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# The financing of the health system in the Islamic Republic of Iran: A National Health Account (NHA) approach

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## Abstract

**Background:** The National Health Accounts keep track of all healthcare related activities from the beginning (i.e. resource provision), to the end (i.e. service provision). This study was conducted to address following questions: How is the Iranian health system funded? Who distribute the funds? For what services are the funds spent on?, What service providers receive the funds?

**Methods**: The required study data were collected through a number of methods. The family health expenditure data was obtained through a cross sectional multistage (seasonal) survey; while library and field study was used to collect the registered data. The collected data fell into the following three categories: the household health expenditure (the sample size: 10200 urban households and 6800 rural households-four rounds of questioning), financial agents data, the medical universities financial performance data.

**Results**: The total health expenditure of the Iranian households was 201,496,172 million Rials in 2008, which showed a 34.4% increase when compared to 2007. The share of the total health expenditure was 6.2% of the GDP. The share of the public sector showed a decreasing trend between 2003-2008 while the share of the private sector, of which 95.77% was paid by households, had an increasing trend within the same period. The percent of out of pocket expenditure was 53.79% of the total health expenditure. The total health expenditure per capita was US$ 284.00 based on the official US$ exchange rate and US$ 683.1 based on the international US$ exchange rate.( exchange rate: 1$=9988 Rial).

**Conclusion**: The share of the public and private sectors in financing the health system was imbalanced and did not meet the international standards. The public share of the total health expenditures has increased in the recent years despite the 4th and 5th Development Plans. The inclusion of household health insurance fees and other service related expenses increases the public contribution to 73% of the total.

**Keywords**: Financing, Health System, National Health Account.

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## Introduction

The World Health Organization's (WHO) report of 2000 stated that objectives of the health system must not be realized by imposing an inappropriate financial burden on its clients. The availability of accurate statistics on the capital flow as well as easy access to the required data is an essential

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component in any attempt to enhance and improve the financial resources of the health systems. On the other hand, evaluation of the socio-economic status of the countries has gained importance in the recent decades. In this regard, depicting the health status of the countries in terms of accounts and standard tables is of paramount importance (1).

For this reason, attempts have been made to develop appropriate tools for collecting and analyzing the data for policy makers. The National Health Accounts (NHAs) enables the policy makers to optimize the allocation of the financial resources to the service providers in the health sector. In other words, NHAs are designed for optimizing the process of making health related policies. Health policy makers and health system managers are the main beneficiaries of the NHAs to improve the performance and management of health systems (2).

It is a matter of general censensus that the NHAs are the most essential source of data to be consulted by the decision-makers in programming, budgeting, and implementation of the health policies. In fact, as National Economic Accounts are calculated on the basis of expenses as well as financial resources and the budget allocations to provide the required data on the total value of the products on market values within a specified financial period, the NHAs, as a component of the national accounts, provide the required information on total value of health services, the share of the public and private sectors, performance results, the budget allocation to the subordinate organizations, expenditures on the national level, and the overall outcome of health services. The information, which are collected in the macroeconomic and sectional levels as time series, can be utilized in performance analysis as well as studying factors involved in the decision making process and economic fluctuations (3).

These accounts keep a record of the health expenditures through indicating the agents (private and public sectors) which contribute to funding the health services as well as detailed information on how the health budget is allocated to different organizations, such as the health insurance companies, to achieve the health objectives (4).

Being aware of those who pay health expenditures can provide a worthful information for designing health policies and recognizing the intermediate units; for example, many countries have conducted decentralization on the public sector by financing the health services through provincial funds. The information on health accounts shows their success rate in achieving their objectives. These accounts also enable experts to compare the function and role of public and private sectors as well as health insurance companies in providing the required services. The health accounts enable the managers and decision-makers of the health services not only to prioritize but also to optimize the expenditure in this sector. Given to this matter, this study has been conducted to address following questions: How is the Iranian health system funded? Who distribute the funds?, What services are the funds spent on?, and what service providers receive the funds?

