

Social Insurance for Dental Care in Iran: A Developing Scheme for a Developing Country

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Abstract

Aims: This study aimed to describe the current situation with regard to dental care provided under social insurance in Iran in qualitative terms and to assess it critically with regard to equity and efficiency.

Methods: After a thorough review of the relevant literature, a template of topics, which included population coverage, range of treatment provided, contracting mechanisms, fees, level of co-payments and dental share of total health expenditures, was developed by a panel of Iranian health finance experts. It was used during interviews with informed persons from the different Iranian social funds. These interviews were recorded and transcribed. The transcriptions were checked for accuracy by those who had been interviewed and were then analysed.

Results: It was found that, currently, four major social funds are involved in health (including dental) insurance in Iran, under the supervision of The Supreme Council of Health Insurance, located at the newly integrated Ministry of Cooperatives, Labour & Social Welfare. Around 90% of Iranians are covered for health insurance within a Bismarckian system to which the employed, the employers, and the Government contribute. The system has developed piecemeal over the years and is characterised by a complexity of revenue-collection schemes, fragmented insurance pools, and passive purchasing of dental services.

Conclusions: The dental sector of Iranian social insurance should establish a strategic purchasing plan for dental care with the aim of improving performance and access to care. Within the plan, there should be a basic benefit package of dental services based on the relative cost-effectiveness of interventions, educating an adequate number of allied dental professionals to provide simple services, and introducing mixed payment methods.

Key Words: Social Security, Dental Insurance, Health Services Research, Health-care Financing Administration, Health Policy

Introduction

The starting point for any health sector reform is the existing situation [1]. According to the *World Health Report 2000*, the four functions of a health system are: stewardship, resource generation, financing, and service provision. Health-care financing consists of three sub-functions: revenue collection, pooling and purchasing of (paying for) services [2]. Social insurance is a way of financing health care and is the main feature of the Bismarckian model for health-care management [3]. It is a prominent aspect of the Iranian health system. In addition, commercial insurance is playing an increasing role in health-care financing in Iran. Moreover, since the early 1980s, Iran has had

an integrated primary health care (PHC) network, administered through medical universities (at least one in each of 31 provinces), operating under the supervision of the Ministry of Health and Medical Education (MOH). Oral health care has been integrated into the PHC network since 1997.

With a population of more than 75 million (70% of whom reside in urban areas) [4], Iran is a lower-middle income oil-exporting developing country [5]. In 2009, 5.5% of gross domestic product (GDP) was spent on health, of which 39% came from public resources [6]. Currently, Iran has about 25,000 active dentists and dental specialists (corresponding to a dentist/population ratio of about 1:3,000, irrespective of their distribution). Only a

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small number (~150) of dental hygienists are still working within the system and are only permitted to provide simple extractions, tooth polishing, scaling and taking dental radiographs in public clinics (Ministry of Health and Medical Education, personal communication, September 2012). In 2009, the national household expenditures survey showed that the dental share was 15.5% of overall health expenditures for Iranian households (ranking third after in-patient care and the pharmaceutical sector) and 27% of out-patient care expenditure [7]. The highest inflation rates were reported for in-patient care (26%) and dental care (21%) among other health services during 1985-2004 [8]. In rural areas, 70% of oral health services are delivered by the public (government) sector whereas 80% of dental care in urban areas is provided in the private sector [9]. The national oral health survey in 2001-2002 indicated high levels of unmet needs. It showed mean national DMFT scores of 4.3 and 11.0 for 18-year-olds and the 35- to 44-year-old age groups, respectively, with decayed teeth and missing teeth as the dominant components, in the respective age groups. Also, 53% of 35- to 44-year-olds had periodontal pockets [10].

Despite progress made during the last decades in Iran, health-financing structures have not been organised strategically and have experienced a piecemeal development. With implementation of the fifth five-year national development plan, it seems that the health-care financing in Iran is experiencing a transitional period. Studying the existing situation may be a basic step in order to make informed decisions and use this period as an opportunity to improve the supportive role of social insurance for dental care.

