloped rural country. This system provided universal access, within a totally state-operated system of service. It was a source of pride to the Soviet state, and was recognized internationally as an important model because of its successes from the 1930s to the 1960s. During the 1950s, the Soviet model, a state-operated health system, was widely promoted and emulated in Eastern Europe and in newly independent countries in Africa, Asia, and the Middle East, as well as in Latin America. This model also influenced development of the Alma-Ata approach of Health for All based on universal access to primary health care.

From the 1960s to the 1990s, an epidemiological transition occurred in varying degrees in the different republics and ethnic populations of the Soviet Union. This transition was characterized by sharply declining mortality from infectious diseases and rising death rates from non-infectious diseases. Life expectancy remained static during the 1970s and 1980s. In the 1990s, life expectancy declined dramatically, especially for men, during the economic and social crisis following the breakup of the Soviet Union.

This crisis in health not only related to the period of economic transition in the 1990s, but went deep into the former Soviet health system with quantity compromising quality since the epidemiological transition and changes in health profile of the population. The system operated as a state monopoly, with the central government in control. It lacked mechanisms for epidemiological or economic analysis and accountability to the public. The epidemiological transition from predominance of infectious to non-infectious diseases was addressed by further increases in the quantity of

services. Policy and funding favored hospitals. Individual health was deeply affected by stress associated with great uncertainty, economic collapse, and the breakdown of social safety nets. Levels of alcohol consumption, homicide, and suicide in Russia are among the highest in the world. The challenges of health promotion and adequate prevention and treatment are not met by the existing health system. A decrease in alcohol consumption in Russia is critical for the long-term improvement in the demographic crisis.

Reform since 1991 has centered on compulsory national health insurance and decentralized management of services. In order to free resources to address health needs more effectively, reforms aimed at rationalizing the health care delivery system are needed. However, the reform movement was lacking a broad national health strategy to address the fundamental public health problems and especially the present enormous excess of preventable mortality. A new national health project reported 138,000 fewer deaths in 2006 compared to 2005 and this decline is attributed to new national initiatives in social and health policy in the Russian Federation. Rising national income and standards of living in recent years will foster this improvement, but structural and content reform of Russia's health system is important to reduce the continuing dreadful toll of preventable deaths in the country.

A World Bank and WHO joint report of 2007 pointed out the urgent need for increased funding, and for fundamental reforms of the Russian health system. The system is still primarily based on the Semashko model with the addition of national compulsory health insurance. The reforms suggested are wide in scope, from primary care to hospital reformation. The wide gaps between Russia and other former socialist countries, and especially countries of Western Europe, are primarily in the sector of NCDs and injuries which share common risk factors, underlying social and cultural determinants and opportunities for intervention. These are, in particular: high blood pressure, tobacco consumption, alcohol binge drinking, obesity, and especially low fruit and vegetable consumption and physical inactivity. These factors account for most of the disease burden, with highest rates among the poor, rural, and vulnerable. Improving health for the people of the CIS countries requires an emphasis on the detection and management of hypertension and risk factor reduction. Increased funding in health care should be directed to primary care and the hospital sector should be downsized and upgraded to adapt to the underlying determinants and risk factors of NCDs and injuries. Since 2006 there have been trends towards improvement but dedicated reform is needed to close the gap with other countries in Europe.

ISRAEL

Israel had a population of 7.8 million in 2011 (Israel Central Bureau of Statistics). The GDP per capita rose from US\$23,340 in 2005 to US\$28,809 in 2011, as compared

to US\$30,272 and US\$35,831 for the countries of Western Europe. Health indicators for Israel show an advanced state of health but with important ethnic, regional, and gender inequalities. Life expectancy at birth was 82.0 years in 2011 (fifth in the OECD). Israel's ranking in the 2012 HDI of 0.900 was 16th. Infant mortality in 2011 was 4.0 per 1000 live births (18th out of 34 OECD countries), and maternal mortality was 4–7 per 100,000 (2010), similar to the median in the OECD.

In terms of NCD mortality among the OECD countries, Israel recorded the seventh lowest rate of ischemic heart disease, the lowest stroke mortality rate, and the second lowest male cancer mortality rate, but ranked only 18th out of 34 with respect to female cancer mortality. On the other hand, it was only 28th out of 40 in cancer incidence. Israel ranked in the upper third of countries with the lowest transport mortality rate (2009 or nearest year data). Total health expenditures as a percentage of GDP were 7.7 percent in 2011, with 61.5 percent coming from the earmarked health tax and other public sources in 2011 (Table 13.16).

Immunization rates are high, with 2011 rates of 98 percent for DTP, 95 percent for polio, and 99 percent for MMR. The content of the publicly funded program has been gradually expanded to include hepatitis A and B, Hib, pneumococcal pneumonia, varicella, rotavirus, and influenza vaccines for children. The human papillomavirus (HPV) vaccine for 12-year-old girls is the latest vaccine to be funded. Hib and hepatitis B (three doses) immunization rates were 93 and 99 percent, respectively, in 2011.

Despite high immunization rates, an epidemic of polio with 15 cases occurred in 1988, and measles epidemics in 1991, 1994, and 2007–2008, leading to the adoption of improved immunization policies. In 2013, wild poliovirus was identified in sewage in several parts of southern Israel. The immunization rate is over 90 percent with inactivated polio vaccine (IPV), but the previous system of combined oral poliomyelitis vaccine (OPV) and IPV has been reintroduced (Israel Ministry of Health, 2013).

Origins of the Israeli Health System

Israel's health system evolved gradually over the past century. Palestine under the Ottoman Turkish Empire was a poor, disease-ridden, remote province rife with malaria, dysentery, and other infectious diseases. Immigration of Jews from Eastern Europe and Arabs from surrounding countries since the 1880s led to the initiation of charitable hospitals to provide care for the urban poor.

Jewish immigrants from Eastern Europe formed labor brigades and mutual aid associations. Sick Funds were initiated in 1912 based on mutual benefit principles derived from European models, associated with the union movement, and later with other political organizations. The Sick Funds grew to provide medical care insurance and services to over

TABLE 13.16 Health Expenditures, Hospital Resources and Utilization, Israel, 1970–2011

Resources/Utilization	1970	1980	1990	2000	2005	2011
Acute care beds/1000 population	3.2	3.0	2.6	2.3	2.1	2.0
Hospitalization (acute) days/1000 population/year	1148	997	834	785	761	NA
Discharges (acute)/1000 population/year	129	139	156	155	155	NA
Average length of stay (acute care) (days)	8.9	6.8	5.3	4.3	4.2	4.0 ^a
Mental health beds/1000 population	2.4	2.2	1.5	0.9	0.8	0.5
Mental diseases days/1000 population	631	721	496	379	220	NA
Nursing and elderly beds/1000 population	NA	1.4	2.0	2.9	3.1	2.4

Note: ^a2009 data.
NA=not available.

Sources: Rosen B, Samual H, Merkur S. Israel: health system review. Health Syst Transit 2009;11(2):1–226. European Observatory on Health Systems and Policies. Available at: http://www.euro.who.int/_data/assets/pdf_file/0007/85435/E92608.pdf [Accessed 21 July 2013].
World Health Organization, European Region. Health for All database; July and August 2012. Available at: <http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2> [Accessed 20 July 2013].

95 percent of the population. They provide services through neighborhood and specialized clinics, or affiliated doctors in their own clinics, purchasing hospital care from government or NGO-operated hospitals in areas where they lack their own.

Preventive care originated in 1911 by nurses from the USA sponsored by Hadassah, an international women's organization. Following the conquest of the area by British forces from the Turks in 1917, Hadassah sent the American Zionist Medical Unit from the USA to help establish a network of health facilities in Palestine. This consisted of 44 doctors, nurses, dentists, and other personnel with equipment and financial support from Hadassah and the Joint Distribution Committee. The unit opened hospitals in many urban centers, and established nursing training and preventive care programs for immigrants and schoolchildren, as well as mother and child health stations (*Tipot Halav* or “drop of milk” stations). These were gradually located in towns, villages, and neighborhoods throughout the country, providing prenatal care and child care for infants and toddlers. They provided immunization, child development monitoring, and nutrition counseling to almost all the infants in the country, and prenatal care for most women in the country, with others going to private doctors.

The British Mandate from 1917 to 1948 brought successful colonial administrative experience and development of basic public health law and systems, licensing of medical professions, sanitation, food and drug laws, as well as public health laboratories, malaria control, and many other features of public health standards of the time.

From 1912 to 1948, the health system grew based on primary health care through the *Tipot Halav* and the labor movement's Sick Fund clinics in towns and villages throughout the country, providing ready access to primary care treatment and referral services.

Following the establishment of the State of Israel in 1948, massive immigration from post-Holocaust Europe and the Middle East brought an enormous burden of health problems to the country. The new Ministry of Health established regional hospitals throughout the country in abandoned British army camps, providing acute care, rehabilitative, mental health, and long-term care services. Other hospitals are owned by the major Sick Funds and by NGOs. Reliance on ambulatory and primary care with regional medical and hospital centers is the basis of the Israeli health system.

Health Resources and Expenditures

Israel spent US\$2185 per capita on health in 2009, compared to the OECD average of US\$3233. The rate of growth in health expenditures was one of the lowest in the OECD countries, at 1.5 percent annual average over the period 2000–2009, compared to the OECD annual average of 4.0 percent. Expenditures on hospital care increased from 34 to 41 percent of total health expenditures from 1975 to 1990, dropping to 35 percent in 2000 and to 34 percent in 2008 (Table 13.17).

Health care expenditures as a percentage of GDP increased from 7.9 percent in 1990 to 9.3 percent in 2002,

TABLE 13.17 Health Expenditures (Percent) by Type of Service, Israel, 1985–2009

Category/Year	1985	1990	1995	2000	2005	2009/10
Population (millions)	4.23	4.66	5.55	6.29	6.93	7.63
Life expectancy at birth (years)	75.4	76.8	77.5	79.0	80.2	82.1
Total expenditure on health per capita (US\$ PPP)	784	1028	1435	1765	1829	2081
Total health expenditures (% of GDP) (WHO estimate)	NA	NA	7.4	7.4	7.7	7.6
Hospital costs (% of total health expenditures)	42.8	39.9	39.4	35.4	34.0	33.1
Public clinics/prevention	32.5	32.6	34.5	38.5	41.2	NA
Other	24.7	26.7	24.9	23.6	20.4	NA
Total health expenditures	100	100	100	100	100	100
Public sector health expenditures (% of total health expenditures)	NA	NA	69.2	64.0	60.5	60.3
Social security (% of total government expenditure)	NA	NA	47.1	48.5	50.0	NA

Note: PPP=purchasing power per capita; GDP=gross domestic product; NA=not available.

Sources: World Health Organization, European Region. Health for All database; August 2012. Available at: <http://www.euro.who.int/en/what-we-do/data-and-evidence/databases/european-health-for-all-database-hfa-db2> [Accessed 20 July 2013].

Organisation for Economic Co-operation and Development. OECD health data 2012. How does Israel compare? Available at: <http://www.oecd.org/els/healthpoliciesanddata/BriefingNoteISR2012.pdf> [Accessed 1 February 2013].

Organisation for Economic Co-operation and Development. OECD health data 2013. Frequently requested data. Available at: <http://www.oecd.org/els/health-systems/oecdhealthdata2013-frequentlyrequesteddata.htm> [Accessed 31 July 2013].

and declined to 7.7 percent in 2011. Acute care hospital beds per 1000 population were reduced in Israel from 3.0 in 1980 to 2.6 in 1990, 2.3 in 2000, and 2.0 in 2011. During this period, psychiatric beds were reduced from 2.2 per 1000 in 1980 to 1.5 in 1990, 0.9 in 2000, and 0.5 in 2011. Nursing and elderly care beds increased from 1.4 per 1000 in 1980 to 2.0 in 1990, 2.9 in 2000, and 2.4 in 2011 (Tables 13.16 and 13.17).

Along with the decline in acute care beds, average length of hospital stay (acute care) fell from 6.8 days in 1980 to 5.8 days in 2009, and bed occupancy increased from 90 percent to 96 percent, which was the highest among the OECD-25 countries. Ambulatory care and community health consume about 40 percent of total expenditures, an increase since 1975. Salaries in the health sector have been low compared to other sectors in the society, as has been capital investment. Physicians and nurses have successfully negotiated for salary increases during the 2011–2012 period. The physician–patient ratio has declined over recent years. Various initiatives have been developed to increase this ratio. These include the opening of a fifth medical school, developing a post-baccalaureate 4-year medical school program to complement the existing postsecondary education 6-year programs, and working to ease the certification of foreign-trained Israeli physicians. Cost restraint, improving the physical infrastructure, and keeping up with technological advances in medicine are major challenges for the future.

Health Reforms

After many years of debate, several national commissions on health, and gradual reform of health services, Israel's national health insurance (NHI) plan was implemented on 1 January 1995. It covers the total population through the universal National Insurance social security system. The individual pays for this through a 3 percent deduction from his or her salary along with an equivalent employer's contribution to a mandatory NHI program, which also covers old age and disability pensions, workers' compensation, and other social benefits. Each family must select membership in a Sick Fund which functions as a health maintenance organization. Each individual is entitled to change Sick Funds semi-annually. The National Insurance Institute transfers funds to the Sick Fund and HMOs according to a per capita formula, with a larger per capita payment for the elderly and for populations in the periphery of the country.

The Ministry of Health supervises the Sick Funds, which are required by the 1995 NHI law to provide a basic basket of services that is very comprehensive. This basket is updated on an annual basis by a multispecialty committee through a comprehensive prioritization method. The Sick Funds are obliged to provide all specified services or to arrange for those services that they cannot provide. They provide comprehensive care, either through their own neighborhood clinics or through affiliated private physicians who

are paid on a capitation basis. Additions to the obligatory basket of services, such as new medications and diagnostic tests, are made by a multiprofessional team coordinated by the Ministry of Health on an annual basis. Co-payments for specialists, diagnostic testing, and pharmaceuticals are a source of cost-sharing. People receiving welfare do not pay co-payments and the elderly population pays 50 percent of the quarterly ceilings. Attendance at well-baby clinics is free. However, there are no subsidies to low-income groups, resulting in inequalities in access to health care.

The Sick Funds are accountable for the services rendered. Most hospital beds are operated directly by the Ministry of Health, although several large hospitals are run by the largest Sick Fund, Clalit Health Services. The government wishes to transfer government hospitals to independent trusts, to operate as economic units able to allocate funds internally and compete for clients, with payment on a DRG basis, but various economic and other considerations have delayed this transition. Regionalization of services will be difficult to achieve in the present configuration of the NHI law because each Sick Fund has its own regional organization.

Health promotion is gaining strength in Israel, and health awareness has generally increased (Table 13.18). The compulsory seat belt law has met with compliance by a large majority of car drivers, and similar legislation requiring use of helmets for motorcycle drivers is also generally implemented. Similar requirements were passed in 2007 for bicycle users. Increases in permitted speed limits on major highways have been followed by a rise in motor vehicle deaths and case fatality rates. Studies by the Israeli Road Safety Authority show widespread non-adherence of drivers with speed limits. On the positive side, the creation of speed-reducing roundabouts/traffic circles and increased police enforcement have led to traffic calming and increased safety in cities such that, on the whole, Israel has reduced fatal motor vehicle accidents by nearly 50 percent over the past two decades, from 525 in 1990 to 287 in 2012.

Non-smoking legislation banning smoking from public buildings and workplaces has helped to reduce smoking in the adult population, especially among males. As of 2011, 20.6 percent of adults smoked, which is a substantial reduction from the 34 percent rate in 1991. In 2007, smoking was banned by law in bars, restaurants, and cafés, with the owners held responsible and fined for violations. This was expanded in 2012 to include several other locations, such as bus and train stops/platforms, swimming pools, cultural/entertainment performances and others, and compliance is reportedly good. In 2012 legislation was passed to increase cigarette and nargilah (water-pipe) tobacco prices, and proposals were introduced in the Knesset to limit tobacco product advertising and to increase the graphic content of anticigarette information on cigarette containers.

Low-fat foods are now commonly available in supermarkets. Private food manufacturers fortify baby formula and cereals with vitamins and minerals. Breakfast cereals are also enriched, but food fortification of bread, milk, and salt with essential minerals and vitamins is not practiced. The Ministry of Health, in collaboration with food manufacturers, is working to reduce the salt content of processed foods, as well as to reduce the price of wholegrain bread. Another initiative aims at eliminating advertising of unhealthy foods (“junk food”) on television during children’s peak viewing hours. Nearly 35 percent of the population is overweight and roughly 15 percent obese. This is especially so in Arab women. While consciousness of the importance of physical fitness is increasing, it is still not at an acceptable level. Only 8 percent of adults meet the recommendations for weekly physical activity of at least 150 minutes per week of moderate physical activity or 75 minutes of intensive physical activity. In 2011, the Ministries of Health and of Finance authorized an incentive program to encourage improved assessment and counseling of the overweight and obese in the Sick Funds. Legislation to increase the physical activity infrastructure and ease requirements for medical certification for all, prior to exercising in health clubs has been proposed.

Mortality from stroke and CHD has declined dramatically over the past three decades, largely as a result of improved treatment of hypertension and myocardial events, but also because of a decline in smoking and greater interest in self-help to maintain health. CVDs have now fallen below cancer as leading causes of mortality, although prevalence rates remain high. Obesity and diabetes are growing as national health problems.

In terms of mortality amenable to prevention compared to rates in 20 European countries, Israel ranked eighth lowest for males and twelfth lowest for females in 2008. However, Israel ranked higher in the decrease in amenable mortality rates between 2001 and 2007 for females than males in a 19-country comparison (Goldberger and Haklai, 2012).

Regional, social, and ethnic disparities are still important in Israel’s health status; the Arab population has higher rates of infant mortality than the Jewish population, 6.9 versus 2.7 per 1000 in 2010. Large-scale immigration of Russians and Ethiopians since the 1990s brings together people with different risk factors. This trend has continued, albeit on a more modest scale, with nearly 17,000 immigrants coming to Israel in 2011. The traditional distribution of health resources favors the more concentrated population centers, while the more rural areas receive fewer resources per capita.

