



## Identification of the Main Elements of Single Payer System; A Comparative Study

Ali Aboutorabi<sup>1</sup>, Saman Ghasempour<sup>2\*</sup>, Behzad Najafi<sup>3</sup>, Siros Panahi<sup>4</sup>

<sup>1</sup> School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Health Management and Economics Research centre, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

<sup>3</sup> School of Health Management and Information Sciences, Tabriz University of Medical Sciences, Tehran, Iran

<sup>4</sup> School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran

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#### \*Corresponding Author:

Saman Ghasempour

Health Management and Economics Research centre, School of Health Management and Information Sciences, Iran University of Medical Sciences, Tehran, Iran.

#### Email:

Saaman1369@yahoo.com

#### Tel:

+98-9388310017

### ABSTRACT

**Background:** Progress towards universal coverage requires adequate capital in health sector. Investing and optimal allocation of resources in this sector will contribute to the development and reduction of poverty in countries in order to achieve the goals of health system. Therefore, the more people contribute to risk sharing, we have lower financial risks in facing the issue. The single payer system as a public health coverage model seeks to expand the insurance coverage scope at community level. The present study aimed to identify the main elements of S-PS to conduct a comparative study.

**Methods:** A comparative study was conducted to describe the fundamental of financing and the provision of services in selected countries - Germany, Thailand, Turkey, and Colombia, as well as to achieve the main elements of S-PS. In addition, the health system of Iran has been studied. The basis for selection of countries was health system Garden typology. The main criteria for selection or rejection of studies were the separation of health services provider from financial functions; has allowed a single department to purchasing process.

**Results:** single payer system in two functions of health system, namely, financing and providing health care; consolidation resources (reducing fragmentation by creating a single pooled fund and achieve massive purchase of health care through the insurance agent as single purchaser) and ensuring community health (delivery of services by the network of providers represented by Health Promotion Organization) represents 12 main organizational elements.

**Conclusion:** the multiple insurers and payers of health care in Iran are both inequity and ineffective. And its integration is not a simple task. Iranian financing policies should aimed to achieving universal health coverage by creating greater risk pooling and becoming aware of the important tasks of insurance system; take advantage of the strength in numbers, setting the principles of cross-subsidy and preventing adverse reaction. It is important not to put together a long-term, coherent plan to reach the S-PS.

**Keywords:** consolidation, Health Insurance funds, health care reform, multiple pools, Single Payer System

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## Introduction

According to the World Health Organization, three ultimate goals of health systems, including population-based health promotion, responding to public expectations, and protecting against costly health (1). Therefore, progress towards universal coverage requires investment in health sector and government encouragement (2). Investment and optimal flow of resources allocation in this sector to achieve the goal of healthy individuals leads to development and reduction of poverty in countries (3).

A set of control levers, including financial support, the payment system, organization, regulations, and behavior of citizens can help health systems in achieving these goals (4). Meanwhile, financing as one of government concerns (5) plays a prominent role in performance of their health systems (6); since the success of financing system is a direct consequence of three components: availability of funds, proper financial incentives for providers, and ensuring that all people have access to health care services (1). Therefore, health systems will not be solely responsible for improving the individuals' health, but will be obliged to protect populations with high expected health care use, and do not suffer financial hardship paying for them (5). In order to ensure that people have access to services they need- targeting based on social categories and medical condition- consolidation in health insurance funds, integration purchasing power and provision services is a vital financing functions that directly related to protection against financial risks (1, 7). Therefore, make contribution to health system (taxes and/or insurance) as soon as contribute to risk sharing (2). This will ensure that health system is equity in pooling and minimized potential financial risks in facing the issue (3,6).

Demographic profiles, social values, environmental factors, economic activity and political structure are important determinants of both mandated and external pressures that have strongly influence on health financing (8). In addition to the impact of these factors, the main issue in financing health sector is the effectively

transferring resources to insurance funds, how to pool them and how to allocate those resources (9).

The pattern of many countries shows that, in line with economic and justice developments, health and welfare categories was initiated on the government agenda (4). Over the past three decades, bad experiences have arisen in health sector financing (especially from Out-of-pocket payments method); moreover challenges remain both in terms of health outcomes and systems performance (2). The reason for reform of twentieth century was not only the sanction of health system, but the efficiency; the equity of the referral system and responding to people's expectations; were also the goals of these reforms (1).