## Methods

The present study, which covers the health accounts of 2008, is the outcome of a close cooperation between the Iranian Ministry of Health, Statistics Center of Iran, National Institute for Health Research, and the insurance companies on the basis of the OECD defined framework for NHAs. The health accounts are presented as tables that trace cash flow from the various funding agents to expending services in order to indicate the total expenditure in the health sector. The tables are prepared based on the following information: the information on socio-economic status of the households, the information on financing agents in public and private sectors, the information on health service providers in public and private sectors, the information on financing resources. The present study surveyed the households health expenditure through a

cross sectional multi-stage (seasonal) study, and the registered data was collected using library and field study methods. The data on the financing agents in 2008 including the public and private insurance companies as well as the Oil Ministry, Municipality and other organizations that provide insurance services, was collected through the OECD questionnaire designed for financial agents. The data on the financial performance of the Iranian medical universities collected by the centre for budget and fuction surveillance of the Ministry of Health. The collected data was integrated in the health account pre-designed tables by the application of the Info-path Software. The precise data on households was extracted through several reviews of the completed questionnaires. In the final phase of the study, the data was registered in the independent table formats to unify and balance the statistical findings. There are a number of three dimensional tables which integrate the information on the financing source, type of the services, and the service providers. These tables can decompose into some other tables to analyze relationship between the two of the three dimensions.

## Results

### *A) The Total Health Expenditure*

The findings of the present study on the financing of health system in Iran indicated that both public and private sectors contributed to funding health services (Table 1). The public sector expenditures were "the current expenditure of the health system in the government budget", "the health system expenditure from insurance resources", "compensation payments and services", and "transfer fees". The private sector expenditure were "household payments", "private health insurance premiums", "non-profit and charity institutes expenses" and "rehabilitation and nursing homes expenses". According to this study, total health expenditure was 201,496,172 million Rials as shown in Table 1; the public sector share of the health expenditure was 43.80% while the private sector had a share of 56.20%. The public sector funded 19.36% of the expenses through insurance premiums and 24.5% through public budget. The share of the households was 95.77% of the private sector expenditure that consisted 53.79% of the total health expenditure. The total health expenditure was 6.2% of GDP; 6.1% for current expenses and 0.1% for capital expenses. The public and private sectors expenditure made 2.7% and 3.4% of this total GDP share, respectively. The health expenditure per capita was $ US 683.1; the public sector paid $ US 299.4 and private sector financed $ US 338.7. These findings showed that the public sector did not contribute a fair share of the health expenditure and the private sector paid most of health expenses.

Table 1. Health Expenditure by Funding Sources, GDP and Per Capita Percentage

| Type of Expenditure | Million Rials | % | GDP % | Expenditure per Capita(US $) |
|---|---|---|---|---|
| Current Health Expenditure | 197,317,266 | 97.9 | 6.1 | - |
| Capital Health Expenditure | 4,178,906 | 2.1 | 0.1 | - |
| Total Health Expenditure | 201,496,172 | 100 | 6.2 | 683.1 |
| Current Health Expenditure by private and public sector | | | | |
| Public Sector | | | | |
| Health Expenditure Budget | 48,350,193 | 55.87 | - | - |
| Health Expenditure-Insurance, Compensation and Transfers | 38,192,616 | 44.13 | - | - |
| Total | 86,542,808 | 43.80 | 2.7 | 299.4 |
| Private Sector | | | | |
| Households' health Expenditures-Excluding Insurance and Transfers | 106,086,381 | 95.77 | - | - |
| Rehabilitation and Aged-care Services Expenditures | 45,731 | 0.04 | - | - |
| Private Insurance Premiums and payments | 4,511,000 | 4.07 | - | - |
| Private Welfare Organizations | 131,345 | 0.12 | - | - |
| Total | 110,774,457 | 56.20 | 3.4 | 383.7 |

Table 2. The Health Expenditure of the Public Sector

| Type of Expenditure | (Million Rials) | % |
|---|---|---|
| Out-patient Health Expenditures Budget | 9,188,634 | 19 |
| Hospitalization and Treatment Budget | 12,576,498 | 26.01 |
| Rehabilitation Budget | 4,007,573 | 8.29 |
| Medical Education and Support Services Expenditure | 671,673 | 1.39 |
| Health Insurance Expenditure | 12,838,192 | 26.55 |
| Health Insurance Support Services Expenditure | 936,555 | 1.94 |
| Other Expenses | 8,131,068 | 16.82 |
| Total | 48,350,193 | 100 |

