Health System in Mexico

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Abstract

This chapter discusses the Mexican health system. We first describe the general characteristics of Mexico and the health conditions of the Mexican population, with emphasis in noncommunicable diseases, which are now the main cause of death and disability. The following section is devoted to the description of the basic structure of the system: its history; its main institutions; the population coverage; the health benefits of those affiliated to the

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different health institutions; its financial sources; the availability of physical, material, and human resources for health; the delivery of personal and public health services; the stewardship functions displayed by the Ministry of Health; and other actors. This part also discusses the role of citizens in the monitorization and evaluation of the health system, as well as the levels of satisfaction with the rendered health services. In part three, the most recent innovations and its impact on the performance of the health system are discussed. Salient among them are the System of Social Protection in Health and the Popular Health Insurance. The chapter concludes with a discussion of the most recent health initiatives and reforms, and a brief analysis of the short- and middle-term challenges faced by the Mexican health system.

Mexico is the largest Spanish speaking country in the world. It covers 1.9 million km^2 of land in North America (Central Intelligence Agency). It borders to the north with the USA, and with Guatemala and Belize to the south.

Mexico is an upper middle income country with a GDP of US$$_{ppp}$ 1.788 trillion (2012) and a per capita GDP of US$$_{ppp}$ 15,100.1. Its human development index is 0.775 (2012), above the world average of 0.694 and ranking 61 out of 187 countries (UNDP). Inequality, as measured by the Gini index, is 47.2, higher than all other high human development countries except for Brazil (The World Bank). Its principal source of income is services (61.8%), with industry running second (34.2%) and agriculture representing a small and waning portion (4.1%) (Central Intelligence Agency). Its annual economic growth rate during the period 1990–2010 was 2.8% (The World Bank).

Mexico has a population of 116.2 million (2013 est.) that is witnessing: (Central Intelligence Agency; Partida 1999)

- A decline in general mortality explained mostly by a reduction in infant mortality from 79 per 1000 live births in 1970 to 16.2 in 2013 (2013 est.)
- An increase in life expectancy at birth from 49.6 years in 1950 to 79.8 years in women and 74.0 in men in 2013 (2013 est.)
- A reduction in fertility from 6.8 children per women of reproductive age in 1970 to 2.2 in 2013 (2013 est.)

The rapid decline in fertility is driving an aging process which implies an increasing proportion of older adults in the population structure. Children under 5 will represent less than 10% of the total population in 2050 while older adults will concentrate over 20% of the total population (Ham-Chande 2012).

Mexico is also going through an accelerated process of urbanization. Eight out of every 10 Mexicans now live in urban areas (Central Intelligence Agency). This is associated to a parallel process of rural population dispersion which increases the problems of access to health care of a population with major health needs (Reyna-Bernal and Hernández-Esquivel 2006).

Health Conditions

The increase in life expectancy and a growing exposure to unhealthy life styles in urban dwellings are modifying the main causes of disease, disability, and death. Mexico is going through a health transition characterized by an increasing predominance of noncommunicable diseases (NCD) and injuries. In 1950 around 50% of all deaths in the country were due to common infections, reproductive events, and diseases related to undernutrition (Fig. 1) (Secretaría de Salud 2001). Today, these ailments concentrate less than 12% of total deaths, while NCDs and injuries are responsible for almost 90% of national mortality (World Health Organization 2012).

The contribution to mortality of the different age groups is also changing. In 1950, half of total deaths were concentrated in children under 5 and only 15% were concentrated in persons 65 years of age and older (Secretaría de Salud 2007). Nowadays, more than 50% of deaths are concentrated in older adults and less than 10% in children under 5 (Zúñiga and García 2008).