Resource strategy in most countries follows a combination of financing methods for determining health system credentials (6). This combination is directly the result of determinants of financing in those countries (10). The model of health systems based financing method and origin of resources, which has a strong impact on reform in that area. The results show that countries without significant changes in the sources of health funds have been able to make important reforms in the financing system after seeking unit insurance. Mainly the merger and engagement of tax policies has taken place with the financial goals of a wider macroeconomic level (7). Similar to Thailand and Spain (11), the transition took place from a largely worker-employer contribution system to a single model of regional financing (general taxation). In the Republic of Moldova (12), the National Insurance Company, by drawing main sources of funds (payroll tax and general revenue); pooling general budget revenues with a Compulsory Health Insurance Fund. Indonesia (13) and South Korea (14, 15), National Health Insurance – Based health system; as well as Costa Rica (16, 17), benefiting from comprehensive social security system, achieving universal coverage through S-PS. In these countries, according to the General Health Insurance Act, there is a single framework for pooling income tax and mandatory insurance contribution that led to complete merging of all



insurance funds and creating a single scheme. Turkey (18, 19) with its Health Transformation Program are moving to reduce fragmentation in the way resources in health insurance system. The results of these comprehensive reforms was merge various funds, integration of insurer's scheme and reveal the existence of cross-subsidy, which quickly reached the frontier of universal coverage than many European countries.

The single-payer system as National Health Insurance shows a keen strategic sense to achieve UHC in which a single public or quasi-public agency handles all health care financing (20, 21). The single-payer system has successfully incorporated a unitary mechanism based on a limited number of revenue with a centralized financing system (collection of resources and redistribution fund) and to pay (strategic purchasing in its operations) for health care providers with delivery predetermined list of medical precautions (similar benefit package) (20, 22, 23). Co-payments, deductibles, and out of pocket will be minimized, and by merging all of the resources together, a comprehensive access to services will be used with gate-keeping provisions (21). On the provider side; strategic approach of health sources management influence on financing functions and how to reallocation of financing resources. On the other side on health service provision, single-payer dominates technical and human resources; level of efficiency and productivity of health-care delivery (24,25). The single-payer system also has the effect of generating income, determining profits, and adjusting payment system (24).

In Iran, plurality of resources and their separation and more mixed provision of services are inequitable and ineffective (7,26). There are no specific financing regulations for revenue collection, pooling of revenue and risk, and purchasing services (10). The majority of collection of funds is highly regressive and paying for in-patient and out-patient health services is accompanied with large out-of-pocket. More than 50% of these payments are made in the informal part for additional health services (7). Despite the

spending more than developed countries in Iranian health system, there are poor technical efficiency with growing costs of health care services (26, 27) and there is no insurance coverage for a large group of people (28). It seems that universal coverage can only be attempted with a moving towards the single payer system. S-PS as a model of UHC (20) seeks to convert OOPs payments into prepaid funding; expand risk pooling among the rich and the poor, the young and the old, and the healthy and the sick;. Moreover S-PS seeks to merge all existing health resources; separate purchasing from provision functions with high-level contracts between provider and provision; and ultimately covering the majority of people (22).The present study aimed to identify the main components of the single payer system in selected countries to carry out a comparative study.

### Materials and Method

A comparative study was conducted to explain the provider and provision of health system performance in selected countries, as well as to achieve the main elements of Single Payer System. The basis for selection of countries was Garden typology of health insurance system (29, 30), including (a) Countries with SHI system,( as in Austria, Belgium, France and Germany), (b) Countries with NHI system (such as South Korea, Canada, Finland, Colombia, and Sweden, (c) NHS system (as in Denmark, Greece, Turkey and the United Kingdom, (d) In practice most countries have mixed models (Iran, Australia, Iceland, Japan and Thailand are in this group). Only a few countries such as United States have predominantly private health insurance financed systems.

