Original Article

Stewardship of National Oral Health system in Iran: Its strengths and weaknesses

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Abstract

Aims: In this study, we assess the strengths, challenges and opportunities regarding the oral health system stewardship in Iran.

Methods: A mixed methodology was used, comprised of a quantitative questionnaire using the functional standards, semi structured interviews with key stakeholders and document review. The level of current attainments of each standard was determined based on a Likert-type scale. Literature review was completed to find official documents of national organizations.

Results: The responsibility of policy development of oral health care at the national level mostly falls on the Oral Health Bureau. This office has formulated a strategic plan for its policy-making and has considered the required capacity to implement them. However, the Bureau has some problems in enforcing its regulatory framework, especially in the private sector. There are rigorous problems in managing information and using them for evidence-based decision making. Setting and allocation of operational budgets for implementing the policies is only partially attained, as is monitoring and evaluating the performance.

Conclusions: While the Ministry of Health and Medical Education has achieved some stewardship measures, it still needs further improvements in the oral health system. It needs to strengthen its information system and its executive capacity to implement the proposed regulations. The Ministry must improve accountability in the oral health system, especially the provider accountability.

Keywords: Assessment, Iran, oral health, stewardship, system

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Introduction

Usually, four basic macro-level functions contribute to accomplishing the perceived levels of goal attainment in health systems: financing, service provision, resource generation, and stewardship.[1] Stewardship, as it relates to the leadership and governance of health systems, is possibly the most multifaceted and crucial function of any health system,[2] although often neglected.[3]

Stewardship is basically "a function of the government responsible for the welfare of populations and concerned about the trust and legitimacy with which its activities are viewed by the general public".[4] The stewardship role of governments in steering the entire health system has been recognized for over a decade by the World Health Organization (WHO) as the key role of national governments. More recently, the stewardship role of government for specific components of the health system has been brought into focus and is under vigorous and international evaluation.[5,6] Some limited case-studies have been conducted which mostly used descriptive qualitative information without any judgment about the content or quality of stewardship activities.[7–9] There is almost no such report in the oral health sector. In recent years, the Ministry of Health in Iran has expanded its activities in the field of non-communicable diseases. Oral health has been an important component of this effort, and the focus on oral health system development is likely to expand further. A structured assessment of the current state of oral health stewardship is thus quite timely.

Six sub-functions usually comprise stewardship in health systems,[10] which include accountability, defining strategic policy direction, ensuring alignment of policy objectives and organizational structure, generating and disseminating intelligence, exerting influence over all related sectors via inter-sectoral leadership and making use of regulation.

This article aims to assess the current state of oral health stewardship in Iran and provides a case study application of a standards-based tool for assessing oral health stewardship.

Materials and methods

We used a three-part mixed methodology[11] comprised of a quantitative questionnaire, semi structured interviews and document review. In conducting the survey, we used the finalized list of standards established in our previous work.[12] The evidence-based information and experts' consensus development method was used for developing these standards. The approval of the Ethics Committee at the Shahid-Beheshti dental school was

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obtained before the initiation of the study.

Selection of respondents

We purposefully selected stakeholders with key responsibility in managing and/or decision making of oral health system in Iran, working in public, private and parastatal organizations using nested critical case sampling design.[13] The selected participants were as follows:

- Director of Oral Health Bureau in Ministry of Health and Dental Education (MOH)
- Director of undersecretary of Curative Affairs in MOH
- Directors of Iranian General Dentists Association
- Director of Iranian Dental Association
- Director of Education and Research Centre in Medical Council of Islamic Republic of Iran(MCIRI)
- Some of the oral health senior officers in Oral Health Bureau at the MOH
- Provincial Oral Health Officers

Questionnaire

The questionnaire was self-completed by respondents. However a member of the research was available to help interpret the questions, if requested. We asked respondents to read each standard critically and answer the level of their current attainments based on a Likert-type scale. The scale ranged from point zero, which was "very low" indicating 0–20 percentage of attainment through point four, representing "very high" and indicating 80–100 percentage of attainment.

Method of score analysis

We calculated the mean scores of opinions of stakeholders in governmental or public sector and those in the private sector for each standard. The means ranged between zero and four.