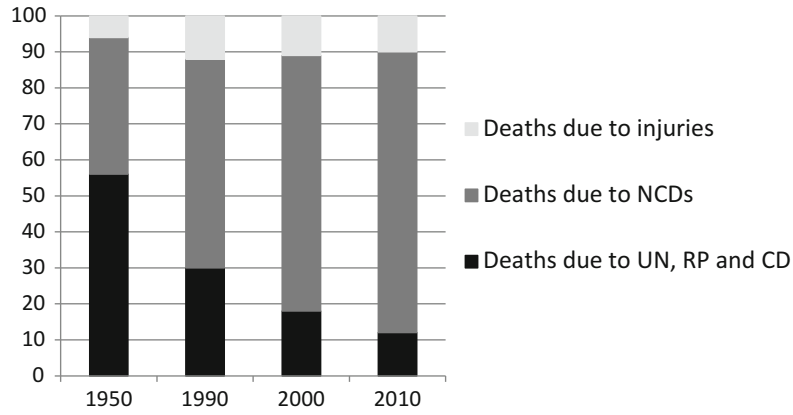

Fig. 1 Evolution of the distribution of mortality by type of disease, México 1950–2010. NCD noncommunicable diseases, UN, RAP, and *CD* undernutrition, reproductive problems, and communicable diseases (Source: Ministry of Health, Mexico Secretaría de Salud (2001))

History of the Mexican Health Care System

The origins of the modern Mexican health system date back to 1943, when the Ministry of Health (MoH) and the Mexican Institute for Social Security (IMSS) were created. IMSS would serve the industrial work force, while the MoH was assigned the responsibility of caring for the urban and rural poor (Frenk et al. 2003). In 1960, a social security institution for civil servants was created, the Institute for Social Security and Services for Government Employees (ISSSTE).

In order to extend access and improve the efficiency and quality of care, a health care reform was launched in 1983: a constitutional amendment establishing the right to the protection of health was introduced; a new health law was published; and health services for the uninsured population were decentralized to state governments (Soberón 1987). The force guiding this program was primary health care. However, universal access to comprehensive services would not be reached until the initial years of the new millennium.

In the 1990s several national health accounts studies revealed that more than half of total health expenditure in Mexico was out-of-pocket. This was due to the fact that half of the population lacked health insurance. This exposed Mexican households to financial crisis. Not surprisingly, Mexico performed poorly on the comparative analysis of fair financing developed by the WHO as part of the *World Health Report 2000* (World Health Organization 2000).

These results encouraged the development of further analysis that showed that catastrophic health expenditures were concentrated among the poor and uninsured. The products of these studies generated the advocacy tools to promote a legislative reform that established the System for Social Protection in Health (SSPH) in 2004 (Frenk et al. 2004). This system has mobilized public resources by a full percentage point of GDP over a period of 8 years to provide health insurance, through a public scheme called *Seguro Popular*, to all those ineligible for social security (those who are self-employed, unemployed, or altogether out of the labor force).

Organization and Governance

Organization

The Mexican health system includes a public and private sector. The public sector comprises the social security institutions [IMSS, ISSSTE, and the social security institutions for oil workers (PEMEX) and the armed forces (SEDENA and SEMAR)], *Seguro Popular,* and the institutions offering services to the uninsured population, including the Ministry of Health (MoH), the State Health Services (SESA), and the *IMSS-Oportunidades* Program (IMSS-O) (Fig. 2). These institutions run their own health facilities with their