To compare and analyze the lessons from each of these countries, reviewing studies in health care system documents was limited to 5 countries - Germany, Iran, Thailand, Turkey and Colombia. The main criterion in choosing countries, the health sector funding reforms firmly placed on moving towards separate health service provision from health providers in these countries. Its intention was to review and expression of



theoretical debates and empirical evidence for selected countries, by data collection used through library review on type of health systems and their performance; the data were redirected to identify the main elements of single payer system.

## Results

### Country and schemes overview

The purpose of this study is to identify the main elements of a single payer system. On average, primary data collection was carried out from 2009 to 2017 in selected countries. This paper includes 5 countries in the world with a health insurance plus health care type schemes i.e. Germany, Iran, Thailand, Turkey and Colombia. Results are reported in accordance with the final set of indicators. This is a mix of lower- to upper-middle and high-income countries that are also included as a way to capture their reform experiences over the past over few decade since introduction. These countries have taken different steps to reduce the number of insured funds, in order to equalize the package of services to expand insurance coverage and subsequently have achieved different levels of success.

Generally health care reform in these countries has taken place to follow the separation of health service provision from health providers as the path of achieving universal health coverage. Results shows Iran succeed in achieving minimum 65% UHC. Indeed, the countries that have come closest to achieving targets -for example, Germany 81% UHC- do generally have more to spend on health. Other countries are better able to provide affordable health services. Table 1 provides information for these 5 countries on 15 measures of key indicators and health system characteristics.

As indicated by the goal, fragmentation in setting health care system can also be inefficient. laying the Principles of the health care system such as the main bodies determining procedures in health care delivery, multiplicity in managing the insured's health care and multiple funding channels and pools, each of with its own administrative costs, duplicate effort, are expensive to run and require coordination. Similarly, due to

multifactorial and complex environment like political structure, socioeconomic context, cultural are other affective aspects on health system functions. Some of these factors might not be easy to replicate. The Single administrative body in Turkey, Thailand and Colombia has successfully increased over the past 8 years to focus on equity (of access, financial risk protection) as well as focusing on efficiency (health outcomes). (See tables 2 and 3).

### Health Care system arrangements

In all countries governments are the oversight of the entire system. The Ministries of health have a large part of the stewardship of health systems for their populations. Also, the Ministry of Labor and Social Affairs (SSO) is main responsible body in the insurance system which is generally a differs characteristic of governance, policy, supervision, central regulation, and decentralized management from free market economy, communist economy and socialist models. Consequently, the effects of sub-functions and agents affiliated with each of Ministries vary in different systems.

The major differences in health systems have likely influenced by differences in financing system and health care delivery system. Overall evidence shows a wide range of difference models in revenue collection, pooling and purchasing, which are generally influenced by their policy in financing and health care system. There is no specific way to develop a financing system to achieve UHC. Understanding level of success in each health care systems (single-payer or multiple-payer) is focused on measuring level of success in insurance management activities. The WHO shifted emphasis to health financing function. It seems the design and implementation of the three key health financing functions are the likely determinants of the success or failure of a health financing system to achieve targets. Table 4 shows the financing methods and health services delivery by the selected countries.

### The Single-Payer Profile

A single-payer national health program is one entity that financed by taxes, collects funds and



pays for health care to cover the costs of essential healthcare for all residents. Their definition is also inclusive of subnational systems, which is establish decentralize (regional and national level) and organize administratively independent on tow Markets; (Health Care Provision Market and Health Insurance market) to capturing the benefits that would offer. Separating purchasing from provision functions has allowed Ministry of Health as a single department to charge with application and administration of health care providers' network (including hospitals, medical

schools, polyclinics, urban and rural health centers, etc.). At the same time, this separation has permitted a single agency within the Ministry of Social Affairs or Health Insurance Organizations - the NHI Fund- to focus on coverage issues (including both comprehensive package of care and universal coverage). This fund becomes the key pooling and sole purchasing agency for health care services in every region. Table 5 shows main elements of single payer system in comparison with main agents' health system in the selected countries.