For each sub-function, *t*-test was used to analyse the difference between these two scores based on the normal distribution of means (Kolmogorov-Smirnov = 0.79, 0.11 for public and private means, respectively). Mean values from 0 to 1.33 were considered as "Not attained"; 1.34 to 2.67 as "Partially attained"; and 2.68 to 4.01 as "Fully attained". Attainments in each sub-function of stewardship were reported separately.

For each standard, Mann-Whitney test was used to compare the level of attainment (Table 1).

Interviews

Some open-ended questions were also designed for using in the semi-structured interviews to discover evidence about the status of implementation of the standards and the specific instances or programs in place related to each standard. Interviews were organized separately in each respondent's workplace after obtaining his or her consent and recorded discussions were transcribed. We standardized questions to the extent possible, but the questions were somewhat modified for respondents from different settings (private or public).

Document review

As part of our evaluation, we implemented a literature review—including official documents, reports, statistics and gray literature. Using electronic databases such as PubMed and Google Scholar, relevant published articles and reports were found. Official websites of national organizations, such as the MOH and its different undersecretaries, MCIRI, Statistical center of Iran and dental associations were also searched. Specific keywords relevant to stewardship were used, such as "policy"; "regulation"; "inter-sector leadership"; "information"; "accountability" or "strategy"; and "oral health", "dentistry" and Iran. Equivalent Persian keywords were also used separately. Furthermore, all published or unpublished documents or reports, either provided by respondents or founded by manual searching, were reviewed.

Results

The oral health system of Iran in context

Iran is a country located in the southwest Asia, the Middle East region, and is divided into 31 provinces, 384 districts and over 66,000 villages.[14] Article 29 of the Constitution states that every Iranian citizen has the right to government-funded health services, medical care and treatment. The MOH is mandated to fulfil this goal through designing and implementing national health policy, managing the public sector, as well as the regulation of the provision of private sector health services.[15]

The health system in Iran, reformed after the 1979 Islamic Revolution, was organized based on the principles of the Alma Ata declaration (International Conference on Primary Health Care - 1978).[16] Oral health care is considered part of the health system and has been integrated with Primary Health Care (PHC) delivery which is based on a cascade system through urban and district health centers, rural health centers and health houses. According to a law passed by the parliament in 1985, the responsibility of medical education was transferred from Ministry of Culture and Higher Education to Ministry of Health forming MOH.[17]

In 2009, the national household expenditures survey showed 15.5% of overall health expenditures for Iranian households was allocated to dental services (ranking third after in-patient care and the pharmaceutical sector).[18]

The responsibility of policy development and planning of oral health care programs at the national level, in Iran, is mostly held by the Oral Health Bureau (OHB) as a part of the Non Communicable Disease unit at the MOH. More than 80% of dental services in cities (including about 60% of the population) are provided by private practices.[19] Only about 10% of 25,000 dentists are employed by the public sector, offering service to 45% of the population. National investigations show that 3-year-old children have at least 2 primary decayed, missed or filled teeth (dmft). This index rises to 5, with the highest impact of decayed teeth (95%) at 6 years of age. Decayed, missed or filled teeth (DMFT) is about 1.86 at the age of 12. The oral health status in Iranian adults is rather poor with 11 (± 6.4) DMFT.[20]

Evaluation of current oral health system stewardship

The opinions of the key policy makers participating in this study are shown in Figure 1. We now summarize their opinions along with information from other sources for each of the sub-functions.

Accountability

Generally speaking, standards included under this sub-function were partially attained. The public sector respondents (Figure 2) gave slightly higher scores than those in private sector (*P*-value = 0.076). In the public sector, there is some accountability to higher managerial levels as services have to provide annual reports about their performance as they draw up their budget for the following

Table 1. Comparing the level of attainment for each standard from the viewpoint of private and public stakeholder.

