Original Article
http://mjiri.iums.ac.ir
Medical Journal of the Islamic Republic of Iran (MJIRI)

Med J Islam Repub Iran. 2022 (26 Dec);36.175. https://doi.org/10.47176/mjiri.36.175

Health Systems of Iran and Portugal: A Comparative Study

Ali Mohammad Mosadeghrad[1], Vitor Raposo[2], Hamed Rahimpour Langroudi[1]*

Received: 16 May 2022 Published: 26 Dec 2022

Abstract

Background: A health system consists of people, institutions, and resources that provide health services to meet the health needs of the target population. Health systems in developed and developing countries have different characteristics from which some lessons can be learned. The aim of this study is to compare the two health systems of Portugal and Iran.

Methods: The study was conducted in 2021 using a comparative study approach. The WHO's six building blocks framework was used for the comparison (i.e., governance and leadership, health financing, health workforce, health information system, medication, and service delivery). A six-step protocol was used to review the literature. International databases such as Medline / Pub Med and Scopus were searched. Policy briefs, reports, and dissertations were also reviewed.

Results: In both countries, the Ministry of Health is centrally responsible for health system governance. Healthcare financing is 80% government-funded in Portugal and 55% in Iran. In both countries, Health systems are mixed (NHS, NHI, and out-of-pocket model) and the unbalanced regional distribution is a major problem for human resources. In Iran, generic drugs are used, while Portugal combines generic and branded systems. In both countries, there are some challenges in integrating health information systems for health centers and hospitals.

Conclusion: In both countries, some autonomy should be delegated to the regions. In Iran, public sector investment in the health system in Iran should be increased to reduce the currently very high out-of-pocket payments in the health system. In both countries, the distribution of resources, especially human resources, should be modified by designing some incentives. Increasing the share of generic drugs in Portugal will have a positive impact on cost control in the drug sector. It seems necessary to develop programs to strengthen the health information system in both countries.

Keywords: Iran, Portugal, Health system, 6bulding blocks

Conflicts of Interest: *None declared*
Funding: *None*

This work has been published underCC BY-NC-SA 1.0 license.
Copyright© Iran University of Medical Sciences

Cite this article as: Mosadeghrad AM, Raposo V, Rahimpour Langroudi H. Health Systems of Iran and Portugal: A Comparative Study. *Med J Islam Repub Iran.* 2022 (26 Dec);36:175. https://doi.org/10.47176/mjiri.36.175

Introduction

Describing and evaluating health systems is a challenging but necessary task for researchers and government officials who want to make cross-national comparisons and ensure evidence-based health policy. Performance is critical, and some aspects, such as quality, accessibility, and productivity, are common intermediate goals of any health system. The ultimate goals of a health system are to improve population health, meet people's expectations and nonmedical needs, and protect against the costs of disease (1).

A key component in evaluating the performance of a health system is the use of comparisons. Comparative data can come from internal or external sources. International comparison is one of the most important evidence points

Corresponding author: *DrHamed Rahimpour Langroudi, Hamed.rl@gmail.com*

1. School of Public Health, Tehran University of Medical Sciences, Iran
2. Faculty of Economics, Centre for Business and Economics Research (CeBER), Centre of Health Studies and Research of the University of Coimbra (CEISUC), University of Coimbra, Portugal

↑What is "already known" in this topic:
Portugal has a national health system for the delivery of healthcare and many reforms have been passed to achieve better healthcare and cost control. Iran has a mixed model. It is a combination of public, charities and private service suppliers.

→What this article adds:
Comparison of Iran and Portugal's health systems via six building blocks WHO framework could have many learned points for both countries.

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

that can influence policy-makers. However, if the comparison is incomplete or insufficiently meaningful, it can lead to seriously misleading signals that result in inappropriate policies (2). In this article, researchers attempt to compare the Portuguese and Iranian healthcare systems to provide valid evidence for decision-making in both countries.

Since Iran and Portugal belong to different geographical areas and have different income levels, the World Health Organization framework called the six building blocks (6bb) (Fig. 1), was a good tool for comparing the two health systems. This framework is a universal method and does not depend on the income level and development of the countries. It is based on some indicators that can be used to assess performance in terms of inputs, processes and outputs (outcomes and impacts). The added value of the framework is the clear relationship between resources and indicators for health service delivery and health promotion. This framework describes health systems as consisting of six core components or "building blocks": (I) service delivery, (ii) health workforce, (iii) health information systems, (iv) access to essential medicines, (v) financing, and (vi) leadership/governance (3).

Service delivery is an essential element of any healthcare system. All of the work of a health care system that is tangible to society is the provision of services. The sum of health service delivery and the social determinants of health determine the overall health of a community (4). The health workforce consists of all individuals involved in improving health. The human factor is very important because the services are provided by people (health workers) and also used by people (the country's population). Migration of health workers, skill mix, and distribution of human resources within the districts of a country are important issues. Information is the source for decision-making and evaluation in all other blocks. The health information system has four main functions: (i) data generation, (ii) compilation, (iii) analysis and synthesis, and (iv) communication and use (5). A well-functioning health system ensures equitable access to essential medical products, vaccines, and technologies with acceptable levels of quality, safety, efficiency, and cost-effectiveness. Access to essential medicines is closely linked to at least two other building blocks: service delivery and administration (6). Finances are a fundamental aspect of any healthcare system because without financial resources, healthcare workers cannot be hired and facilities or equipment cannot be purchased. They include three main tasks: acquiring resources, pooling resources, and purchasing health services (1). Leadership and government ensure that a health system is integrated into strategic frameworks and policies. Governance in the health system is closely linked to accountability, which relates to how services are delivered, whether resources are adequate, whether performance is monitored, and whether good performance is rewarded (5).

There are four major models of healthcare systems in the world: the Beveridge model, the Bismarck model, the National Health Insurance (NHI) model, and the deductible model (7). The Beveridge model is a centralized model that operates through a national health service (NHS). The government acts as the single-payer. Funding health care through income taxes allows for free health care at the point of service delivery.

The Bismarck model (social health insurance) is a workplace-based health insurance system in which workers have access to "health insurance funds" formed through mandatory payroll taxes. The service providers are generally private entities. In this model, employment is essential for health insurance. The National Health Insurance (NHI) model incorporates aspects of both the Bismarck and Beveridge models. As with the Beveridge model, the government acts as the single-payer for medical procedures, and as with the Bismarck model, providers are private. Finally, in the out-of-pocket model, patients must pay for their own treatments. Without enough money, the poor are unable to afford adequate health care (8).

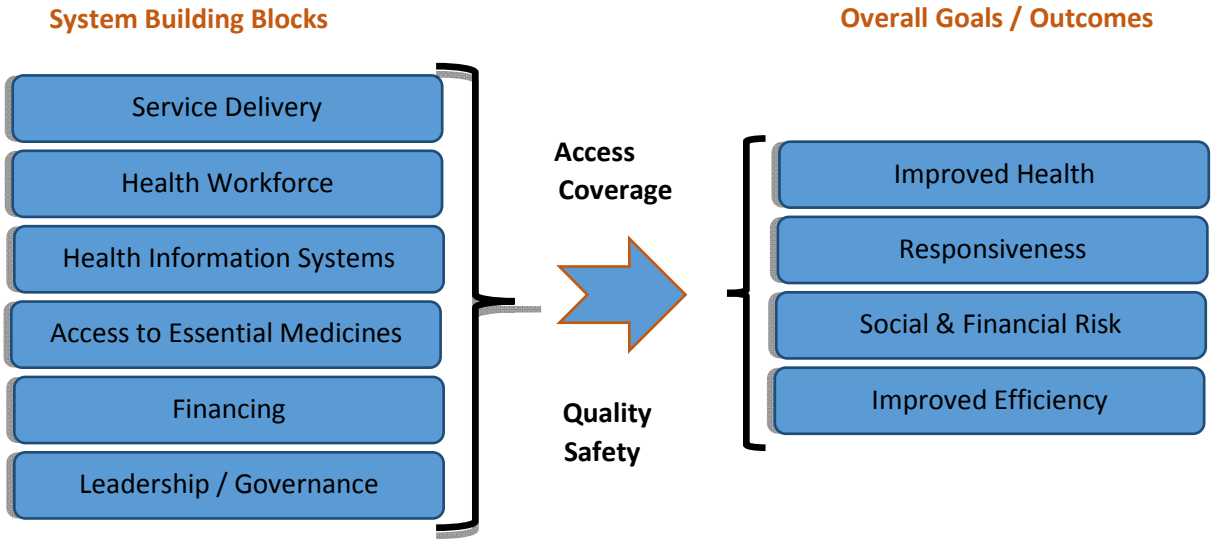


Fig. 1. The WHO health systems framework

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

In this study, we compare the healthcare systems of the two countries to identify the advantages and disadvantages and propose some solutions.