Aim

This study aimed to describe the current situation with regard to dental care provided under social insurance in Iran in qualitative terms and to assess it critically with regard to equity and efficiency.

Methods

In order to obtain a picture of social dental insurance in Iran, semi-structured interviews were used, as the main data-gathering tool. They were conducted with informed persons identified in each social fund. Based on a conceptual framework for health financing, originated from the World Health Report 2000 (*Figure 1*), a template of descriptive items was developed through review of relevant lit-

erature [2,11] and finalised by a panel of health financing experts. This template was used to guide the interviews. *Table 1* lists the main items that were considered.

The approval of the Ethics Committee at the Shahid-Beheshti dental school was obtained before the initiation of the study. The interviews were conducted in each interviewee's workplace after obtaining his or her consent to participate in the study. All the interviews were conducted by one of the authors (MPJ) in June and July 2011. The final section of each interview was devoted to the interviewee's views on social insurance challenges for purchasing dental services and any other relevant topic that had not been included in the template. The interviews were audio-recorded and transcribed and the tapes were destroyed afterwards. The sources and individuals mentioned by interviewees were referred to, to obtain complementary information. An independent report was then prepared for each fund, describing its function with emphasis on dental services in qualitative terms. Other available sources of information, including the websites of the funds and internal and external documents about health financing in Iran, were reviewed to validate the descriptions. Finally, the reports were sent to the interviewees via e-mail to check their accuracy and adequacy.

Results

Currently, four major social funds are involved in health (including dental) insurance in Iran, under the supervision of the new integrated Ministry of Cooperatives, Labour & Social Welfare. The Supreme Council of Health Insurance (SCHI), consisting of the representatives of these funds and other concerned institutions, including the MOH, is responsible for producing insurance policies. Two of the main duties of SCHI are: (a) defining the basic benefit package of health services and (b) annual setting of tariffs for public (governmental) and private sectors that must subsequently be approved by the Iranian Cabinet.

The dental services in the basic package that must be covered by all funds are: dental examinations, radiography (periapical/bitewing), tooth extraction, surgical removal of impacted and semi-impacted teeth, supragingival scaling and oral hygiene instruction, subgingival scaling (only for those older than 12 years), tooth polishing, restoration of first molar teeth for 6- to 12-year-old children.

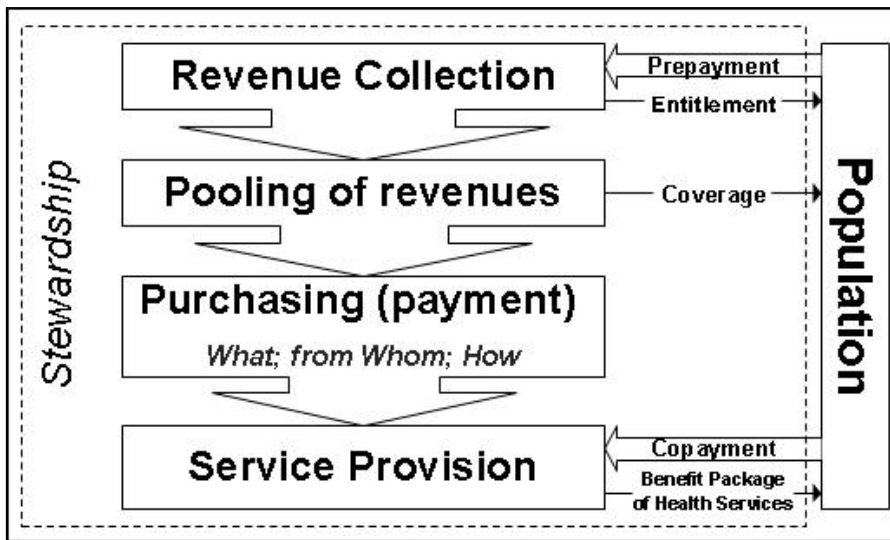


Figure 1. Conceptual framework for health financing system (modified from [1,2])