Sub-function(question)	Sector of respondents	Mean Ranks	P-value
A1	Public/ Private	3.8/ 4.1	0.85
A2	Public/ Private	4.1/ 3.9	0.85
SPD1	Public/ Private	4.5/ 3.6	0.55
SPD2	Public/ Private	5.2/ 3.1	0.19
SPD3	Public/ Private	4.0/ 2.7	0.47
SPD4	Public/ Private	4.8/ 3.4	0.35
SPD5	Public/ Private	5.7/ 2.1	0.03
SPD6	Public/ Private	4.7/ 3.5	0.43
SPD7	Public/ Private	5.7/ 2.1	0.03
SPD8	Public/ Private	5.2/ 3.1	0.19
APO1	Public/ Private	5.0/ 3.2	0.26
APO2	Public/ Private	6.0 /2.5	0.29
APO3	Public/ Private	4.4/1.7	0.04
APO4	Public/ Private	4.8/ 3.4	0.35
APO5	Public/ Private	5.2/ 3.1	0.19
RG1	Public/ Private	1.7/ 4.4	0.09
RG2	Public/ Private	2.8/ 4.2	0.37
RG3	Public/ Private	4.2/ 2.9	0.34
RG4	Public/ Private	3.8/ 3.1	0.63
RG5	Public/ Private	3.2/ 4.6	0.3
RG6	Public/ Private	2.6/ 4.3	0.24
RG7	Public/ Private	3.5/ 3.5	1
RG8	Public/ Private	3.0/ 4.0	0.48
RG9	Public/ Private	5.2/ 3.0	0.19
RG10	Public/ Private	3.8/ 4.1	0.85
RG11	Public/ Private	2.0/ 5.0	0.03
RG12	Public/ Private	3.0/ 4.0	0.45
RG13	Public/ Private	2.7/ 4.3	0.26
RG14	Public/ Private	2.0/ 3.7	0.19
RG15	Public/ Private	2.8/ 4.1	0.34
RG16	Public/ Private	3.8/ 3.1	0.63
RG17	Public/ Private	4.3/ 3.7	0.65
RG18	Public/ Private	4.0/ 4.0	1
IL1	Public/ Private	5.7/ 2.7	0.06
IL2	Public/ Private	5.5/ 2.9	0.07
IL3	Public/ Private	2.7/ 3.1	0.77
GI1	Public/ Private	5.3/ 3.0	0.08
GI2	Public/ Private	5.1/ 3.1	0.19

year. These reports are mostly about implementation of their regular national programs and the amount of care delivered in public settings. Public sector respondents indicated they did not conduct any regular or national survey to evaluate the safety, efficiency and effectiveness of preventive and therapeutic programs conducted by this sector, or to evaluate the access and satisfaction of the target population of the established programs.

There were some sporadic qualitative and quantitative research projects performed in some provinces to assess the current level of satisfaction with dental care delivered mostly by public sector.[21,22] Because there are very few best-practice guidelines available, it has not been possible to assess the standard of care against the best practice.

We found no evidence of effective accountability for private dental practice. While the Medical Council is in principle responsible for protecting the consumers' right of access to medical services,[23] its scope has been practically limited to dealing with malpractice complaints raised by patients.

Strategic policy direction

The views of policy makers vary significantly in responding to this sub-function (*P*-value of total means < 0.01); respondents in the private sector believed that the Ministry usually neglects the opinion of main stakeholders in the private sector when