The Portuguese Republic is a country in southwestern Europe, bordering the Atlantic Ocean to the west and south and Spain to the north and east. Portugal has a total area of 92,212 Km2 and a population of 10.3 million people (9). Democratically governed since 1974. The country has experienced remarkable human, social and economic development; it has been a member of the European Community since 1986 and of the Eurozone since 1999. The average life expectancy at birth in Portugal is 81 years (2020), above the European Union (EU) average (9, 10). GDP per capita (PPP) shows an increasing trend from 2012 (26438 USD) to now (35888 USD) in 2021 (11). Under 5 mortality rate (per 1000 live births) is 3 and the crude mortality rate (per 1000) has increased from 10 to 12 in recent years (12).

Iran is a country in West Asia and the MENA (Middle East and North Africa) region and part of the EMRO bureau of WHO, with a population of 83 million. With an area of 1,648,195 km^2, the country is the 17th largest in the world. Iran is bordered by Armenia and the Republic of Azerbaijan to the northwest, the Caspian Sea to the north, Turkmenistan to the northeast, Afghanistan, and Pakistan to the east, the Persian Gulf and the Gulf of Oman to the south, and Turkey and Iraq to the west (13). The average life expectancy at birth in Iran is 77 years (2020) (3), which is higher than the average for Middle Eastern countries. World Bank data shows that Iran's GDP per capita has fallen to less than a quarter over the past decade (from $8525 to $2756). The under-five mortality rate (per 1,000 live births) in 2020 is 13 and the crude mortality rate (per 1000) is 5 (10).

Methods

This study was conducted in 2021 using the comparative review method. The comparative review study is a secondary study in which the similarities and differences of the main variables of the research subject and their relationship with the basic factors of various phenomena are identified, analyzed, and interpreted. The comparisons are similar in some aspects and different in others. The purpose of the comparative review study is to become aware of the reasons for these similarities and differences in order to better understand the research subject, increase knowledge about the subject, and arrive at better interpretations and generalizations. A six-step protocol was used to conduct this comparative research. These steps include identifying the countries to be studied, determining the areas to be studied, searching for relevant documents, selecting the documents, extracting the data, and reporting the results (14).

For each country, a literature review was conducted of published sources in international databases (including Medline/Pub Med and the International Bibliography of Social Sciences) in English and Farsi as well as in unpublished literature such as policy briefs, program reports, and student theses and dissertations. Key leads were identified through 'snowball sampling' to fill gaps or clarify available information and to lead to further relevant literature. Information also drew on existing data sets, including demographic surveys and health surveys (DHS), as well as national statistics for relevant data

The Six Building Blocks 2007 (5) conceptual framework is used to compare two health systems. The components of the model are service delivery, workforce, information, medical products, finance, and governance. Ritchie and Spencer's five-step framework analysis method is used to analyze the data, which includes learning about the data, identifying a thematic framework, indexing, tabulation, mapping, and interpretation (15).

Results

Leadership and governance

In both countries, the Ministry of Health is responsible for health policy development. In Portugal, there are five regional health authorities (RHAs) that manage the provision of health services in the regions. Each RHA has a governing board under the Minister of Health and is responsible for the strategic management of population health, supervision, and control of health centers and NHS offices. Planning and regulation are mainly made at the level of the Ministry of Health and its institutions. The Health Regulatory Authority (ERS) is an independent public body responsible for regulating the activities of all public, private and social healthcare providers. The Central Health System Administration (ACSS) in the Ministry of Health is responsible for managing the human and financial resources of the Ministry of Health and the National Health Service (NHS: Serviço Nacional de Saúde), as well as its equipment and infrastructure.

RHAs have financial responsibility for primary care, and hospital budgets are set and allocated centrally. Services are provided through three parallel subsystems: the NHS, the profession-based health insurance (PBHI), and private health insurers. First, the National Health Service (NHS) provides universal care to the Portuguese population. The NHS is a universal, tax-funded system established after the 1974 Revolution in 1979. The second system consists of special social health insurance plans with benefit packages tailored to people's occupations. For example, the military and other social workers have their own system for claiming health services. A similar structure exists in Iran for some civil servants. The third system, which operates in parallel with the others, consists of private insurance, which is voluntary.

Iran’s Ministry of Health and Medical Education (MOHME) is responsible for strategic planning and shaping the country’s health policies. There are some regulatory departments in the MOHME that control and ensure quality and safety requirements and licensing activities in all health and medical centers in the country. Iran has one of the most centralized health policy-making systems. Similar to Portugal, Iran has three parallel systems for health service delivery: First, the NHS, which provides health services to nearly 50% of the population. The organization responsible for this is the Iranian Health Insurance Organization (IHIO). There are 47 regional medical

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

universities representing the Ministry of Health in their geographical areas (16). The medical universities have their own teaching hospitals and provide health services and teach health care. Medical universities in Iran are similar to RHAs in Portugal but have less authority.

The second system is social health insurance, which is part of the Iran Social Security Organization (ISSO). As mentioned earlier, some organizations, such as the Ministry of Military Affairs, the Ministry of Oil, and some public banks, have their own professional health insurance schemes. Their benefit packages and the quality of benefits are usually more comprehensive than those of the national systems. Similar to Portugal, Iran has a third system, the provision of health services through private centers. This sector has developed rapidly over the past decade. In this system, services are paid for out of pocket and there is voluntary private insurance based on risk insurance.

Financing

The Health Expenditures per capita (US$) in Iran & Portugal has been increasing but Iran has had a decline since 2017. It is shown in Figure 2.The Portuguese healthcare system uses a combination of public and private financing. Total spending on health care in 2018 was 9.5% of the country's GDP. This is lower than in 2009 (4, 16), indicating the impact of the economic crisis on the Portuguese economy (17). In Portugal, NHS expenditures are largely financed by public taxes. The Ministry of Health receives a general budget for the NHS from the Ministry of Finance. Total spending in the health sector in 2018 was more than 18 million euros, of which about 65% was financed by the government and the rest by the non-governmental sector (Table 1). This amount is mainly paid by households out of pocket and through co-payment. This percentage is higher than the EU average. This includes fixed amounts for NHS services, payments for dental care, deductions from private and social insurance programs, and outpatient services and medications. Although there are user fees for some services such as counseling, home visits, etc., there are user fees, about 60% of people are exempt from paying. The main source of funding for public hospitals is the total budget allocated by the Ministry of Health, but recently payments from diagnosis-related groups (DRGs) and revenues from private health insurance have become more important.

The financing model of the Iranian healthcare system is classified in the group of healthcare systems with "multiple financing," which means that different financing methods are considered together. The main financing methods in Iran include public budgeting, social security systems, and out-of-pocket payment. In addition, there are other methods, such as private insurance, which contributes a small number of funds to the financing of the health care system (17).

Total spending on health care in Iran had an increasing trend to 8.5% of GDP till 2016, of which the private sector accounted for about half. This means that a significant

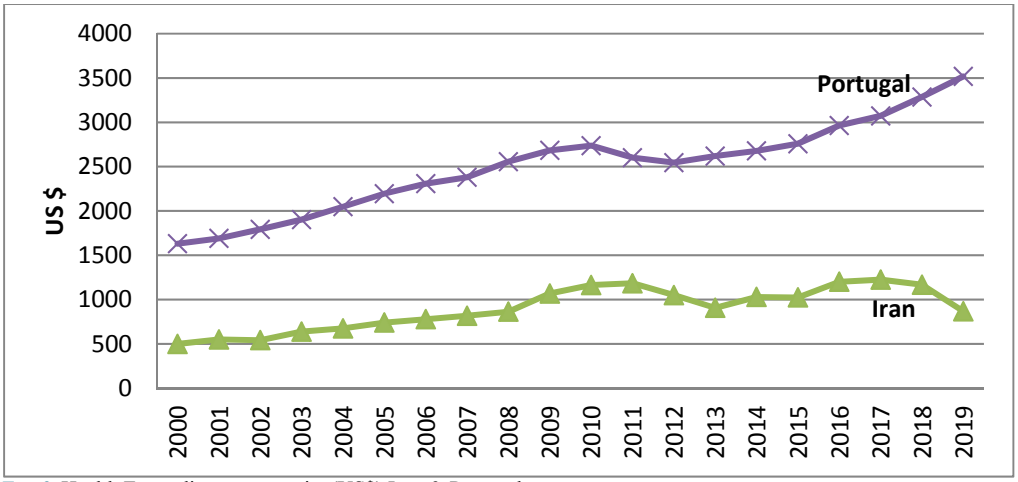


Fig. 2. Health Expenditures per capita (US$) Iran & Portugal

Table 1. Measures of health expenditure Between 2000-2019(18)

Indexes(year)	Portugal	Iran	OECD	MENA
		Health Expenditures (% of GDP)		
2000	8.6	4.77	9.34	4.47
2010	10.03	6.69	11.56	4.59
2019	9.53	6.71	12.53	5.59
		Health Expenditures per capita (US$)		
2000	1630	499	2257	520
2010	2737	1163	3931	804
2019	3517	868	5520	1025
		Domestic private health expenditure (% of current health expenditure)		
2000	30.22	62.29	40.69	44.58
2010	33.43	67.64	37.54	46.55
2019	39.02	50.48	38.30	41.43

Source:data.worldbank.org

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

portion of household health care costs in Iran is covered by "out-of-pocket payments" (OPP). In other words, a significant portion of the cost of health care services in Iran is borne by households when they seek services. OPP reached about 60 percent in Iran in 2010 but fell to 38.7 percent in 2016 after a reform called the Health System Transformation Plan. In 2016, OPP was 28 percent in Portugal at the same time, higher than the EU average. In Iran, the rate is expected to rise in recent years due to economic sanctions and insufficient funding for the health system.