The health agenda has paid increasing attention to health promotion as well as to the structure of health services in health reform. The Ministry of Health has concentrated in the past on reform in health services and NHI, but has expanded the breadth of its vision with development of the multiyear “Pillar of Fire” strategy, whose goals include the

TABLE 13.18 Health Promotion Initiatives in Israel

Topic	Action	Effects
Smoking	Non-smoking legislation; restricted advertising; non-smoking promotion by NGOs	Increased awareness of health effects of smoking; ban on smoking in public places, extended in 2007 to include bars and restaurants with responsibility of owners, and in 2012 to include certain open areas such as bus and train platforms
Cancer prevention	Promoting mammography and colon cancer screening, reduced sun exposure; restricting smoking, encouraging physical activity	Improving public awareness and adherence with screening tests; overall cancer incidence stable in Jewish population but increasing in Arab population, partly due to improved availability and awareness of screening programs, higher than OECD average, relatively high incidence of breast cancer
Nutritional health education	Mediterranean diet; high fruit and vegetable intake; low consumption of animal fats; incentivization of Sick Fund clinical teams to screen for and counsel obesity, especially in pediatric population	Increasing public awareness of healthy nutrition contributes to rapidly declining cardiovascular mortality and low rates of cancer; further efforts needed to slow and reverse increasing obesity rates
Motor vehicle accidents	Mandatory seat belt use implemented; highway speed limits raised; adequate highway patrols; urban roundabouts, speed bumps, improved highway infrastructure, increased interurban speed cameras	Improved emergency care and transport; police activity in driver licensing, road monitoring; electronic monitoring improved; overall fatality rates have declined substantially
Water quality	Mandatory chlorination since 1988; filtration plan operational for main surface water source from 2006	Less waterborne diarrheal disease
Sewage	Increasing treatment	Reuse of wastewater increasing; now >75 percent recycled for agriculture
Enrichment of basic foods	Law permits but does not require private manufacturers' initiatives	Breakfast cereals enriched; infant formulae and cereals enriched; basic foods (bread, salt, milk) not enriched
Food quality	Food supervision strengthened; standards at international levels; clearer and more comprehensive labeling to be implemented	Public awareness increased; low-fat foods now widely available; salt reduction campaign underway
AIDS/STI prevention	School health education, free confidential testing, AIDS hotline, campaigns for the general public and gay populations, availability of rapid combination antibody-antigen tests	Widespread information on use of condoms and avoidance of transmission in drug use, stable annual incidence – lower than most Western European and North American countries
Preventive health care	Universal health insurance; Sick Funds become health maintenance organizations; health professional schools increase preventive curricula	Prevention increasing in primary care for all ages; national quality indicators in community health care stress disease prevention, computerized medical records, and regularly updated clinical guidelines
Healthy Cities	Active association and networking of healthy cities, incorporation in National Active and Healthy Lifestyle Program	31 cities and regional councils have Healthy Cities programs; health profiles and sustainable strategy
Health promotion	MOH and Sick Funds act to raise professional and public consciousness of health and lifestyle, MOH incentivizes Sick Funds to increase the number of health promotion personnel	Growing public consciousness of diet, fitness, and smoking as health factors
Healthy aging	Community centers for elderly, quality markers and updated guidelines for lay and clinical prevention	Municipal and NGO sponsorship of activity centers and programs
Healthy Israel 2020	Define health targets for 2020 with measurable indicators and recommend evidence-based interventions	Increased awareness by health professionals, stimuli for translational research, development of multiorganizational implementation efforts

Note: AIDS=acquired immunodeficiency syndrome; STI=sexually transmitted infection; NGO=non-governmental organization; MOH=Ministry of Health; OECD=Organisation for Economic Co-operation and Development.

Source: Adapted from Israel Center for Disease Control. Health status in Israel, 1999; and Donchin M, Shemesh AA, Horowitz P, Daoud N. Implementation of the Healthy Cities' principles and strategies: an evaluation of the Israel Healthy Cities network. *Health Promot Int* 2006;21:266–73.

Updated from relevant Ministry of Health, Healthy Cities, Road Safety Authority, and OECD websites: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Full.pdf and Rosenberg E, Lev B, Bin-Nun G, McKee M, Rosen L. Healthy Israel 2020: a visionary national health targeting initiative. *Public Health* 2008;122:1217–25.

strengthening of public health topics such as health promotion and disease prevention. Reducing regional disparities in health resources and health status is another important goal of the Ministry of Health and is being addressed proactively by the Sick Funds.

Mental Health

Mental health reform has been a controversial subject since the establishment of NHI. In 2006, the Ministry of Finance and the Ministry of Health agreed to transfer mental health care to the Sick Funds. The Sick Funds will be responsible for including mental health care in the basic basket of services. A debate between various stakeholders delayed the process, but in 2012 the economic cabinet of the Knesset voted to implement the transfer and it will be completed by 2015.

Healthy Israel 2020

The *Healthy Israel 2020* initiative was created by the Ministry of Health to define Israeli policy in the areas of disease prevention and health promotion (Box 13.5 and Table 13.18). It has established and prioritized objectives, quantitative targets, and evidence-based interventional strategies necessary to improve health and reduce health inequalities. The initiative is similar Healthy People 2020 of the US DHHS and has served as one of the templates for the WHO's *Health 2020*.

The initiative involves collaboration between a broad spectrum of individuals and organizations, including representatives of government ministries, health care organizations (the Sick Funds or "Kupot Holim"), academic researchers, local government, NGOs, and the Knesset. An international panel of experts provided consultation to each committee. Twenty focus areas were established,

BOX 13.5 Healthy Israel 2020 Initiative

Healthy Israel 2020 (HI2020) is a national health targeting initiative coordinated by the Israeli Ministry of Health. It was conceived in 2005 along the lines of other international efforts such as Healthy People 2010 of the US Department of Health and Human Services. HI2020 is meant to provide a preventive health blueprint for the country to improve life expectancy and quality of life, and at the same time to reduce health inequalities.

Twenty broad domains were chosen, which were further subdivided into specific topics, bringing the total number to 30. These included health determinants such as lifestyle behaviors, nutrition, injury and violence prevention, and enhancement of occupational and environmental health; health states such as oral health, mental health, non-communicable and infectious disease prevention; and age-related topics such as maternal and child health and geriatric health. Infrastructure topics such as education and training of the preventive workforce, as well as data development, and utilitarian/implementation topics such as health communications and marketing were also addressed. Committee members were selected from relevant government ministries, the academic community, the four health maintenance organizations or "Sick Funds", and non-governmental organizations. Committees were asked to generate reports containing an epidemiological overview describing the health and economic burden of their respective topics, craft health objectives and target values to reach by the year 2020, and to prioritize evidence-based interventions to achieve them.

The first reports, published in 2011, dealt with three main lifestyle health behaviors: physical activity enhancement, obesity control, and healthful nutrition. These served as the basis for a broad implementation program entitled the National Healthy Lifestyle Program (NHLP) led by the Ministry of Health in partnership with the Ministry of Education and the Ministry of Culture and Sports. The NHLP focuses on legislative initiatives, implementation efforts in a variety of healthy cities, and

incentive packages for health care organizations to enhance preventive screening and counseling by clinic personnel countrywide. It was adopted by the Israeli government in late 2011.

Expert workshops are another means of implementing committee recommendations. To date, workshops have been held on topics such as curbing excessive alcohol use, geriatric health, and alertness enhancement, to develop specific, real-world recommendations. The introduction of Internet-based, interactive information is planned in 2013 for both health professionals and the lay public.

The HI2020 initiative has received international recognition as one of the templates for the Health 2020 of the European office of the World Health Organization. That said, various challenges loom on the horizon: Can implementation efforts already underway stay true to the guiding recommendations? How should resource appropriation be optimized among the large number of current and future recommendations? Will governmental and municipal funding for the interventions be sustained? How will new interventional, health economic, and health services research findings be integrated to upgrade existing programs? Proven Ministry commitment to evidence-based public health to date augurs well for the continued integration of this approach in developing government health promotion policies.

Sources: Elliot Rosenberg MD, MPH, National Coordinator, Healthy Israel 2020 and Director, Department of Occupational Health, Israel Ministry of Health. Personal communication; 2013.

Rosenberg E, Lev B, Bin-Nun G, McKee M, Rosen L. Healthy Israel 2020: a visionary national health targeting initiative. *Public Health* 2008;122:1217–25.

Rosen L, Rosenberg E, McKee M, Gan-Noy S, Levin D, Mayshar E, et al. Healthy Israel 2020 Tobacco Control Subcommittee. A framework for developing an evidence-based, comprehensive tobacco control program. *Health Res Policy Syst* 2010;8:17.

Ginsberg GM, Rosenberg E. Economic effects of interventions to reduce obesity in Israel. *Isr J Health Policy Res* 2012;1:17.

on topics ranging from health behaviors such as obesity control and healthful nutrition to injury prevention and preventive health education. Interventions from the Healthy Israel 2020 report on tobacco control helped to frame new national legislation spearheaded by the Ministry of Health. Another large-scale implementation program is the National Program for an Active and Healthy Lifestyle, which is a tri-ministerial effort (together with the Ministries of Education and Culture and Sports), focusing on legislative, clinical, and community-oriented interventions. Over the coming years, it is expected that many such initiatives will be created using the scientific framework developed by Healthy Israel 2020 and should be expected to expand their reach via facilitation by increasingly accessible and sophisticated social media.

Quality Assurance

In 1995, Israel implemented its NHI law providing a universal coverage standardized basket of medical services for all residents of the country through four Sick Fund health plans (Box 13.6). The law specifies that health care should reflect “justice, equality, and mutual assistance”, with medical services provided on a timely basis at reasonable quality as close as possible to the insured person’s home. The Ministry of Health supervises implementation of the law and external organizations for the purposes of evaluating the effect of the law on health services’ quality, efficiency, and expenditure.

Summary

Israel has achieved high standards of health care and health status indicators. The Israeli health system has been a quasi-national health service for many decades, with over 95 percent coverage through Sick Funds. The NHI in 1995 brought universal coverage to all residents of the country. The health system has helped the Israeli population to achieve low rates of mortality from infectious and non-infectious diseases and life expectancies among the highest in the world.

Medical and paramedical professional education, research, and the medical and drug industries have reached high levels of excellence. The 1995 implementation of NHI through Social Insurance provides greater equity in financing and reduces political manipulation of the health system. Primary care services still separate community-based preventive and treatment facilities, but the Sick Funds have become increasingly prevention oriented with improved standards of primary care. New Ministry of Health initiatives, including Healthy Israel 2020, and the Pillar of Fire strategy, as well as other national programs such as the national quality marker in community care project, promise to reduce further the disease and mortality burden and to reduce regional

BOX 13.6 Quality Indicators for Community Health in Israel

In 2004, the Ministry established the National Program for Quality Indicators in Community Healthcare (QICH), begun as a joint research project with Ben-Gurion University and Israel’s four health plans; since 2010, the project has been under the direction of the Braun School of Public Health (Hebrew University, Jerusalem). The program provides annual reports of a national set of quality indicators for community health care (available at: <http://healthindicators.ekmd.huji.ac.il>).

The purpose is to evaluate community-based medical care in Israel, and the variations in quality of care between subgroups in the population. The indicators collected are population measures to enable evaluation of the development of quality medical care, identification of areas that require intervention, improved data collection, effectiveness of care, and comparison of Israel’s indicators to those of other countries. Indicators are based on a consensus of Israel’s four health plans and national and international guidelines.

The community health care indicators in the QICH report are based on the computer databases of each of the health plans without personal identifiers; missing data are a small percentage (0.6 percent) of the population. QICH indicator data are harmonized to produce national rates which undergo a data audit by each health plan, the program management team, and a certified external auditor.

The QICH 2008–2010 report comprised 35 indicators of community health care covering six health topics: asthma, cancer screening, immunizations for elderly, children’s health, cardiovascular health, and diabetes care. Indicator domains comprise primary prevention, disease management, and effectiveness of care. Rates are available for year, gender, and a proxy for socioeconomic status based on exemption from national health insurance.

The quality indicators show continuing improvements in health promotion in the general population and disease control, increasing quality of care over time for some measures, and maintenance of the existing high levels of quality for others. Annual reports with longitudinal assessment of quality measures for community health, along with data on financial performance and patient satisfaction, provide policy makers with data for making informed decisions and health policy.

Sources: Dena Jaffe PhD, *Israel national Program for Quality Indicators in Community Healthcare*. Personal communication; 2013.

Jaffe DH, Shmueli A, Ben-Yehuda A, Paltiel O, Calderon R, Cohen AD, et al. *Community healthcare in Israel: quality indicators 2007–2009*. *Isr J Health Policy Res* 2012;1:3.

Manor O, Shmueli A, Ben-Yehuda A, Paltiel O, Calderon R, Jaffe D. *National Program for Quality Indicators in Community Healthcare in Israel Report, 2008–2010*. Jerusalem: Hebrew University, Hadassah, Israel Ministry of Health and Israel National Institute for Health Policy and Health Services Research; 2012.

and ethnic inequalities to promote care for the whole population.

HEALTH SYSTEMS IN DEVELOPING COUNTRIES

In most developing countries, health services were inherited from colonial regimes and subsequently influenced by the Soviet model of health care in the 1950s and 1960s. The development of primary health care was neglected and underfunded, with excessive allocation of resources to teaching hospitals in the main population centers, leaving little for the rural majority. As a result, most developing countries are facing the need to reform their health systems.

During the 1980s, emphasis slowly moved towards primary care under the influence of the *Health for All* initiatives sponsored by the WHO. Achievements during the 1980s and 1990s included greatly improved immunization coverage, widescale use of oral rehydration therapy (ORT), and better sanitation. There has been a decline in birth rates in most regions of the world, including sub-Saharan Africa, which had until the 1990s seemed totally resistant to birth control. National health programs emphasize primary care with immunization, oral rehydration therapy (ORT), promotion of breastfeeding, supplemental feeding for infants, and birth spacing. Progress has been made in working towards the Millennium Development Goals (MDGs), although the targets for 2015 remain out of reach.

Productivity and per capita GDP are rising in many countries in the developing world so that a combination of universal primary education and improved economic status is furthering the potential for continuing improvement in health standards. In sub-Saharan Africa, low and declining levels of economic activity reduce the likelihood of increasing funds for health care. AIDS, malaria, TB, measles, other infectious diseases, poverty, malnutrition, and high birth rates with high child mortality aggravate a poverty–population–environment cycle, which impairs national growth potential. Improving the living conditions would mean that one-quarter of the people in sub-Saharan Africa would not be undernourished, and one-third of African children would not have stunted growth. World Bank data show that the poverty rate (people living on less than US\$1.25 per day) has fallen from 58 percent in 1999 to 47 percent in 2008. Two-thirds of Africans are estimated to be deficient in vitamin A or iodine and half of the children are deficient in more than one micronutrient. As developing countries absorb western diets, lifestyles, and technology, they face a dramatic increase in NCDs such as hypertension, diabetes, stroke, CHD, and motor vehicle accidents. This, along with increasingly costly technology, places new burdens on health services.

Most developing countries spend less than 4 percent of their low national incomes on health and much of that on costly hospitals in the capital cities. Lack of adequate government

budgetary funding raises political interest in national health insurance, especially in the mid-level developing countries. The purpose is to bring more of the population into the health care system and raise additional funds for health care beyond the little that is provided through government allocations.

This section, following brief regional overviews, gives examples of developing countries actively working to reform their health care systems. Health insurance is needed to increase funding for health care and provide for the growing urban employed and middle-class health needs, but at the same time, ministries of health must provide direct services to the rural poor majorities. As in developed countries, there will be no uniform approach, but sharing of lessons learned will be helpful.

Sub-Saharan Africa includes 40 countries with a total population of 874.8 million people in 2012 (expected to reach 1284 million by 2030) and a GNI per capita of US\$2010. Annual births of 32.1 million in 2010 represent a decline in total fertility rates from 6.6 in 1960 to 5.9 in 1997, to 5.4 in 2005, and 4.8 in 2012. Life expectancy increased from 44 years in 1970 to 50 years in 1990, declining to 46 in 2005, but rising to 54.6 by 2011. The age group 15–49 years has an HIV prevalence rate slightly below 5 percent. Mortality of children under the age of 5 declined from 244 per 1000 in 1970 to 188 per 1000 in 1990, then to 169 per 1000 in 2005, and 121 per 1000 in 2010, and the infant mortality rate was 107 per 1000 live births in 2011.

In 2010, the WHO estimated that 287,000 women died of maternal causes worldwide; of these deaths, 85 percent occurred in sub-Saharan Africa and south Asia and less than 1 percent in more developed countries. Maternal mortality remains very high, with a rate of 475 per 100,000 in 2011, and with only 49 percent of births attended by a trained attendant (2005–2012; MDG5).

Immunization rates for the major childhood diseases have improved markedly in recent years and range between 61 and 75 percent, with tetanus immunization of pregnant women at 39 percent. Malnutrition (acute and chronic) is a crucial factor in child health status, with a high prevalence of stunting (estimated 41 percent) and wasting (UNICEF/WHO), contributing to high mortality from otherwise transient diseases with low mortality rates. TB, malaria, AIDS, measles, and other infectious diseases are major contributors to high rates of morbidity and mortality. Africa, with 10 percent of the global population, had 60 percent of the people living with HIV and nearly 30 million people with HIV/AIDS in 2005. Some 57 percent of those with advanced HIV receive ART, while the treatment success rate for TB increased from 71 percent to 82 percent between 2000 and 2010 (MDG6). Only 32 percent of young children sleep under insecticide-treated nets. In addition, NCDs and trauma are increasingly important contributors to the total burden of disease.

In the face of economic decline, political chaos in many countries, and the aforementioned health

problems, resource allocations for health budgets have been jeopardized in many countries. Some countries in the region devote less than US\$2 per capita to health budgets. Despite these challenges, progress has been made in efforts to improve sanitation and expand primary care services to the underserved rural areas and urban slums, giving hope for effective public health in the twenty-first century.

The dramatic effects of HIV/AIDS, with the accompanying epidemic of TB and multidrug-resistant forms, have created a public health crisis of great severity in sub-Saharan Africa, largely overwhelming the nascent health infrastructure. Yet progress is being made in immunization coverage for children and successful external assistance programs to widen the impact of the Expanded Programme on Immunization (EPI), directly observed treatment, short-course (DOTS), ORT, ART, and other modalities of public health hold out hope for a better future. The funding in low-income countries has, however, relied excessively on aid from international organizations and not placed health as a high priority in their budget allocations. Furthermore, the loss of skilled health personnel to wealthy countries in Europe and North America is a serious deficit, although signs of hope in political, economic, and social development are being seen.

Dramatic progress has been made in the eradication of polio, dracunculiasis, and onchocerciasis. Less progress is seen in TB, schistosomiasis, and malaria control. The WHO recommends wide-ranging new efforts to prevent cancer by immunization against hepatitis B, screening transfusion blood for hepatitis C, schistosomiasis control, smoking and alcohol control, reducing risk factors for CVD and diabetes, mental health, and oral health. The effects of civil war, the collapse of governments in some areas, and the refugee situation have had dreadful effects on public health. Since the mid-1990s, signs of stabilization in the governments of some countries of sub-Saharan Africa (such as Nigeria, discussed below) and significant economic progress offer new hope for the future of this potentially wealthy continent.

FEDERAL REPUBLIC OF NIGERIA

The Federal Republic of Nigeria, located in sub-Saharan Africa, is the 14th largest country in Africa and the eighth most populous country in the world, with a population of 166.6 million in 2012, with 49.7 percent living in more than 90,000 rural villages. Nigeria has more than 250 ethnic groups, with varying languages and customs. Religious groups are Muslim 50 percent, Christian 40 percent, and indigenous beliefs 10 percent. The number of children born in one year is around 6.4 million. Nigeria has 55 percent of its population living in poverty, and about 63 percent of primary-age children attend school.

In 2005, 4.4 percent of the population was infected with HIV, rising to 4.6 in 2008 and then declining to 4.1 percent in 2010, based on serosurveys. There are almost 3.5 million people now living with HIV and an estimated 1.5 million require ART. In 2011, about 390,000 new infections occurred and there were over 200,000 AIDS-related deaths. Between 2008 and 2011 those requiring ART nearly doubled, increasing from 0.86 million to 1.5 million. There are 17.5 million vulnerable children, some 7.3 million have lost one or both parents, 2.23 million are orphans because of AIDS, and an estimated 260,000 children have HIV/AIDS. About 20.3 percent of these millions of children do not attend school regularly and 18 percent are victims of sexual abuse.

The 2012 GNI per capita was US\$2102 (PPP). The HDI ranked Nigeria as 153 (as shown in Table 13.19) out of 177 countries in 2012. Life expectancy at birth was 51.3 years, with a difference between males and females of 6.5 years. Nigeria's child mortality rate fell from 230 in 1990 to 143 in 2012, and infant mortality was reduced from 120 to 88 in the same period (UNICEF, 2012). Table 13.19 provides some vital statistics indicators for Nigeria.