Table 3. Health Expenditure based on Health Insurance, Compensation and Transfers

| Type of Expenditure | Total(Million Rials) | (%) |
|---|---|---|
| Curent Social Security Health Expenditures | 20,967,471 | 54.90 |
| HIO Expenditure Funded by Iinsurance Premiums | 10,069,137 | 26.36 |
| Public Organization Health Expenditure | 4,782,893 | 12.52 |
| Tehran Municipality Health Expenditure | 127,650 | 0.33 |
| Charity Institute Health Expenditures | 309,135 | 0.81 |
| Social Security Organization Support Expenditures | 1,936,330 | 5.07 |
| Total | 38,192,616 | 100.00 |

In spite of the fact that the current health policies have focused on the need for further investment on preventive and primary health, the study findings indicated that 26% of the public sector health expenditure went to treatment services and 19% was spent on primary health care; in other words, it accounted for 4.3% of the total health expenditure which is not inconsistent as compared to the international indices (Table 2). The average primary health care expenditure is 2.9% in OECD countries that this rate was 4.7 % globally in 2002 (5). The OECD data indicates that industrial countries spend less on the primary health care (6). It must be mentioned that in the developing countries such as Bangladesh and Vietnam this index is 13 to 15 per cent (7). The average is 7.8% for the Eastern Mediterranean countries (8). Iran has established a network of primary health care in rural areas as its major health investment. If the rural insurance expenditure is taken into consideration, then the primary health expenditure exceeds that of treatment.

The study of health expenditures funded through insurance premiums, compensation and transfers shows that 55% of the expenses are for the Social Security Organization (SSO) as the largest non-public insurance company. This organization has the widest coverage and is a major service provider. The Health Insurance Organization (HIO), as the second largest health insurer in Iran, relies on public funding. The contribution of those insured by these insurance organizations is given here (Table 3).

### *B) The Health Care Financing Agents*

The financing agents are responsible for managing the allocated budget. The Ministry of Health and health insurance companies receive and spend the public sector budget. The insurance premium is used by the Social Security Organization, Health Services Organization, state companies (Oil Company, IRI Broadcasting, the Ministry of Education, etc.) and the municipalities, respectively. The charity institutes have the minimal share of the health expenditure in Iran. In a number of OECD countries such as New Zealand, Australia, Norway, Sweden, Portugal, Denmark, and Spain, the public budget is the main source of financing the health care system (5). While social health insurance is of secondary importance as compared with the private health insurance, public sector support minimalizes the out of pocket expenditure in these countries. Meanwhile, in a number of countries (Belgium, Germany, France, Netherlands, Japan, etc.), the public budget is replaced by social health insurance coverage which keeps the out-of-pocket expenditures low. In countries such as China and Malaysia, a

Table 4. Health Services Financing by sources and organizations

| Financing agent sources | Public Sector and social health insurance Resources | | | | | | | Private Sector Resources | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | State Budget | Social Security Insurance Resources | | | | | | | | | |
| (Million Rials) | Primary health care and Treatment Schemes | Universal Insurance | Social Security Insurance | Public Health Insurance | State companies | Tehran City municipalty | Charity instituties | Households | Private Insurance | Non profit Organization | Total |
| Total | 34,575,446 | 13,774,747 | 22,903,138 | 10,069,138 | 4,782,893 | 127,650 | 309,135 | 106,132,112 | 4,511,00 | 131,345 | 197,317,266 |
| % | 17.5 | 7.0 | 11.6 | 5.1 | 2.4 | 0.1 | 0.2 | 53.8 | 2.3 | 0.1 | 100 |

combination of public budget and social health insurance manages the health expenditures and out of pocket expenditure which is low (7). In Iran, out of pocket expenditure is high as the medical insurance organizations and public budget do not play their complete role in health care financing (Table 4).