Health Workforces

In Iran, the number of physicians per 1000 population was 1.14 in 2015, lower than the average for MENA countries average (1.25) (19). In 2015, the number of nurses per 1000 population was 1.87, while the average of MENA countries was 2.31. As we can see, Iran is facing a shortage of human resources in health. There are some major challenges in this field, such as inappropriate distribution, low wages, immigration, and unequal income.

There are two types of unequal distribution in Iran. The first type is inappropriate geographic distribution caused by the high number of physicians in urban areas and the lack of physicians in low-population areas. The second type is the disproportionate distribution of specialist physicians. There are 0.45 specialist physicians per 1000 persons, but in some specialized fields, the number of physicians is much lower than in others, and in some disciplines, the number of specialist physicians is higher than the required number (20).

The disparity in income between nurses and physicians and between general practitioners (GPs) and specialists presents some challenges. This has led to discontent among nurses and GPs. There has also been a recent increase in the migration of skilled health workers, especially nurses, to other countries. According to the Iranian Nursing Organization, an average of 500 nurses emigrate from other countries annually (21).

The number of physicians per population in Portugal is above the EU average (4.98 per 1000 population). It is the highest number of physicians in the EU after Greece and Austria (22). On the other hand, the relative number of nurses in Portugal (6.4 per 1000 population) is below EU norms, which implies that Portugal has a low ratio of nurses to physicians. Portugal faces several challenges in terms of health workforce distribution and overall workforce planning. There is a dichotomy of rural/urban and coastal/inland. For instance, municipalities with higher aging inhabitants are mostly located inland, which have a lower ratio of physicians per population (23). These municipalities are not very populated, but this population, in terms of age index, has higher health needs and appears to have difficult access to health care (Fig. 3).

Health information systems

The proportion of Portuguese households with the internet at home was 80.9% in 2019, showing the importance of internet communication in the population (25). In Portugal's health system, the department of ACSS (Central Administration of the Health System) at the Ministry of Health, established in 2007, is responsible for Information Technology (IT). In 2010, the Shared Services of the Ministry of Health (SPSM – Serviços Partilhados do Ministério da Saúde) was created. Their main attributions are the provision of shared services in the areas of purchasing and logistics, financial services, human resources and information and communication systems and technologies; the functioning of the National Health Service Contact Center (CCSNS) and the National TeleHealth Center (CNTS); and ensure the activity and management of the SNS Control and Monitoring Center (CCMSNS), within the scope of shared services for checking medication bills, complementary diagnostic and therapeutic means and other areas of health services. A new NHS website was launched in 2016. This website provides data for many important indexes in Portugal's health system, such as waiting times for emergency visits, the waiting lists of patients regis-

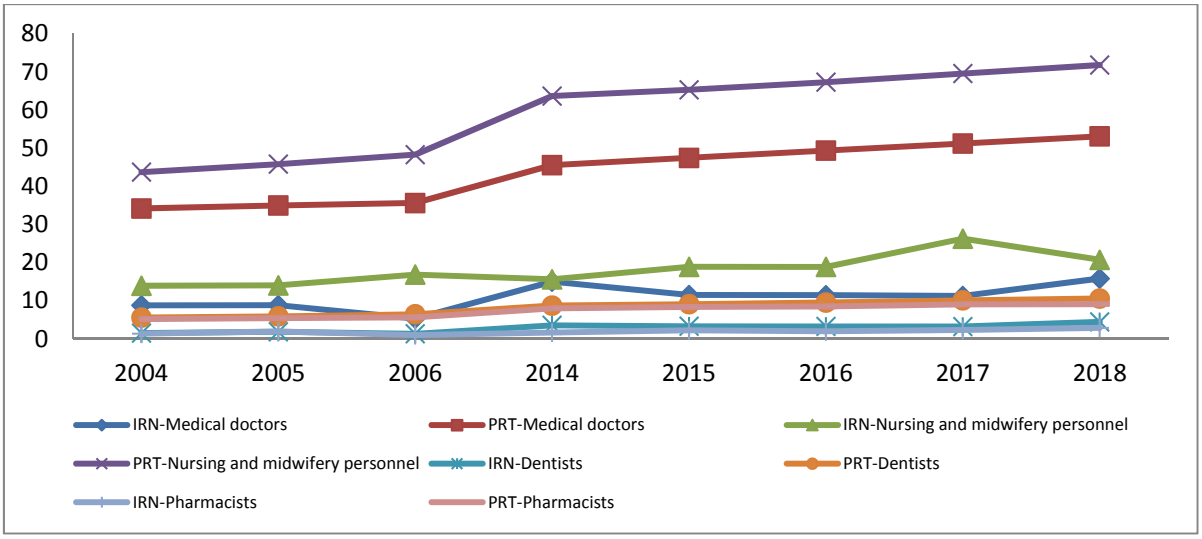


Fig. 3. Portugal & Iran Health System Workforce (19-24)

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

tered for surgery, and other core indexes. A new website allows people to view their medical documents and workflows online. SPMS has developed a lot of software that is used in the health system. Recently, this department submitted a plan to implement electronic medical documents. According to a Euro report, 95% of patients in Portugal have access to their electronic medical documents, which is higher than the EU average (91%) (26).

In 2007, the Supreme Health Council of Iran (27) passed a law requiring the MOHME to prepare plans for the development of an integrated electronic health record. The project was to be implemented by the Ministry of Health and Medical Education in collaboration with the Ministry of Welfare, the Ministry of Communication & Information Technology, and the Supreme Council for Information Technology and Forensic Medicine of Iran (28). In the beginning, most health centers did not have enough computers. The computer networks and bandwidth were not suitable. Therefore, the Ministry of Health, in collaboration with the Ministry of Communications and Information Technology, equipped the health centers and connected them to the National Health Network (SHAMS) (29).

One of the most progressive areas in health information technology is telemedicine services. Since 2006, telemedicine services have been used inside the Portuguese National Healthcare System. In October 2016, the Portuguese Government created the National Telemedicine Center (CNTS: Centro Nacional de TeleSaúde)as an entity to further promote the adoption of telemedicine inside the healthcare system .87% of public hospitals are now using telemedicine (30). There is no significant strategy that has been found in Iran's national plans (31), and the lack of an organization to manage telemedicine hinders the development of telemedicine (32).

Cultural factors, financial and cost constraints, rapid changes in health system managers, insufficient specialized and skilled human resources in this field, and some legal obstacles are the main challenges in implementing effective electronic health development in Iran (31). There are two integrated information systems, one integrating all Health centers (SIB) throughout the country and all health services recorded in them, and another for hospital interaction (SEPAS) to which all public and private hospitals are connected. The links between these two separate systems are not yet well established, and this is one of the ongoing projects of the MOH information technology department.

Access to Essential Medical Products

In Portugal, the issue of using Generic or Branded drugs is the biggest challenge in the pharmaceutical sector. Total spending on pharmaceuticals in ambulatory care decreased by 12% from 2011 to 2014 due to a new policy on pharmaceutical products. It led to a price cut in medicines and the promotion of generic drugs. Due to the market entry of new drugs, the uptake of pharmaceuticals increased (33). The market share of generic drugs in prescription drugs has gradually increased, from 41.4% in 2015 to 43.3% in 2018 (34). The main rule for approval of a generic product is that its price must be less than 60% of a comparable branded product.