Table 1. Main topics included in the template

<ul style="list-style-type: none"> • Covered population (number and entitlement criteria) • How to collect revenues • Separate pooling for dental risks • Direct provision of dental services and (if yes) its probable advantages to the patients • Benefit package of dental services and its selection criteria • Types of providers contracted • Payments fees • Provider payment methods 	<ul style="list-style-type: none"> • Level of co-payments • Contracting process and supervising mechanisms including cost containment and quality assurance arrangements e.g., preauthorisation and benefit limits • Reimbursement for services received from non-contracted providers • Dental share of total health expenditures • Any plan to be undertaken for dental sector or with implications for it
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The fees of the services provided by dental hygienists are 50% of those for general dentists. Also, the fees for services rendered by a relevant specialist are 50% higher than those of general dentists. A patient co-payment for all out-patient (including dental) services is currently set at 30% of the public tariffs. *Figure 2* shows the funds and financial sources for dental care in Iran.

Medical Services Insurance Fund (MSIF)

The MSIF is administered as a governmental corporation and covers about 35 million people. It is composed of four main sub-funds:

1. The “Government Employees” fund, which provides compulsory coverage for all formal government employees—including retirees—and their dependents (about 6.4 million people).
2. The “Rural Household” fund, which covers villagers, tribal groups and residents of cities with a population of less than 20,000,

not insured elsewhere (about 23 million people).

3. The “Other Groups” fund, which is for uninsured individuals in some distinct groups, such as war victims’ families, university students, lawyers and physicians (about 1.9 million people). The coverage is mediated by the relevant institutions.
4. The “Iranians” fund, which since 2008 has provided voluntary coverage for any uninsured Iranian. Currently, about 4.2 million people are covered by this fund. It potentially provides a possibility for universal health insurance coverage.

In the Government Employees fund, 5% of employee’s salary (up to twice the annually approved minimum salary (wage)) is calculated as the premium, more than two-thirds of which is paid by the government/related institution as the employer. For the other sub-funds, the premium is a fixed per capita amount corresponding to 5% of the approved minimum wage in each year. The