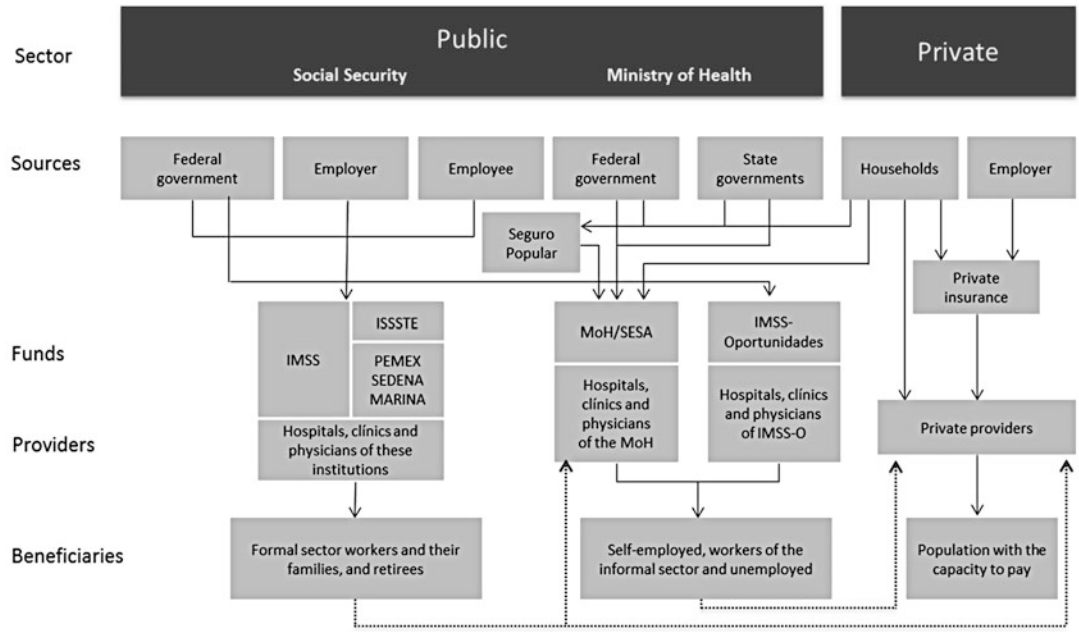

Fig. 2 The Mexican heath system has a public and private sector providing services to overlapping population groups

own staff, except for *Seguro Popular*, which buys services for its affiliates from the MoH, SESA, and IMSS-O. The private sector includes facilities and providers offering services mostly on a for-profit basis financed either through insurance premiums or out-of-pocket payments.

Planning and Regulation

The MoH is in charge of most stewardship functions, including strategic planning, policy design, intra- and inter-sectoral coordination, regulation of personal health services, sanitary regulation, and evaluation of policies and programs. The regulation of personal health services includes the accreditation of medical and nursing schools, the certification of health professionals, and the accreditation of health facilities. These activities are developed in coordination with several professional bodies and NGOs, including the National Academy of Medicine and the National Association of Medical Schools and Faculties. The protection of health service users is in charge of the National Commission for Medical Arbitrage (*CONAMED*) (Comisión Nacional de Arbitraje Médico).

Regulation is the responsibility of the Federal Commission for Health Risk Protection (COFEPRIS), charged with assuring food safety, defining environmental standards, promoting occupational health and safety, regulating the pharmaceutical industry, and controlling hazardous substances like alcohol and tobacco (Comisión Federal de Protección contra Riesgos Sanitarios).

The MoH also counts with an evaluation unit which evaluates the main policies and programs and publishes an annual report on the performance of the Mexican health system and its various components (Dirección General de Evaluación del Desempeño, Secretaría de Salud, México).

Health Information Systems and Technology

Health information is the responsibility of the General Directorate for Health Information based at the MoH (Dirección General de

Table 1 Health care coverage, Mexico 2002 and 2010

Type of population	2000		2010	
	Number (million)	%	Number (million)	%
Population with social security	38.7	37.4	50.7	45.1
Population with private insurance[a]	2.5	2.4	2.8	2.5
Population enrolled in *Seguro Popular*	–	–	43.5	38.7
Population with health insurance	41.2	39.8	97.0	86.3
Uninsured population	62.2	60.2	15.3	16.6
Total population	103.4	100	112.3	100

Source: Refs. (Crónica; Comisión Nacional de Protección Social en Salud; Comisión Nacional de Protección Social en Salud 2012).