In primary care centers, vaccines included in national immunization programs are free and delivered directly at health centers; in other cases, patients must go to a private pharmacy to obtain the prescribed medicines in outpatient cases. There are two main groups in the reimbursement of medicines. The first group consists of patients who have special needs and require life-sustaining medications, and the second group consists of the medications that are not included in the list of the first group. The second group consists of four different categories; pharmaceuticals in category A have a coinsurance rate of 10%, category B, 31%, category C, 63%, and category D, 85%. Furthermore, since 2010, some conditions related to the patient's income have been defined, which may lead to a change in the coinsurance rate.

In 2011, ACSS established a system to monitor the number of medications prescribed by physicians. This system provides information on the value and volume of prescriptions by individual physicians for feedback. Running an electronic prescription system is one of them. The Health ministry's other plans are to apply international guidelines and aim for a more rational prescription pattern in Portugal.

Iran established a generic medicine system two years after the 1978 revelution; the entire medical industry produces according to the generic system and by fixed price list. This has reduced medicine costs while eliminating competition among pharmaceutical companies. Pharmaceutical Companies are allowed to import medicines that are on the list of medicines not produced in the country, announced by MOH. Some of these imports are dedicated to brand medicines.

Medical supplies activities are not comparable to pharmaceuticals and are regulated only by the MOHME. To regulate medical supplies and medical equipment, the Office of Medical Equipment (IMED: Iran Medical Equipment's Department) was established in 1985 within the Department of Treatment of the MOHME. All activities related to registration, safety, and quality control of medical supplies and equipment are carried out by this department.

Medicines are supplied by public and private centers. In the case of public centers, we can divide it into three main groups; medicines in the Primary health system, Hospital care medicines, and medicines for special health needs. In Iran, medicines are provided free of charge in the primary health network. According to the latest revision of the PHC pharmacopeia, it contains 53 types of medicines (28). These medicines are delivered in Public health centers in Urban and Rural areas.

In hospital care, there are two types of medicine delivery, for inpatients in public hospitals, the cost of medicine is added to patients' discharge bills and in most insurance plans, patients pay 10% of the total costs. In Iran, most pharmaceutical services for outpatients are provided by the private sector. Patients should pay 30% of the cost of generic medicine and 100% of the cost of branded products, pharmaceutical supplements, and vitamins.

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

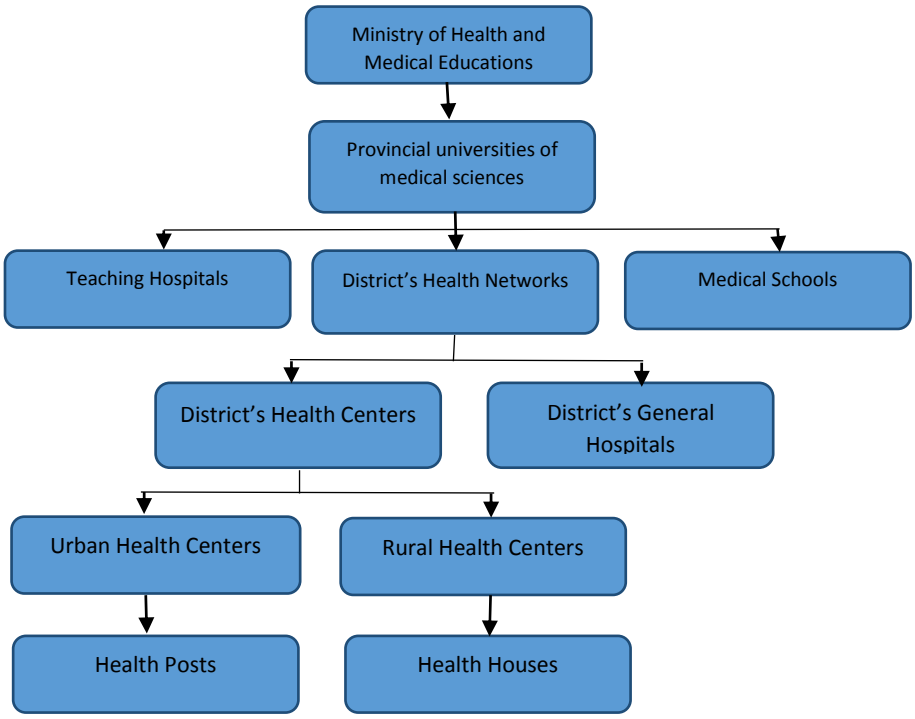
In Iran, there is a separate plan for the special medical needs of some patients with cancer and other serious diseases. These patients are enrolled in the electronic system according to the type of their disease and receive their medication from public pharmacies. For generic medicines, they pay between 5 and 10 percent of the price. If they opt for a brand name, they have to pay about 40% of the costs themselves (34).

Health Services Delivery

All health services in Iran are provided at three levels; Primary, Secondary, and Tertiary. Primary services mainly include primary care such as family physicians, vaccination, school health services, and other services delivered by public centers. More recently, some private centers (Comprehensive Health Centers) have contracted with the government through the PPP (Public-Private Partnership) framework to deliver health services in the cities. The private and non-governmental organizations (NGOs) focus mainly on the secondary and tertiary levels of health care. Some NGOs are mainly active in specific areas such as children's cancer, breast cancer, diabetes, thalassemia, etc. Secondary health services consist of the medical services mostly delivered in district general hospitals. Services at the Tertiary level are delivered in some teaching hospitals in the center of the provinces. These centers contained some special centers like; chemical therapy and oncology centers, Open Heart surgery, burn-related hospital, organs Transplant Centers, and Psychiatric hospitals. Patients requiring these specialized services are mostly referred from general hospitals.

In Iran, medical care and public health services are provided through a nationwide network (Fig. 4). This network operates through a referral system that starts from first-level primary care centers and passes through second-level general hospitals in the cities and tertiary hospitals in major cities (35). According to 2018 Iran MoH reports, there are 981 hospitals with 129604 beds in Iran. The beds are allocated to five types of hospitals: MoH hospitals, other ministries hospitals, public non-governmental hospitals, and charitable and private hospitals. More than two-thirds of these beds belong to the MOHME. The number of beds per 1,000 inhabitants in Iran is 1.6, which has not changed significantly in recent decades (36).

In Portugal, Health services are delivered in three areas; Primary health care (PHC), hospital care, and continuing & Palliative care. All services in primary health centers are delivered by National Health Service (SNS: Serviço Nacional de Saùde). These services include family medicine, pre-natal and post-natal follow-up, and prevention and promotion of health services (4). According to the last organizational changes implemented in 2006, the organization of primary care is based on five main types, consisting of permanent small multidisciplinary teams with some specific tasks: a- Providing individual and family care (USF (Unidades de SaudeFamiliares) and UCSP). b - Providing care to groups with special needs and community interventions by community care units (UCC: Unidades de Cuidados Comunitários) .c - Public health interventions in physical and social settings and actions with population scope (USP: Unidades de Saúde Pública) Resource concentration and services sharing - Multidisciplinary team



Sources: MEHRDAD R. Health System in

Fig. 4. Iran's Heath System Organizational Chart

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

(URAP) that provides and enhances specific support (37).

Because of the accessibility of general health care, residents must register with a family doctor, but about 11% of the population does not currently have a family doctor (38). Most services are provided by public centers, but due to staff shortages and uneven distribution of resources, there are some contracts with private primary care units to improve access to primary care. USFs primary care doctors receive a capitation payment that is made up of two parts; the first part is based on the characteristics of the population served, and the second part is a performance-based payment. Recently, some new performance-based payments have been developed, where USFs are part of the ongoing reform to create more autonomous and multidisciplinary teams in primary care. Performance has been defined as a better follow-up of patients, notably chronic patients, better pre and post-natal care, more cost-effective use of medicines, and so on.

At the secondary level, services are delivered through a network of general and specialized hospitals that provide most of the outpatient specialist care and hospital day-case and inpatient care.

In 2018, Portugal had 230 hospitals (39), with 34957 active beds (40). 953 of them belong to the NHS (41) (Table 2). There has been a decreasing trend in the number of hospital beds in recent decades in Portugal because of the merger between some hospitals and the closing of psychiatric hospitals. The government tries to increase private sector involvement in the building, maintaining, and operating of health facilities under public-private partnerships (PPPs) (Fig. 5).

Most of the public hospital units are administratively grouped into "hospital centers". Another type of hospital is a "local health unit", which consists of hospital and health services units in the same region or city and provide primary and secondary health services. In addition to public hospitals, there are two other types of hospitals in Portugal, Social hospitals (Misericórdias), which have contracts with NHS, and private hospitals (Fig. 6).