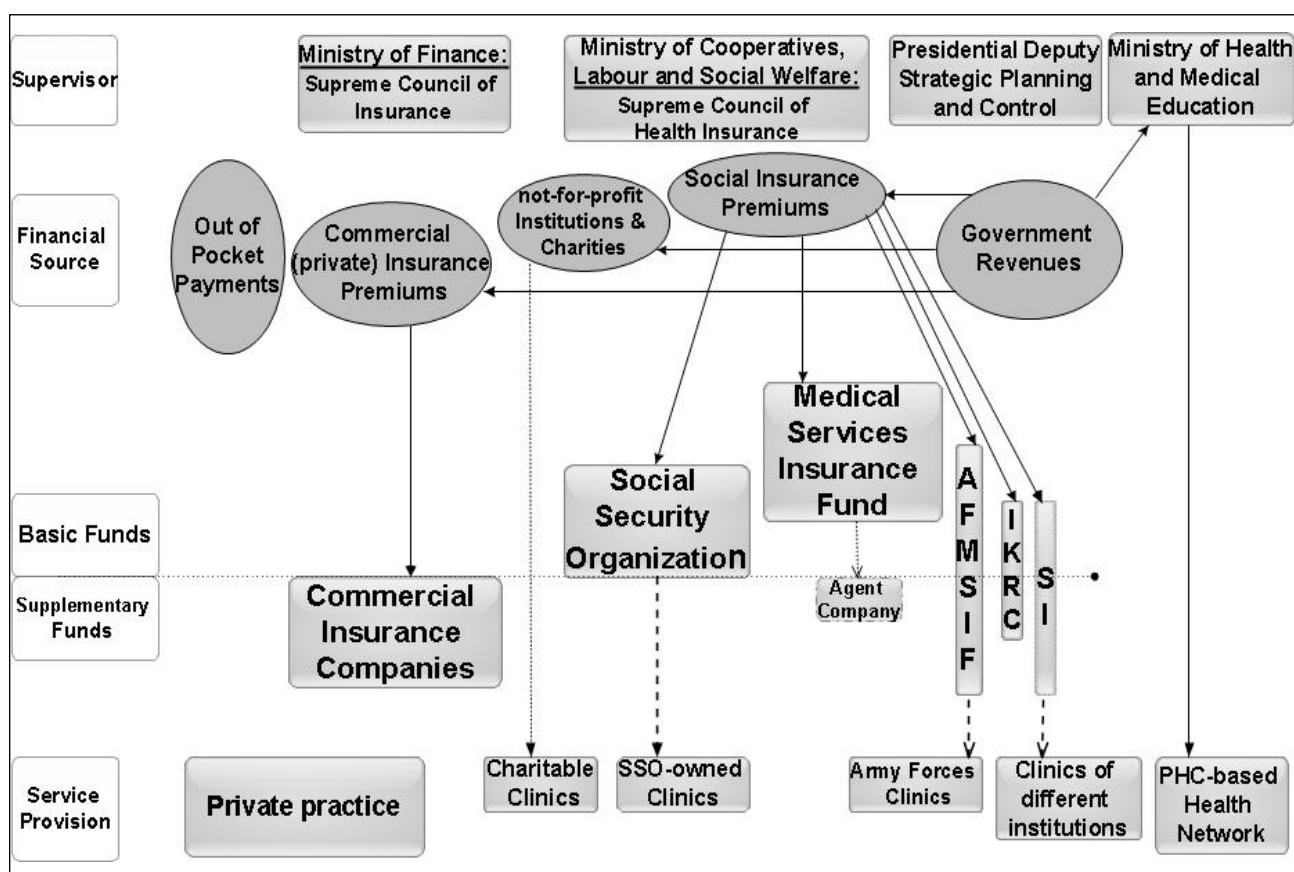


Figure 2. Financial sources and major funds involved in dental care in Iran (AFMSIF, Armed Forces' Medical Services Insurance Fund; IKRC, Imam-Khomeini Relief Committee; SI, Special Institutions).

* In the cases of the insurance funds, the size of the box approximately reflects the relative covered population. The arrows point to funds flow.

total amount of premiums in the Rural fund and at least half of the premiums in the Iranians fund are funded by the government. All revenues from the four sub-funds are pooled together.

The MSIF acts only as the purchaser of basic health services, without getting involved in direct service provision. The "covered" dental services are those in the basic package approved by the SCHI. These services are purchased from both public and private sectors. Seventy per cent of the government tariff per dental service is paid to contracted providers, the majority of whom are general dentists (~3300). Surgical tooth removal and tooth polishing and scaling must be preauthorized by the insurer. Less than 1% of total expenditure is allocated to dental care.

The MSIF is not directly involved in purchasing supplemental services. However, since 2001, it has established an agency to offer supplementary medical insurance. The function of this agency is similar to commercial insurance companies but, unlike them, it is not supervised by the Central

Insurance of Iran. Currently, about 2 million people are covered by this agency.