**Table 1.** Key Economic, Health Spending, Health status and Delivery Indicators by study years (2009-2017)

indicator	Population		Income groups	GDP Per capita		Poverty Rate		literacy Rate, total	
Country	(in1000 people)		(in Classification)	(US\$)		(% of population)		(Ages 15 and above)	
<b>Year</b>	2009	2017	2017 to 2009	2009	2017	2009	2017	2009	2017
Germany	81,902	82,695	High	41,732.7	44,469.9	-	-	95	95
Iran	73,687	81,162	Upper-middle	5,619.1	5,415.2	1.0	0.3	83.9	84.7
Thailand	66,881	69,037	Lower to upper middle	4,212.1	6,593.8	0.2	-	96.3	93.1
Turkey	71,339	80,745	Upper-middle	9,036.3	10,540.6	0.9	0.2	90.8	95.6
Colombia	45,416	49,065	Upper-middle	5,148.4	6,301.6	9.3	4.2	93.2	94.2

  

Indicator	Life expectancy,		Mortality rate, under		Maternal mortality		Physicians,(per		Hospital Beds	
Country	total (years)		5 (per1,000 live births)		rate (per 100000 live births)		1,000 people)		(per 1,000 people)	
<b>Year</b>	2009	2017	2009	2017	2009	2015	2009	2017	2009	2017
Germany	80	81	4	4	7	6	3.6	4.2	8.2	8.1
Iran	73	76	21	14.5	28	25	0.9	1.4	1.7	1.6
Thailand	74	75	14	10	23	20	0.3	0.5	2.2	2.1
Turkey	74	75	21	12	27	16	1.6	1.7	2.4	2.7
Colombia	73	74	19	15	73	64	1.5	1.8	1.5	1.5

  

Indicator	Health spending,		health spending, total		Public health		Out-of-pocket		UHC Index,	
Country	per capita (US\$)		(as % of GDP)		expenditure (as % of total spending)		(as % of total spending)		Compulsory coverage (% of population)	
<b>Year</b>	2009	2016	2009	2017	2009	2017	2009	2017	2009	2015
Germany	4,742.25	4,591.85	11.4	11.3	83.6	84.5	13.8	12.5	83.3	81
Iran	367.6	366	7.5	7.6	36.6	53.4	56	40.2	60	65
Thailand	152.45	217.1	3.9	3.8	75.5	77	16	11.8	58	75
Turkey	500	454.6	5.5	4.1	80	78	14.5	17	58.6	71
Colombia	329.1	374.2	6.4	6.2	71	66	20.5	18.3	56	76

Source: World Bank national accounts data, and OECD National Accounts data files





**Table 2.** Main bodies responsible for setting Health care System and determining Insurance System

Title Country	Stewardship role in health system	Health insurance authority	Type of health system	Type of health insurance	Single or multiple insurance
Germany	Ministry of Health & hygiene	Ministry of labor and social Affairs	Social insurance, private market	Social Security scheme	Multiple insurance
Iran	Ministry of Health and Medical Education	Ministry of Labor and Social Welfare	General health care	Multiple insurers	Multiple insurance
Thailand	MOPH	Ministry of Finance	National Health Plan	three public health insurance schemes	Major financing Agencies
Turkey	Ministry of health	Ministry of Health and SSI	General health insurance scheme	Social Security Institution by HTP	single insurance
Colombia	Ministry of Health	Ministry of Social Protection	National Development Plan	National Social Health Insurance	single insurance

**Table 3.** Coordination's and funding methods to delivery health services

Title Country	payers	delivery centers	Coordination's to payment	Funding for health	Over the basic care coverage
Germany	SHI Insured and Sickness funds	by public and private provisions	Mixture contract by Per diems, salaries, FFS, DRG	OOP, employees and general government	Covered (100%)
Iran	mixture of party payers (SSIO-IHIO-IKRF-MSO...)	both public and private sectors	Public Office with Internal Contract by FFS	Mainly OOP and general government	Covered (76 - 85%)
Thailand	Mixture of major payer insurers (SSO-CGD...)	by public and private centers	third -party payer Contract to provisions by per capita	Mainly Governmental budget and taxes	Covered (100%)
Turkey	Single buyer agency (GHIS)	public and private sector facilities	service contracts as per global budget	OOP, employees and general government	Covered (76 - 83%)
Colombia	mixture of two regimes(CR-SR)	mix of public and private for tertiary care	Contract through managed competition	national government transfers	Covered (100%)