In 1960, Nigeria gained independence from the UK, becoming a republic in 1963. It has a federal system of government with 36 states and the federal capital territory and 774 local government areas. It has had a turbulent political history since then, full of violence and instability, resulting in a slow rate of development. Despite the vast oil wealth discovered during the 1970s, Nigeria [a member of the Organization of the Petroleum Exporting Countries (OPEC) and the sixth largest producer of oil in the world], long ruled by repressive military regimes, saw corruption erode all levels of government functioning. The military in Nigeria has played a major role in the country's history since independence.

Africa's attainment of the MDGs depends on Nigeria's success, as one in every five Africans is a Nigerian. There is

TABLE 13.19 Vital Statistics, Selected Indicators, Nigeria, 2010

Life expectancy at birth (years), males	52
Life expectancy at birth (years), females	54
Children under-5 mortality rate/1000 live births	124
Infant mortality rate/1000 live births	78
Neonatal mortality rate/1000 live births	40
Maternal mortality ratio/100,000 live births	630

Sources: United Nations Children's Fund. Statistical report 2012. Available at: <http://www.unicef.org/sowc2012/pdfs/SOWC-2012-TABLE-1-BASIC-INDICATORS.pdf> World Health Organization. World health statistics 2013. Part III. Global health indicators. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS2013_Part3.pdf [Accessed 25 May 2013].

a big discrepancy between stated health strategy, developed with modern knowledge and good understanding of New Public Health, and existing progress with the health status of the population. Table 13.20 provides some HDI comparisons with other countries in sub-Saharan Africa.

In Nigeria, adult literacy rates for men increased from 47 percent in 1960 to 67 percent in 1995, and 76 percent in 2005, declining to 72 percent in 2010; respective rates for women rose from 23 to 47 percent and 61 percent, declining to 50 percent. According to the UN, Nigeria has experienced very rapid population growth; it has one of the highest fertility rates in the world with annual growth rates of 2.5 percent. By the UN projections, Nigeria will be one of the countries in the world that will account for most of the world's total population increase by 2050.

The birth rate has declined among the educated urban population, but remains high in the Muslim northern half of the country and the southern primarily Christian rural areas, with an overall total fertility rate of 6.0 children per woman in 1997. In 2010, estimated fertility rates were 5.5 children born per woman and 40.2 births per 1000 population. Only 39 percent of infants are delivered by trained health personnel; 57 percent are born at home, with considerable variation by region. Infant mortality declined from 122 per 1000 in 1960 to 112 in 1997, and to 88 (male 78; female 68) in 2010 per 1000 live births. Child mortality in Nigeria in 2010 was the 12th highest in the world at 143 per 1000 live births, down from 207 in 1960.

The maternal mortality ratios were reported to be between 550 and 840 in the period 2006–2010 (630 in 2010). Maternal mortality rates showed geographic disparity from 166 in the south-west to 1549 in the north-west per 100,000 live births (Nigerian Demographic and Health

Survey, 2003). In 2010, the WHO estimated that 287,000 women died of maternal causes worldwide; of these deaths, 85 percent occurred in sub-Saharan Africa and south Asia and less than 1 percent in more developed countries. Some 14 percent (40,000 women, estimated in 2010) of the worldwide losses by maternal mortality occurred in Nigeria, despite the fact that the country contains only 2.5 percent of the world's population. Large regional differences in maternal deaths demonstrate that most of these deaths are preventable. The WHO estimates that for each woman who dies from childbirth in Nigeria, another 30 suffer long-term damage to urogenital organs, often with vesicovaginal fistula (with continuous leakage of urine through the vagina), tubal damage (resulting in infertility and ectopic pregnancy), and chronic pelvic pain. The United Nations Population Fund (UNFPA) estimates that some 2 million women are affected by fistulae in the developing world, of whom 800,000 (40 percent) are in Nigeria, especially in the northern part of the country where early marriage and frequent pregnancies are promoted.

The most common causes of maternal mortality and morbidity in Nigeria are bleeding immediately after delivery (postpartum hemorrhage, 23 percent), prolonged obstructed labor, eclampsia (hypertensive disease of pregnancy, 11 percent), postpartum infection (17 percent), and unsafe abortion (11 percent), along with anemia (11 percent), malaria (11 percent), and other causes (5 percent). As the result of the restrictive abortion law in the country, women often use dangerous methods to produce abortion, with high rates of complications, often resulting in death; every day, 160 pregnant Nigerian women die from the complications of pregnancy. It has been estimated that nearly 610,000 women resort to induced abortion each year, and of

TABLE 13.20 Human Development Index (HDI), Selected African Countries, 2013

Country	HDI Rank 2012	Life Expectancy at Birth (years) 2012	Under-5 Mortality Rate/1000 Live Births 2010	Maternal Mortality Ratio/100,000 Births 2010
Ghana	135	64.6	74	350
Cameroon	150	52.1	136	690
Togo	159	57.5	103	300
Kenya	145	57.7	85	360
Nigeria	153	52.3	143	630
Benin	166	56.5	123	350
Ivory Coast	168	56.0	123	400
Chad	184	49.9	173	1100
Sierra Leone	176	40.6	283	890
Niger	177	44.3	259	590

Source: United Nations Development Programme. Human Development Report 2013. Available at: <http://hdr.undp.org/en/reports/global/hdr2013/download/>

this number 10,000 die. Low levels of use of contraception in the 15–25-year age group result in 60 percent of pregnancies being unwanted, with 80 percent of women with such pregnancies resorting to unsafe and illegal abortion.

About one-fifth of children who are born in Nigeria die before reaching 5 years, twice as high as in Ghana. Life expectancy at birth increased from 43 years in 1970 to 52 in 1997, dropped to 43.3 in 2005 and rose to 52.3 in 2010. The quality of health and vital statistics is low. Of the 39 percent of births with a skilled birth attendant there is a wide variation between urban (63 percent) and rural (28 percent).

Female Genital Mutilation

Female genital mutilation (female circumcision) is among traditional practices that are deeply entrenched in Nigeria. This practice has received global attention and condemnation over the years because of its many serious physical, mental, social, economic, and political implications. The Nigerian government observes the International Day for Zero Tolerance to Female Genital Mutilation (FGM). The fight against this harmful practice is to be marked on 6 February each year. Nigeria is one of the 28 countries in Africa where FGM is still practiced. In Nigeria among women and girls under 15, there are slightly more than 10 million (11 percent) of the 91.5 million African women undergoing FGM (WHO, 2011). It is also estimated that some 25 percent of the 140 million women living with FGM are in Nigeria, and that 40–60 percent of Nigeria's women are victims to the practice of FGM, with the level being over 90 percent in some regions. This practice has no health benefits and harms girls and women in many ways. It involves removing and damaging healthy and normal female genital tissue, and hence interferes with the natural function of girls' and women's bodies. It poses a great burden on the women of the country and on the health system, including its adverse effects in transmission of HIV and sexually transmitted infections.

There is no federal law prohibiting the practice of FGM in Nigeria. Although the Nigerian federal government has publicly condemned FGM as a harmful practice, it has not taken any legal action against it. FGM is done by largely untrained women with crude implements, with no anesthesia or antibiotics; there is usually bleeding which sometimes leads to death or anemia. Besides the direct consequences of bleeding, there is the ever-present risk of infection, especially tetanus or HIV/AIDS. Many NGOs have been established by Nigerian women to fight this issue.

A WHO multicountry study in which more than 28,000 women participated confirmed that women who had undergone genital mutilation had significantly increased risks for adverse events during childbirth, with high rates of caesarean section and postpartum hemorrhage. Genital mutilation of mothers has negative effects on their newborn babies. The

consequences of genital mutilation are even more severe for the majority of Nigerian women who deliver outside a hospital setting.

Communicable Diseases

The World Bank Country Status Report on Nigeria (2005) notes that communicable diseases, often in association with malnutrition, are the major causes of mortality among children, predominantly malaria, measles, meningitis, pneumonia, yellow fever, dysentery, TB, and AIDS. The United Nations Children's Fund (UNICEF, 2013) notes that Nigeria ranks as the second largest contributor to the under-five mortality rate in the world. Immunization coverage in Nigeria is among the lowest in Africa. Malaria causes the largest number of child deaths in Nigeria, estimated at 172,000 (2010). Other major causes of childhood deaths are foodborne and waterborne diseases, bacterial and protozoal diarrhea, hepatitis A, typhoid fever, respiratory disease, meningococcal meningitis, and aerosolized dust or soil contact disease. Some parts of Nigeria are highly endemic for Lassa fever.

Highly pathogenic H5N1 avian influenza was identified among birds in this country, or the surrounding region, in January 2006. The potential devastation from emergence of a pandemic strain in Africa has led to a sudden shift in disease control to a public health focus with international aid funding available for pandemic preparedness, but this has led to concern over the possible distortion of priorities and damage to critical basic public health programs.

Immunization rates increased during the early 1980s but declined in the latter part of the decade. The level of immunization of pregnant women against tetanus was 23 percent in 1995–1997; infant immunization with bacille Calmette–Guérin (BCG) was 29 percent, 21 percent for DTP, 25 percent for polio, and 38 percent for measles. Coverage with DTP (three doses) was 47 percent, measles 71 percent, hepatitis B 50 percent (WHO 2013), and polio 79 percent (2011, WHO Regional Office, Africa). Measles accounts for 12 percent of child deaths and AIDS is a major public health issue in Nigeria, as in other sub-Saharan countries.

Since 2007, Nigeria has been the only polio-endemic country in the African region, and one of only three in the world. There was an 80 percent reduction in wild poliovirus in 2007; however, a total of 62 wild poliovirus cases was detected in 2011, an increase from 21 cases in 2010. There is also a significant antivaccination movement with the murder by Islamic extremists of some vaccination service workers in 2013. Polio control and eradication measures are ongoing with advocacy and support of community and religious leaders. This support, especially in the vaccine-averse north, along with efforts to control measles and other childhood killer diseases, creates awareness of acute flaccid paralysis and disease surveillance, and intersectoral

cooperation of governmental, private sector, and community financial and logistic support for immunization activities. Immunization-plus days have been helpful but have led to deterioration in the routine immunization program in Nigeria.

TB rates are declining in Nigeria, as in many countries, but it remains among the high-prevalence TB countries, with more than 280,000 people infected. The WHO estimates that there were over 84,000 new cases of TB in 2011, an incidence of 181 per 100,000 total population, and a prevalence of 171 per 100,000 population compared to 282 per 100,000 in 1990 (WHO, 2011). Multidrug-resistant TB accounts for 3.1 percent of new TB cases.

Non-Communicable Diseases

Although communicable diseases are major causes of mortality and morbidity in the country, NCDs represent a fairly large share of the burden of disease among Nigerians, representing 47 percent of total mortality in 2011. Half of the deaths are due to CVDs, a quarter due to cancers, and about a tenth due to respiratory diseases. Sickle-cell anemia is the most common genetic disorder affecting Nigerians. Hypertension affects an estimated 11.2 percent (4.3 million) of Nigerians over 15 years of age. In 2011, about 4.14 million Nigerians over the age of 15 years were smokers. Diabetes prevalence is also high with over 1 million Nigerians estimated to be suffering from this disease and its complications.

Nigeria's Health System

The federal, state, and local governments support works in a three-tier system of health care. The essential features of the system are its comprehensive nature, multisectoral inputs, community involvement, and collaboration with non-governmental providers of health care. The system is based on the 1979 constitution of the country, which put health care on the concurrent legislative list of responsibilities of all three levels of government. International health quarantine and control of drugs and poisons are exclusively the responsibility of the federal government. A national health policy based on the philosophy of social justice and equity was developed in 1984 and adopted in October 1988. The policy was revised in 2004 as the "Nigerian Health System on Primary Health Care".

The health system inherited from the British colonial period included limited hospital care in the urban centers, and some medical training facilities. Following independence in 1960, the state-operated health system began to develop a widened network of primary care services, in parallel with state primary education. Health care expenditures in 1992 were US\$1.50 per capita, and health constituted 5 percent of the national budget.

The present health system is seriously underfunded and covers less than two-thirds of the population, with large parts of the rural population outside the system. UNICEF estimates access to health services at 85 percent for the urban population, 62 percent for the rural population, and 66 percent for the total population. Curative services in hospitals and primary care clinics receive the major share of the fiscal resources. Proposed changes in allocation will divide health resources in Nigeria as follows: 15 percent to federal government-operated specialty hospitals; 25 percent to state government-operated district hospitals; and 60 percent to local government-operated primary health care clinics, including maternal and child health, school health, and other aspects of primary health care.

Spending on health is low, with total expenditures reported as 5.3 percent of GDP including 1.9 percent from government sources (World Bank, UNHDR, 2011). According to the Central Bank of Nigeria, federal government health spending in 2011 decreased by 14.6 percent compared to 2010. Most of the federal health spending goes to teaching and specialized hospitals and federal medical centers. Tertiary health care institutions receive more than two-thirds of the total budget allocated to health, of which about two-thirds is spent on personnel and administrative overheads. Out-of-pocket expenditure accounts for 70 percent of Nigeria's total health expenditure and represents more than 9 percent of total household expenditure.

Health care insurance is through social security and state national assistance, together with special group coverage for members of the armed forces and organized urban groups such as those working in the transport sector. The public health services suffer from low salaries, lack of supplies, and inefficient administration. Private practice is common in the urban centers, serving mainly the middle class. Drugs are expensive and imported in an unrestricted fashion. The National Health Care Fund receives funds from federal government general revenues, rural cooperative health insurance premiums, and employed people's health insurance.

Despite a high standard of medical training, the overall quality of care and efficiency in health management are low. The federal government is undertaking initiatives to broaden health insurance in order to raise revenues for health care and to increase equity of access to services. Although the data are incomplete, available information from the Federal Ministry of Health Record for 2005 reported the following federal government-operated hospitals: 19 teaching and specialist hospitals, eight psychiatric hospitals, three orthopedic hospitals, and 24 federal medical centers. In addition, there are 59 tertiary health facilities operated by the states. The number of tertiary and specialized hospitals suggests that there is a relatively good average availability of high-level services. In 2000, there were 3275 secondary care-level facilities in the public sector, a population-to-facility ratio of around 135,000 people per facility supplemented by

TABLE 13.21 Health Professionals, Nigeria, 2003 and 2008

2003			2008		
Personnel	No.	Rate/10,000 Population	Personnel	No.	Rate/10,000 Population
Physicians	34,923	2.8	Physicians	55,376	4.0
Nurses	127,580	1.03	Nurses and midwives	224,943	16.1
Midwives	82,726	0.67			
Community health workers	115,761	9.0	Community health workers	19,268	1.4

Note: Data estimated as of 2003 and 2008. Nurses and midwives are reported as one category in 2008.

Source: World Health Organization. World health statistics 2008, 2012. Available at: http://www.who.int/gho/publications/world_health_statistics/EN_WHS08_Part2.pdf, http://www.who.int/whosis/data-base/core/core_select_process.cfm, and http://www.who.int/gho/publications/world_health_statistics/EN_WHS2012_Full.pdf [Accessed 25 May 2013].

3000 facilities in the private sector. Primary care was based in over 21,585 public sector and almost 7000 private primary health care facilities in 2003. As of 2008, responsibility for tertiary care services is with the federal government, secondary health care services are the responsibility of the state governments, and local governments are responsible for primary care services. This is expected to expand coverage for basic health care to a large part of the rural and urban poor population.

In 2003 human resources included 115,761 community health workers. There has been a steady increase in the numbers of health professionals trained in Nigeria to meet the health care needs. There were 34,923 physicians in 2003, 127,580 registered nurses, and 82,726 registered midwives. In 2011 human resources included 55,376 physicians or 4.0 per 10,000 population, but most physicians are located in the urban areas. There were 224,943 registered nurses and midwives as of 2008 (Table 13.21).

Medical education has been given high priority; there are 18 fully and five partially accredited medical schools in the country and many more awaiting accreditation. They graduated about 2000 doctors, 5000 nurses, and 800 pharmacists in 2002/2003. Some of the universities/teaching hospitals have fully developed departments of public health where public health physicians are trained in conjunction with the National Postgraduate Medical College of Nigeria and West African College of Physicians.

A master's degree in public health programs is also offered, but there is no school of public health. The priority given to curative services largely fails to address the basic health problems of the country, which require the application of well-known and cost-effective public health programs. Increasing death rates from non-infectious diseases and trauma require attention in planning preventive and curative services for the future.

Nigeria is one of several major health staff-exporting countries in Africa, with nurses and physicians emigrating,

both legally and illegally, mainly to Britain, which is a threat to sustainable health care delivery in Africa's most populous country. About 20,000 health professionals are estimated to emigrate from Africa annually. Data on Nigerian doctors legally migrating overseas are scarce and unreliable, but estimates are that hundreds of Nigerian-trained doctors continue to migrate annually. Internal migration from state and rural posts is a major threat to the achievement of the MDGs. Doctors are attracted to university teaching hospitals rather than employment by states because the salaries are far higher in the federal establishments than in state employment. Almost half of Nigerian doctors choose to work in Lagos in federal health institutions. A unified salary scale for doctors in both state and federal government employment should be implemented to motivate doctors to stay in the state of origin or local governments to render services, because that is where they are most needed. The Nigeria Medical Association has for many years been advocating for a unified salary scale, the Medical Salary Scale, to counter the maldistribution of medical doctors in the country.

Millennium Development Goals

Nigeria's MDG achievements in the past few years include the extension of primary health care services to over 20 million people, provision of safe water to over 8 million people, a six-fold increase in the distribution of insecticide-treated nets to protect the under-fives from malaria, and a 98 percent reduction in the incidence of polio, albeit with a resurgence of cases which remains a challenge in pockets in the north of the country.

The under-five mortality has fallen by over 20 percent in 5 years, from 201 deaths per 1000 live births in 2003, to 157 deaths per 1000 in 2000 and 143 per 1000 in 2010. In the same period, the infant mortality rate fell from 100 to 88 deaths per 1000 live births in 2010. Recent interventions

including Integrated Management of Childhood Illnesses that reflect the underlying causes of child deaths have contributed to these successes. However, these need to be rapidly expanded and accelerated if Nigeria is to achieve MDG4. Nigeria has had striking success in almost eradicating polio, reducing the number of cases by 98 percent between 2009 and 2010. However, a climate of insecurity and violence in parts of Nigeria threatens the solid programmatic advances in polio eradication in Nigeria made in recent years.

Maternal mortality fell by 32 percent, from 800 deaths per 100,000 live births in 2003 (then one of the highest maternal mortality rates in the world) to 545 deaths per 100,000 live births in 2008, but rose to 630 in 2010. However, the proportion of births attended by a skilled health worker has remained low and threatens to hold back further progress. An innovative Midwives Service Scheme is expected to contribute substantially to ongoing shortfalls but its impact has yet to be reflected in the data. If the scheme is expanded in proportion to the national gap in the number of midwives, this will further accelerate progress. In addition, more mothers will be covered by antenatal care as access to quality primary health care improves and incentives attract health workers to rural areas (Nigeria MDG Report, 2010).

While the level of violence against Nigerian women in the home remains poorly mapped, pilot studies conclude that it is “shockingly high”. Up to two-thirds of women in certain communities in Nigeria’s Lagos State are believed to have experienced physical, sexual, or psychological violence in the family; in other areas, around 50 percent of women say that they are victims of domestic violence.