[a]Around half of the population with private health insurance is also covered by public insurance. In this figure we consider those with private health insurance only

Información en Salud, Secretaría de Salud, México). In collaboration with other public institutions, this office created the National Health Information System (SINAIS), which generates information on births, deaths, cases of disease, health infrastructure, health services, and financial and human resources (Sistema Nacional de Información en Salud, México). SINAIS counts with several subsystems including the Epidemiological Surveillance System, the Automatized Hospital Discharge System, and the National and State Health Accounts System.

The MoH has an area for the evaluation of medical technology, the National Center for Health Technology Excellence, whose main purpose is to produce and disseminate information on the appropriate selection, incorporation, and use of medical technologies based on evidence of their safety, effectiveness, and efficiency (National Center for Health Technology Excellence).

Role of Patients

Patients in Mexico started playing a role in the operation of the Mexican health system until very recently through the "citizen endorsements groups," created in 2001 as part of a quality program, the "National Crusade for Quality in Health Care." The purpose of these groups is to train community volunteers to assess the responsiveness of health care facilities (Ruelas 2006). In 2006, there were 1764 active citizen groups that had endorsed over 1100 health units.

Besides these groups, citizens have traditionally played a limited role in the design and operation of health services, programs, and policies. The main exceptions are the HIV/AIDS and women's health advocacy groups.

Financing

Coverage and Benefits

The Mexican health system is segmented along three broad categories of beneficiaries: (i) salaried workers and retired population, along with their families; (ii) self-employed workers and unemployed population, along with their families; and (iii) the population with the ability to pay.

As mentioned above, salaried workers are the beneficiaries of social security institutions, which in 2010 covered 50.7 million people (Table 1; Crónica). IMSS covered 80% of this population, and the rest was covered by ISSSTE and the social security institutions for oil workers and the armed forces.

The second category (self-employed and unemployed, and their families) was covered until 2003 by services of the MoH, SESA, and IMSS-O. The recently created *Seguro Popular* was covering 43.5 million individuals in this category by 2010 (Comisión Nacional de Protección Social en Salud; Comisión Nacional de Protección Social en Salud). By the end of 2011, affiliation to *Seguro Popular* reached 52 million. This means that Mexico is on

track to reach universal health coverage in the near future.

Finally, the third category includes the users of private health services, mostly upper and middle class individuals. However, the poor and those affiliated to social security institutions also use them on a regular basis. According to the National Health and Nutrition Survey 2012 (ENSANUT 2012), over 30% of the insured population regularly use private health services, mostly ambulatory care, for which they usually pay out-of-pocket (Instituto Nacional de Salud Pública 2013). The penetration of private insurance is low. Only six million people in Mexico are covered by private health insurance, half of which also are covered by public insurance (CNNExpansión).

Those affiliated to social security institutions have access to a broad, but not explicitly defined, package of health services that includes ambulatory and hospital care, including high specialty care. Coverage includes drugs as well. Those affiliated to *Seguro Popular* have access to a comprehensive and explicit package of 270 essential interventions and the respective drugs. They also have access to a package of over 60 high-cost interventions for the treatment of acute neonatal conditions, cancer in children, cervical and breast cancer, and HIV/AIDS, among other diseases. Finally, the uninsured population has access to a limited package of benefits that vary considerably depending on the type of population (urban or rural).

Sources of Revenue, Collection, and Pooling

As shown in Fig. 2, social security institutions are financed with contributions from the government, the employer (which in the case of ISSSTE, PEMEX, SEDENA, and SEMAR is also the government in its role as employer), and the employee. The MoH and the SESA are financed mostly with federal and state government resources coming from general taxation. IMSS-O, which is directed to the rural poor of 17 states, is financed with federal resources but operated by IMSS. Finally, *Seguro Popular* is financed with federal and state government contributions and family contributions, with total exemption for those families in the bottom 40% of the income distribution.

Private services are financed mostly out-of-pocket. A very small portion of private health expenditure comes from private insurance premiums.