**Table 4.** Overview of health financing system and health care delivery system in case study countries

Functions Country	Financing arrangement			Health Care Provision
	revenue Collection	pooling	purchasing	
Germany (31)	Main sources of financing is SHI with its 132 SF- general tax revenue by Gov PHI are offered by 42 funds and 30 very small insurer. others OOP & NGO	SF transfer to Central Reallocation Pool (health fund)- SF pay for health care providers OOP my supplements for superior accommodation		includes both public and private providers in Primary and Specialist health services For supply of hospital beds there is Regional government authorities plan capacities
Iran (32)	IHIO, SSO, MSO, IKRF and numerous insurance funds	complex and fragmented sources led to mixed pool and purchase with direct out of pocket (OOP) payments		Primary care are free of charge in gov center. Public private providers for secondary and tertiary health care facilities.
Thailand (33)	payroll taxes collect by SSO- revenue departments collect by BB- premium collect by Private insurance	four major agencies: CGD for CSMBS- SSO for SHI- NHSO for UCS, out-of-pocket user fees, and PHI for voluntary		Urban: coverage of PHC, district health centers and community hospitals by local Gov.- private hospitals Rural: PHC provided by Gov.
Turkey (34)	Main sources (indirect taxes) collected by collected by the Ministry of Finance to SSI P- taxes collected by SSK	all public funds have been merged under the SSI SSK for Green Card	GHIS is monopsonic power to purchase from all hospitals	For Primary care there is no co-payment is levied There are secondary or tertiary health care facilities (inpatient or outpatient) provide mainly in public and private sector
Colombia (35)	contributions collected by SGP to SR Solidarity fund to CR local tax revenues from "sin taxes" by Gov. contributions from family benefits funds or Cajas	Sources from SR, CR, Casaj, national budget and other revenues were bundled into FOSYGA's premium have been guided by FOSYGA balance	NHST can purchase services within the range of negotiate contracts	Coverage of Services to supplement the Benefits Packages at all levels. including; health posts, centers, ambulatory and high-complexity hospitalization



**Table 4.** main elements of single payer system in comparison with main agents' health system in the selected countries

Health Insurance Market													Health Care Provision Market				
central level: Ministry of Labor and Social Welfare regional level: Health Insurance Organization (insurance centers)													At central level: Ministry of Health At regional level: providers' network (hospitals, clinics, urban and rural health centers)				
Single Payer option	bodies	NHI department	High Council of Insurance	Information Record System	taxation system	Population Record System	Health card	Health Promoting Organization	clinical guidelines	center-referral system	Reimbursement	Price/fee regulation/ setting	Benefit package				
	function	insurance schemes that are done centrally or by regional branches of the single insurance fund and perform as an effective purchaser	The organization of relations between insurance department and health care providers' network, based on predetermined agreements	Information technology Based on place of residence, population movements, Patient, covered prescriptions and identifying poorer citizenship	fiscal policy determine the level and amount of contributions based on clear regulatory frameworks	Based on Cross-subsidized and targeting subsidies to the neediest population	guarantee the equal rights of citizens to receive similar and standard benefit package	oversight of health plans, providers, Purchase and service-quality monitoring, perform as unified channel selling health service, determined by its policyholders	Design Methodology and Principles of Care	referral and gatekeeping	mixes of provider payment methods (using DRG an important part of the purchasing arrangement)	negotiations at the central level or local level, determined by third-party payers or the government and provider	Designing the similar and/ or acceptance rang of benefit package				
	Germany	Managed Competitive Network - Patient Funds (by the FIA)	Federal joint committee and SHI medical review board which are joint institution of all SFs and providers	based on a federal information system from FSORKI	Health Tax Approved in Parliament (Value-added tax)	Identifying needy people and supporting them	SHI booklet	Representative of providers	Under the supervision of the Federal joint Committee - Monitored by insurance funds	Free choice among many providers and insurance companies	DRG weights are defined at the central level and rates are set at the local level or with insurer	Based on reference prices (RBRVS). Established at central and/or local level. Negotiation on point value	Mainly based on SHI benefit package. Set by federal law (SGB-V)				
	Iran	Multi-insurance	Office of the Supreme Insurance Board	Annual statistics, national and regional report	Determine the taxable amount to be paid - the Tax office	Based on Financial Capacity Measurement	Various insurance booklet	Various providers	There is no incentive to comply with the treatment protocol	Free choice among health care providers	global budget- fee for service accompanied with different franchise and prepayment	are negotiated with each insurer	comprehensive package with -				
	Thailand	LHF, NHSO and local governments have matching funding	performed in district by PAO with DODC Supervision	conducted by NSO and Socioeconomic Survey	general taxation as the main source of finance	poor is subsidized through the MHI schemes	Health citizen card registration allowed receive a public health services	THPF responsible for systematically coordinating(DHO, PO,DH,CH) with financial institutions	HTA guidelines, designated by NHSO and MOPH,	PHC gatekeeping function	Mainly Based on capitation and fee for service on quality, by agreement between MSDHS and MOPH	NHSO Manual for paying health care providers based	mainly public with some private arranged by NHSO MOPH and CEO				