In the absence of official studies, research into the prevalence of violence in the family has been conducted by individuals and organizations. In a recent small-scale study of gender inequality in Lagos and Oyo states, 40 percent of the women interviewed said that they had been victims of violence in the family, in some cases for several years. The widespread practice of FGM may be a further indicator of the level of violence against women and children. According to the UN Committee on the Rights of the Child, acceptance of domestic violence is high even among law enforcement officers and court personnel.

As a means of promoting gender equality, the Strategic Implementation Framework and Plan sets out the objectives, targets, and monitoring framework needed to work towards eliminating gender discrimination and improving the participation of women in national life.

Cancer

The National System of Cancer Registries was established in 2009 in collaboration with the US University of

Maryland, various Nigerian health institutions, and the Nigerian Ministry of Health. It works cooperatively with other international cancer agencies and the CDC in Atlanta, USA, to develop a strong population-based cancer data system for the most common cancers as a basis for health policy and research.

Data from the National Cancer Registry show that 100,000 new cases of cancer are currently diagnosed each year in Nigeria. The most common cancers are of the cervix, liver, breast, and lymph glands.

HIV/AIDS

Nigeria has the third largest number of people infected with HIV/AIDS in the world. Around 26,000 children have HIV/AIDS. The need for ART increased from 0.85 million to 1.5 million people between 2008 and 2011. As a result of the HIV/AIDS epidemic, 7.3 million children have lost one or both parents, with 2.3 million orphans. Violations of women’s rights escalate the rate of HIV infections throughout Africa. Sexual oppression combined with a high biological receptiveness of viral transmission due to FGM puts women at risk. As a consequence, the violence against women threatens to destroy whole communities.

Success in reducing the prevalence of HIV among pregnant young women aged 15–24 led to a decline from a prevalence of 5.8 percent in 2001 to 4.1 percent in 2010. Nationally, Nigeria has already achieved this MDG target, although some states still have high prevalence rates. Success depends on better awareness and use of contraceptives. There has been a sharp decrease in malaria prevalence rates. Nationwide distribution of 72 million long-lasting insecticide-treated bed nets, although only in its initial stages, protected twice as many children (10.9 percent) in 2009 as in 2008 (5.5 percent). Similar progress has been made with TB: with sustained attention, TB is expected to be a limited public health burden by 2015.

Food Fortification/Malnutrition

The initiative to control and reduce micronutrient deficiency disorders in Nigeria goes back to 1990. Iodination of salt, begun in 1993, reduced the prevalence of goiter to 11 percent at the pilot sites and household consumption of iodized salt increased to 98 percent. Nigeria was the first African country to receive a certificate of achievement.

In 2002, the government adopted a new strategy: the fortification of staple foods with vitamin A, with published mandatory standards, in flour, sugar, and vegetable oil. By 2004, 70 percent of the sugar, 100 percent of wheat flour, and 55 percent of vegetable oil were fortified with vitamins. Wheat flour is also fortified with iron. Food fortification with folic acid has been extended to common staple foods such as margarine, pasta, popular drinks, and some brands

of powdered milk. However, cassava, the most commonly consumed food in Nigeria, is not fortified.

The National Policy on Food and Nutrition launched in 2002 set specific targets for 30 percent reduction in malnutrition (acute and chronic) among under-fives by 2010, and a 50 percent reduction in micronutrient deficiencies (vitamin A, iodine, and iron) by 2010. The strategy for reducing malnutrition includes both the agricultural and non-agricultural sectors.

Health Reform

The Nigerian Colonial Development Plan in the 1940s had a limited framework for a unitary health service. In the 1950s, regional governments ran independent and sometimes parallel health systems to the federal government; in the 1960s, the Second National Development Plan in the postindependence era did not articulate a system with clear responsibilities for each level of government.

Between 1986 and 1992, progress was made in the development of primary health care, focusing on local government areas. This was supervised by the National Primary Health Care Development Agency (NPHCDA), established in 1992 as a body reporting to Nigeria's Federal Ministry of Health. In 2007 this agency was merged with the national immunization program with the mandate to improve access to care and control preventable diseases.

Since 2005, ongoing health service reforms have continued in areas of food fortification under the national response to malnutrition, repositioning of the NPHCDA, establishment of the National Health Insurance Scheme (NHIS), as well as the proposed National Health Bill. The NHIS, launched in 2005, provides services to enrollees through 5949 health care provider plans, 24 bank plans, five insurance companies, and three insurance brokers.

In May 2011, the new National Health Bill sought to establish stable funding for health and basic services for certain vulnerable groups including young children, pregnant women, the elderly and those with disabilities, as well as those living in hard-to-reach rural areas. However, the accompanying measure, the Primary Healthcare Development Fund, has yet to be established.

The first major development policy framework introduced by the federal government after the Millennium Declaration was the National Economic Empowerment and Development Strategy (NEEDS) in 2004. The State Economic Empowerment and Development Strategy (SEEDS) was the corresponding strategy at state level. NEEDS was a medium-term development strategy implemented between 2004 and 2007. It laid down the overall framework and strategic direction for the sector policies that followed. NEEDS and SEEDS formed the basis for policy coordination in programs and projects between the federal and state governments.

The NEEDS is based on three pillars:

- empowering people and improving social service delivery
- growing the private sector and focusing on non-oil growth
- changing the way government works and improving governance.

Nigeria Vision 20:2020 was developed as a longer term growth and development framework for the country. It foresees Nigeria being among the 20 largest economies by the year 2020. The growth prospects assumed by the Vision, quite apart from the policy interventions for the MDGs, are expected to make a substantial contribution to poverty reduction.

Summary

The evolution of health care in Nigeria from a very limited colonial health service to a centrally managed service with serious underfunding, and then to a more universal system, reflects postindependence trends in many countries. Ethnic violence over the oil-producing Niger Delta region, interreligious relations, corruption, and inadequate infrastructure are basic issues in the country. Facing a population explosion and contracting economies, African countries went through a very difficult transition in the 1980s and again in the first decade of the twenty-first century. In natural resource-rich countries health expenditures per capita declined. Health information systems are inconsistent with limited reliability for policy and decision making within the country and regionally. Recent activities and reports of international organizations (UN, WHO, UNICEF) have highlighted these challenges.

The primary care system needs strengthening to meet the challenge of preventable diseases, which have been exacerbated by a decline in immunization coverage in recent years. Decentralization of organization to increase the role of the state and local government authorities may improve community participation and efficiency of services. It may also increase revenues by providing a mechanism for local financial input.

There has been a lack of prioritization of maternal and child health in terms of resource allocation and systematic programming. The low rate of political attention given to maternal and child health in the country in part reflects the continuing adverse affects of some harmful traditional, religious, and cultural practices. The Minister of Health, Professor Adenike Grange, in November 2007 reported to the National Health Council on a seven-point agenda that placed a high premium on the development of human capital, and recognized that health and education are the twin engines that drive national development by developing human capital.

Since the 1990s, the Nigerian health sector has proposed reform targeted towards improving health service delivery and quality of care, but “these programmes have fallen short of making a significant impact towards improving health service delivery, due to a relatively poor emphasis on implementation, monitoring and evaluation”. Professor Grange promised that the administration would move health sector reform forward, building on the policies and frameworks that have been developed, focusing on implementation, integration, monitoring, and evaluation. Current and new legislative initiatives and service program require adequate funding levels to ensure availability and accessibility of services across populations, especially the most vulnerable, in both rural and urban areas.

LATIN AMERICA AND THE CARIBBEAN

The Latin American region includes 29 countries, with a population of more than 589 million. It experienced rapid economic growth until the world financial crisis of 2008, but is burdened with widespread poverty and inequality in incomes, health, and well-being. GDP per capita ranged from a low of US\$700 in Haiti to US\$12,280 in Chile in 2011. GNI per capita in 2006 averaged US\$8571, compared to US\$32,217 for the industrialized countries.

Life expectancy at birth increased from 60 years in 1970 to 68 in 1990, to 73 years in 2006 and 74 years in 2011. There are over 11 million births annually in the region (2006), but the crude birth rate fell from 37 to 27 to 20 to 18.2 per 1000 population in 1970, 1990, 2006, and 2011, respectively. Crude mortality declined in the same years from 10 to 7 and to 6 per 1000 population. From 1970 to 1990 and 2006, the child (under 5 years) mortality rate fell from 123 to 55 to 27 per 1000 live births, with average annual reductions of 4 percent and 4.4 percent in the periods 1970–1990 and 1990–2006. Infant mortality fell from 106 to 43 to 22 per 1000 live births from 1970 to 1990 and 2006, respectively. Maternal mortality in the period 2000–2006 was still high, 130 per 100,000 live births, with 86 percent of deliveries taking place in a health facility (UNICEF, 2008).

These figures indicate impressive economic and health care progress for the region. Continent-wide eradication of wild poliovirus and control of measles and other vaccine-preventable diseases have been achieved. However, violence and trauma, CVDs, TB, malaria, dengue fever, Chagas’ disease, and cholera are still major public health problems.

Despite the impressive but uneven progress in health, inequalities of income and health status between and within countries are also dramatic, with widespread poverty in rural and urban slums. Sustained economic growth and higher quality work will be needed to achieve the MDGs of reducing poverty and hunger. The health sector can help very much, however, by furthering the successes to

date in control of infectious diseases, paying attention to malaria, TB, and other endemic diseases, improving sanitation, extending immunization, and improving maternal and child health care. Colombia is presented as an example of the progress and challenges facing the health sector in Latin America.

Colombia

Colombia is located in the north-western region of South America and has a land area of 1.141 million square kilometers divided into 32 departments (states), and further subdivided into 1076 municipalities. It is a mid-level developing nation with 47.6 million inhabitants, with a per capita GDP of US\$8861 (PPP) in 2012. The population is 76 percent urban (2012), with 93.4 percent literate and 52.7 percent living below the national poverty line (8.2 percent living on less than US\$1.25 per day) (World Bank data, 2011).

Life expectancy at birth increased from 57 years in 1960 to 71 in 1997, 72.3 in 2005 and 73.9 years in 2012. From 1970 to 1990 and 2000, the crude mortality rate fell from 9 to 6 to 5 per 1000 and remained at 5 between 2005 and 2012. The total fertility rate in 2000–2005 was 2.5 per woman and declined to 2.1 in 2011. The infant mortality rate decreased from 82 per 1000 live births in 1960 to 25 in 1997, 17 in 2005 and 15 in 2011. Child mortality rates declined from 130 per 1000 live births in 1960 to 30 in 1997, 21 in 2005 and 19 in 2010. Maternal mortality remains high at 92 per 100,000 in 2010. Primary school enrollment is universal, and adult literacy rates are high (93.4 percent in 2010).

Total expenditures on health were 6.1 percent of GDP in 2011. Colombia’s HDI in 2012 was 0.719, placing the country in 91st position out of 187 countries surveyed. Furthermore, Colombia has a Gini index (a measure of inequality of wealth distribution) of 65.9 (on a scale from 0 to 100, 0 being total equality and 100 total inequality).

The internal civil conflict has caused the displacement of nearly 4 million Colombians since 1985, with a devastating impact on the health profile of the Colombian population.

In Colombia in 2002, the leading causes of death included CVDs and diabetes (27 percent), violence and trauma (19 percent), and chronic and lower respiratory infections (8 percent). CVDs are increasing as the associated risk factors of smoking, fatty diet, inactivity, hypertension, and diabetes are more prevalent than in the past throughout the area.

The main causes of mortality in 2010 were cancer, external causes, CVDs, and communicable disease. Smoke-free legislation applies to all public places with national laws and fines levied against both violators for smoking and the establishments. Homicides among males are an important

cause of mortality, with a rate as high as 109.2 per 100,000 men. Road traffic deaths among men declined from 35.9 to 29.9 per 100,000 population between 2000 and 2005. There is wide variability in reported cases of malaria but these declined from 120,096 in 2006 to 64,309 in 2011.

Communicable and infectious diseases are highly prevalent in Columbia. In 2010, TB incidence was 24.7 per 100,000 population, with 15.2 laboratory-confirmed positive sputum smears. In contrast, AIDS incidence was 3.1 per 100,000. It is estimated that 8 million Colombians live in high-risk areas for Chagas disease, with 1.2 million cases. There was a large outbreak of dengue in 2010, with 157,152 cases and a case fatality rate of 2.3 percent. Ten million people are at risk of leishmaniasis, mainly in rural areas, with 14,000 cases reported on average between 2000 and 2010. Annually, there are 140,000 malaria cases.

Cancer and CVD are the leading causes of NCDs, with mortality rates of 120.7 and 101.7 per 100,000, respectively, in 2010. Cerebrovascular diseases account for 51.2 deaths per 100,000 population and diabetes mellitus mortality was 24.2 per 100,000 population in 2010.

External causes are an important group mainly related to homicide (including illegal and legal interventions, and war operations) with 44.6 deaths per 100,000, police reported intentional homicides rates of 66.7, 42.1 and 34 per 100,000 for 2000, 2005 and 2010 respectively, while road traffic accident deaths are 12 per 100,000 (2010). Violence is the leading cause of death in the 15–45 year age group for men and women. Deaths from violence are the second leading cause of male deaths, with a rate of at 3.1 per 100,000, twice the rate for women of 1.5 per 100,000; violence is the fourth leading cause of death among Colombian women.

During the 1990s, Colombia's health system experienced a major reform that replaced the previous national health system and the Bismarckian social security system with a new social security system that covers standards governing the general system of pensions, professional risks, and complementary social services. The reform of the 1970s' National Health System attempted to respond to the global initiative promoted by the World Bank in 1987 that aimed to consolidate health systems in different nations. As a result, Colombia implemented Law 100 in 1990, by which territorial entities became financially and administratively autonomous to operate the public hospitals circumscribed to their area and to execute free public health activities within the frame of their local plans.

This process of decentralization was favored by the new Colombian constitution of 1991, which conferred more power to the territorial entities and defined social security as a mandatory public service that should be coordinated and controlled by the state. This mandate was enacted in 1993 under Law 60, which governs matters relating to the authority and resources of the various territorial entities (today Law 715/2001), and Law 100, which created a new scheme

for the General Social Security System for Health. Based on the concept of universal access through a demand-oriented model, the reform seeks to implement equity of access, free choice of HMOs (Entidades Promotoras de Salud), institutional autonomy, decentralized administration, and national regulatory mechanisms by assigning each person a per capita unit adjusted by risk.

To assure universality and financial solidarity, the reform intends to cover all individuals under both contributory and subsidized systems based on a partnership scheme of income redistribution. The law stipulates that employed people contribute 12 percent of their salary (two-thirds of which is paid by their employer), while the self-employed pay 12 percent of their declared income. However, the subsidized system is financed with the resources of the municipalities, one-twelfth of the resources collected through the compulsory system, fiscal allocations to the departments, national income assigned to the departments, resources from gambling taxes, voluntary contributions from the municipalities and departments, royalties from new oil wells, contributions from the compensation funds, value-added tax destined for social programs, tax on firearms and ammunition, and co-payments and prorated fees from members and their families.

Funding resources are collected in the National Solidarity and Guaranty Fund. The system is directed, standardized, regulated, and controlled by the National Council of Social Security for Health, a body of the Ministry of Social Protection (previously called the Ministry of Health), composed of a professional group of the main participants in the system and the sectional health services in each state. The legal framework is supervised and evaluated by Committee VII of the Senate and the House of Representatives. The HMOs administer the provision of the services and the health provider institutions (*Instituciones Prestadoras de Salud*) provide the services. The Superintendancy of Health controls and monitors the system.

The contributory system offers a comprehensive compulsory health plan (*Plan Obligatorio de Salud*, POS) under the social security system that includes initiatives to benefit the individual, the family, and the community in general. The compulsory health plan of the subsidized program (*Plan Obligatorio de Salud del Regimen Subsidiado*, POS-S) is territorially based, composed mainly of actions in the area of health promotion and disease prevention, and provides only 70 percent of the services offered through the contributory system. To select the subsidized population, the municipal authorities apply annually a survey that combines criteria of the Poverty Line Index and the Index of Unsatisfied Basic Needs. The HMOs mobilize financial resources, organize health promotion activities, arrange complementary health plans, provide the POS and the POS-S for affiliated individuals, and provide other medical services for people with disabilities or those who have an occupational disease or a

work-related accident. These medical services are provided either by the HMOs through their own health provider institutions or through other health provider institutions (public hospitals, independent health service centers, individual or groups of health professionals) that are contracted by the HMOs.

During 2005–2012, Colombia's supply of doctors was 14.7 per 10,000 and 6.2 nurses per 10,000, compared to US levels of 24.2 doctors and 98.2 nurses per 10,000 population (WHO, 2013). In order to respond to the human resources needed by the health sector, the government implemented Law 30 and Law 115 of 1994, which authorized educational institutions to create new programs. Consequently, Colombia is experiencing an uncontrolled and hazardous growth of study programs and private vocational schools at the technical and auxiliary levels. The National Council on Human Resources Development regulates the basic formation of the health technicians, such as health promoters (promotores de salud), family, community health workers, and nursing assistants. Training of health technicians in rural areas recruited from the population served constitutes a great asset, because it guarantees intensive outreach and culturally sensitive health educational functions.

Use and quality control of pharmaceutical products have been supervised since 1995 by the National Institute for the Surveillance of Drugs and Food (INVIMA), which follows the good manufacturing practices (GMP) guidelines of the WHO. At the same time, the Bureau of Pharmaceutical and Laboratory Services of the Ministry of Social Protection develops strategies to promote the development of services for pharmaceutical care and the rational use of drugs, and also designs policies related to this area.

After more than a decade of implementation and the recognition by the WHO as one of the most responsive models in Latin America, diverse evaluations have criticized the performance of the Colombian health system. As with other countries, and especially since the world economic crisis of 2008, the Colombian health system has been under stress, with consequences of access for the unemployed and the poorest segment of the population. Some 4.3 percent of Colombians are not covered by the General Social Security System for Health. Private expenditures by families have been impacted without an increase in coverage rates or improvements in the quantity and quality of services. There is evidence of a deterioration in public health services due to the lack of commitment of the HMOs to fulfill their obligations in regard to public health. In addition, local governments and local health authorities have been unable to ensure adequate levels of public health services. Immunization coverage for DTP and measles decreased to 85 percent and 88 percent, respectively, in 2011, while morbidity and mortality from malaria, TB, and other communicable diseases have increased.

Expenditure for health care increased from 7 percent of GDP in 1990 to 10.5 percent in 1999, then fell to 7.8 percent in 2004 and to 6.1 percent in 2011. Between 2008 and 2011, public expenditures increased from 68.1 to 74.8 percent of total expenditures. Private expenditures have increased, but with no change in coverage rates or the quantity and quality of services, indicating that resources are being diverted from social objectives by the HMOs. In the market-driven system, reform promoted privatization and minimal state involvement in care delivery. Owing to the imbalanced competition between private and public providers and the enormous debt that the government has with the public hospitals, five of the largest national public hospitals have closed and 10 more are in the process of liquidation. In practice, the reform has promoted privatization and minimal state involvement in care delivery.

In an attempt to overcome most of these problems, in 2006 the government enacted Law 52, which constitutes the first reform of Law 100. This law is intended to increase the level of coverage from the current 47 percent to 85 percent and to equalize the mandatory health plan for both contributory and subsidized systems. It is also meant to diminish access barriers such as co-payments and prorated fees for the subsidized system, and the waiting period required to treat chronic conditions for the contributory system. The government also pays the debts of the subsidized system and fortifies the provision of public health services through the implementation of the National Plan of Public Health. This law also proposes the creation of the Health Regulatory Commission and the Colombian Territorial Fund, to define new regulations within the system, control the use of resources, and monitor the quality of the services provided by the HMOs. The Colombian health system is in a process of continuing change meant to improve quality of health care, universal coverage, and equity.