Social Security Organisation (SSO)

The SSO is a non-governmental public institution and is responsible for mandatory coverage of all formal sector workers and their dependents. Currently, more than 28 million people are insured for health services by the SSO, of which about 3 million are estimated to have double coverage, often with the Rural sub-fund of the MSIF as their other insurer. The SSO premium is 30% of workers' wages—up to seven times of the annually approved minimum wages—of which 7% is paid by worker, 20% by employer and 3% by the government. About one-third of all revenues are allocated to health expenditures. In addition to purchasing the basic benefit package through contracting, mainly with private dentists (~2875), the SSO is involved in direct service provision to its covered population through its own centres/clinics. In the "purchasing" sector, the SSO pays 70% of govern-

ment tariffs per service to a contracted dentist. Preauthorisation is not needed. In about 300 SSO-owned medical centres that provide dental services, tooth filling (for all ages) is provided in addition to the approved basic services. Moreover, the SSO owns five specialised centres to provide most dental services. According to social security law, patients do not make any co-payment in SSO owned centres; however, attempts have been made to repeal this law. In these centres, employed providers are paid a percentage of fees per service provided, in addition to a fixed monthly salary. If insured patients do not receive a service at owned or contracted centres, they will not be reimbursed. The exception is the fee for removable prostheses, which, if not received at SSO-owned centres, are reimbursed at 70% of government tariff. Within the SSO, about 1% of total health expenditures is allocated to dental care.

Armed Forces' Medical Services Insurance Fund (AFMSIF) and Imam-Khomeini Relief Committee (IKRC)

The IKRC is a non-governmental public institution. Currently, about 1.55 million poor or vulnerable people, such as destitute women and children and families of prisoners, living in cities with a population of more than 20,000, are covered by the IKRC for health insurance. *Table 2* provides a summary of the characteristics of the non-commercial funds involved in dental insurance in Iran.

In all of the above funds, dental costs are met from total revenues devoted to health insurance. With the exception of the AFMSIF, it seems that the contracting process is simple, in that each interested provider is contracted and considerations such as geographic distribution of the insured population are not much considered in practice. Also, except for the AFMSIF, electronic dental record systems have not been established yet. Monitoring mechanisms, including quality assurance arrangements, are often conducted through periodic visits to the contracted centres or following patients' complaints and may include, for example, checking of prescriptions and services provided. The results of such assessments are considered when it is decided whether or not to renew a contract.

Special institutions (SIs)

Some mainly governmental and "affluent" institutions—here referred to as special institutions (SI)—have separated their employees' basic insurance from other formal employees' schemes (i.e., MSIF, SSO, or AFMSIF). These SIs independently offer health insurance (basic and supplemental) to employees and their dependents. About two million people are estimated to have such coverage, which may overlap with other funds (mainly MSIF and SSO), especially among dependent family members. Some of these "affluent" institutions are banks, the national oil company, the national steel company, the municipality of Tehran and the

Table 2. Summary of characteristics of social funds in Iran

Item Fund	~Covered Population (million)	Mode of revenue collection	Supplemental coverage	Direct service provision	Payment method	Benefit limit	Reimbursement for non- contracted providers
MSIF	35	Mainly regressive	No	No	FFS*	No	No
SSO	28	Proportional	No	Yes	Salary & FFS	No	No
AFMSIF	NA†	NA	Yes	No	FFS	Yes (for some supplemental services)	limited
IKRC	1.5	Regressive (by gov.‡)	Yes	No	FFS	Yes (for annual supplemental reimbursement)	Yes
SI	2	various	Yes	Yes (some)	Mainly FFS	-	Yes

* FFS = fee for service †NA = not allowed; ‡gov = government

national broadcasting service. The benefit packages are far more generous (e.g., they sometimes include dental implants). Payments are based on either the tariffs set by the institution or private fees, which are at least twice the government fees. Some of these institutions, such as the national oil company or some units of the armed forces, have established a network of their own health centres in accordance with the geographical distribution of their employees and directly provide free health (including dental) services to them. Others (such as municipalities), in addition to their own health centres, purchase services from the private sector. The dental share of total health expenditures sometimes exceeds 10% in these institutions.

Discussion

The purpose of this study was not to explore the statistical data of Iran's social insurance funds involved in health care nor their administrative detail, but to describe them and look at the available evidence to allow interpretation of their potential performance in terms of efficiency and equity, considering possible functional alternatives for each descriptive item.