<b>Turkey</b>	Unit Insurance (Homogeneous and Structured Financing System)	General Council, Board and Ministry of Labor are managerial authorities	Information and health statistics collected by COICOP and TURKSTA	Based on level of participation and tax. determine by parliament and central Gov.	subsidized by the government from general budget	SSI Beneficiaries have identity cards- SSK with Green Card	General Directorate licenses all insurance centers and hospitals in to market and responsive to Ministry of Health	diagnosis and treatment guidelines for primary care	An integrated referral system	Case-Mix and P4P systems for purchase inpatient services from all hospitals based on DRG groups	Capitation or salary negotiated by interested parties at central level between government and/or SSO and providers	receive similar benefits – no structure for health technology assessment
<b>Columbia</b>	managed competition in health insurance markets by NHST	accreditation system based on The contracts signed with the CNSSS and NSHI	PT- index known as SISBEN	cover premiums for the poor through General taxation	subsidized regime for poor people from SR, partial subsidies are providing from MPS	There is freedom choosing among a set of public or private insurance	CNSSS (the government body) in charge of monitoring health plan and managing of the FOSYGA	Clinical program design by CNSSS	Free choice within network, use of gatekeepers	Are free to establish payment mechanisms for services (mainly use UPC)	the fee schedules has used by the MPS and CNSSS for fixed premium (setting floors)	CNSSS is policy-making authority over benefits packages



## Discussion

Today, considering the increasingly growing transnational relationships, it is necessary to use international experiences in order to establish a set of health system policies and goals. In the present study, we aimed to examine the main components of single-payer healthcare and to compare the political and organizational commitments of health personnel in five countries, including Germany, Iran, Thailand, Turkey, and Colombia.

There are various factors which contribute to reforms in response to major social, political, and economic changes in different countries. Assessment of the single-payer system indicated 12 major components in the system of healthcare delivery and health insurance. These components were identified with regard to the financial performance, structure, and methods of health service delivery in different countries. They were classified and reported based on similarities in function and performance. Based on experience and reports from different countries, in order to ensure universal health coverage, the first step is to establish independent policies and regulations with respect to the type of insurance system and health financing.

The next step is to create a network of health providers (e.g., service rating, clinical guidelines, tariff structure, and payment mechanism) and insurance units (e.g., insurance agent, insurance fund, health insurance card, insurance council, information systems, and targeted allocation of resources). In the healthcare system, integration of health insurance packages and expansion of insurance coverage are achieved before the general integration of insurance resources, the most important outcome of which is social justice.

Other advantages of this system include increased efficiency, resource management, insurance system efficiency, effective financial protection and monitoring mechanisms, and increased accountability of the healthcare personnel. In this system, the insurance agent, as the health sector purchaser, is responsible for regulating healthcare services. The representatives of insurance companies and their sub-networks are

also responsible for providing health insurance to the population. The purchase operation is based on predetermined prepayments (e.g., insurance rights and compulsory insurance coverage), as well as contracts (between the insurer and provider representative). The final step is to set tariffs and negotiation policies and design insurance packages to trace the payment mechanisms (i.e., diagnostic related grouping or DRG).