A new health reform is being debated in 2013, motivated by the barriers to access, failures in health promotion and disease prevention, and failures of the HMOs.

Health reform is intended to introduce universal coverage and consumer choice of HMO-like organizations based on the concept of universal access to a market-oriented set of service alternatives. They will provide care paid on a capitation basis and be subject to accreditation and quality control with GPs as gatekeepers. Direct service development of primary health care continues as a responsibility of the Ministry of Health with some assistance by NGOs. *Promotoras* (community health workers) are an important part of that strategy. These reforms will provide important experience in health care reorganization in a mid-level developing country, as well as a major step forward for Colombia's social security, but will not resolve the problem of providing care for the underserved rural population.

Summary

Colombia faces continuing struggles such as armed conflict with rebel groups, drug trafficking, poverty, unemployment, and poor sanitation and nutrition in many sectors of the country. Rural populations are at serious social and health disadvantage, and the inaccurate health statistics with poor public health surveillance systems in these underserved areas, due to the lack of resources, training, lack of awareness about the policies, do not reveal the real magnitude or characteristics of the problems, or the impact of the health programs and policies. Promoting health to achieve the MDGs for the country will be a serious challenge in the coming years. The health system is an important factor in this process but is concentrated in the cities and requires a strengthening of health promotion activities with prioritization of improved sanitation, maternal and child health, and communicable disease control, as well as facing the growing burden of NCDs.

ASIA

UNICEF divides Asia into two groups: (1) South Asia, and (2) East Asia and the Pacific (Table 13.22). The former includes India and has a total population of 1.5 billion people, while the latter includes China and has 2.0 billion people. Japan is excluded, being linked to the industrialized countries.

TABLE 13.22 Countries of South and East Asia, Demographic and Health Indicators

Indicator	South Asia	East Asia and Pacific
Population 2006	1.54 billion	1.97 billion
Annual births 2006	37.9 million	29.7 million
Total fertility rate		
1970	6.8	5.8
1990	5	4.3
2005	3.1	3.1
Under-5 mortality rate		
1970	206	122
1990	128	58
2005	84	33
Maternal mortality rate		
2005	500	150
Life expectancy at birth		
1970	48	58
1997	61	68
2005	64	91

Source: United Nations Children's Fund. State of the world's children, 1999 and 2007. Available at: <http://www.unicef.org/sowc/>

The countries of South Asia have progressed less rapidly than those of East Asia in terms of economic, demographic, and health status indicators. Each is a diverse group of nations, but many have common problems, including infectious diseases (e.g., AIDS, TB, and malaria), poor nutrition for the majority, problems related to rapid urbanization, and the growing problem of non-infectious diseases.

India

Located in the South Asia region, the Republic of India is one of the oldest civilizations in the world. India is a federal constitutional republic under a parliamentary system of government. This system is subdivided into 28 states and seven union territories administering 629 districts in their respective areas.

The seventh largest country by area, India's population increased from 700 million to 1.26 billion from 1980 to 2012. India has 17 percent of the world's population, making it the second most populous country in the world.

The HDI in 2012 ranks India 136th among the nations. Life expectancy at birth has reached 65.8 years. The 2011 Census showed that 68.8 percent of the people live in rural areas and 31.2 percent in urban areas. The overall literacy rate in the country is 74.0 percent (rural 68.9 percent, urban 84.9 percent) with a mean of 4.4 years of schooling for adults. There is a huge difference in female literacy rate between urban (79.9 percent) and rural (58.7 percent) areas. The WHO ranked India's health system 112th in the world in 2000, with an HDI rank of 134 in 2011. Over the past few decades, India has emerged as one of the fastest growing economies in the world, transforming the country from a traditionally agrarian to an increasingly industrialized economy.

India has one of the most ancient and richest civilizations, known as the Indus Valley, dating back to 3000 BCE. The existence of basic infrastructure for drainage and bathing highlights the hygienic and environmental sanitation practices during that period. The *Ayurveda* (or science of life) and *Siddha* system of medicine with broad concepts of health came into existence in 1400 BCE. Medical education was initiated in the ancient universities of Nalanda and Taxila during the post-Vedic period (600 BCE to 600 CE). During the period of Muslim rule (650–1850 CE), the Arabic system of medicine, *Unani*, was widely adopted in India.

In the mid-eighteenth century, the British established their rule in India, which lasted until 1947. The British mandate in India brought some successful initiatives in the development of public health laws and systems. The significant events of public health history included several acts passed or promulgated under British rule. In 1896, India faced a severe epidemic of plague which led to urgent action to improve public health.

The first major achievement for state health administration came in 1919, when states attained autonomy from the central government under the Montague–Chelmsford constitutional reforms. This change led to the decentralization of health administration and the creation of basic public health organizations in all states by 1921–1922. The Government of India Act 1935 provided further independence. All health activities were grouped in three categories: federal, concurrent, and provincial.

The Bhore Committee Report of 1946, based on a survey of health conditions and organizations, became the foundation for most of the planning and measures taken after India gained independence from Britain in 1947. The Committee recommendations included short- as well as long-term plans to improve the health services in the country.

With the Constitutional Amendment Acts (1992), the local bodies were assigned development activities, which have direct and indirect impacts on health. These include health and sanitation, family welfare, drinking water, women and children’s development, the public distribution system, and poverty alleviation programs.

About two-thirds (65 percent) of the total population are aged 15–64 years. The World Bank reports India’s expenditure on health to be US\$44 per capita in 2009 and US\$59 in 2011. Out-of-pocket private expenditure accounts for nearly 86 percent of health expenditures.

Health Status Indicators

Life expectancy at birth increased from 42.2 years for males and 43.9 years for females in 1961 to 63.9 years for males and 67 years for females in 2011. Only 34 percent of the population have access to improved sanitation facilities. The crude death rate is 8 per 1000 population. The total fertility rate declined from 3.8 in 1990 to 2.6 in 2009, with marked differences between rural and urban areas (Figure 13.11). The child mortality rate (up to age 5 years) declined by 45.2 percent from 115 per 1000 live births in 1990 to 63 in 2010 (UNICEF, 2012); this decline is less than needed to achieve the targets set by the MDGs of a 75 percent reduction by 2015. Infant mortality declined from 80 per 1000 live births in 1990 to 50 in 2009, a reduction of 37.5 percent (Figure 13.12). The maternal mortality ratio fell by 35.2 percent, from 327 per 100,000 in 1999 and 2001 to 212 in 2007–2009, also falling short of the MDG targets (Figure 13.13).

Historically, the gender ratio in India has not been favorable to females, and there has been a steady fall in the ratio of females to males since the pre-independence period. In 1901, 972 females were recorded per 1000 males, the highest in the past century; the lowest ratio of females to males was recorded at 927 per 1000 males in 1991. The current ratio is 940 females per 1000 males, the highest since 1971

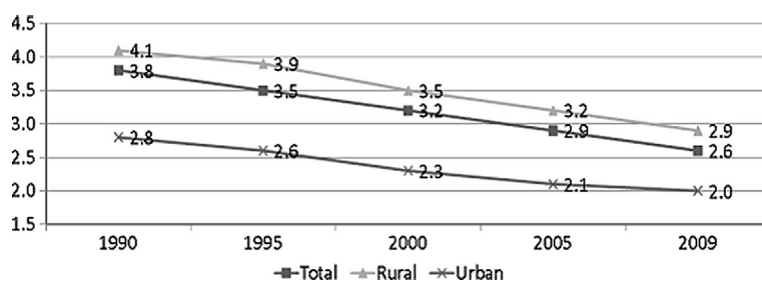


FIGURE 13.11 Fertility rate, India, 1990–2009. Source: Office of Registrar General, India. Maternal and child mortality and fertility rates; 7 July 2011. Available at: http://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_release_070711.pdf [Accessed 16 April 2013].

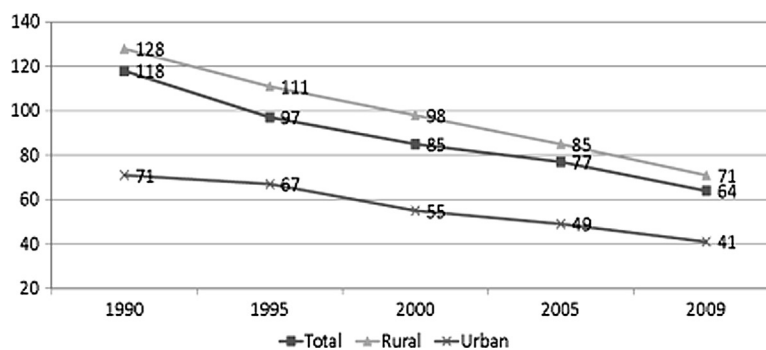


FIGURE 13.12 Under-five child mortality, rate per 1000 live births, India, 1990–2009. Source: Office of Registrar General, India. Maternal and child mortality and fertility rates; 7 July 2011. Available at: http://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_release_070711.pdf [Accessed 16 April 2013].

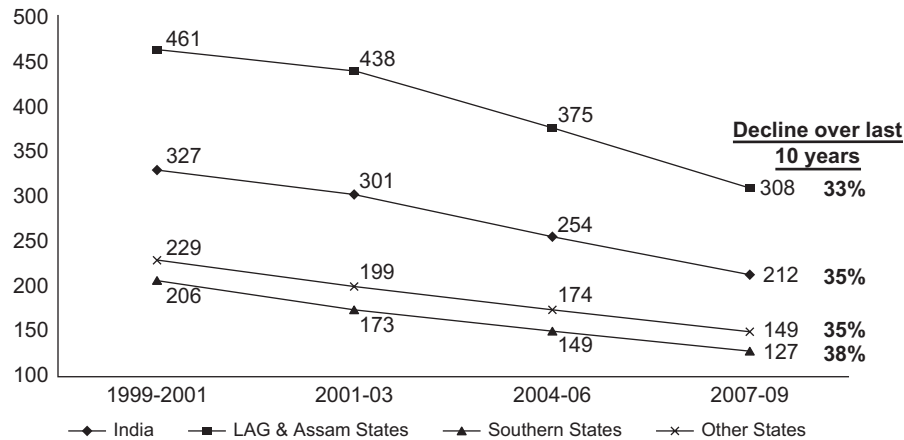


FIGURE 13.13 Maternal mortality rates, India, trend 1999–2009. Note: EAG=Empowered Action Group states. Source: Office of Registrar General, India. Maternal and child mortality and fertility rates; 7 July 2011. Available at: http://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_release_070711.pdf [Accessed 16 April 2013].

but far below the overall the global picture of 984 females per 1000 males. The improvement in the gender ratio has largely taken place in urban areas. The population of children aged 0–6 years is 158.8 million, with a gender ratio of 914 girls per 1000 boys. The child population of India declined by 5 million between 2001 and 2011 because of declining birth and still high child mortality rates.

Health System Organization

The public health system in India uses both modern (allopathic) medicine and traditional Indian systems of medicine woven together to attempt to provide the envisioned goal of universal health care. Modern medicine makes up the majority of the health system; however, recent debates on strengthening the forms of Indian medicine have helped their integration at various levels within the system.

Major weaknesses of Indian health are the lack of universal access, poor levels of immunization coverage, poor maternal and child care, lack of access to prenatal and delivery care, and weak newborn care. In 2008, 53 percent of births were attended by skilled health workers, and the prevalence of contraceptive use among women aged 15–49 years was 54 percent. In 2010, the infant mortality rate was 48 per 1000 live births. Infant mortality rates vary widely within the country, from Madhya Pradesh with 62, Uttar Pradesh 61, and Odisha 61 per 1000 live births; to Kerala with 13, Goa 10, and Manipur 14 per 1000 live births. India is one of 10 countries worldwide with the highest rate of preterm births, with 3.5 million annually, accounting for 60 percent of preterm births. The maternal mortality ratio is 200 per 100,000 live births.

India is in the midst of an epidemiological and demographic transition, with declining mortality and fertility rates, an increasing burden of NCDs, and an increasing elderly population. The major health problems are communicable

diseases including TB, HIV/AIDS, and diarrheal diseases, road accidents, vectorborne diseases, and NCDs.

With 2.4 million people living with HIV/AIDS, India accounted for more than 60 percent of Asia's estimated HIV infections. The prevalence rate of 0.34 percent in 2007 declined to 0.22 percent in 2010. The incidence of TB is 181 per 100,000 population. The burden of NCDs is rising and estimated to account for 53 percent of all deaths. In 2007, approximately 140,000 people in India lost their lives in road accidents.

The health system in India has three tiers: central, state, and local. India's constitution places the responsibility for the delivery of health care largely on state governments. Each state, therefore, has developed its own system of health care delivery, independent of central government. The central government plays a guiding, supporting, and coordinating role to strengthen the efforts of the state governments, and to ensure coverage of every area of the country for coordination of health activities and programs.

At the national level, there are three main organizations: the Union Ministry of Health and Family Welfare, headed by a cabinet minister with functions set out in the constitution; the Directorate General of Health Services, which provides technical advice to the union government on medical and public health issues; and the Central Council of Health, which provides continuous guidance, mutual understanding, and cooperation regarding a large number of health matters between the center and the states.

At the state level, the management comprises two organizations: the State Ministry of Health, headed by a minister at state level; and the State Health Directorate, which performs the role of technical advisor to the ministry for medicine and public health issues. Each state is responsible for all health services for the people in its jurisdiction.

The district level is further subdivided into six main types of administrative areas (subdivisions, talukas,

TABLE 13.23 Supply of Doctors and Nurses per Hospital Bed and per 1000 Population, India and Selected Countries, 2009

Indicator	India	USA	UK	Brazil	China
Average number of doctors per bed	0.6	0.81	0.53	0.69	0.46
Average number of nurses per bed	1.27	3	0.16	1.18	3.02
Number of doctors/1000 population	0.6	2.7	2.1	1.7	1.4
Number of nurses/1000 population	1.3	9.8	0.6	2.9	1

Sources: Organisation for Economic Co-operation and Development. <http://www.oecd.org>/World Health Organization. Available at: <http://www.whoindia.org>

community development blocks, municipalities and corporations, villages, and panchayats). The district is headed by a collector, who is responsible for various administrative offices including health. Primary care is provided by teams of health workers, trained volunteers and dais; secondary care in district hospital or community health centers; and tertiary care by regional or central level institutions.

A large percentage of the population of India lives in rural areas but health and care facilities are concentrated in urban areas. Moreover, 74 percent of physicians are located in urban areas serving approximately one-quarter of the population. Most of the people living in rural areas rely on local or traditional-cultural remedies.

Human resources and infrastructure capacities are limited compared to some developing countries and globally. India has a ratio of six physicians, 13 nurses, and nine hospital beds per 10,000 people (Table 13.23). In addition to allopathic care, various alternative and traditional systems of medicine are practiced. Annually, on average 26,499 allopathic doctors, 9865 Ayurvedic graduates, 1525 Unani graduates, 320 Siddha graduates, and 12,785 Homeopathic graduates are produced in the country.

The health care system in India is a mixed system in which the government provides health care at the primary, secondary, and tertiary levels. There is also a strong private sector infrastructure. The health insurance schemes are generally basic and inaccessible, with only 11 percent of the population having any form of health insurance coverage. Since 2005, the National Rural Health Mission has attempted to encourage state governments to join a central sponsored scheme that seeks to quickly increase the delivery of good-quality health care, especially to poor people living in rural areas. In 2009, a national health insurance (Rashtriya Swasthya Bima Yojana) for people living below the poverty line was initiated, with joint federal (75 percent) and state (25 percent) financing. In general, most of the southern states are better organized for immunization and other primary care services than the northern states,

demonstrating the high variability among them in health financing, outputs, and outcomes.

The National Urban Health Mission was launched in 2013 to improve access to health care services in urban parts of India, to connect with the National Rural Health Mission program, and to provide better health services with a focus on the health needs of the massive population of urban poor.

Medical tourism is on the rise in India owing to the low cost and high-quality health care facilities offered by the private health sector compared to the high costs in the western world. The participation of private sector in health care has risen significantly in the early twenty-first century. In the absence of resources and development in the governmental sector, the private sector seems to offer some hope for improving access to and quality of health care in India. India is one of the major suppliers of several bulk drugs produced at lower cost than in other countries, and many drug companies source their products from Indian manufacturers.

The first National Family Health Survey was carried out in 1992–1993, with subsequent surveys in 1998–1999 and 2005–2006 providing detailed information on health indicators. The plan is to repeat the survey every 5 years.

Various initiatives in India have included a goiter control program established in 1962, followed by a trachoma program in 1963. Government legislation includes: the Water Act (1974) for prevention and control of pollution, the Cigarettes Regulation (Of Production, Supply and Distribution) Act (1975), the Prevention of Food Adulteration (Amendment) Act (1976), and the Air (Prevention and Control of Pollution) Act (1981). Policy initiatives include the National Health Policy (1983), National Nutritional Policy (1993), National Population Policy (2000), National Health Policy (2002), National AIDS Policy (2002), and National Urban Sanitation Policy (2008). Program initiatives and events include: the Kartar Singh Committee recommending multipurpose community health workers in 1973, India

becoming smallpox free in 1975, Integrated Child Development Services (1975), the Bhopal gas tragedy (1984), universal salt iodization (USI) efforts launched in 1992; Revised National Tuberculosis program with DOTS (1993), National Vector Borne Diseases Control Programme (2003), Integrated Diseases Surveillance Project (2004), a safe motherhood scheme (2005), National Rural Health Mission (2005), National Family Health Survey-3 (2006), NCD programme (2007), National Health Insurance for the poor below the poverty line (2009), National Urban Health Mission (2012), many more programs, and many institutions being built. The sustainability of these programs is critical to development of India at a time when its economic growth is high and a large middle class is emerging. As of 2012, only 61 percent of Indians are using iodized salt and iodine deficiency is still widespread.

Summary

A country as huge in size and population as India with such a wide range of socioeconomic settings requires health programs designed with enough elasticity to meet differing population needs. India's economy has grown enormously in the past decade, but health sector development has not kept pace with the country gaining middle-income status and a large part of the population, both rural and urban, continues to live in dire poverty with poor or no sanitation and little access to health care.

There is a need to reduce out-of-pocket expenditures by encouraging and providing nationalized or social or private insurance to minimize the financial burden on people. With low per capita health expenditures, even compared with other developing countries, India must focus more on strengthening basic public health needs. Similarly, more allocation of resources is needed in building the primary health care facilities in rural areas. A culture of professionalism needs

to be established in urban as well as rural areas by ensuring the quality of care through robust quality assessment and evaluation systems.

Many diseases in India are from preventable causes and sincere efforts are required to improve hygiene, water and sanitation facilities, nutrition, and education. Instead of merely focusing on treating diseases, trained public health professionals need to prevent disease by prioritizing health promotion.

One of the major constraints in achieving universal access to health services is limited or non-availability of skills and trained human resources. By international standards, India represents an unfortunate scenario and needs strong remedial actions. There is a gigantic need to develop a skilled workforce at each level in the area of modern health care as well as in traditional medicine systems, and to strengthen the role of civil society and other community-based organizations in developing community health programs. Population health should be a top priority by focusing more on the health sector to build and maintain the basic health infrastructure even at the village level.