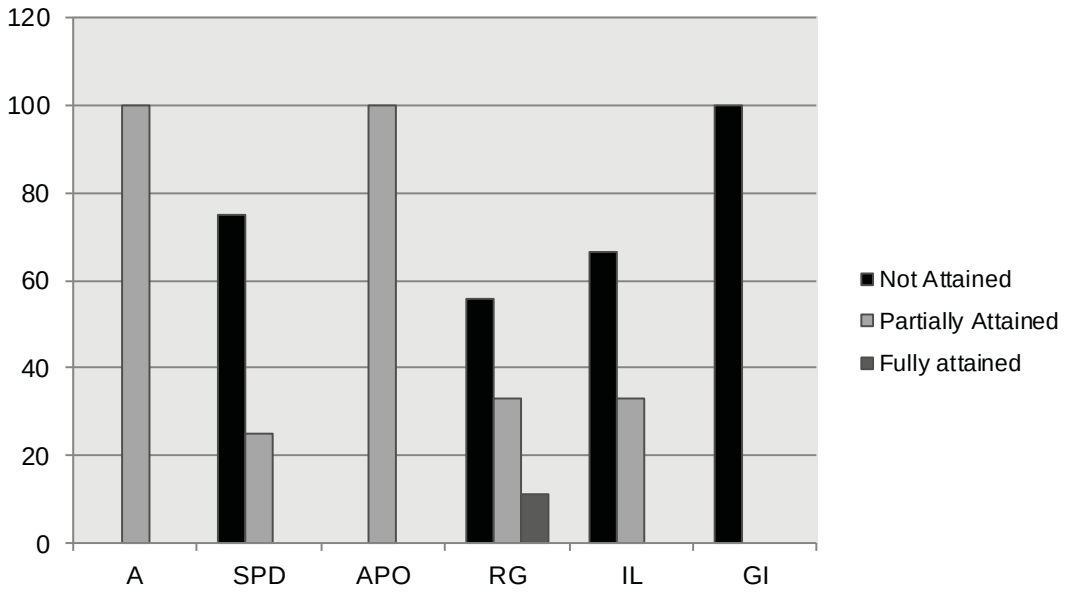

Figure 1. Total Level of attainment from the viewpoint of policy makers in oral health system. Note- A = accountability, APO = Alignment of Policy and Organizational Structure, SPD = Strategic Policy Direction, RG = regulation, IL = Intersectoral leadership, GI = generation of intelligence.

formulating oral health system priority settings (Table 1). They judged the performance of the MOH to be lacking clarity when defining strategic plan and the role of different actors (e.g., private, public and voluntary sectors) in financing, provision and stewardship of oral health system programs.

On the other hand, public sector respondents believed that in decision-making processes, MOH considers situation analysis, systematic review of available evidence and the potential of medical universities, research centers and even non-governmental institutions (Figure 2). However, they were not sure about the degree of consultation and consideration of the opinions of the all main stakeholders in formulating oral health system decisions.

At the request of the WHO Regional Committee for the Eastern Mediterranean region, the OHB has established a comprehensive strategic plan for the ten priority areas of global oral health identified by The World Oral Health Report of 2003.[24] This strategic plan was prepared with the cooperation of all provincial oral health representatives and some of the academic dental public health professionals in a three-day meeting in 2011. The main focus of this plan is oral health promotion and prevention for the next five years.

Alignment of policy and organizational structure

Similarly, we observed significant discrepancy between the opinions of respondents about this sub-function (*P*-value of total means < 0.01). Those in public sector thought MOH has full attainment for special policies to support implementation of their programs and suitable operational plans. They noted that the Ministry has specified the responsible executive bodies for each of the designed policies, although setting and allocation of operational budgets is only partially attained, as is monitoring and evaluating the performance of various sectors and actors.

Representatives of the private sector also agreed that MOH has had partial attainment in implementing preventive programs, but in relation to other standards such as monitoring and identifying operational plans, they judge the Ministry's performance as weak.

The OHB usually sets priorities and identifies the skills and capacities needed to produce the specified outcomes. Oral health representatives of medical universities attend quarterly meetings and workshops in order to upgrade their skills for delivering the strategic plans. These representatives are affiliated with district central health centers and the responsibility of designing operational plans is delegated to them. The budget for triggering the national programs is secured by OHB, but the budget for extending the programs should be funded through medical universities. Currently, there are 45 medical universities each of which has an oral health representative.

The Universities of Medical Sciences and Health Services are responsible for medical education as well as service delivery within their respective provinces and have substantial powers to decide on different issues through their board of trustees, such as approval of the allocation scheme of local revenues and contracts with the private sector. This decentralization scheme was based on the agreement in 2005 of the Fourth Five-Year Development Plan, in which Article 49 allowed for direct transfer of global budget from the government to medical universities.[25]

Currently, the oral health preventive programs of the OHB are mostly focused on pregnant and lactating women and children under 12 years and are provided on two levels. Level one preventive service, including oral health and hygiene instruction in rural and urban health posts, is provided by "*Behvarzes*" and family health technicians. Level two preventive service is provided by the dental workforce (dentists and the limited number of dental hygienists available) in urban and rural health centers.