### *C) Health Expenditure by Service*

Categorising the health expenditures by the type of service shows that like other countries, a major part of expenditure in Iran is spent on diagnostic services, consumable equipments and medicine which can create induced demand by physicians and patients. The next services with the highest expenditure are outpatient services (of which 80% are provided by the private sector and 20% by the public sector). In OECD countries, the similar indices are as follow: Inpatient 10%, Outpatients 30%, Rehabilitation and long term care 10%, Medical equipment 23%, Other Services 6%. The only indices which are higher in Iran when compared to OECD countries are diagnostic services, medicines, and other outpatient services (36%) and long term care (2.4%); the difference in the first index is due to adding diagnosis expenditures to medicine and medical equipment expenditures and the second instance is because of cultural differences; while this index is 16% for a country like Japan which has an aged population, the index is almost in line with Iran in the countries with similar demographic and cultural characteristics (Table 5) (5).

Table 5. Health Expenditure by Service (2008)

| Type of Service | Expenditure(Million Rials) | % |
|---|---|---|
| Inpatients and Rehabilitation Services | 46,602,142 | 24.1 |
| Long Term Rehabilitation Services | 4,576,894 | 2.4 |
| Outpatients Services | 62,504,097 | 31.4 |
| Diagnosis, Drug and Other for Outpatient Services | 71,958,507 | 36 |
| Other Services | 11,675,626 | 6.1 |
| Total | 197,317,266 | 100 |

Table 6. Inpatient and Rehabilitation Expenditure by Provider (2008)

| Type of Provider | Million Rials | % |
|---|---|---|
| Public Hospitals | 30,732,490 | 66 |
| Social Security Hospitals | 4,949,371 | 11 |
| public companies Hospitals | 2,209,135 | 5 |
| Private Hospitals | 7,649,853 | 16 |
| Non-Profitable Private Hospitals | 1,061,294 | 2 |
| Total | 46,602,142 | 100 |

Table 7. Long term Rehabilitation Expenditure by Providers (2008)

| Type of Provider | Expenditure (Million Rials) | % |
|---|---|---|
| Public Rehabilitation Organizations | 4,531,163 | 99.05 |
| Private Rehabilitation Organizations | 45,731 | 0.95 |
| Total | 4,576,894 | 100 |

Table 8. Out-patients services Expenditure by providers (2008)

| Type of provider | Million Rials | % |
|---|---|---|
| Public Hospitals | 7,584,366 | 12.5 |
| Private Hospitals | 6,149,550 | 9.9 |
| GP clinic | 14,842,800 | 23.7 |
| Dentists clinic | 24,075,358 | 37.9 |
| Other medical sttaf clinics | 3,165,731 | 5 |
| Public Centers and clinics | 6,686,293 | 11 |
| Total | 62,504,097 | 100 |

Table 9. Diagnostic, medicine and others for out patient services by provider (2008)

| Type of provider | Million Rials | % |
|---|---|---|
| Medical diagnostic Labs | 7,077,673 | 9.9 |
| Radiology and Imaging institutes | 9,687,601 | 13.5 |
| Pharmacies and Drug Stores | 45,575,765 | 63.5 |
| Medical Consumption Goods | 2,108,871 | 2.8 |
| Other Medical Goods | 7,508,597 | 10.3 |
| Total | 71,958,507 | 100 |

### *D) Health Expenditure by Providers*

Tables 6, 7 and 8 indicate health expenditure based on the services and service providers. Table 6 shows that 66% of the expenditure is for hospitalization in the public hospitals. If the social security hospitals and those run by state organizations were taken into account, the findings of this study would be in conformity with the previous study (2002) which showed 80% hospitalization expenditure for public and 20% for the private sectors.

The long term rehabilitation and aged-care services reveal the cultural values prevailing in a country. The elderly are cared for by their family members as a cultural and religious feature; therefore, families use these services less frequently in the country and therefore private sector are not the major service provider.

Tables 8 and 9 show health expenditure on the outpatient and diagnostic services as well as the cost of medication. The public hospitals and health centers offered 23.5% of the outpatient services, and the private sector was the service provider in 76.5% of the cases. The dentistry expenses were the main source of expenditure as a number of these services are included in the basic insurance package and are mainly provided by the private sector. Table 9 shows that more than 64% of expenditure in this group of services if for medications, which is is mainly due to mismanagement of the medication by the households.