According to the study of policy-making strategies in different countries, it is essential to separate the client from the health provider in single-payer healthcare. Single-payer-style health care system financing is associated with a reduction in the share of health care in the GDP. The insurance agent accounts for the mass purchase of health insurance services, while the health unit representative is responsible for the mass delivery of healthcare services. To regulate the health insurance market in a single-buyer system, the principles of health financing, such as insurance system policies, public insurance and contributions, benefit packages, insurance premiums, and treatment costs, are considered. Also, in the health network, it is important to manage and organize healthcare centers, design healthcare packages, and set tariffs for these services.

Social values, justice, and economic capacity in every healthcare system are determinants of the health system financing. One of the most important factors in financing the health sector is the political structure of the system. Commitment and political support are the prerequisites for comprehensive insurance in a single-payer system. For instance, Thailand (35), which has made major progress in public health coverage, is entirely committed to financial protection in order to provide public insurance and public access to healthcare services.

In public health, it is important to integrate health resources and prevent inconsistencies in budgeting. Turkey (34) has taken some important steps in this area. Following the establishment of Turkey's Integrated Social Assistance System, five major insurance funds were integrated. In both Turkey and Thailand, governmental funding (e.g.,



tax financing and compulsory insurance) accounts for the largest share of total health care expenditure. These processes ensure that a wide range of high-quality care services are provided for the public. Also, changes in the system should be accompanied by the elimination of ambiguities and stakeholder alignment. In this regard, the results of a study by Baziar, entitled "Analysis of Policymaking Strategies for Health Insurance Funds in Iran", highlighted the importance of social solidarity, in addition to political commitment, in integration of insurance resources (36).

In Chile (2,37), extensive governmental and institutional support for integration of public and private health insurance, besides allocation of health resources, can guarantee public insurance coverage in this country. On the other hand, the financial instability of health insurance in South Korea (15) has increased the need for governmental interventions. To overcome this issue, support and proper management are necessary, as lack of support by political figures and lack of financing by the government can cause irreparable damage to the health system.

Furthermore, integration of the demographic information system is one of the most important prerequisites for public insurance coverage. In Thailand, Turkey, and Colombia, advanced databases are used to identify low-income groups, tax levels, insurance coverage, health costs, resource expenditure, and finally assessment and monitoring of reform outcomes, as confirmed in a study by Ebrahimpour (38). However, there are major challenges, such as shortcomings of payment systems, low capacity of information systems, ineffective tax systems, and most importantly, lack of effective tools for measuring and identifying vulnerable groups in Iran's health system; in fact, overcoming these technical issues is a costly endeavor (36,28).

Reduction of direct payments, increase of prepayments and contributions for estimating the level of patient protection, and governmental commitment are major achievements of single-payer versus multi-payer insurance systems.

According to a study by Abolhalaj, with regard to the high level of cash transactions in Iran, design of tax and free-trade policies can be an objective approach to reduce the share of direct payments in Iran (7,26,39). Fatahzadeh also described the decline in cash transactions as a necessity to promote social justice and patient protection<sup>6</sup>.

Germany's (31) reconstruction of its social insurance system was accomplished by setting a limit for direct payments. In order to minimize the financial burden of the health sector on the general population, risk mitigation, as well as factors such as gender, age, and individual status, was taken into consideration. Overall, rational distribution of contributions with regard to individual or household income has resulted in Germany's success in providing free health services to low-income groups, elderly populations, and chronic patients. On the other hand, there are multiple insurance funds in France, which aim at targeted coverage of different social classes and populations; in this system, health insurance taxes are mostly collected from eligible households. In addition, state-supported supplementary health insurance is provided for economically disadvantaged groups (40).

In Turkey's (41,19) universal insurance system, given the uniform health expenditures for all populations, the effect of reduced direct payment can be seen in all income areas. In addition, low-income groups receive health subsidies. This process in Colombia (24,26) covers the most disadvantaged groups in the community in a purposeful manner by facilitating cash payments for this group. In South Korea (14), the insurance coverage was universal before integrating the insurance funds with the aim of creating a support system for the vulnerable population (3-5% of Korea's population). Janfada also stated that it is important to identify vulnerable groups and provide insurance for them (42).