There are opportunities to create new models by focusing on the strengths of diverse sectors. India has a good opportunity to tackle its health and care challenges by learning from, and avoiding, the expensive errors of industrialized economies. The improvement in strategies and policies will not only affect those who live in the country but also help other countries in the region that are struggling with their health care needs. As India is now included in the BRIC group of countries (Brazil, Russia, India, and China), representing mid-level and rapidly developing countries, its health and social systems need a major overhaul to keep pace with the rising population and international expectations. [Table 13.24](#) shows life expectancy for BRIC countries in comparison to other selected countries.

TABLE 13.24 Life Expectancy at Birth, 1980–2012, BRIC Countries and Selected Countries

Country	1980	1990	2000	2005	2012	HDI Rank 2012
Brazil	62.5	66.3	70.1	71.6	73.5	85
Russian Federation	67.5	68.0	65.0	66.1	68.1	55
India	55.3	58.3	61.6	63.3	65.8	136
China	67.0	69.4	71.2	72.1	73.7	101
South Africa	56.9	61.5	54.0	51.1	53.4	121
Nigeria	45.5	45.6	46.3	49.0	51.9	153
Israel	74.1	76.5	79.0	80.1	81.6	16
Egypt	56.2	62.0	69.1	71.6	73.2	112

Note: BRIC = Brazil, Russia, India, and China; HDI = Human Development Index.

China

The People's Republic of China, with a population of more than 1.34 billion people (2010), is 47 percent urbanized and in the process of very rapid change and economic growth. China's GDP has grown at the extraordinary annual rate of 8 percent during the past 25 years, and its economy is now among the world's largest and most rapidly expanding. The GDP per capita increased from US\$300 in 1988 to US\$6757 in 2005 (PPP). WHO reports China's per capita expenditure on health in 2011 was US\$432 and 5.2 percent of GDP, an increase from 4.7 percent of GDP in 2004. The HDI for China rose by 2.0 percent annually, from 0.407 in 1980 to 0.699 in 2012, when China ranked 101 out of 187 countries (HDI Index China, 2013), with health being the strongest positive indicator, as compared to education and income. In 2011, China's total public expenditures on health were 5.2 percent of GDP.

Life expectancy at birth increased from 63 in 1970 to 69 in 1990 and 73.5 in 2012. Infant mortality fell from 140 per 1000 live births in 1960 to 85 in 1970, 38 in 1990 and 16 in 2010. The under-five child mortality rate fell from 185 per 1000 live births in 1970 to 48 in 1990 and 18 in 2010, ranking 108th among all countries.

China has traditionally placed a strong social value on health and education, with major achievements in the development of a health care infrastructure during the twentieth century. Primary school education is nearly universal (96 percent for boys and 95 percent for girls). Youth literacy was 99 percent for both boys and girls in 2005–2010, with total adult literacy at 94 percent. As a result of falling birth rates and mortality patterns, the population pyramid is becoming similar to that of developed countries, with a rapidly aging population. The demographic transition is contributing to China's health challenges, with increasing longevity and declining mortality rates.

Health in Pre-Revolutionary China

Ancient China had a rich tradition of medical care and vital statistics. The Confucian and Taoist streams of Chinese culture supported a "high-order" medical system, emphasizing both preventive and curative services. Classical medical texts documented an empirical base of pharmacopoeias and therapeutic traditions. The yin–yang principle of resonant harmonies between alternative structures was in contrast to the single causation emphasis of western culture. Ancient Chinese medicine was based on treatment with herbal medicines, and at the same time included a holistic, psychosomatic perspective. Preventive medicine included attention to diet, rudimentary sanitation, personal hygiene, destruction of rabid animals, inoculation against smallpox, and an orientation towards the well-being of the individual as essential to health. However, this high-order medicine was

available only to the elite of a rigid feudal–bureaucratic society. The vast bulk of the rural population relied on folk medicine based on herbal and other traditional practices.

Western medicine was introduced to China with the advent of missionary activities in the nineteenth century. It was accepted as another eclectic element of medicine, and medical schools were opened in the early twentieth century to train medical personnel in western medicine. In the period 1911–1949, medicine and public health advanced with the establishment of the national Ministry of Public Health (1927), 30 medical colleges, municipal public health departments, rural district hospitals, military medical services, a factory inspection service, and an array of public health professional departments including maternal and child health, and a large number of provincial medical centers. This brought vaccination, ophthalmic and other forms of surgery, western hospitals, clinics, and medical schools to the provinces and rural areas. The Japanese invasion and civil war that ravaged China from 1936 to 1948 halted this progress.

The Maoist Period

With the establishment of the People's Republic of China under Mao Tse Tung in 1949, the improvement of living and health conditions among the rural population became a high national priority. Between 1949 and 1965, China's national government, acting with advisors from the Soviet Union, emphasized the rapid expansion of training of mid-level health personnel – nurses, midwives, dispensers, and feldshers (see Chapter 14) – as well as doctors, whose numbers increased from 13,000 in 1945 to 150,000 in 1966. Hospital bed supply was also expanded rapidly so that by 1965 every county had at least one modern hospital.

The People's Republic of China established a centrally directed health system with strong emphasis on primary care and combating infectious diseases. Life expectancy rose as infant mortality was reduced and infectious diseases came under control. Under the slogan "away with all pests", vector control and sanitation works helped to eradicate previously endemic parasitic and other infectious diseases. The success of these programs contributed a solid base for later rapid development of the country, but the urban–rural gap is wide and a large sector of the Chinese population remains in poorer health than the rapidly increasing middle class (Hillier and Shen, 1996).

Rural Health Care

In 1966, as part of the Cultural Revolution, a new policy placed emphasis on developing rural health care by combining traditional medicine and self-sufficiency in health care at the community level. Western medical training was reduced in scope and duration. Auxiliary or "barefoot doctors" were

trained briefly in a mixture of western and traditional Chinese medicine. The barefoot doctors brought health care to the rural population living in 27,000 communes, as well as to urban neighborhoods, focusing on sanitation, family planning information, immunization, and treatment of common illnesses.

The rural population of China then constituted some 80 percent of the total population. Rural health care was based on cooperative medical services (CMS) funded by the rural communes using barefoot doctor and referral services. Some medical staff were transferred to rural regions. The quality of care was questionable, but the program brought expanded access to the health care system to the rural population as part of the socialist program, and provided effective preventive and curative services to the vast bulk of the rural population of China during the 1960s and 1970s.

Market Reforms

Economic reforms were launched from 1978, including in agriculture, as part of the transition to a market economy. These reforms were meant to end the endemic problem of low productivity and management chaos. The communal agricultural system was replaced by individual farm units which were contracted with state agencies and sold excess products on private markets. This in effect, abolished the rural communes, virtually dismantling their apparently successful health care and public health system overnight, and putting nothing in its place. As a result, the CMS system, with no organizational or financial basis, was replaced with fee-for-service practice by the former barefoot doctors, who became private medical practitioners during the 1980s (Blumenthal and Hsaio, 2006).

From 1979, with the adoption of market-oriented reforms and new economic policies, a new focus on modernization replaced the ideological zeal and violence of the Cultural Revolution, and has since been associated with a period of rapid economic growth. Barefoot doctors were retrained and examined for licensing as village doctors. China's earlier high health standards have played a key role in the country's economic success, but the benefits of economic growth have not been shared equally, with a wide gap in socioeconomic indicators between different regions and communities, between urban and rural, and migrant and resident communities within cities. Surveys show that 30–50 percent of poor people in China indicate that health is the single biggest factor in their poverty, with reduced earning capacity and unaffordable medical care costs. As the Chinese economy boomed, largely by emulating western economic methods, its health care system nearly collapsed as a result of radical health care privatization.

By 1986, only 9.5 percent of the rural population was still covered by the CMS system, in comparison to 90 percent in 1978. This has resulted in greater use of emergency

services and hospitalization, with less diligence in performance of preventive health services. In some areas, the CMS model is being restored as cooperative measures under local initiatives. The national Ministry of Health and provincial/regional or municipal departments of public health are responsible for health services in their jurisdictions, with a high degree of local autonomy.

Health Achievements

In the 1990s, a national campaign to eradicate poliomyelitis was conducted, showing good results with a reduction of cases from 5065 in 1990 to 1191 in 1992, through supplemental OPV national immunization days for children up to the age of 4 years. China has since joined the polio-free nations of the world. Crude mortality rates fell from 25 per 1000 in 1949 to 7.6 in 1970 and 6.8 per 1000 in 2006. Maternal mortality fell from 1500 per 100,000 births in 1949 to 95 per 100,000 in 1990 and 37 in 2011. Life expectancy increased from 44 years in 1960 to 63 years in 1970 and 76 in 2011. These health indicators are shown in Tables 13.25 and 13.26.

Health System Development

The WHO reports total health expenditures in China in 2005 at 4.7 percent of GDP; national or provincial governments covered 39 percent of total health expenditures, with private expenditures covering 61 percent (WHO, 2007). A national health survey in 2003 indicated a decline in access to health care, especially in rural areas, with a falling level of coverage in private or public health insurance systems.

TABLE 13.25 Health Indicators, China, 1970–2011

Indicator	1970	1990	2011	% Change 1990–2011
Infant mortality rate/1000 live births	140	39	13	–66.7
Child mortality rate/1000 live births	209	49	15	–69.4
Maternal mortality ratio/100,000 live births	NA	120	37	–69.2
Life expectancy at birth	63	69	76	+10.1

Note: NA = not available.

Sources: United Nations Children's Fund. State of the world's children 1999 and 2012. Available at: <http://www.unicef.org/sowc2012/> [Accessed 21 July 2013].

World Health Organization. World Health Statistics 2013. Available at: http://www.who.int/gho/publications/world_health_statistics/2013/en/ [Accessed 14 June 2013].

TABLE 13.26 Vital Statistics, People's Republic of China, 1970–2010

Indicator	1970	1980	1990	2000	2010
Crude birth rate/1000	36	18	21	14	12
Crude mortality rate/1000	9	6.3	6.7	6.5	7.1
Natural annual increase (%)	1.7	1.7	0.8	0.8	0.8

Source: China's Statistical Yearbook 2012. Table 3-2. Available at: <http://www.stats.gov.cn/tjsj/ndsj/2012/indexeh.htm> [Accessed 15 May 2013].

Hospital bed ratios in China increased from 4.6 beds per 1000 population in 1985 to 6.1 in 1989 in urban areas, and went from 1.5 to 1.4 beds per 1000 in rural areas during the same period. Similarly, in 1989, the number of health professionals increased to 12.6 per 1000 urban residents compared to 2.3 per 1000 rural residents. In 2006, polyclinics and sanitary epidemiological stations were established throughout the country; patients are charged fees for services to support the health system. In the period 2006–2013, the health workforce included 14.6 doctors and 16.1 nurses per 10,000 population, hospital beds were 3.9 per 1000 population and psychiatric hospital beds were 0.14 per 1000 (WHO, World Health Statistics 2013).

Government continued to exert tight controls over the amount that publicly owned hospitals and clinics could charge for routine visits and services such as surgeries, standard diagnostic tests, and routine pharmaceuticals. However, it permitted facilities to earn profits from new drugs, new tests, and technology, with profit margins of 15 percent or more. The government modified its salary-based system of compensating hospital physicians with bonuses determined according to the revenue the physicians generate for their hospitals. Between 1990 and 2002, while total national spending on health care of all types (including public health) rose from 3.0 percent to nearly 5.5 percent of the GDP, public funding as a proportion of local public health revenues fell from nearly 60 percent to 42 percent.

During recent decades, one of the country's priorities was achieved with respect to human resources for health, namely an increase in the quantity of health personnel with 2–6 years of professional training. Consequently, the availability of health services has expanded rapidly, particularly in cities and better-off rural areas. Privatization of health services has, however, created a difficult situation in that half the population is unable to afford health services; only 25 percent of the urban and 10 percent of the rural population have any form of health insurance.

Health workers are not evenly distributed, and the poor rural areas suffer from shortages. There are also concerns

about the quality of public health professional and clinical standards in education, training, and practice. The rising costs of health services create a paradox of increased numbers of health personnel and decreasing use of health services.

Health facilities for profit increased during 2000–2003, despite a decline in the number of patients; it is estimated that only 25 percent of the urban population and 10 percent of the rural population use any form of health care. Preventive and health promotion services are more cost-effectively delivered by nurses and other health disciplines. A national strategy for human resources planning will be needed to redefine the roles of health care practitioners, and to meet the needs of rural areas.

Emerging Infectious Diseases

At the end of 2005, there were 650,000 HIV-infected people reported, including 75,000 clinical cases, with 25,000 previous deaths from AIDS. China had an estimated 120 million people infected with hepatitis B in 2004. The public health challenges of SARS in 2003 provided a shock to governmental health authorities, revealing the weaknesses in national and provincial epidemiological and laboratory systems of health monitoring. Monitoring is especially important for frequently avian and domestic animal-borne infectious diseases which can cause major epidemics with international importance. Both HIV and syphilis have increased dramatically since 2000 and are predicted to become major epidemics fueled by millions of migrant workers with poor levels of sex education working in China's booming megacities. Many workers, far from their restrictive rural home environments, tend to access commercial sex workers, in part because of a shortage of young women in the population.

China's achievements in the control of vaccine-preventable and other infectious diseases have been matched by success in birth control and in arranging access to medical care for a population of over 1.3 billion people. Sixty-nine percent of the urban population and 28 percent of the rural population live with good sanitary conditions; however, some 100 million of the urban and most of the rural populations did not have access to safe water in 2008 (Carlton et al., 2012).

Emerging infectious diseases, such as SARS and avian influenza, are increasingly important because of their potential to become epidemics and pandemics. In addition to illness and death, they can cause social instability. China is a source of dangerous emerging viral diseases because of its enormous population living close to animal populations, intensive animal farming practices, enormous global trade, and poor infrastructure of veterinary and human health services. The SARS epidemic in 2003 affected 5327 people in mainland China, with 348 deaths, and spread to other countries via air transport. This is a precursor of more pandemics

developing in the Chinese epicenter of newly emerging infectious disease.

In 1996, the H5N1 virus was identified in Guangdong province in China and later became an emerging global threat (WHO, H5N1 avian influenza timeline, 2012). Since 2003, there have been 25 reported human cases of H5N1 in China, with 16 deaths. In 2013, a new threat in the form of H7N9 serotype avian influenza virus appeared in China, causing severe respiratory symptoms and a high death rate. It is primarily transferred from chickens to humans, but human-to-human infection may soon occur, with the threat of H7N9 avian influenza spreading locally and globally into a new pandemic.

Maternal and Child Health

China has achieved better outcomes in terms of infant and child mortality and life expectancy with lower health expenditures (3.5–4.7 percent of GDP) than many other developing countries. The transition to a market economy left many, especially in rural areas, with no medical care. About 90 percent of children in the rural areas have serious health problems and low vaccination rates. The collapse of state medicine led to a decline in the health of children in the rural areas of China at the beginning of the twenty-first century.

Since the 1960s, an emphasis on family planning resulted in a slowing of population growth. The “one child” policy adopted since the 1960s is enforced with many sanctions. This policy has led to widespread use of illegal ultrasound prenatal testing, promoted the abortion of female fetuses and female infanticide, and resulted in a high male to female population ratio in young age groups. There is now a large-scale deficit of marriage-age women, and important societal problems, particularly in the rural population.

Fertility declined in China with the crude birth rate declining from 36 per 1000 population in 1970 to 21 in 1990 and to 12 in 2010. The total fertility rate decreased from 2.4 births per woman in 1980 to 1.6 in 2010. Contraceptive prevalence reached 85 percent and institutional delivery rates reached 96 percent in 2006–2010. Maternal mortality declined from 60 per 100,000 in 1997 to 38 per 100,000 in 2008 (UNICEF, 2012). Immunization coverage in 2010 was reported as 99 percent for BCG, DTP, measles, polio, and hepatitis B (three doses), but no Hib vaccination was reported.

Non-Communicable Diseases

Serious health problems in China include high rates of CVDs, and lung cancer in polluted industrial cities, with very high rates of smoking. The leading causes of death are similar to those in developed countries, but regional disparities are apparent, with rural populations having higher death rates

in all categories. Urban health care has always been at an advantage in China. The epidemiological transition brought NCDs to the fore, with an increase during the period 1973–2009 from 53 percent to 85 percent of deaths due to NCDs and injuries. The Third National Death Survey reported the four leading causes of death as cerebrovascular disease, cancer, respiratory system diseases, and heart disease, and the total mortality rate for NCDs has reached 503 per 100,000. Cerebrovascular diseases, malignant neoplasms, and heart disease account for more than 50 percent of all deaths.

Aging of the population and the one-child-per-family policy create a situation where the tradition of family care of the elderly will be by a couple who will have sole responsibility for four parents. This will be compounded by the rapid movement of young people to the cities for economic opportunity, so that care of the elderly will be a major problem in the coming decades. Demographic projections suggest that there will be close to 350 million people older than 65 years (24.5 percent) in China in 2050. With economic growth, and dietary and lifestyle changes, vascular-related diseases are increasing rapidly. NCDs cause about 80 percent of deaths and are projected to result in US\$550 billion of lost productivity between 2005 and 2015 due to associated deaths and disabilities.

As the country rapidly expands its economic potential, national health insurance is in an advanced stage of preparation. The Chinese experience in health status improvement for its huge population during a chaotic period is an enormous achievement considering the economic level of development in China. The country has successfully reduced fertility rates in an attempt to limit population growth and reduce infant, child, and general mortality rates, but it faces challenges not only in transforming the health system to a market economy but also from the effects of the profound demographic shift.

Obesity and smoking are major health problems in China. Currently, 23 percent of the population is overweight and 150 million people are suffering from hypertension. Diabetes prevalence is projected to double by 2030 to more than 42 million cases. In 2010, there were an estimated 301 million current smokers in China, 53 percent of men and just over 2 percent of women, increasing their risk of developing related NCDs. The WHO Framework Convention on Tobacco Control (FCTC) came into force in 2006 in China. However, the tobacco industry continues to grow with consent of the Chinese government. Cigarette production grew by 25 percent since the FCTC came into effect. Comparison of mortality rates for China, Japan, India, and several western countries shows that China's total mortality rate was just over half that of India and twice that of Japan. The cardiovascular mortality rate for China was three times that of Japan. China's cancer mortality rate was about 70 percent higher than that of India (2008 data from WHO World Health Statistics 2013).

Millennium Development Goals

China has made good progress towards achieving the MDGs since 2000, particularly in reducing childhood maternal and childhood mortality, stunting, and malaria. Progress is, however, markedly varied among the provinces, with the rural population and poorer provinces at a significant disadvantage. Progress in control of TB has been successful where DOTS was implemented, but China still lags behind in this MDG. This is in part due to fee-for-service payments required by the current health system.

- MDG1. *Eradicate extreme poverty and hunger* – extreme poverty and hunger reduced, but rural poverty still a problem; some regions lag well behind urban and industrialized parts of the country.
- MDG2. *Achieve universal primary education* – has been achieved.
- MDG3. *Promote gender equality and empower women* – target to reduce gender inequality in education achieved at primary school level and improved at higher levels; target likely to be achieved.
- MDG4. *Reduce child mortality* – target to reduce child mortality by two-thirds has been met; from 1990 to 2011 child mortality rate reduced by 69.4 percent (from 49 to 15 per 1000 live births).
- MDG5. *Improve maternal health* – targets to reduce maternal mortality by three-quarters and achieve universal access to reproductive health almost met; from 1990 to 2011 maternal mortality reduced by 69.2 percent (from 120 to 37 per 100,000).
- MDG6. *Combat HIV/AIDS, malaria and other diseases* – HIV spread halted; access to treatment for all in need achieved; malaria and other major infectious diseases being reduced.
- MDG7. *Ensure environmental sustainability* – some improvement, but massive air pollution problem in rapidly growing urban areas, and poor sanitation in rural areas; reforestation progressing; safe water supplies to rural areas increased coverage by an additional 220 million people.
- MDG8. *Develop a global partnership for development* – rated by UNDP as “ongoing” with increase in projects in southern countries; Internet use increased from 2.1 million people in 1998 to 420 million in 2010 (UNDP, MDG Report 2010).