In addition, OHB has implemented special programs for children under 3 years of age, including training sessions for health personnel, teachers and parents. In collaboration with the Children Affairs Office of Welfare Organization (CAOWO), the OHB has developed oral health education products for children aged 3–6 years. Also, provision of fluoride varnish for children aged 4–5 years is a regular activity of the Bureau. Oral health preventive programs for school children mainly include oral health education provided by volunteer teachers. Although the process is not fully implemented throughout the country yet, in

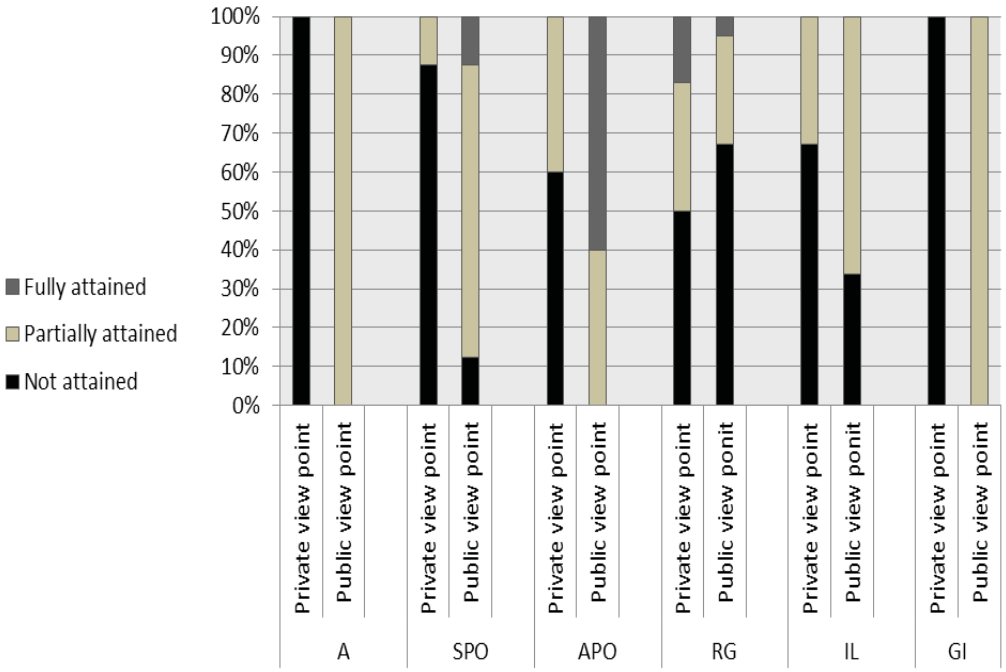

Figure 2. Level of attainment from the viewpoint of policy makers in private and public sector. Note- A = accountability, APO = Alignment of Policy and Organizational Structure, SPD = Strategic Policy Direction, RG = regulation, IL = intersectoral leadership, GI = generation of intelligence

early 2011 an agreement was reached with insurance companies to cover the cost of restorative services provided for all children aged 6–12 years.

Recently, some portable dental units have come in use to provide oral health service for nomadic tribes and small populations living in remote areas as well as school children in disadvantaged areas.

Regulation

Both groups of respondents were almost equally dissatisfied with the attainment of regulation standards (Figure 2). One half or more of standards were not efficiently achieved, and about 30-40% of them were partially attained (Figure 1). These concerned mostly deficiencies in meeting regulations concerned with evaluating the safety and cost effectiveness of dental materials, and quality of provided dental care to patients. Also, the respondents were unsatisfied with current implementation of penalties and sanctions commensurate with instances of malpractice.

Undersecretary of curative affairs in MOH is responsible for supervision and evaluation of the processes for diagnosis and treatment of diseases in clinics, including dental settings, hospitals, laboratories, etc. in state, private, and charity sectors and ensuring the safety and continuous promotion of the quality of treatment services. Nevertheless, it seems that this organization did not have any special strategy in place for monitoring the performance of dental providers. According to comments provided by the director of this undersecretary, certain activities are being considered to develop clinical guidelines in specialized dental boards. There is also no Health Technology Assessment agency for dental benefits.

The MOH does not appear to have a robust disciplinary system to deal with professional misconduct and malpractice allegations. In Iran, all health care professionals, including dentists, are responsible for the damage they cause during their medical practice, although there is no specific legislation for malpractice cases and they are examined under the general rules of law.[26] Claims about clinical mal-practice of dentists filed as complaint by patients will be referred by the judge of Judicial Office to the Legal Medicine Organization (LMO), which is under the control of the Supreme Court.[27] Monetary penalty, called "*dieh*" or "blood money", is the most common sanction applied to physicians in clinical cases. Resolution process for the non-clinical claims cover issues including advertisement violations, practicing without a license, sexual harassment and swindling, and is the responsibility of the MCIRI.[23]

Publicly available documents and respondents' statements indicate that instruments and processes required to monitor and evaluate the implementation of the defined regulatory initiatives for oral health system are not in place.