## Discussion

It is a matter of general consensus that the National Health Accounts are one of the major sources of information in decision-making on policies and modifying the financing routs of the health care system (Expenses, Resources, and Expenditure). In fact, in the same way that the macroeconomic accounts provide the required information on the total value of their market value within a definite period of time by calculating the funding resources and the expenditure, the National Health Accounts, as national macro-accounts, sum up the information of the total value of the health services, the performance of the public and private sectors in this respect, and the contribution and the share of these sectors and their affiliated organizations in regard to the funding resources, expenditure and the other financial issues. The macroeconomic and sector information as time series are used in the analysis of health services per-

formance and the assessment of the policies in both national and sector levels. The present study, which was undertaken by the Ministry of Health and Medical Education, had a statistical sample of about 68000 and aimed at describing the financing and expenditure trends of the health sector. This study differs from the previous ones in the sample size, familiarity of the interviewers with the issues involved, and the type of the questionnaire used. The results of the study provided detailed information on the household health expenditure while the overall data was not much different with similar studies. The selection of assessment criteria is the main concern in establishing NHAs as the information on different countries would not be comparable without such a well-defined index. The major strength of this study lies in the selection of the indices that are applied in the international level as well as the design of its data collecting tool. It is important to note that the present study considered the health expenditure as 6.20% of the Iran GDP, which is 2% higher than the regional data although it was 2.30% lower than the international average. This index is not indicative of an optimized expenditure as there would be more resources available in a country with the similar GDP and less population. The expenditure per-capita index of 683.10 US$ is 2.5 times higher than the regional index but 1.30 times lower than the international index. This index is divided into public and private sectors expenditure; the public expenditure on health is 48.5% in the region which is only 4.70% higher than that of Iran (43.8%) while the international percent of public expenditure on health is 58.20% which is much higher thatn that of Iran. This index shows that public sector contribution to the health expenditure has reduced and the private sector has increased in Iran, which is a reverse trend as compared to other countries. The out-of-pocket is expressed in two forms. According to the National Health Accounts, the private sector contribution is devided into the following categories: household expenditure excluding insurance fee and transfers, rehabilitation and aged care expenditure, private commercial insurance expenditure, charity and non-profitable instituties. The share of people's OOP expenditure was 95.77% of the total private health expenditures. The regional index is 88.9%, and the overall international index is 50.5%. This index is 85.7% for the poor countries. The next index showed that 56.20% of the total health expenditure was provided by the private sector, of which 53.69% was paid directly by people (OOP) and 2.50% was funded by private health insurance companies. This index is not usually taken into consideration internationally. These two indexes suggest that people pay over 50% of the health expenses in Iran while it is less than 30% in many countries. Although the expenditure on the medication and diagnosis services showed a similar trend to many OECD countries, there was a significant difference with the OECD index in regard to the long-term services. The results of the study showed that Iran was similar to the developed countries in many respects but in those areas of expenditure with cultural and demographic issues involved such as long-term care, the results were like the less developed countries. The health expenditure on the technology-based services such as diagnosis and medication needs to be reduced. The preventive and primary health care services used only 4.30% of the expenditures. Although this rate is similar to the OECD index because of previous government investments, there is a need for increased investment in this sector by the government as it is a cost-effective investment and PHC infrastructure need more investment. This study showed that 72% of the expenditure on inpatient services occure in the public sector and direct out-of-pocket payment (OOP) covered only 1.6% of the expenditure in this sector. This can be used as a successful experience for the countries with a high level of OOP in inpatients services. Inspite of this successful experience of the public sector in inpatient services, categorizing outpatient services by provider

indicated that 90% of these services were provided by the private sector which resulted in more than 45% out of pocket expenses. The results of this study indicated that providing outpatient services by the public sector and increasing the quality of these services and managing the medicine and diagnostic services costs using clinical guidelines could be the best way to decrease out of pocket expenses. Generally, the present study showed that the public and private sectors share of the health expenditure was far from equity and would fall short from international standards. In spite of the policies included in the 4th and 5th Development Plans, this imbalance has increased in recent years. The private sector finances 73% of the health expenditure with the inclusion of insurance fees, and compensation and transfer payments. This trend is completely different in many countries. The results of the study were based on the 2008 statistics. About 10% of the budget of targeting subsidies is supposed to be used to finance the health system for the main areas of the public expenditure such as OOP expenditure. The application of the clinical practice guidelines to reduce induced demands would also reduce the health expenditure and leads to the achievement of the international standards.

### *Conflict of Interest*

There is no conflict of interest.

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