Three issues should be mentioned regarding the methodology employed in the study. First, the conceptual framework used in this study originated from the *World Health Report 2000* [2]. At first sight, this framework includes elements beyond the common boundaries of oral health but the authors of this paper thought that using such a comprehensive framework allowed for the consideration of oral health issues in the context of the overall health system. Second, although there are more detailed templates to study health systems, because the main source of obtaining information in this study was from interviews with informed persons, it was decided to develop a briefer template which, although addressing the study objectives, would be manageable in terms of the busy interviewees' schedules and achievable within the allocated timeframe for the project. Third, as a study limitation, there seems to be a lot of institutions that have separated their employees' health insurance from the major social funds (MSIF and SSO). As it was not possible to identify them all and conduct interviews with each of them, they all were considered as one category (SI) and the related description was prepared in a more cautious way in order to avoid probable misinformation.

Assuming that patients can overcome psycho-

logical and cultural barriers and decide to receive oral health care, the health systems should have characteristics to encourage patients to use services appropriately [12]. The structure of financing system affects both the quality and quantity of provided oral health care [13]. Although the Iranian household expenditure survey in 2009 showed that the dental share was about 15.5% of overall health expenditures, according to an informal estimation, about 90% of dental expenditures were paid out of pocket whereas other sources (mainly insurance funds) paid less than 10% [7]. Meanwhile, in two major funds (MSIF and SSO) covering about 80% of total population, the dental share was about 1% of their total health expenditure. Such low share of dental expenditures in these major funds is consistent with the high out-of-pocket payments for dental care by Iranian households.

Insurance coverage

With an estimated five million double-insured people, nearly 90% of the Iranian population is covered by social (health) insurance. With the establishment of "Rural" and "Iranians" funds under MSIF during the past decade, the government has attempted to extend health insurance coverage according to the "universal insurance law" passed in 1994. Although the law states that each individual must only be covered by one basic fund, the existing funds (mainly SSO, AFMSIF and the "Rural" fund of MSIF) have overlapping coverage that may dramatically reduce the overall efficiency of the system. Also, according to the above estimate, about 10% of Iranians are uninsured. They appear to be the urban self-employed who, despite the possibility of having minimal health insurance coverage through "Iranians" fund, are still uninsured. Moreover, various entitlement criteria established in order to extend insurance coverage (employment sector, location of residency—"Rural" fund, socioeconomic status—IKRC, or belonging to some distinct groups) have resulted in a variety of schemes to collect premiums, making the funding process rather complicated.

Revenue collection

In three out of four funds within the MSIF and also in the IKRC, the premium is a fixed per-capita amount (5% of annually approved minimum wage/salary); this is a regressive and inequitable manner for individuals' contribution, because peo-

ple with different income levels contribute the same amount [11]. Furthermore, the different levels of government subsidy seem to be poorly targeted. For instance, premiums of all individuals—rich or poor—in the “Rural” fund (with about one-third of the total insured population) are entirely funded by the Government, whereas the contribution of the Government to premiums in the “Iranians” fund is usually 50%. Moreover, the premium rate in the SSO is high, even when compared to similar funds in most other countries [14]. Also, putting caps on premiums benefits upper income groups and is not equitable [14], especially considering that the caps have been unequally set at around two and seven times the minimum wage/salary in the MSIF and SSO, respectively. It seems that there is an urgent need for better administration, in particular to improve equity in premium contributions within and between social funds.