Comparison of health system's blocks

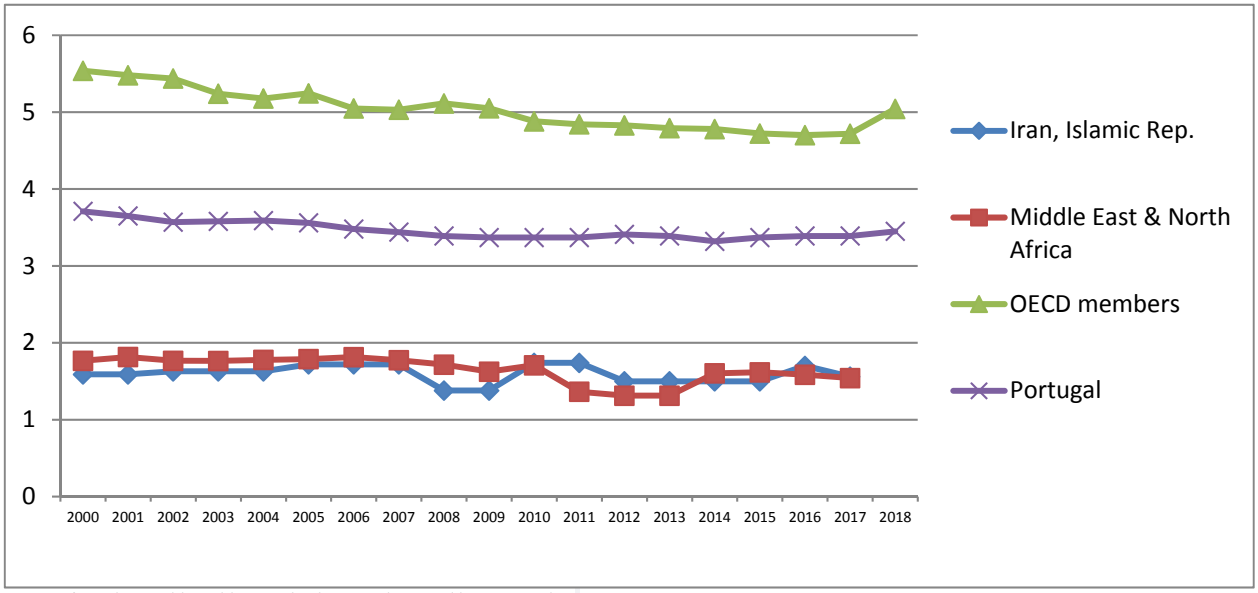
We compare the elements of the health care system in Portugal and Iran within 6 building blocks in Table 3. We compare governance in two main issues provider ownership and management. Financing method and provider payment are financing block subcategories. In delivery, the main object is delivery groups and systems. Two main groups in the health workforce are physicians and nurses. Access to medicine is reviewed in different types of services such as PHC Out/Inpatient and patients with special needs. Information systems, infrastructure and software are studied in Iran and Portugal.

Health System Performances

According to the six building blocks framework, there are 4 overarching goals in any health system. Improved health, responsiveness, protection from social and financial risks, and improved efficiency are the outcomes of the system. Although the population of Iran is about eight times that of Portugal, per capita health costs in Portugal are almost double those in Iran. This led to different priorities in the health system. The most important indexes in the health system's overall goals are life expectancy, mortality, and financial indexes. As shown in Figure 7, life

Table 2. Ownership of Hospital beds in Iran and Portugal by (36, 38-40)

Country	Number of Hospitals			Total Beds
	Ministry of Health	Other public hospital	Private hospitals (profit/ nonprofit)	
Iran	614	164	203	129640
Portugal	113	5	107	34953



Data are from the World Health Organization, supplemented by country data.

Fig. 5. Hospital beds (per 1,000 people) trend - Portugal, Iran, Middle East & North Africa, OECD members

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

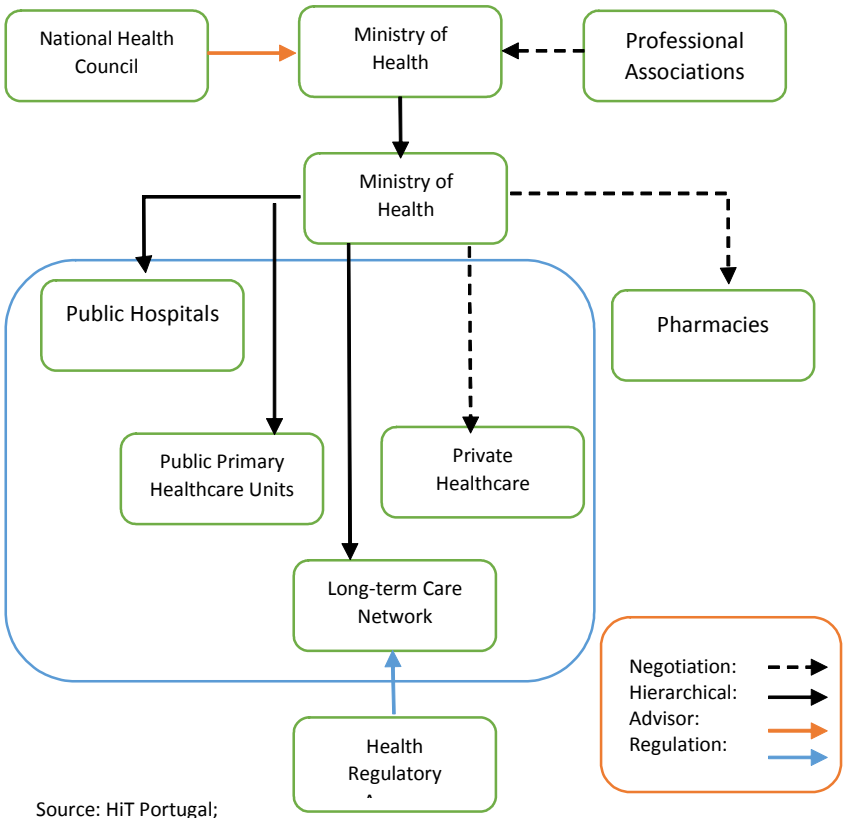


Fig. 6. Portugal' Heath System Organizational Chart

expectancy at birth in Iran is about 4 years lower than in Portugal, but the difference between men and women on this index is very large in Portugal (6 years). The life expectancy could not show the quality of life in the population. For this reason, the healthy life expectancy (HALE) index has been defined. According to the statistics, the average HALE is over 70 years in Portugal and about 65 years in Iran (Table 4).

In terms of mortality indexes, the maternal mortality rate in Iran is about twice that in Portugal. This difference is even greater for infant mortality (infants up to age 5) and neonatal mortality (tree time) (Fig. 7). An important common point in these indexes between the two countries is that both countries have a better status in most of the indexes from their World Health Organization's areas (EMRO & Euro). In the financial area, there are some leading indexes. One of them is the percentage of out-of-pocket payments for health expenditures. In Iran, before 2011, it was more than 50% but it decreased and reached 39% in 2019. Portugal has been increasing trend from 25% to 30% from 2000 to 2019.

Discussion

In this study, the healthcare systems of Iran and Portugal were compared. The results show that Iran has centralized administration and policy-making. All policy decisions are made by the MOHME, and the Ministry is the largest provider of health services. It is also responsible for the registration and licensing of medical service providers. Only the purchase of medical services is carried out by insurance foundations. The main health insurance companies in Iran operated as part of the integrated health and welfare coverage plan under the Ministry of Welfare and Social Security (43). Following the incorporation of the Health Insurance Organization (HIO) into the MOHME through Iran's 6th National Development Plan (44) in 2017, the health system is becoming more centralized. In Portugal, a process of restructuring the health system began after the 1974 revolution. In 1979, the National Health Service (NHS) was established based on a universal tax-funded system. Similarto Iran, The Portuguese Ministry of Health is responsible for shaping health policy at the national level and also monitors and evaluates its implementation. In recent years, efforts have been made to reduce the degree of centralization in the Portuguese health system, for example, by establishing the Health Regulatory Authority (HRA), which is formally independent of the Ministry of Health in its actions and decisions.