Health Expenditure

Total health expenditure as % GDP in Mexico in 2010 was 6.3%, well below the OECD average (9.3%) and below the Latin American average (6.8%), but up from 5.1% in 2000 (World Health Organization; Organization for Economic Cooperation and Development; World Health Organization). Health expenditure per capita in that same year was US$$_{ppp}$ 603, up from US$$_{ppp}$ 328 in 2000.

Mexico's public expenditure on health as a percentage of total health expenditure in 2010 was 49%, up from 46.6% in 2000 but still the third lowest of OECD countries (World Health Organization; Organization for Economic Cooperation and Development).

Private expenditure concentrates 51% of total health expenditure in Mexico, a much larger portion than the average OECD country (17%) and a larger portion than Argentina (35.6%), Colombia (25.4%), and Uruguay (34.7%) but lower than Brazil (53.0%) (World Health Organization; Organization for Economic Cooperation and Development; World Health Organization).

Ninety two percent of private health expenditure is out-of-pocket (World Health Organization). The remaining 8% corresponds to private insurance premiums (World Health Organization). In Argentina, Brazil, Colombia, and Uruguay, out-of-pocket expenditure concentrates 60%, 57.8%, 67.7%, and 39.6% of total private health expenditure, respectively (World Health Organization). This means that Mexico has the highest level of out-of-pocket expenditure of middle-income countries in Latin America. This exposes households to catastrophic financial events. In 2000, an estimated

three million Mexican families suffered catastrophic or impoverishing health expenditures (Frenk et al. 2006). However, several studies showed that by 2006 this figure began to decline due to the implementation both of several programs to combat poverty and *Seguro Popular* (Knaul et al. 2006, 2011).

Physical and Human Resources

Excluding medical offices of the private sector, the Mexican health system has about 27,000 health units, 3976 of which are hospitals, for a rate of 3.5 hospitals per 100,000 population (Dirección General de Evaluación del Desempeño, Secretaría de Salud, México). Of the total number of hospitals, 1386 (33.6%) are public and 2590 are private (66.4%). Of the total number of public hospitals, 2147 (54%) belong to SESA and MoH and 1829 (44%) to social security institutions.

In 2010 the three main public institutions (MoH/SESA, IMSS, and ISSSTE) had 74,064 hospital beds and 2900 operating rooms for a rate of 6.5 beds per 10,000 population and 2.5 operating rooms per 100,000 population (Dirección General de Evaluación del Desempeño, Secretaría de Salud, México).

Private hospitals count with 34,000 hospital beds. Most of them are general hospitals and are concentrated in the largest cities of the country. Most of them have 20 beds or less. Some of these units, in fact, can hardly be considered hospitals at all since they have no laboratories, no radiology and imaging services, and no blood banks.

The Mexican health system also has over 20,000 public ambulatory units, most of which belong to SESA (Dirección General de Evaluación del Desempeño, Secretaría de Salud, México 2000).

Regarding high specialty medical equipment and procedures, Mexico has a rate of 3.9 computed tomography units (CTU) and 1.3 radiotherapy units (RTU) per million population, the lowest and second lowest figures for OECD countries, respectively, which on average have 8.2 CTU and 6.9 RT per million population (World Health Organization 2013; OECD. OECD Health Data 2013).

Regarding human resources, there are 1.96 doctors per 1000 population, below the OECD average (3.0) and other Latin American countries, such as Argentina (3.0) and Uruguay (3.7) (World Health Organization 2013). The scarcity of these resources is particularly acute when it comes to human resources for mental health: in Mexico there are only 0.02 psychiatrists per 1000 population World Health Organization 2013). The availability of nurses, 2.7 per 1000 population, is also below the OECD average of 8.6 (OECDiLibrary).

Pharmaceuticals

The Mexican market of pharmaceutical products is the 12th largest market in the world and the second largest in Latin America, just below Brazil (Massachusetts Office of International Trade and Investment; Chhabara). Mexico spends 27% of its total expenditure on health in pharmaceuticals, the third highest figure for OECD countries (OECD). About 80% of total expenditure in pharmaceuticals is concentrated in generic drugs, a market that has shown important growth rates in the past decade.