Regulations such as water fluoridation, property rights and regulations to ensure the basic conditions of market exchanges are either absent or only partially present. Recently, the OHB has planned some pilot studies to evaluate the feasibility of water fluoridation in different provinces. There is also some weakness in regulations concerning the supply of dentists, especially their distribution. The respondents of our study reported that:" in big cities such as Tehran, the number of dentists is seven to ten times more than the expected rate while many of the disadvantaged regions encounter problems in access to dental services".

The fields that currently have some regulations, either completely or partially, are those related to labelling products used in dentistry and covering the needs of disadvantaged populations. Programs now available for disadvantaged groups are mostly those focusing on provision of dental care through primary health care (PHC) by dentists or dental hygienists. All recently graduated dentists have to serve two years in deprived regions as their governmental commitment. Other available educational programs have been presented previously.

There are also some guidelines for infection control in clinical settings,[28] for instituting dental care settings (included under the overall law for instituting health organizations)[29] and some uncompleted standards for equipment used in dentistry.[30]

Inter-sectoral leadership

Regarding standards in this sub-function, private sector respondents were not satisfied with the performance of the MOH in addressing and managing the common risk factors (Figure 2). They were also dissatisfied with the relationship between private and public sectors. They believed that "through the use of suitable incentives, the MOH could draw on the capacity of dental providers in the private sector to implement the national programs".

In Iran, a secretariat for controlling the social determinants of health was established in 2006 under the supervision of the health policy-making council in MOH to manage the main determinants of health through inter sectoral activities.[31] Currently, the OHB has no representative in the steering committees of this secretariat but has representatives on another committee in the "reducing risk" portfolio based in the non-communicable unit.

In cooperation with the Ministry of Education and the Ministry of Welfare, MOH has conducted some national projects for school student aged 6–12 years, as described earlier. Furthermore, the OHB has recently worked in close collaboration with "Iran's WHO Collaborating Center for Tobacco Control" to conduct nationwide training workshops and research on "Smoking Cessation in Dental Offices".

The respondents of the governmental sector also confirmed the current weakness in the public-private partnership and identified strengthening this bond as one of their priorities.

Generation of intelligence

Almost all of the responders in this study were agreed that the current oral health information infrastructure is faced with fundamental limitations (Figures 1 and 2) and that a well-organized "national oral health information system" is not available.

Although the OHB conducts national surveys on a five-year basis almost regularly (1995, 1999, and 2004), information about the oral health status of the public, workforce and distribution of determinants of oral health are not properly collected. Other sources of data in Iran are often based on different methodologies with a resulting loss of comparability over time. Data recorded in PHC mostly address the amount of care delivered and other administrative measures rather than the efficiency of workforce and programs' outcomes. There are almost no mechanisms to routinely gather data about the performance of private sector providers.

Moreover, similar to other health sectors,[16] the oral health faces shortcomings in the management of information and analysis of available data to use these data for bureaucratic purposes.

Discussion

The analytical framework - including stewardship standards - was used to assess oral health system in Iran as a developing country. The assessment was based on a comprehensive review of documents as well as interviews with key stakeholders from the public sector and private representatives in dental associations and the Medical Council. These associations are not-for-profit scientific organizations which have been established to work in cooperation with MOH in planning education, research and care delivery programs.[32] The MCIRI is also a non-governmental organization that regulates the relationship of most health care professionals with the Government by involvement in the licensing of medical professionals.[23] The method of sampling used in this study in combination with the other parts of study (gathering data and documents review or triangulation) can help to assuring the "trustworthiness" aspects of the study such as transferability, dependability, confirmability and credibility.[13]

This assessment has identified some strengths and weakness of the current oral health system in Iran; the OHB has developed a comprehensive five-year strategic plan and some indicators to assess the attainment of its implementation. Considering linkages between strategy and performance measurement will improve the accountability of the health system.[33] Assessing statements and debates about the policy agenda and strategic directions in the parliament and the media and asking key stakeholders about their understanding of current goals are also parts of a comprehensive assessment.[34] It seems that the private sector is not aware of the programs managed by the OHB which might indicate the weak relationship of these two important sectors. Effective communication with the general public and with health sector organizations is a critical prerequisite for improving such relationships (e.g., directly through media campaigns, or more indirectly through representative groups and opinion leaders).