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

Table 3. Iran & Portugal's health systems by six building blocks

Blocks			Portugal	Iran	author's point of view
Governance	Provider's Ownership	PHC	Public	Public (recently some private centers in the cities)	Handing over health services to the private sector in Iran, without strict supervision, can lead to a decrease in the quality of services.
		Hospitals	Mostly public	Combination of public, private, NGOs. but mostly public	The number of private beds in Portugal is increasing rapidly, which will distort the fairness of service provision in the future.
	Management	PHC	managed at the regional administration	Completely centralized with some authority at the providence level	The referral system in primary health services is very well designed in Portugal, but it does not work effectively in Iran
		Hospitals	Policy making and managing at the national level with some regional authorities	Completely centralized	Services management is over-centralized in Iran
Financing	Financing method	Government	≈ 80%	≈ 55%	The lack of public resources in Iran caused some major challenges
		Nongovernment	≈ 20%	≈ 45%	
	Provider's Payment	PHC	capitation+ Performance pay	Subsidiary and capitation	Payment method is not strongly related to performance in Iran
		Hospitals	Global budgets, DRG	Annual budget to hospitals and fees for service to the physicians	Fee for Services has created many challenges in Iran
Health care delivery	Healthcare delivery System		Mixed (NHS, SHI, VHI*)	Mixed (NHS, SHI, VHI*)	Some overlapped have caused a waste of resources in both countries
	healthcare delivery groups		PHC, Hospital care, Continued care, long-term care	Primary care, Secondary Care, Tertiary care	Providing services to some special populations groups, such as the elderly, handicapped, etc., is not well planned in Iran
Human Recourses	physician		above EU average with unbalanced distribution between; rural-urban, coastal-inland	Lower than MENA region with unbalanced distribution in Central/remote areas and type of specialty	Unbalanced distribution in both countries
	Nurse		Insufficient nurses with unbalanced distribution between; rural-urban, coastal-inland	Lower than MENA region with unbalanced distribution in Central/remote areas and some challenges for immigration	
Access to medicines	PHC		Vaccines is free of charge	Vaccines and 52 types of drudges are free of charge	Access to medicines in Iran is good
	Inpatients		Under 18y & upper 65y are free, others according to assigned fees. In public hospitals	10% copayment in drugs in public hospitals.100% in private hospitals (if private insurance is applicable according to the type of contract)	The generic drug system in Iran is an important achievement
	Outpatients		Copayment according to category of medicines; A:10%, B:31%, C:63%, D:85% and some patent income adjustment	30% copayment in generic drugs and 100% in non-generics.	Defining population groups in Portugal is a good way to achieve equity in access to medicine
	Patient with special need		Patients with several types of specific diseases e.g., cancer, Thalassemia, etc. are free	5%-10% in Generic, 40% in branded medicine	absence of some specialized drugs in Iran due to Sanctions
Health information systems	Infrastructures		New NHS website was launched in 2016 by ACSS. it gets data from health centers' integrated systems and hospitals' HISs	There are two integrated systems one in Health centers (SIB) and another in Hospitals (SEPAS)	The appropriate and integrated information system in Portugal allows the referral of patients between different levels
	Soft wares		Electronic Medical Documents software is developed by ACSS. Many cell phone apps have been developed for patients and health workers.	Many HIS and other software have been developed by private Corps based on the determined standard by MOH	The variety of software in Iran has caused some problems

Currently, the Portuguese health care system is characterized by three partially overlapping systems: the general NHS, special health insurance systems for specific professions or sectors, and private voluntary health insurance (13). There are five regional health administrations (RHAs), established in 1996, which have their own board of directors that plan for their region and are responsible for the safety, quality, and cost of health services. In Iran, the Universities of Medical Sciences in all states are representatives of the Iranian Ministry of Health and Medical Education, but have very limited authority (45). All budgets are set directly by the Ministry of Health, and most health plans and packages, as well as tariffs for health services in the public and private sectors, are set by the Ministry of Health.

The establishment of hospitals with autonomous boards of trustees, a self-managed hospital-specific revenue plan, public-private partnerships, and delegating some authorities to provincial medical universities are some solutions for the decimalized system. Most of these programs have

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

Table 4. Health system performance Core indexes in 2021 (42)

	Life expectancy at birth (years)			Healthy life expectancy at birth (years)			Mortality ratioper 100 000 live births			Out of Pocket Payment %
	Male	Female	Both sexes	Male	Female	Both sexes	Maternal mortality	Under-five mortality	Neonatal mortality	
Iran	75.7	79.1	77.3	66.0	66.5	66.3	16	14	9	39.42
Portugal	78.6	84.4	81.6	69.6	72.2	71.0	8	4	2	30.45

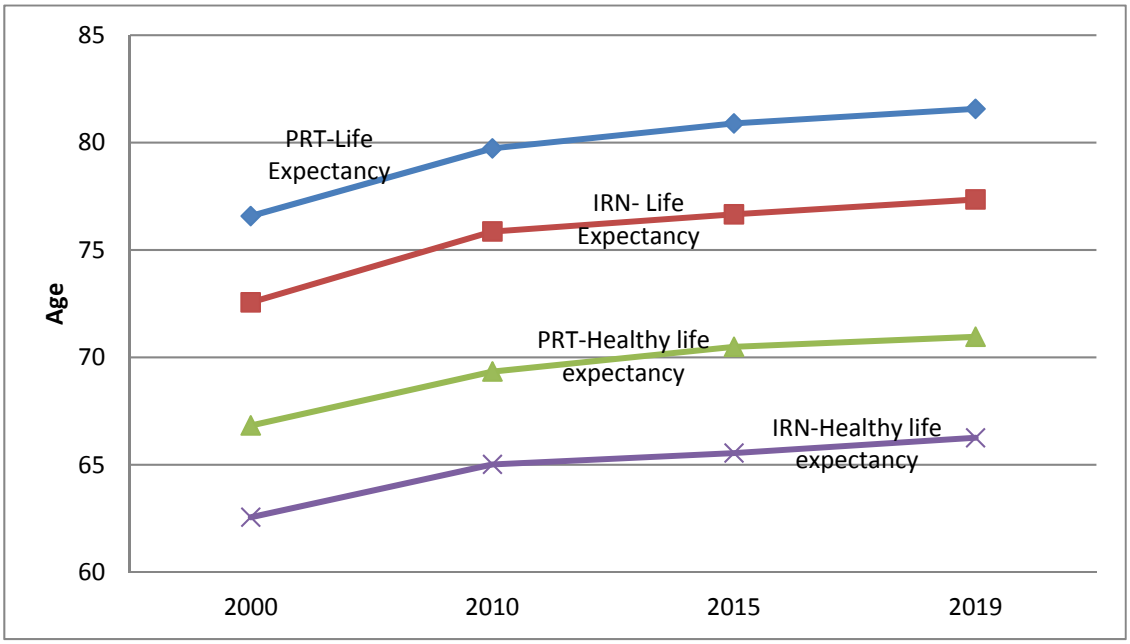


*Fig. 7.*Portugal & Iran Life Expectancy Trend

failed in Iran. However, in Portugal, some of these plans had a positive impact on the decentralization process.

With the establishment of RHA in Portugal, financial responsibility and the authority to negotiate with hospitals on their plans were transferred to these institutions. However, after the adoption of the Economic and Fiscal Adjustment Program in 2011 (46), the autonomy of RHAs in financial and recruitment matters was partially restricted by the central government. RHAs have more responsibility for primary care, but hospital budgets continue to be set and allocated by the central authority. In Iran, the situation is similar: the College of Medical Sciences in each province has its own budget, but there are many bureaucratic obstacles that limit initiatives.

Service delivery is something like the tip of the iceberg in all health systems. It is all that people can see of the health system. The Portuguese health system provides health care in three areas: primary care, hospital care, and continuous and palliative care. In Iran, health care is also three-tiered, with each tier differing in the complexity of care. The first level is PHC, just as in Portugal. At this level, health care, immunizations, health surveillance, and some similar services are provided. In both countries, most services are provided by public centers, but recently there have been partnerships with the private sector. The definition of second-level health care in Iran differs slightly from that in Portugal, where all hospital services fall into this group. In Iran, however, the second level includes only general hospital care. The healthcare providers at this level are general hospitals throughout the country.

The tertiary level in Iran consists of specialized medical services provided in central hospitals in the province; most of these hospitals are teaching hospitals and have modern equipment and highly qualified staff. These specialized centers may be an oncology center, a heart disease hospital, a transplant center, etc. Continuous and palliative care in Portugal can be classified as tertiary level in the Iranian healthcare system. Although most centers providing these services are not managed by the MOHME, it only sets the regulations and has overall supervision.

In recent years, public hospitals have been equipped with modern technology and provide more specialized care, which has caused ambiguity in the classification of special and general services, while at the same time, palliative and continuous care in Iran has been neglected. To improve access to health care in Iran, a primary care plan was introduced in rural areas in 2005. It specifies the type of services that should be provided at each level and how the patient should be referred to the referral system. This

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

plan has been revised several times over time, and one of the biggest challenges has been to prevent bypassing the referral system. This remains one of the biggest challenges in the Iranian healthcare system today. Portugal has also implemented numerous healthcare reforms.