## Conclusion

Studies show that distribution and dispersion of insurance funds (at different income and management levels), as well as inconsistencies in



the delivery of health services, are the main reasons for differences in insurance policies and health centers. The main components of single-payer systems coordinate the delivery of health services and change the financing system by integrating all funds. Therefore, in structural and executive actions of single-payer systems, the health client and provider are separated in two markets of health insurance and healthcare. Separation of purchasing from provision functions allows one department to concentrate fully on planning, negotiating, monitoring, and evaluating the performance of health providers. It removes conflicts of interest in the purchasing relationship that might compromise the efficiency of the purchasing process. Therefore, financing policies in Iran should aim at increasing risk accumulation, understanding the main responsibilities of insurance systems, considering the law of large numbers, and avoiding reverse risk. Recognition of each component described in the present study can not only improve the performance of Iran's health system, but also establish the single-payer system in different health systems.

The main characteristics of single-payer healthcare include coordination of health system goals, structure and performance of health insurance, and insurance outcomes (e.g., promotion of public health, fair health insurance coverage, provision of free care services, and reduction of direct payments). It is obvious that there are many challenges and shortcomings in implementing the single-payer system in Iran's healthcare. The findings showed that adaptation of policies and programs from other countries,

regardless of their experiences and characteristics (e.g., executive and structural factors, financial capacity, regulations, and economic, political, social and cultural context) can only exacerbate the problems. Therefore, the single-payer system can be integrated in Iran by identifying the current status of healthcare system, estimating the outcomes, and evaluating weaknesses and opportunities for improvement. In the second section of this study, we will discuss the concept of single-payer systems. It is recommended that future studies focus on identifying the requirements for successful implementation of a single payer system in Iran health system, predicting the outcomes and future prospects of this system.

There was no significant limitation for the present study

### Conflicts of interest

Authors declare that they have no conflict of interests.

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### Authors' contributions

Nadjafi B designed research. Aboutorabi A, Ghasepour S and Panahi S participated in data collection and the related information. Nadjafi B analyzed data. Ghasempour S wrote the paper. All authors read and approved the final manuscript.

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## Appendix

### Abbreviations

AHBs	Area Health Boards	IKRF	Imam Khomeini Relief Foundation	SGP	National transfers for health
AFMS	Armed Forces Medical Service Organization	IHIO	Iranian Health Insurance Organization	SF	Sickness Funds
BB	Bureau Budget	LHF	Local Health Fund	SHI	Social Health Insurance
CGD	Comptroller General Department	MOPH	Ministry of Public health	S/MHI	Statutory/mandatory Health Insurance
CSMB	Civil Servant Medical Benefit Scheme	MPS	Ministerio de la Protección Social (Ministry of Social Protection)	SISBEN	System for identifying Beneficiaries
CNSS	Consejo Nacional de Seguridad Social en Salud (National Health and Social Security Council)	MSDH	Ministry of Social Development and Human Security	S-PS	Single- payer system
COIC	Classification of Individual Consumption by Purpose	NHST	National Health Super in Tendency	SR	Subsidized Regime
CR	Contributory Regime	NHSO	National Health Security Office	SSK	Sosyal Sigortalar Kurumu Social Insurance Organization)(
DH/C	District Hospital (Community Hospital)	NSO	National Statistical Office	SSS	Social Security Scheme
DRG	Diagnosis Related Groups	N/SHI	National/Social Health Insurance	SSO	Social Security Office/ Organization
		NHS	National Health Service		
D/	District/ Provincial Health Office	P4P	Pay for performance	T/PAO	Tambon/Provincial Administrative Organization
PHO					
EPS	Empresas Promotoras de	PHI	Private Health Insurance	THPF	Thai Health Promotion



	Salud (Health Promoting Companies)				Foundation
FSO	Federal Statistical Office	PPP	purchasing power parity	TURKS TA	Turkish Statistical Institute
FIA	Federal Insurance Authority	PS	Partial Subsidies	UCS/ UHC	Universal Coverage Scheme
GHIS	General Health Insurance Scheme	PCUs	Primary care provider units	UPCs	Per Capita Payment Unit
HF	Health Funds	PT-index	Proxy means Test index	HCI	High Council of Insurance
HPO	Health Promoting Organization	RBRVS	Resource-Based Relative Value Scale		