MOH has implemented some evidence-based preventive programs; this sector, however, is faced with weakness in evaluating its established programs as there is usually no specific institution or individual nor a specific budget for evaluations. This is in contrast with the recommendations which emphasize that evaluation is an integral part of the planning process - even prior to any implementation.[35] The World Health Organization recommends that at least 10% of resources should be allocated to evaluation of an intervention.[24]

In making coalition with other sectors, OHB, has carried out some valuable, although incomplete, programs. Oral health problems have risk factors in common with some of the other prominent non communicable diseases such as cardiovascular diseases, diabetes and cancer. This strong correlation has been the main reason for integration of oral health decision making with other sectors in non-communicable unit in Iran. Alliances with other sectors might prevent duplication, increase efficiency and reduce isolation.[36,37] However, the potential disadvantage of this integration is that among the other non-communicable diseases which are mostly life threatening, oral diseases might be assigned low priority in decision making and budgeting.

One of the most obvious shortcomings of the current oral health system is its information system. It appears challenging to generate good data in an environment where public and private provision and funding coexist.[38] Along with building statistical capacity in its human resources and considering sufficient source of fund, the Ministry must plan to collaborate with other sectors, such as agriculture and education, where relevant data on determinants of oral health might be found. Furthermore, to improve the relationship between information system and better overall stewardship, some kind of plans must exit to more systematically explore which sorts of intelligence really seem to influence and help decision-makers such as 'health technology assessment' and 'policy briefs'.[39,40]

Different ways have been suggested to evaluate the effectiveness of regulatory frameworks. One is to assess whether there are effective regulations in place to compensate for areas where the health market is not functioning properly.[41] According to the findings of this study, it seems that for the purpose of protecting clients from poor quality services, there are some regulations in place mostly focusing on licensing, considering requirements for continuing education and developing codes of conduct. Not surprisingly, the oral health sector faces some weakness in assuring the efficacy and cost-effectiveness of technologies and materials used in routine dental practice. There are currently no suitable indicators for auditing the practice scheme of providers. Also, no incentives have been considered to encourage compliance with these guidelines, such as "pay for performance"[42] which might limit the ability of government to control corruption in oral health environment.

The regulatory framework for helping consumers to make informed choices appears appropriate (regulations about labelling and advertisements by physicians). On the other hand, regulations to expand the supply of merit goods such as fluoridated water remain to be completely implemented.

In controlling Supplier-Induced Demand as another failure of the health market, documents and the result of the survey revealed points of weakness. There are not suitable strategies in place for controlling and regulating the supply of physicians (dental school and market entrances) The MOH must consider strategies to determine the number and distribution of dentists in accordance with real needs of respective regions. Also, based on evidence regarding the cost-effectiveness of the care delivered by intermediate oral health care providers,[43] recruitment of dental hygienists and dental therapists would make oral services more accessible and affordable and could overcome the shortage or unfair distribution of dentists.

To assess the performance of stewardship in regulation, we must also assess the availability of capacity to essentially enforce incentives and sanctions.[34] Currently, there are limitations in the evaluating process and enforcement of effective sanctions against evaders. Regulation requires both staff and monetary resources in order to be designed, implemented, monitored and enforced. This is usually absent, especially in low-middle income countries.[44]

Three general categories are usually considered for accountability: financial, performance, and political accountability.[45] While the OHB has considered some mechanisms to enhance performance and financial accountability to high levels of the managerial hierarchy, accountability to consumers and providers has shortcomings. Considering mechanisms such as accreditation, sanctions and rewards might improve the meeting of accountability - especially at provider's level - requirements for this sector of health.

Conclusion

In conclusion, our study revealed that while the MOH has achieved some stewardship measures, it still requires improving its overall performance regarding oral health system. This study is the first to design a framework for evaluating stewardship of the oral health system. Further work will be important in defining measures for assessing the level of attainment using more documents and considering a more comprehensive list of stakeholders in different decision-making levels (national and sub-national).

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