Pooling of revenues

Fragmented pooling is one of the crucial issues of health-care financing in Iran. It increases the administrative costs of social insurance [15]. Moreover, cross-subsidies are not well transferred from the healthy and affluent to the sick and poor groups and, as a result, addressing the innate uncertainty in health-care costs is not well addressed [2,16]. Also, the differences in benefits under different schemes can cause inequitable service use among different groups (*Table 3*) that may have untoward consequences in the health sector and beyond, e.g., varying levels of health among different societal sub-groups and affecting social cohesion [17,18]. A considerable part of this fragmentation arises because of special institutions offering much better advantages to their employees. Any source of inefficiency in resource allocation, such as a poorly regulated and fragmented system, means a waste of resources that might otherwise be used by the health sector to move towards a more universal coverage [15]. It is very difficult for dentistry to compete with other health areas for a greater share of public resources [19]. This makes the inclusion of dental services into the benefit packages very sensitive to fluctuations in available resources. Thus, the issue of efficiency of the whole system may be of particular importance to dental sector and oral health. According to the fifth five-year national development plan passed in February 2011, all existing health insurance funds must be integrated into the “Iranian Health Insurance Organization”. This reform, if fully

implemented, will be an important step towards addressing some of the existing failures due to fragmentation.

Table 3. Percentage of those insured by the major social insurance funds who attended a dentist in 2005

Fund	MSIF	SSO	AFMSIF	IKRC
Per capita dental visit	5.2%	17.8%	56%	7.6%

Source: Nouri and Monazzam (2008) [20]

What to purchase

It is imperative that the basic package of dental services, defined by the SCHI, is covered by all social funds. Resource scarcity has been the driving factor to replace many services, which were once included, with “restoration of first molar teeth for 6- to 12-year-old children” (in collaboration with national health network, MOH) in existing package. Decision-makers also considered services that are supplemental to those provided by the national health network. Because distinct target groups (pregnant and lactating women, and children under 12 years of age) are being addressed by the national health network for some free dental services, being supplemental to those services provided in the national health network may not be a justifiable inclusion criterion for dental benefit package in Iran. Moreover, the inclusion of tooth extraction but not tooth restoration for adults may well result in the loss of perfectly saveable teeth.

Overall, important recommended criteria, such as local cost-effectiveness of interventions [2], have not been met. This could potentially be considered as another source of inefficiency in resource allocation. The issue may have arisen due to a lack of structures for providing essential professional advice during decision-making.

Except for those covered by the AFMSIF, IKRC and special institutions (that offer supplemental coverage to their insured members) and some groups that can afford commercial supplementary insurance, for the rest (at least half) of the population covered by the MSIF and SSO, the dental benefit package is limited to the approved basic package, which does not meet their needs. Although the SSO provides services in addition to

the basic package in its own centres, a number of these centres provide limited access for many who are supposedly covered.

A study conducted in 1998-99 showed that the dental service utilisation rate was 40.2% (for a

demand rate of 72.1%) in urban areas against 17.7% in rural areas, with tooth extraction as the most prevalent service received (19% in urban areas) [21]. These findings are in accordance with reported DMFT scores in adult and adolescent Iranian populations (*Table 4*).

Table 4. Mean DMFT scores according to age and location in Iran, 2001-2002

Indices	18-year-olds			35- to 44-year-olds		
	Urban	Rural	Overall	Urban	Rural	Overall
DT	3.0	3.1	3.0	2.5	2.8	2.6
MT	0.5	0.6	0.6	6.1	7.4	6.6
FT	1.0	0.3	0.7	2.4	0.6	1.8
DMFT	4.5	4.0	4.3	11.0	10.8	11.0

Source: Hessari (2009) [10]

From whom to purchase

Services covered by insurance are purchased almost entirely from general dentists although the majority of these services do not require a high level skills and could be delivered by other dental professionals, such as dental hygienists, with comparable quality at lower costs than general dentists [22]. This issue has arisen because in the last 10 years, new dental schools have been opened with a focus on training general dentists and dental specialists and less attention has been paid to training other dental professionals. As a result, there are very few dental hygienists available, even if insurers wished to contract with them. A disproportionate distribution of dentists makes the scenario even worse [7]. Since 2008, a new generation of dental hygienists has been trained to be employed in the national health network. This may encourage social insurers to purchase services from this network.