Health Reforms (2006–2015)

The Chinese government announced a new wide-ranging health initiative for the period 2006–2010 and 2011–2015 of increasing government investment in health, improving the public health and clinical service delivery system, and establishing a medical safety net for the poor. Measures taken included improving capacity in disease prevention and

control, including improved control of HIV/AIDS, schistosomiasis, and hepatitis B. The Health Ministry has undertaken action to prevent occupational and endemic diseases, strengthen maternal and child health care, and promote development of community health services. Other measures include deepening health system reform and allocating health resources rationally, better regulating pharmaceutical production/products and the market, and fostering a modern traditional Chinese medicine industry (WHO, 2005).

In 2001 insurance coverage was very low, with some 60 percent of total health expenditure being out of pocket. Health care is mostly on a fee-for-service basis, but fees and salaries are set artificially low so that drug sales and tests provide alternative income for facilities and providers. Hospitals are managed as profit-making enterprises, rather than for the public good. Public health and information systems are particularly weak, as seen during the SARS crisis (World Bank, 2011). For the tens of millions in the countryside, health provision is patchy, with poor access and rampant corruption causing social discontent. China's Health Ministry has announced a plan to reform the health system and provide a national service for all citizens, including the rural population. The *Healthy China 2020* program would provide a universal national health service and promote equal access to public services, with some comparisons being made with the NHS in Britain.

Between 2003 and 2011, national insurance coverage reportedly increased from 23 percent to 90 percent, accompanied by increased service utilization, particularly in rural areas: the participation rate in the New Rural Cooperative Medical Scheme had reached 96 percent. Employee health insurance, medical insurance for urban residents, and rural cooperative medical and hospitalization cost insurance have increased their reimbursement levels. However, benefits are not portable across regions, which is a concern for migrant populations and migrant workers (WHO, 2011).

China's recent 11th and 12th Five-Year Plans (2006–2010 and 2010–2015) respectively stress rebalancing the economy from export at all costs to promotion of domestic consumption and promoting quality of life and reduced inequalities. There is also stress on protecting the environment. The 12th plan envisions a GDP growth rate target of 7 percent, promoting domestic consumption over investments and exports, closing the income gap through minimum wage improvements and strengthened safety nets. Three sectors designated to receive a major boost are health care, energy and technology (*China's 12th Five Year Plan, 2010*).

In 2009, China launched a health care reform plan that included expanding access to basic medical coverage for citizens, modernizing the country's health care infrastructure and improving grassroots health care delivery which will continue in the 2010–2016 national goal to improve living standards for the rural population in particular.

The New Rural Cooperative Medical Scheme, launched in 2003, increased rural population health insurance to move away from a 25-year-old system in which out-of-pocket payments dominated health spending, and from the previous multiple insurance agencies towards unified payer systems. Public spending on health is increasing, along with an increased role of government in the direction of health services, a growing emphasis on NCDs and their prevention, and rising standards of training and performance in health facilities (Wagstaff et al., World Bank, 2009).

Summary

China, the country with the largest population on Earth, has experienced very rapid and sustained growth over the past three decades. Very great progress has been achieved in health and education indicators. The national health system developed in the Maoist period provided a base for health care, but has undergone massive changes from a governmental health plan to a largely privatized one.

National health insurance coverage is reported to have reached 90 percent of the population by 2011. New health reforms are in process, bringing critical changes to the current health system building on ongoing health care organization and financing, with the objective of reducing NCDs in the coming decades by 50 percent. Service delivery reforms will place emphasis on primary care and raising standards of training.

The rise of NCDs as major health issues presents an enormous challenge to the Chinese health system as the population ages, and as the increasing middle class in the rapidly growing urban population adopts unhealthy diet and lifestyle patterns; for instance, China continues to have a heavily smoking population.

Progress in achieving the MDGs has been impressive, especially in those related to health and universal primary education. However, China remains well behind in the HDI at 101st place and is ranked as a medium human development country. The social and health gap between urban and rural populations remains very high.

Despite over three decades of very high rates of industrialization and economic growth and a large and rapidly growing wealthy urban population, China continues to have a large poor rural population and a severe urban/rural divide in health, social and economic indicators. The severe earthquake of 2008, with its effects of tens of thousands of deaths and millions displaced from shattered homes, towns, and villages, revealed the weak infrastructure of the country. China is on the road to becoming an economic and political superpower. A great effort is required to ensure that the health system can meet this challenge.

Japan

Japan is a centralized industrialized democratic country with a 2010 population of 126.5 million and a GNI per capita of

US\$42,150. Longevity is among the world's highest, with a combined male and female life expectancy increase from 72 years in 1970 to 80 in 1997 and 83 years in 2010, and infant mortality of 2.3 in 2010. Japan ranks high (eighth) in the HDI, well above its 17th GDP ranking in 2005.

The OECD reports that total health spending increased from 4.8 percent of GDP in Japan in 1972 to 6.8 percent in 1982, 8 percent in 2005, and 9.6 percent in 2010, similar to the OECD average of 9.5 percent. Japan's public percentage of public expenditures as a percentage of total health expenditures increased from 77.6 percent in 1990 to 82.1 percent in 2010. Expenditures per capita in Japan were US\$3120.4 in 2010, compared to US\$8232.9 for the USA, US\$5257.4 for Canada, and US\$3434.3 for the UK (PPP).

In terms of health resources, Japan has fewer physicians per capita than most other OECD countries. In 2010, it had 2.2 practicing physicians per 1000 population, well below the OECD average of 3.1. Government policies limit the number of new entrants to medical schools. In the same year, Japan had 10.1 nurses per 1000 population, above the OECD average of 8.7. Japan had the highest number of acute care hospital beds of all OECD countries, with 8.1 beds per 1000 population in 2010, more than twice the OECD average of 3.4. Japan had by far the highest number of MRI units, with 46.9 per million population (2011) compared to 12.5 per million in OECD countries, and 101.3 CT scanners per million population, which is four times the OECD average of 22.6 (2010) (see Chapter 15).

Following World War II, the Japanese placed emphasis on maternal and child health, providing free maternal and child care services. Pregnant women receive maternity bonuses to encourage early prenatal care; child care services include an extensive immunization program, screening for diseases of the newborn, developmental testing, and special care for low birth weight or disabled newborns.

In 2011, Japan had the highest life expectancy among OECD countries at 83.0 years. Improved longevity has been largely due to declining death rates from heart diseases (the lowest of all OECD countries for both males and females). The birth rate and infant mortality rates in Japan have both fallen dramatically in recent decades. In 2010, the birth rate was 1.4 births per woman, and the 2011 infant mortality rate was one of the lowest in the world at 2.3 per 1000 live births, about half of the OECD average of 5.4 per 1000. Maternal mortality (adjusted) was 6 per 100,000 live births in 2008. Immunization coverage in 2006 was 97–99 percent for DTP, polio, and measles vaccines (OECD, 2012).

Japan has very low rates of heart disease, diabetes, and malignant disease mortality, but relatively high rates of stroke and trauma (motor vehicle accidents and suicides). CHD death rates in Japan are low, 25 per 100,000 for men as compared to 118–164 in Canada, the USA, Sweden, and the UK. However, stroke death rates are higher than in these and other countries. OECD reports that Japan has one of the lowest case fatality rates for stroke, with less than 2 percent of patients

dying within 30 days after ischemic stroke. However, 10 percent of Japanese patients die within 30 days of having a heart attack, compared to 8 percent in Singapore, 6 percent in the Republic of Korea, and 3 percent in New Zealand.

Stomach cancer rates are higher, but lung and breast cancer mortality are lower than OECD averages. The Japanese diet is low in animal fat and cholesterol, which may relate to the low CVD mortality rates, but high in smoked and salty foods, perhaps explaining the higher cerebrovascular disease and stomach cancer mortality rates.

Japanese policy makers stress the importance of prevention and wellness to control health care costs. Current priorities include reducing smoking and improving blood pressure management. Since 2008, annual checkups have been obligatory for those between the ages of 40 and 74.

National Health Insurance

The basic health insurance program was enacted in Japan in 1922 as an extension of the employment-related social insurance law of 1874. In 1935, health insurance was extended to all manual workers, and further expanded in 1938 to self-employed people. By the mid-1960s, virtually the entire population was covered by a health insurance plan, through employers, local government, or trade associations. Government-managed health insurance covers employees of small businesses of fewer than 300 employees, which include some 29 percent of the population. Large companies, or groups of companies, with more than 700 employees, as an alternative to the government health insurance plan, can set up independent insurance plans for their employees. These currently cover some 25 percent of the population. Mutual aid associations provide coverage for civil servants, educators, and others (approximately 10 percent of the population).

Two laws promulgated in 1972 and in 1992 provide coverage for the elderly and low-income earners (32 percent of the population). Insurance for these groups is administered by local authorities or trade associations. There are also many health laws governing a wide range of issues including nutrition, TB prevention, communicable disease control, mental health, environmental sanitation, and health planning.

Financing and Services

In Japan, 81 percent of total health expenditures are from the public sector. Japan's health service is financed by a payroll tax with rates fixed by law at 3.6–4.5 percent for employees and 4.1–4.7 percent for employers. Government subsidies for health insurance cover 65 percent of health costs, with control of costs by national obligatory fee schedules for a basket of covered services. Co-payments by patients include 10 percent for employees and 30 percent for their dependants for hospital care and out-patient care.

Health plan benefits include medications, long-term care, dental care, and some preventive services, as well as medical and hospital services. Preventive care is provided free of charge through a nationwide network of health centers, with costs shared by the central and local governments.

Japan has a very high hospital bed-to-population ratio, with 8.1 acute care hospital beds per 1000 population, more than double the OECD average of 3.9, with few beds designated for long-term or nursing care. Hospital utilization rates are therefore high, with average lengths of stay much longer than in western countries. Over 55 percent of hospital beds are in private non-profit hospitals. Hospitals, generally small with an average size of 166 beds, include both acute and chronic nursing care patients. Since 2000, all patients aged 65 and older and some disabled between 40 and 64 have been covered under the national long-term insurance program, administered by the municipalities, financed half by taxation and half through premiums.

Patients have a free choice of doctors, two-thirds of whom work as private practitioners in both public and private hospitals. About one-third of physicians are solo GPs, paid on a fee-for-service basis, which favors primary care. National fee schedules promote primary care by financial incentives. Physicians also dispense medicines in their private clinics, so that the Japanese consume more medications than most industrialized populations. Physician contact rates are at least double those in western countries, at 12.9 contacts per capita per year, compared to 2.8 in Sweden and 5–7 in Canada, the USA, and the UK.

Japan has had very low birth and fertility rates since the 1950s. This fact, coupled with low mortality rates and increasing longevity, contributes to an aging of the population, posing problems for the health services in the years ahead. These include a need for geriatric facilities, nursing homes, home care, and support services for family care of the elderly. Proliferation of medical technology is a problem in the health system, and cost containment is now a major issue, with government regulation in health care likely to increase. Obesity rates have increased over recent years, but at 3 percent are well below rates in the USA (32 percent).

Smoking prevalence in Japan is one of the highest in the OECD countries (especially among males, at 46 percent), with 30 percent of all adults reporting smoking, compared to the OECD average of 24 percent. Japanese life expectancy for both men and women is among the world's highest (OECD, 2012; HDI, 2012). Japan has one of the largest proportions of elderly people in the world, with 22.7 percent of the population in 2009 over the age of 65 (compared to the USA's 13.0 percent and the OECD median of 15.5 percent). Yet per capita expenditure on health care of US\$2878 was well below the USA (US\$7960) and the OECD median (US\$3128). This is due largely to strict regulation of the prices paid for all health care services included in the national benefit package. All insurers adhere to a national

fee schedule, which is revised every 2 years, and providers are banned from charging above that fee.

In 2010, the government announced a new health information initiative, including patient electronic medical records accessible to all providers; telehealth to link patients with doctors and nurses in underserved areas; monitoring pharmaceutical prescriptions and adverse events to improve patient safety and monitoring; and a claims database of all conditions and interventions. This initiative is hindered by a lack of unique identifiers, and information exchange between providers and linking various databases come with privacy and data security issues.

Summary

The Japanese health system is highly decentralized, but regulated by the national authorities. It has achieved success in lowering mortality rates for most ages and conditions to among the lowest in the world, while restraining health care expenditures. Incentives for primary care seem to have been successful, despite the promotion of excess use of medication. Japan has a high total hospital bed ratio, in part because it has a high percentage of elderly people in its population and lacks alternative facilities for long-term care. The problem of caring for the elderly will be a challenge in the years ahead. The massive earthquake, tsunami, and nuclear plant disaster of 2011 damaged a large proportion of the health system facilities and placed great stress on the health system. Massive investment is required to restore the infrastructure, which is difficult during a time of economic recession.

COMPARING NATIONAL HEALTH SYSTEMS

The major participants in national health insurance networks include governments, employers, insurers, consumers, providers, and the public. Governments have increasingly come to recognize the economic and social value of improving the health of the population (Box 13.7). They carry this out through public health measures to ensure the basic health of the nation, as well as through legislation regarding the nature of health insurance, whether it is provided through private or public insurance mechanisms. In both the original UK Beveridge and the Soviet Semashko models, the government directly finances and provides health care. Services in the UK are provided by independent contractors, GPs, and hospitals operated by free-standing hospital boards (now trusts). The Semashko model was a totally state-financed and -operated service, with national norms and decentralized management. It brought health care to the far reaches of the Soviet Union, but failed to adjust to changing epidemiological and technological standards and thus the population health fell far behind that of the advanced countries.

In the Bismarckian model, health insurance is financed through social insurance, paid at the place of employment,

BOX 13.7 Stakeholders in National Health Systems

- The public, society, community, the nation, the regional and global community
- Individual members of society
- Government – national, state, region, and local authorities (town, county, city)
- Employers – through negotiated health benefits for employees
- Insurers – public, not-for-profit, and private for-profit
- Patients, clients, or consumers – as individuals or groups
- Risk groups – people with special risk factors for disease (e.g., age, poverty, occupational, or social groups)
- Providers – hospitals, managed care plans, medical, dental, nursing, laboratories, others
- Not-for-profit provider institutions
- For-profit institutions, individual providers, and groups
- Teaching and research institutions – universities, hospitals, institutes
- Professional associations, societies, academies, colleges
- Social security systems – with employer and employee contributions
- The public, the community, public opinion
- Political parties, philosophies, and social agendas
- Advocacy groups – age, disease, poverty, or public interest groups
- The media – advocacy and watchdog roles
- Economies – national, regional, and local
- International health organizations and movements
- Pharmaceutical and medical technology industries.

with Sick Funds paying for services of private medical practice and non-government hospitals. The Canadian plan finances health services by provincial governments funded by general tax revenues with federal government financial support, but care is provided by private practitioners and not-for-profit community-based hospitals. In all variations of health insurance systems, the place of the government as provider and insurer is important to the care received by the consumer and the general state of public health.

There are many variations in methods of assuring national access to health care. Different approaches taken in the development and current structure of health systems in the USA, Canada, the UK, European and Nordic countries, Japan, Russia, Israel, and the developing countries are given as examples in this chapter. Improved health, as measured by outcome indicators such as increased longevity and reduced morbidity, mortality, or social and physiological dysfunction, is the major underlying objective of a national health system. This is sometimes forgotten in debates that may reflect interests of groups such as insurers, providers, institutions, governments, professional groups, or even political philosophies.

A typology of national health systems based on methods of financing and administration of health services provides a framework for their classification and for

TABLE 13.27 Typology of Financing and Administration of National Health Systems

Type	Financing Source	Administration
Bismarckian health insurance through social security, e.g., Germany, Japan, France, Austria, Belgium, Switzerland, Israel	Compulsory employer–employee tax payment to Sick Funds or through social security	Germany – governments regulate Sick Funds which pay private services; strong Sick Fund and doctors' syndicates; Israel's Sick Funds compete as HMOs with per capita payments for a mandatory "basket of services"
Beveridge National Health Service, e.g., UK, Norway, Sweden, Denmark, Italy, Spain, Portugal, Greece	Government – taxes and revenues; UK national financing; Nordic countries combine national, regional, and local taxation	Central planning, decentralized management of hospitals, GP service, and public health; integrated district health systems with capitation financing in UK
Semashko national health systems, e.g., former USSR	Government – taxes and revenues; post-Soviet national health insurance	Strong central government planning and control; financing by fixed norms per population; allocation of facilities and human resources promote increase in hospital beds and medical staff; post-1990 reforms emphasize decentralization with capitation and compulsory health insurance (i.e., payroll taxation)
Douglas national health insurance through government, e.g., Canada, Australia	Taxation – cost-sharing between provincial and federal governments	Provincial government administration; federal government regulation; medical services paid by fee-for-service; hospitals on block budgets; reforms to regionalize and integrate services
Mixed private/public system, e.g., USA, Latin America (e.g., Colombia), Asia (e.g., Philippines), and African countries (e.g., Nigeria)	Private insurance through employment and public insurance through social security for specific population groups	Strong government regulation (USA); mixed private medical services, public and private hospitals, state/county preventive services; DRG payment to hospitals, rapid increase in managed care; extension of Medicaid coverage

Note: HMO=health maintenance organization; GP=general practitioner; DRG=diagnosis-related group.

comparisons (Table 13.27). Mixed models have also developed as the dynamics of health system reform evolves in many countries.

Economic Issues in National Health Systems

As discussed in Chapter 11 and earlier in this chapter, health expenditures and costs of health care are major issues in national health systems. This is in part due to the rising costs of technology in medicine and the increasing age of the population with the associated increasing importance of NCDs, but it is also due to the traditional emphasis on institutional care. Health spending per capita since 2000 has increased more than twice as fast as economic growth on average across OECD countries (4.0 percent versus 1.6 percent), resulting in an increasing share of the economy being devoted to health in most countries, but there is some slowing in the rate of increase. This is particularly harsh in countries most affected by the economic recession, such as Greece and Ireland. In contrast, many developing countries are experiencing good levels of economic growth with a rising middle class, wider poverty reduction, and health benefits.

Health expenditures for preventive care, health promotion, and environmental health are generally not well financed

or analyzed in routine economic data reporting. This makes economic analysis and comparison of interventions difficult, thereby handicapping the search for cost-effective interventions such as smoking reduction, hypertension management, obesity reduction measures, and promotion of physical exercise. These require greater emphasis in health systems development to reach out to populations at greatest risk, including the poor and disadvantaged ethnic groups, and education to promote greater public support of population health issues such as immunization, food fortification, fluoridation, and wider issues of environment and climate change.