Regarding health care, Iran has "health houses" in rural areas and "health centers" (HC) in urban areas. As a result of reforms in recent years, some health centers have been transformed into "comprehensive health centers" (CHSC), and some of these centers are operated by private companies (47). The difference between HC and CHSC is team autonomy and teamwork. In comprehensive centers, integrated care is provided by a team of physicians, nurses, midwives, and administrative staff. In Portugal, there is a similar reform in the PHC sector. Since 2008, ACES has restructured the organization of primary care and public health. Primary health care groups have been formed, consisting of different teams, including PHCUs, FHUs, Community Care Units (Unidades de CuidadosnaComunidade), and Public Health Units (Unidades de SaúdePública) (38).

Funding is the backbone of any health system. According to statistics from 2018, 65% of costs in the Portuguese healthcare system come from the government budget, while in Iran, the figure is 50%, with the rest of the costs borne by non-governmental organizations. In both countries, most non-government health costs are paid by households out of their own pockets. This clearly shows the importance of governments controlling and lowering the level of this index.

Spending on health as a percentage of GDP and spending per person (PPP$) are higher in Iran than the MENA average, but out-of-pocket payments (OPP) are much higher than in the MENA region, according to Washington College's Financing Global Health 2018 report. (Nearly 60% in Iran, about 30% in the MENA region)(48). This shows that the majority of health spending is paid for by the population. This obviously affects accessibility to services and contradicts equity in health care. Moreover, in Portugal OPP is more than the EU average (27.5 in 2014, the EU average of 13.8). Half of these payments go to curative and rehabilitative care; medical goods are the second largest cost item in co-payments in Portugal. Both countries have high OPP and reducing this amount is one of their biggest challenges. Statistics show that the general trend of OPP in Portugal has been increasing since 2000. This figure has never been lower than 20%, while there is a large gap between this figure and the OECD average (13.87%).

WHO Proposes a strategy to address the impact of OPP on accessibility, such as the elimination of user fees in public health facilities, the targeted exemption of certain populations such as the poor and vulnerable, pregnant women and children from official payments, and the targeted exemption of a range of health services such as maternal and child care from official payments and their provision free of charge (44). To improve accessibility in Portugal, user fees in the NHS were reduced for the first time in 2016 (38) by co-payments for the unemployed, pregnant women, a specific group of patients, etc.

In Iran, increasing the share of healthcare in GDP and universal health coverage was on the agenda. The Health System Development Plan (2014) was a reform that was implemented in Iran. One of the main objectives was to improve accessibility to health services by increasing health insurance coverage to 100% and reducing co-payments and deductibles. The coverage of OPP was 60% before this reform, after which it decreased to 36%. According to experts, most of these cuts are due to the increase in health spending relative to GDP rather than other corrections such as productivity increases and cost control (49). Currently, it seems necessary to increase efficiency and reform health system processes to control healthcare costs in Iran. Moreover, the share of government health expenditure in general government expenditure (GGHE/GGE) (18) is different in Portugal and Iran; it is 16.4% in Portugal (2017) and 22.6% in Iran (2016). As we can see, the share of public spending on health in the total value of public sector operations is higher in Iran than in Portugal.

There are some points in the workforce of the health system in both countries. In Portugal, the ratio of nurses to doctors is low, as the number of doctors in relation to the population is higher than the European average, but the number of nurses in relation to the population is lower than the average. According to the WHO health workforce database (49), the ratio of nurses and midwives per 10000 in Portugal is lower than in the EU (63.72 in 2016) but much higher than in Iran (18.7 in 2016).The number of doctors per 10000 inhabitants is almost three times higher in Portugal than in Iran (11.4 & 33.4). The ratio is almost the same for dentists and pharmacists.

The distribution of health workers by profession/specialization, region, place of work, and gender is one of the most important issues. In Iran, people in rural and remote areas do not have good access to qualified health workers, as most of these professionals prefer to live in large cities. The Portuguese healthcare system is more or less in a similar situation. The shortage of medical personnel and the improper allocation of human resources complicate the situation in Iran. The unequal income of specialists and general practitioners is another challenge for the Iranian healthcare system. To address the shortage of healthcare personnel, medical universities in Iran have increased their capacity to train students in this field. According to a report by the Iranian Medical Association, the number of medical students has increased by 117% over the past 10 years (2009-2018), rising from 22381 to 48596.

In the field of health information systems, the introduction of electronic health records is one of the main goals. This could be achieved after another level, such as integration between hospitals HIS, integration between PHC centers, the linkage between hospitals and PHC centers, implementation of electronic medical description (EMD) and so on. In each of these countries, these projects are at different stages of progress. In Iran, hospital data are queried in SEPAS and PHC data are collected through the electronic system SIB. Due to the diversity of hospitals HIS, some problems have been encountered in integration,

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

which is solved by universal protocols developed by the MOHME. Recently, SSO's EMD project has been implemented in Iran (50) and may be extended to other health centers and all pharmacies in the country in the future. In Portugal, integrated health documents have been introduced and all NHS hospitals and health centers are working with them. However, there are still some problems with the relationship between health centers and hospitals, and some private hospitals should be connected to this network in the near future (51).

Lessons Learned

Portugal and Iran belong to two different geographical regions with different GDP levels. Most of the main indicators of health outcomes in Portugal and Iran are better than in their regions. Since most health services in Iran are provided by government providers, the NHS could be a good option. Portugal has implemented many reforms since the establishment of the NHS. This experience can be very useful for improving Iran's healthcare system. The establishment of RHAs in Portugal can be a good model for devolving powers to the provinces to counteract the overly centralized system in Iran. In addition, the establishment of an independent health authority in Iran, similar to the ERS in Portugal, could reduce the conflict of interest in the system. Hospital complexes resulting from the merger of two or more similar hospitals, as in Portugal, could be a good way to increase the performance of hospital beds in Iran. In the field of mental health, a social program for the treatment of the mentally ill has been put on the agenda in Portugal. According to this program, beds in psychiatric hospitals will be closed in several stages. Studying the results of this project can be very useful for Iranian mental health policy-makers.

Conclusion

The Iranian population is getting older, which has implications for management and health delivery, so the system of continuous and palliative care in Portuguese health services could be a good model for benchmarking. Some healthcare reforms have already been initiated in both countries, such as the shift from traditional health centers to team-based workgroups. There could be many positive points in this that could be learned from each other. The increasing trend toward the provision of private healthcare services in countries with NHS systems should be a wake-up call for policymakers. From a financing point of view, this trend may lead to an increase in co-payments. The Iranian generic drug system (52) could be beneficial for Portugal to promote access to essential medicines and cost control. Regarding the issue of human resources in the health system, the shortage of nurses is a major problem in both countries, but the distribution of nurses among the different regions is also a major challenge. In Portugal, there is an imbalance in the distribution of the workforce between coastal and inland areas and in Iran, between urban and rural areas. The huge income disparities between different groups of health workers in Iran lead to dissatisfaction in some professions, such as nurses. Portugal's experience in equalizing income levels and innovative income tax policies could help Iran overcome this problem. The biggest challenge with health information systems in both countries is integration. There are many good software and databases already in place, but they need to work together seamlessly.

Acknowledgments

The authors would like to express their gratitude to employees ofHospital da Luz Coimbra and Unidade de Saúde Familiar Cruz de Celas (C.S. Celas).

Ethical approval

This study was approved by the Ethical Board of Tehran University of Medical Sciences (registration code: IR.TUMS.SPH.REC.1397.259).

Authors' contributions

A.M. and V.R. Designed the study. H.R.L. contributed to collecting data, analysis of the data, and drafting the manuscript. A.M. and V.R. revised the manuscript. All authors read and approved the final manuscript.

Conflict of Interests

The authors declare that they have no competing interests.