Around 80% of total expenditure in pharmaceuticals is private and 90% is out-of-pocket, one of the highest figures in the world (Moïse and Docteur 2008). The public sector concentrates 20% of the national expenditure in pharmaceuticals and 35% of its volume. This difference is due to the fact that most of the drugs purchased by public institutions are generics, which are considerably cheaper than patented drugs.

Delivery of Personal and Public Health Services

Health care services in public institutions are provided at social security, MoH, SESA, and IMSS-O facilities. Those in the formal, private sector of the economy receive health services at IMSS clinics and hospitals. Those in the formal, public sector of the economy receive services at ISSSTE,

PEMEX, SEDENA or SEMAR facilities. Those affiliated to *Seguro Popular* receive health care at the MoH, SESA, and IMSS-O facilities. The latter institutions also provide services to the uninsured. All these public providers run their health care network with their own personnel.

Private providers offer services through a very heterogeneous networks that includes large hospitals offering high-quality but expensive care in a few metropolitan areas and a large amount of small hospital/clinics (general hospitals providing mostly obstetric care) offering services of poor quality.

Social security institutions and *Seguro Popular* are allowed to hire private providers to supply services for their affiliates when demand surpasses capacity or when there is a lack of personnel, equipment, or other inputs to provide any covered service. In 2012 IMSS contracted-out dialysis and hemodialysis services for almost US$ 340 million (Instituto Mexicano del Seguro Social).

Furthermore, as mentioned above, due to problems of access and quality of public services, many individuals affiliated both to social security institutions and *Seguro Popular* make regular use of private out-patient services paying out-of-pocket. ENSANUT 2012 indicates that 39% of total out-patient services are offered by private providers.

The use of private hospital services by those affiliated to social security or *Seguro Popular* is less common for two reasons: the quality of services offered by public providers tends to increase with the level of care, and middle-class and poor households seldom have the resources needed to make use of private hospital facilities. ENSANUT 2012 indicates that only 17% of total hospitalizations in Mexico occur in private facilities, down from 23.9% in 2000 and 20.9% in 2006 (Instituto Nacional de Salud Pública 2013). This trend matches the upward trend in hospitalizations observed in units of the MoH which increased from 25.9% of total hospitalizations in Mexico in 2000 to 38.3% in 2012, a clear effect of the implementation of *Seguro Popular*.

Public health services are provided by MoH to all the population, regardless of its affiliation status to any particular health institution. These services include health promotion, risk control, and disease prevention activities, including vaccination, and epidemiological surveillance.

Quality of Care

Quality has been a concern of the Mexican health system for a long time. A quality assessment conducted at the end of the past century in more than 1900 public health centers and 214 general public hospitals documented problems with waiting times, drug supply, medical equipment, and use of medical records. Historically, public institutions have operated as monopolies with no choice, poor responsiveness to consumer needs, and lack of concern for quality. Furthermore, health care facilities were not subject to a formal accreditation process.

In the past decade two national quality programs were implemented: the National Crusade for Quality in Health Care and *Sícalidad*. These initiatives were designed to improve standards of personnel and technical quality in service delivery and enhance the capacity of citizens to demand accountability.

A central component of these initiatives was the strengthening of the certification process for public and private health units, which is now coordinated by the National Health Council (NHC), an institution created in 1917 as the highest policymaking body in the sector. This process was reinforced by a disposition incorporated to the General Health Law in 2003 requiring the accreditation of all units providing services to *Seguro Popular*.

Initiatives to monitor and improve the availability of drugs in public institutions were also implemented in the early 2000. External measurements have shown major improvements in drug availability in all public institutions, especially in ambulatory facilities.