National expenditures on health care are usually expressed in terms of US dollars as a percentage of GNP or GDP. The two economic figures are expressions of the total goods and services in a country, but GDP excludes international transfer of funds. Health care costs are also expressed directly as expenditures per capita (per person, per year), and indirectly as resources such as the number of hospital beds or medical personnel per 1000 (or 10,000) population (Table 13.28). The percentage of GNP spent on health care often is not necessarily directly related to health indicators, such as infant mortality or longevity, as funds may be allocated to or spent on less effective and more costly care. This said, countries with low GNP per capita that spend less than

TABLE 13.28 Population, Gross Domestic Product (GDP) per Capita, Health Facilities and Health Indicators, Selected Countries and Years, 2010–2011

Country	Population (millions) 2011	GDP per capita (US\$) 2011	% GDP for Health 2010	Acute Care Beds/1000 2010	Average Length of Acute Care Hospital Stay (days) 2010	Discharges/1000 2010	Infant Mortality/1000 2010	Life Expectancy 2011
USA	313.1	48,043	17.6	2.6	5.4	126	6.2	78.7
Canada	34.4	40,470	11.4	1.7	7.7	83	4.9	80.0
Sweden	9.4	56,927	9.6	2.0	6.0	162	3.8	81.9
Germany	81.8	39,852	11.6	5.7	9.5	240	3.4	80.8
Finland	5.4	49,391	9.0	3.8	11.6	181	2.3	80.6
Denmark	5.6	59,683	11.2	2.9	4.6	181	3.4	79.9
Israel	7.8	31,282	7.6	1.9	5.8	198	3.7	81.8
UK	62.4	38,818	9.6	2.4	7.4	138	4.2	81.1
Russian Federation	142.8	13,089	5.0	9.3	11.3	216	9.8	69.0

Sources: World Health Organization, European Region. Health for All database; January 2013. Available at: <http://data.euro.who.int/hfad/b/> Organisation for Economic Co-operation and Development. OECD health data 2013. Available at: http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_REAC (Accessed 5.1.2014).

4 percent on health have poorer health indicators because there are insufficient resources to provide a basic health level for all. Underfinancing and inappropriate allocation of funds have been severe problems in most post-Soviet health systems and even more so in most developing countries.

The supply of health care services remains one of the difficult and controversial topics in health planning. Economic analysis usually focuses on methods of financing in health care, and on methods of reimbursement or payment for services, placing less emphasis on the supply and quality of services. The World Bank's 1993 *World Development Report*, discussed in previous chapters, places major emphasis on the economic benefits of prevention and cost-effective measures to reduce the burden of disease. Excessive hospital utilization is not cost-effective.

Roemer's law (see Chapter 11) states that hospital utilization under insurance varies directly with bed supplies. Despite its essential validity, subsequent evidence shows that payment systems for hospital care can be modified so that there are incentives to prevent unnecessary admissions and to shorten hospital stays. As health costs increased rapidly, the concept of providing health care with fewer hospitalizations and more emphasis on ambulatory service has become one of the essentials of health policy in many countries since the 1970s.

Health resources indicators are quite variable among the developed market economy countries. Acute care bed ratios represent the number of general short-term beds per 1000 population. A hospital bed is not only a piece of

furniture; it represents a service unit with staffing, services, maintenance, food, laundry, and other services. It is therefore an economic unit with fixed and variable costs when in use or even empty. Total hospital beds per 1000 population includes all institutional beds utilized for inpatient medical care, but not geriatric custodial care. Acute care hospital beds per 1000 is a more precise and comparable indicator (see Table 13.28). Many countries have reduced or are actively reducing hospital bed supplies (UK, the Nordic countries, most Western European countries, the USA, and Israel), developing alternatives to hospital care, using incentive payments to promote ambulatory or day-hospital treatments.

The hospital bed supply (i.e., the acute care bed-to-population ratio) of a country reflects historical patterns, medical practice traditions, concepts, medical technology, and the ability of an organization to adjust to changing circumstances and needs. It is also a function of financial incentives or disincentives. Reduced hospital bed supply has become part of standard health reforms in industrialized countries as more efficient care is achieved through better diagnostic facilities, ambulatory care, and other community-based services and facilities, including not-for-admission outpatient surgery, home care, and day care. There is also a wide recognition that hospitals are vital for short-term acute care, but themselves are health risks from infections and there are incidents that relate to errors, infections, disorientation of patients, and the discomfort of being away from the family environment. Because the elderly are greater consumers

of health services than the young, another major factor that influences this ratio is the age distribution of the population. Investment in alternatives to hospital care and health promotion to reduce morbidity is essential to help control the rate of increase in costs of health care. This requires investment in education, legal action, screening, nutrition education, group counseling, selective home support services, and many other elements of the broad concept of health promotion.

Important factors in determining costs of national health systems include the salary or income of providers, levels of technology in the service, health planning criteria (norms), and hospital bed supply and utilization. Other factors are availability of home care and comprehensive community care services, use of integrated or regionalized models of health care delivery, methods of paying for hospital services, use of incentive payment systems to promote more efficient use of resources, and emphasis on prevention and health promotion. All of these are issues in the reform of national health systems. Table 13.28 shows a comparison of expenditure, resource utilization, and outcome indicators for selected industrialized countries. Globalization of economics and weakening of public services with trends towards privatization in health care are accompanied by technological advances, aging, and migration, all creating new challenges for a New Public Health.

No analysis of a health system can be complete without addressing the importance of poverty as a major contributing factor to morbidity and mortality. Poverty is associated with high rates of mortality from stroke, CHD, trauma, asthma, and cancer. Poverty is also related to many specific risk factors for illness, including low educational levels, poor housing conditions, poor nutrition, psychological depression, cigarette smoking, alcohol and drug abuse, teenage pregnancies, single parenthood, early bereavement or abandonment, lack of prenatal care, low birth weights, and family and neighborhood violence. Universal access to traditional medical care may alleviate some of these effects, but it fails to address the core issues. Social policy and health programs are interdependent, each contributing to improving the quality and length of life. Health planning, including economic indicators, must take this factor into account.

REFORMING NATIONAL HEALTH SYSTEMS

Health care systems are developed in the historical and political context of each country and continue to evolve slowly to meet the challenges of demographic, economic, and epidemiological change, public awareness and expectation, and changing technology in health. Impetus for reform of a health system may derive from a need for cost restraint, universal coverage, or efficiency in use of resources, or an effort to improve the satisfaction of consumers or providers

(Table 13.29). The aim of improving the health of the population is the overall objective, but this is often expressed as “process indicators” such as improved access, equity, efficiency, and quality of care, as well as outcome measures of reduced morbidity, mortality, or loss of function.

Political and philosophical considerations for health reform often stress issues such as universal access, social solidarity, and equity in resource distribution, human resources, and hospital beds, but it is equally important to focus on targets for improving the health of the general population and special groups at risk. Philosophical and historical issues and arguments for national health insurance have included the need for social protection as a matter of national honor, but a system that fails to improve national health in terms of international outcome indicators does not meet this objective.

Debates and reforms in organizing health systems continue and are increasing in intensity as the political objectives of *Health for All* or *Health in All* policies meet the reality of rising costs, aging populations, and new health challenges such as unanticipated epidemics or technological breakthroughs. Efficiency in use of resources and satisfaction of the public and providers are major issues in all health systems. There is no single best means, despite claims by proponents of state-operated systems and equally ideological claims by market-force proponents. Direct importation of a total health system model is not feasible, because there are many factors contributing to the development of a health system relating to the political, social, and professional cultures of each country.

The assumption that market forces produce a better quality of health care is commonly expressed. This point of view has merit if taken in the sense that personal management of finances and choices in health care empower the individual to choose. This may be an advantage for a better educated urban population living near specialized services unavailable to others. Choice for consumers and freedom of choice (autonomy) for providers are different aspects of the market-force issue. Taken together, they provide a measure of protection of the rights of the consumer and provider to choose health systems. However, they diminish the responsibility and ability of the system to reach out and provide care and preventive services, or to manage resources effectively, so that important programs, particularly in health promotion and public health (such as care for high-risk groups, immunization, prenatal care, and care of the elderly), may suffer as a result. This set of rights is also sometimes in conflict with the imperative of cost control and the rapid increase in availability of new innovations in diagnosis and management whose benefits may be limited and costly, preventing other proven measures from being implemented. They may also have the undesired effect of promoting excess services such as unnecessary surgery, which has costly and potentially harmful consequences. Market mechanisms that

TABLE 13.29 Goals, Issues, Strategies, and Tactics for National Health Policies

Goal	Issues	Strategies/Tactics
National political commitment to improved health for all	Health as a government responsibility Universal access Adopt international standards Regional and social equity in access Rights to choose within health system Healthy lifestyle as national policy	Health promotion as policy Law/regulations Regulate consumers' rights in health Public information on health Advocacy groups – public, professional
Financing within national means for social benefits	Adequate overall financing (>6 percent GNP) Shift from supply planning to cost per capita per output Categorical grants to promote national objectives	Increase financing at national, state, and local government levels Health insurance as supplement Define "basket of services" and consumer rights Reduce acute care beds to <3/1000 District health authorities with capitation funding
Management for cost-effectiveness	Cost containment Cost-effective health initiatives Decentralized management National policy, monitoring, and standards Information systems/monitoring District health profiles	Incentives for primary care and outreach services Incentives for home care, long-term care facilities Increase home care, non-admission surgery, and long-term care facilities Health information systems Managed care and DRGs
Defining national health targets	Define leading causes of morbidity, mortality, and YPLL, hospitalization Regional, socioeconomic, ethnic analysis Health promotion vs treatment philosophy Prioritization for use of available resources Use relevant international standards	Social factor analysis in health Improve health KABP Community attitudes to health promotion Promote public health, nutrition, environment, immunization policies
Monitoring health status	Reporting, data systems, information technology	Computerization of medical records, IT and public access to population-based statistics

Note: GNP = gross national product; YPLL = years of potential life lost; DRG = diagnosis-related group; KABP = knowledge, attitudes, beliefs, and practices.

promote individual as well as health system responsibility can make important contributions in health.

Government responsibility to implement health promotion initiatives may limit individual rights. These include adding chlorine and fluoride to community water supplies; iodine to salt; and vitamin B, iron, and folic acid to flour. This is part of the substance of public health and requires people who may not directly benefit to accept this social solidarity in the interests of the need of others in the community and the community at large. A local, state, or national health authority may close a business that is hazardous to health, such as an unhygienic restaurant or a manufacturer of lead-contaminated toys. Management of health care systems must address macroeconomic and microeconomic issues for efficiency. Communities and regions will often address health planning in terms of its impact on business, jobs, and prestige in the community, as opposed to national or regional plans and priorities.

Since the 1970s, there has been a growing stress on health promotion as a way of reducing the burden of NCDs and the cost of health care for these diseases. This was stimulated

and promoted by the Health Field Concept (Marc Lalonde, 1974), the Alma-Ata Conference on primary health care (1978 and 2000), and the WHO's Health for All concept (1978). Specific health targets in the USA (Healthy People 2010 and Healthy People 2020) and in the European Region of the WHO (1985 and 2005) place emphasis on measurable objectives as the basis for health planning, affecting the planning process (see Chapter 2). Even the most developed countries have substantial population groups living in poverty, with poor health conditions.

The 1990s was a decade of major reforms in national health systems. Industrialized countries attempted to restrain cost increases while retaining universal access. Sweden has brought down its health expenditures by reducing hospital bed supplies. The USA, building on its social security-based health insurance plan for the elderly and the poor since 1965, has brought health care to a large sector of the elderly and poor population. Many attempts have failed to bring in universal coverage as national health insurance, but the country is undergoing dramatic changes in the managed care revolution, with health insurance coverage by public and private

insurance systems working under regulations to protect individual rights, and propelled by the need to control the rate of cost increases. In the USA about three-quarters of working-age adults on low incomes, an estimated 40 million people, lack any or adequate health insurance (Commonwealth Fund, 2012). The Obamacare plan, implemented over the years 2013–2015, is expected to lower private insurance costs and improve conditions for many who were excluded from medical insurance coverage by prior medical conditions. This is a major new health reform. Understanding the international experience of health care systems is essential for policy development to promote international standards and criteria for health systems development.

The Canadian Medicare program is about 70 percent funded from the public sector through general taxation of the federal and provincial governments. As the federal government has withdrawn from its earlier levels of participation, the provinces struggle to support the comprehensive range of services and increasing costs associated with an aging population, increasing professional fees and costly health technology. The federal Medical Care Act is limited to sharing provincial costs for physician and hospital services, leaving many essential service programs to provincial funding alone.

Israel has moved from voluntary Sick Funds to national health insurance, with the Sick Funds as managed care systems. The Eastern European countries are in a state of transition away from the pre-1990 Soviet model, adopting national health insurance and decentralized administration of services. In developing countries there is concern that directly financing services through the government will hinder the development of health services, so that there is a tendency to look towards national health insurance as a way to improve funding of services and bring more people into care. China has moved towards fee-for-service in its rural health care for some 70 percent of its population. All countries are struggling to develop adequate prevention models to reduce the burden of disease that can bankrupt a national health system.

Universal access to health care does not necessarily address social inequalities in health. Removal of financial barriers by itself does not guarantee good health. Many social, cultural, and environmental health risk factors are not correctable or preventable by medical or hospital care. They may be of greater importance than the medical care provided (see Chapter 3). The models presented may serve as examples for other countries, and will continue to do so. It is therefore useful to understand how they evolved, their successes and failures, and how they are continuing to develop.

There are two basic directions for reform, which are sometimes in conflict. One is the primary health care approach, which is based on tackling the basic health problems of developing countries by promoting primary health care as a public service through decentralized delivery and administration. The alternative approach, based on the market economy theory, is to promote access to health care

by national health insurance, funded through employer–employee contributions or through general taxation.

The fundamental differences in these two approaches present a dilemma for the developing countries and in many ways for the developed countries as well, as they struggle to control health care costs. A health insurance approach may increase funds available for health care, but it invites increases in expenditures for care, inequalities in access to care, and an emphasis on curative as opposed to preventive service. This is decidedly a medical approach, promoting hospital and physician services, with public health inadequately addressed and left to the care of private medical practitioners.

The market approach assumes that promoting competition will increase the quality of care and attention to consumer needs, but it is often associated with overutilization of costly services and drives health costs to very high levels. It is a luxury available only to the very wealthiest countries and still not providing all citizens with equal access to services. Developing countries may not have adequate funds to provide health care for all. At the same time, developed economies may not be able to fund health services on demand at levels that consumers and providers might consider ideal. This has led many countries to restrict access to specialist services and place other limitations on services, and is the basis for the managed care approach in the USA.

The public service model often leaves a national program underfunded, leading to problems of quality and morale for the provider as well as the consumer. However, a national health policy is still essential for vulnerable population groups or areas, whether in a developing or developed country. Even countries with universal national health insurance or service systems have population groups living in poverty, with poor health conditions. All countries have difficulties with health care in rural areas ill-served by collapsed rural health services.

The health sector is under great pressure to constrain costs. Employer–employee contribution systems are implementing changes to control costs because health costs are partly responsible for making their industry non-competitive in the global market. At the same time, there are inflationary pressures of the aging of the population, medical technological innovation, and high professional and public expectations. Health system reform includes downsizing the hospital sector and building up community health care.

SUMMARY

National health systems throughout the world are in a process of change, seeking restraint in increasing costs, universal coverage, equity in access and quality, as well as efficiency and effectiveness in use of resources to achieve health targets. Many countries are looking for ways to provide universal and equitable care, while controlling costs

and improving efficiency. There is no single answer to the search for a health system that works.

Social security and social welfare systems took up the task of assuring access to health services during the twentieth century. National health systems evolved to provide access to medical, hospital, preventive, and community health services. Financing of services through general taxation based on progressive income tax, resource taxes, and excise taxes may be the most equitable way of raising funds. Many countries use social security systems based on employer–employee contributions to pay for health services. Universal access is a means of assuring that the economic barrier is removed for the total population and may lead to increased access to medical and hospital services for those previously excluded. It does not, in itself, guarantee achievement of important health targets. Allocation of resources is an even more fundamental problem.

NGOs serve many purposes such as testing out new ways of doing things before government makes a commitment, identifying gaps, and raising consciousness of important issues, such as advocacy groups and fund raising for cancer, and specialized conditions that require innovation and non-governmental support. However, governments often leave important issues to NGOs and do not absorb them into the total health system programming.

Beyond financing and resource allocation, there are many “non-tariff” barriers to health. Even in highly developed national health systems, such as that of the UK, social class, place of residence, education level, and ethnicity play important roles in morbidity and mortality rates. Factors other than medical or hospital care are vital, as classic risk factors for disease, such as diet, smoking, and physical fitness. Partly, however, social class differences in morbidity and mortality are the result of less well-defined aspects of poverty, such as depression, fear, insecurity, and lack of control over one’s life. These are issues that are important to the achievement of national health goals and equity.

Health systems must be continuously evaluated. Traditional outcome indicators, such as infant, child and maternal morbidity and mortality, and disease-specific mortality rates, are important but not sufficient. Information on the incidence of vaccine-preventable diseases, immunization rates for infants, anemia rates in infancy and pregnancy, and disabling conditions is also necessary. Newer measures such as DALYs and QALYs (see Chapters 3 and 11) may help to change the emphasis from mortality to quality of life measures as part of the evaluation. National health systems require data systems that generate information needed for this continuous process of monitoring. High-quality academic centers for epidemiological, sociological, and economic analysis are needed to train health leaders and managers and to carry out the studies and research vital for health progress.

Despite the structural diversity and underlying philosophical differences in national health systems, there are important common elements. They are large employers and among the biggest economic sectors in their respective countries. All face problems of financing, cost constraint, overcoming structural inefficiencies, and, at the same time, funding incentives for high quality and efficiency. Funding in health care still predominantly goes to biomedical aspects including research, so that community-oriented health promotion aspects are less well supported despite social inequities being so widespread, in even the high-income countries. The long-standing struggle between the germ theory and the miasma theory orientation is still present, and a new balance needs to be found to deal with the issues of aging, mental health, and health promotion in all its aspects, as well as providing medical and hospital care.

A national health system is a complex with many parts that includes but goes well beyond medical care. The quality of the health protection community infrastructure (sewage, water, roads, and communication), the quantity and quality of food, levels of education, and professional organization are all parts of this continuum. Narrow planning for health systems ignores this message at the risk of missing its targets of improved health indicators, such as those adopted by the UN as the MDGs, and control of the burden of NCDs and injuries. National health systems are not only a matter of adequacy and methods of financing and assuring access to services; they address health promotion, national health targets, and adaptation to changing needs of the population, the environment, and a broad intersectoral approach to health of the population and the individual. The structure, content, and quality of a health system play a vital role in the social and economic development of a society and its quality of life.

Since the end of the Cold War in 1991, a new movement of globalization with economic and political dimensions has taken place with greater stress on human rights with direct application to health. The former socialist countries have gone through painful periods of transition. Many countries have developed free-market systems with dynamic growth in national economies. Health systems have struggled to adapt but great gains in longevity and reduced mortality from preventable diseases have been made in many countries. Public and private donor partnerships have emerged to help the poorest countries to cope with overwhelming health problems of HIV, TB, malaria, diarrheal and respiratory diseases, and the vaccine-preventable diseases.

The MDGs represent an international consensus on reducing poverty and preventable mortality, especially of women and children. The potential for achieving these goals depends on developing infrastructures of health systems which provide access for all and distribution to meet geographic and social inequalities in health. Each country needs to develop its own system, but can learn from the experience

of others. The purpose of this chapter is to highlight the unique and common features of national health systems.

Universal access is a means of ensuring that the economic barrier is removed for the total population and may lead to increased access to medical and hospital services for those previously excluded. It does not, in itself, guarantee achievement of important health targets. A system of national health must be able to allocate resources to meet the needs of those with the highest risk of early disability or death, and not simply be a payment system for doctors and hospitals. The issue of changing demographics and epidemiological challenges must also be addressed. For global health, universal access to health care despite all its difficulties is a basic goal that must be achieved.

NOTE

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