References

1. World Health Organization. The world health report 2000 - Health systems: improving performance. anually report. Genuva: WHO; 2000.
2. Papanicolas I. Health System Performance Comparison England: Mc Graw Hill; 2013 [Available from: http://www.euro.who.int/__data/assets/pdf_file/0009/244836/Health-System-Performance-Comparison.pdf.
3. World Health Organization. Monitoring the building blocks of health systems Geneva2010 [Available from: https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf.
4. Europian Comission.Portugal Health Care & Long-Term Care Systems:; 2019 [https://ec.europa.eu/info/sites/info/files/economy-finance/joint-report_pt_en_0.pdf.
5. World Health Organization. Monitoring the building blocks of health systems: a handbook of indicators and their measurement strategies. Geneva, Switzerland; 2010. Contract No.: ISBN 978 92 4 156405 2.
6. United Nation. Goal 3: Ensure healthy lives and promote well-being for all at all ages [https://www.un.org/sustainabledevelopment/health/.
7. Chung M. Health care reform: learning from other major health care systems.PrincetonUniversity; 2017 [Available from: https://pphr.princeton.edu/2017/12/02/unhealthy-health-care-a-cursory-overview-of-major-health-care-systems/.
8. Physicians for a National Health Program.Health Care Systems – Four Basic Models: Physicians for a National Health Program; 2021 [Available from: https://pnhp.org/resource/health-care-systems-four-basic-models/.
9. Organisation for Economic Co-operation and Development /European Observatory on Health Systems and Policies (2019), Portugal: Country Health Profile 2019, State of Health in the EU, OECD Publishing, Paris/European Observatory on Health Systems and Policies, Brussels, https://doi.org/10.1787/85ed94fc-en.
10. World Bank. Mortality index 2016 [https://data.worldbank.org/indicator.
11. Portugal National Statistics Institution. Portugal resident population estimates 2019 [Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_destaques&DESTAQUESdest_boui=354227526&DESTAQUESmodo=2&xlang=en
12. World Bank. Death rate, crude per 1,000 people2021 [Available

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]

from: https://data.worldbank.org/indicator/SP.DYN.CDRT.IN?locations=PT.
13. Avery, P. William , Afary, . Janet and Mostofi, . Khosrow. "Iran." Encyclopedia Britannica, December 21, 2022. https://www.britannica.com/place/Iran.
14. Mosadeghrad AM, Rahimi-Tabar P. Health system governance in Iran: A comparative study. Razi J Med Sci. 2019;26(9):10-28.
15. Ritchie J, Spencer L. Qualitative data analysis for applied policy research. The qualitative researcher's companion. 2002;573(2002):305-29.
16. Iran Ministry of Health and Medical Education. Statistics of Medical Universities, Number of Schools and Students of Medical Dept 2016 [Available from: https://b2n.ir/943195.
17. Rashidian A. Comprehensive Health Coverage in Iran. Iran Health: Newsletter of the World Health Organization Representative Office in the Islamic Republic of Iran 2010, Sixth Year, Second Issue. 2010(2):2.
18. World Bank. Health Expenditure2022: [updated 30 jun 2022. https://data.worldbank.org/indicator/SH.XPD.PVTD.CH.ZS?end=2019&locations=IR-PT-OE-ZQ&start=2000.
19.World Bank. Physicians (per 1,000 people) - Iran, Islamic Rep., Middle East & North Africa: The World Bank Group; 2015 [https://data.worldbank.org/indicator/SH.MED.PHYS.ZS?locations=IR-ZQ.
20. Noori Hekmat S, Hashemi H, Haghdoost A, Haji Aghajani M, Janbabaee G, Maher A, et al. Specialized and Geographic Distribution of Specialists in Iran in 2016 and its Estimates in 2026. Iran J Epidemiol. 2018;13(0):122-32.
21.Valizadeh S, Shojayi motlagh V. Nurses' Immigration: Causes and Problems. Int J Med Res Health Sci. 2016;5(9):5.
22. Eurostat. Healthcare personnel statistics - physicians 2019 [https://ec.europa.eu/eurostat/statistics-explained/pdfscache/37382.pdf.
23. Costa C, Tenedório JA, Santana P. Disparities in Geographical Access to Hospitals in Portugal. ISPRS Int J Geoinf. 2020;9(10):567.
24. World Health Organization. Sustainable Development Goals. Target 3.c | Health workforce; 2021 [Available from: https://www.who.int/data/gho/data/themes/topics/indicator-groups/indicator-group-details/GHO/sdg-target-3.c-health-workforce.
25. Portugal National Statistics Institution. Internet and computer usage in households by Nuts II INE-Statistics Portugal.2019 [updated november 28, 2019. Available from: https://www.ine.pt/xportal/xmain?xpid=INE&xpgid=ine_indicadores&userLoadSave=Load&userTableOrder=10788&tipoSeleccao=1&contexto=pq&selTab=tab1&submitLoad=true&xlang=en.
26. Sabes R, Figuera IM. European Hospital Survey: Benchmarking Deployment of e-Health Services (2012–2013) Luxembourg2013 [cited 2019. Available from: https://publications.jrc.ec.europa.eu/repository/bitstream/JRC85854/jrc85854.pdf
27. Bitaraf S, Janani L, Hajebi A, Motevalian SA. Information System Success of the Iranian Integrated Health Record System Based on the Clinical Information System Success Model. Med J Islam Repub Iran. 2022;36.
28.Iranian Ministry of Health.Health House's Pharmacopeia- List of medicines prescribable by Behvarz Iran2017 [Available from: yun.ir/ld71b1
29. Naghipour M, Ahmadi M. Investigating E-health strategic planning and review of the challenges and obstacles in Iran. Med Sci J. 2017;27(4):237-43.
30. da Fonseca Ramalho FJ. Continuous Delivery: Aplicação na Glintt (Doctoral dissertation, Instituto Politecnico do Porto (Portugal)).
31. Riazi H, Jafarpour M, Bitaraf E. Towards National eHealth Implementation--a comparative study on WHO/ITU National eHealth Strategy Toolkit in Iran. Stud Health Technol Inform. 2014;205:246-50.
32. Sadeghi N, Barooti E. The application of telemedicine in urgancy women diseases caused by unexpected events.Proceedings of the The first international symposium of electronic hospital and telemedicine; 2011 March 10;Tehran. Iran.
33. Barros PP, Lourenço A, Moura A, Correia F, Silvério F, Gomes JP, et al. Políticas Públicas em Saúde: 2011–2014: Avaliação do Impacto. Portugal: Universidade de Nova Lisboa. 2015.
34. Jazayeri N. How much does health insurance cover for medicines for patients with MS? [interview report]. ISNA; 2019 [Available from: https://bit.ly/2E8h9C8.
35. Mehrdad R. Health System in Iran. Jpn Med Assoc J. 2009;52(1):4.
36. Kameli M, Behtaj F, Parvaran M,Lotfi F,Vahedi A. Report of hospital statistics and information system (Avab). Tehran: Iran Ministry of Health; 2018.
37. Sakellarides C, Castelo-Branco L, Barbosa P, Azevedo H. The impact of the financial crisis on the health system and health in Portugal. Copenhagen: World Health Organization. 2014.
38. de Almeida Simoes J, Augusto GF, Fronteira I, Hernandez-Quevedo C. Portugal: Health System Review. Health Syst Transit. 2017;19(2):1-184.
39. HospitalsNumbers and Beds.Francisco Manuel dos Santos Foundation. 2018 [updated 2019-12-12. Available from: https://www.pordata.pt/en/DB/Portugal/Search+Environment/Table/5804989.
40.Hospitals: number and beds 2017.Francisco Manuel dos Santos Foundation.[Availablefrom: https://www.pordata.pt/en/Portugal/Hospitals+number+and+beds-142.
41. Portrait of Portugal in Europe, 2018 Edition. Francisco Manuel dos Santos Fondation[Available from: https://www.pordata.pt/en/Portugal/Hospitals+number+and+beds-142.
42. World Health Organization. World health statistics 2021. 2021.
43. Masoudi Asl I, Nosrati Nejad F, Akhavan Behbahani A, Mousavi Khatat SM. Proposed model for integrating health and social welfare system in iran (a comparative study). Payesh. 2011;10(1).
44. Iran's Sixth Five-Year Development Plan Act, Iran Parliament; 2017.
45. Jabari Beyrami H, Tabibi Sjad, Delgoshaei B, Mahmoudi M, Bakhshian F. A comparative study on decentralization mechanisms in provision of health services in health system of selected countries, and presenting a model for Iran. J Health Administ. 2007;10(27).
46. Nunes Silva C. Political and administrative decentralization in Portugal: Four decades of democratic local government. Local government and urban governance in Europe: Springer; 2017. p. 9-32.
47. Regulations Establishing Comprehensive Health Promotion Centers; 2011.
48. Financing Global Health 2018 Washington University: Institute for Health Metrics and Evaluation; 2019 [Available from: http://www.healthdata.org/sites/default/files/files/policy_report/FGH/2019/FGH_2018_full-report.pdf.
49.Sabermahani A, Sirizi MJ, Zolala F, Nazari S. Out-of-Pocket Costs and Importance of Nonmedical and Indirect Costs of Inpatients. Value Health Region Issues. 2021 May 1;24:141-7
50. Details of implementing of the electronic medical description at Social Security organization [press release]. Tehran: Fars News2018.
51. Cruz-Correia R, Nascimento JC, Sousa RD, Neill HO, editors. eHealth key issues in Portuguese Public Hospitals. 2012 25th IEEE International Symposium on Computer-Based Medical Systems; 2012 20-22 June 2012.
52. Cheraghali AM. Trends in Iran pharmaceutical market. Iran J Pharma Res. 2017;16(1):1.

[Downloaded from mjiri.iums.ac.ir on 2026-11-06]

[DOI: 10.47176/mjiri.36.175]