How to purchase

Except for the SSO, all other social funds only act as the purchaser of health services. This may be just as well, as it has been suggested that in order to stimulate competition among providers and improve the quality of care provided, insurers (purchasers) should not be involved in direct service provision [1,23].

Although a mix of payment methods, including capitation, has been advocated to generate appropriate incentives to providers [24], the existing Iranian funds purchase dental services almost entirely on a fee-for-service basis, which may potentially encourage providers to provide unnecessary services within the benefit package, poten-

tially resulting in increasing the schemes' costs [2,24]. Moreover, the co-payment level is fixed at 30% for all out-patient services. However, some evidence suggests lower levels of co-payment (e.g., 10%) for preventive dental services, which may provide an incentive to encourage people to use them more often [25,26]. It will then be more likely in the long-run that the increased use of primary health services can lead to health promotion and reduced overall costs to the insurers. [26].

Payments to providers are based on Government tariffs, which at most are about half the fees charged in the private sector. The difference between public and private fees should be paid by patients out of their pockets. Even if the contracted providers accept the Government rates, it may potentially result in providing services of lower quality or other problems [11,27]. Also, payments from the SIs are higher, which may generate conflicting incentives among providers [14].

The number of dentists contracted with the two major funds (MSIF and SSO) does not seem adequate compared to the size of their insured population (about 1 dentist per 10,000 population). This may also be due to the low tariffs paid by these insurers and the limited range of treatment that can be offered. As a result, dentists tend not to contract with these funds.

(Dental) specialists are paid 50% higher than general dentists for providing services related to their specialty. In case of the basic benefit package, this extra payment may only be available for surgical tooth removal and the provision of fillings (in children under 12 years of age) for the specialties of oral surgery and restorative/paediatric dentistry,

respectively. However, there is no mechanism to monitor whether the services provided by specialists are beyond the expertise of generalists. This may potentially be another area that needs to be investigated and could lead to efficiency savings.

Recently, an attempt has been made to determine the relative value of dental services, as a primary step to setting a realistic dental fee tariff. Also, according to the fifth five-year national development plan, 10% of resources released through implementation of the “targeted subsidy law” should be allocated to the health sector in order to reduce out-of-pocket payments to 30% of health expenditures and improve equitable access to health services.

With some exceptions for the AFMSIF, “selective contracting” arrangements, based on the quality of the provided care and performance of providers [28], and ongoing monitoring mechanisms to review utilisation and quality of services [1] have not yet been established. Thus, currently, there seems to be insufficient supervision of service providers. Meanwhile, lack of reimbursement for non-contracted centres may restrict the patient’s choice.

In summary it can be said that this review has found that at present, in Iran there is a passive rather than an active (strategic) purchasing process for dental services paid for by social insurance.

Conclusion

Failures in financing dental care through social insurance in Iran were found in two categories:

1. There are failures due to a complicated revenue-collection system and fragmented pooling with adverse impacts on the overall health system, including the dental sector. Overcoming these failures will require changes in the overall health sector level and beyond. Improved efficiency through targeted reforms could potentially result in releasing resources that could be used by the currently marginalised dental sector to move towards a more universal coverage

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2. There are failures due to passive purchasing arising from the structures and attitudes governing the whole system. However, it seems that dental sector can do much to establish a strategic purchasing process and improve efficiency and equity in financing dental care through social insurance. This will involve defining a basic benefit package of dental services based on criteria such as the relative cost-effectiveness of interventions and disease burden, training adequate allied professionals to provide simple services with more emphasis on prevention, introducing mixed payment methods and differential co-payment levels to generate appropriate incentives to providers and patients, developing clinical practice guidelines, and establishing ongoing arrangements for monitoring quality assurance.

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Contributions of each author

- Conception and design by MPJ and SY.
- Data gathering and interpretation, and drafting of the manuscript by MPJ.
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