A national system of indicators, *Indica*, was also put in place to monitor quality of care by state and institution. This monitoring system includes indicators for waiting times for ambulatory and emergency care, waiting times for elective

interventions, and distribution and dispensing of pharmaceuticals, among other indicators.

Several external surveys have measured the levels of satisfaction with health care in Mexico. Regarding overall satisfaction with hospital care, ENSANUT 2012 indicates that 80.6% of health service users consider health care services either "good" or "very good" (Instituto Nacional de Salud Pública 2013). Social security institutions providing services to oil workers and the armed forces show the highest satisfaction levels (97%), followed by private facilities (92%).

Recent Reforms

The creation of the SSPH in 2004 allowed for the expansion of health care coverage for the non-salaried population while also improving the quality of the available services and the protection against health risks. This system was able to reorganize and increase public funding by a full percentage point of GDP over 8 years in order to provide universal health insurance. The vehicle for achieving this aim was *Seguro Popular*. By December of 2012, 52 million people were enrolled in it (Comisión Nacional de Protección Social en Salud). If we add to these figures those affiliated to social security institutions and those with private health insurance, we can reasonably state that Mexico is on track to achieve universal health coverage.

The reform also contemplated quality oriented initiatives including the organization of training programs on quality improvement tools for health professionals; the monitorization of quality indicators through the regular information systems and external satisfaction and responsiveness surveys; and the establishment of a compulsory accreditation for all units willing to provide services to those affiliated to *Seguro Popular*.

Regarding public health, the Mexican reform established a protected fund for community health services targeting health promotion and disease prevention interventions, which allowed, among other things, for a major expansion of the basic immunization scheme; additional public health investments to enhance human security through epidemiological surveillance and improved preparedness to respond to emergencies, natural disasters, and the threats related to globalization, including potential pandemics; and a major reorganization leading to the establishment of a new public health agency (COFEPRIS) charged with protection against health risks.

Another crucial component of the health reform was an external evaluation that used a quasi-experimental design. This community trial, implemented in 2005–2006 in over 38,000 households taking advantage of the phase-in implementation of the intervention, showed that *Seguro Popular* was reducing out-of-pocket expenditures and providing protection against catastrophic health expenditures especially to the poorest households (King et al. 2009). Additional studies also showed improvements in health service utilization and effective coverage both of preventive and curative interventions, including interventions for the main causes of disease, such as diabetes and breast cancer (Lozano et al. 2006; Gakidou et al. 2006).

Assessment

As shown in this chapter, Mexico has made progress in the three main objectives of health systems: improving health conditions, enhancing responsiveness to the legitimate expectations of the population, and providing financial protection (Murray and Frenk 2000). However, the country is facing emerging challenges.

Efforts to control pretransition ailments have yielded significant progress. However, as increased immunization coverage expanded and deaths due to diarrhea and acute respiratory infections declined, NCDs began to exercise an increasing pressure on the health of the population and the health system. Salient among these challenges is a critical need for additional public funding to extend access to costly interventions for NCDs, such as cardiovascular diseases, cancer, diabetes, and its complications, and mental health problems.

Another challenge facing the Mexican health system is to achieve a right balance between additional investments in health promotion, risk control, and disease prevention, urgently needed to address the health risks related to NCDs, on the one hand, and investments in personal curative health services on the other.

Finally, further progress in quality of health care is still expected. The most critical areas are technical quality of care; availability of drugs in hospital settings; availability of care during evenings and weekends; and waiting times for ambulatory emergency care and elective interventions.

Narrowing gaps in access to health care also remains a challenge that needs to be urgently addressed. These gaps affect mostly indigenous communities that concentrate almost 10% of the national population.

In general terms, the most pressing challenge of the Mexican health system is integration, which implies the creation of a national health fund that guarantees access to the same set of health benefits to all Mexicans, the reduction of transaction costs associated to a segmented system, and the universal and egalitarian exercise of the right to health care.

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Further Reading

Three publications by 2000 the same authors were particularly useful for the development of this chapter:

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