

Access this article online
Quick Response Code:

Website: www.jehp.net
DOI: 10.4103/jehp.jehp_1672_23

Explaining the concepts and examples of conflict of interest and its management in the medical laboratory system of Iran: A scoping review

Hossein Dargahi, Mahdi Kooshkebaghi, Nikzad Isazadeh¹

Abstract:

The occurrence of conflict of interest (CoI) is assumed to be a big challenge facing all healthcare sectors, including the medical laboratory system (MLS). Therefore, this study aimed to explain the concepts and examples of CoI and its management within this system. This scoping review was fulfilled in 2023 in Iran. To this end, the Persian and English keywords of this study were searched on the Persian and English databases based on the Medical Subject Headings (MeSH) and the Arksey and O'Malley methodological framework. All retrieved articles were then imported into EndNote X8, and their quality was evaluated via the Mixed Methods Appraisal Tool (MMAT). In total, 104 articles, of 6875 sources extracted, published from 2000 to 2023, were recruited following the identification and screening stages. Most articles had reported the maximum number of CoI examples in the MLS in diverse nations, including Iran, particularly in terms of structural, financial, objective, and subjective issues and primary and secondary interests among policymakers and higher-ranking managers of the healthcare system. Currently, CoI in healthcare systems, including the MLS, is unavoidable, but the best strategy, in preference to removing this situation, is to manage it under potential conditions before its occurrence and conversion into corruption. In view of that, it is recommended to provide effective training programs, increase transparency at work, facilitate compliance with professional guidelines, reform organizational structures and processes in the public sector, and establish policies best suited to manage CoI in the MLS of Iran.

Keywords:

Conflict of interest, healthcare system, management, medical laboratory system

Introduction

Although the concept of conflict of interest (CoI) has been recurrently applied in political science and policymaking issues, there is strong evidence that the use of this term does not have a long history.^[1,2] However, CoI has been to date acknowledged among the major ethical considerations.^[3-5]

CoI is of utmost importance to reflect on this situation from different perspectives. Overall, CoI represents a series of situations

in which professional judgments or primary interests lead toward being influenced by the secondary ones.^[6-8] In other words, professional decisions and actions are manipulated by secondary interests under such conditions.^[9]

In this line, the Organization for Economic Cooperation and Development (OECD) defines CoI as a conflict between the personal interests of officials and their duties as public agents, and puts emphasis on avoiding it as much as possible. This definition characterizes CoI as the conflict between the responsibilities of government

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: WKHLRPMedknow_reprints@wolterskluwer.com

How to cite this article: Dargahi H, Kooshkebaghi M, Isazadeh N. Explaining the concepts and examples of conflict of interest and its management in the medical laboratory system of Iran: A scoping review. *J Edu Health Promot* 2024;13:238.

Department of Health Management, Policy and Economics, School of Public Health, Health Information Management Research Center, Tehran University of Medical Sciences, Tehran, Iran,
¹Department of Spiritual Health, Quran, Hadis and Medicine Research Center, Tehran University of Medical Sciences, Tehran, Iran

Address for correspondence:

Dr. Hossein Dargahi, Department of Health Management, Policy and Economics, School of Public Health, Health Information Management Research Center, Tehran University of Medical Sciences, Tehran, Iran.
E-mail: hdargahi@tums.ac.ir

Received: 19-10-2023
Accepted: 27-11-2023
Published: 11-07-2024

officials to serve both public and private interests.^[10] From the standpoint of the European Union (EU), the concept of CoI embraces all situations in which contractors or other service providers involved in a process seek for personal interests in the outcomes of contracts, thereby affecting their neutrality and performance in an unfair manner.^[11] The World Bank (WB) also defines CoI as a situation in which interests are associated with non-neutral undertakings or may hamper their implementation.^[12] In general, it is implied that CoI can lead someone to unlawful behaviors, such as fraud or corruption.^[13]

While CoI in any governance sector can be a big challenge, its weight in healthcare systems, mainly the medical laboratory system (MLS) as the most expensive and broad sector, is greater, because it provides medical laboratory services to the public and influences their lives.^[14] Strong financial flows in this system have further given rise to CoI with many manifestations, such as signing informal agreements between physicians and laboratories, accepting gifts from the companies manufacturing laboratory materials and equipment, obtaining grants to carry out research projects, holding shares in the relevant organizations and companies, and dual working in the medical laboratories of the private and public sectors.^[15]

One of the main reasons for CoI in the MLS of Iran is the presence of stakeholders in the policymaking and decision-making processes in the public sector and simultaneously being engaged with the private sector and gaining significant interests.^[11]

There are various examples of CoI in Iran's MLS, such as merit pay in the public sector, high tariff on services

delivered in the private sector compared to the public one, replete with numerous complaints from service recipients, and working in the private sector and holding shares in the companies producing medical and laboratory materials and equipment by policymakers and senior managers of the General Directorate of Laboratories affiliated with the Ministry of Health and Medical Education, the universities of medical sciences, and the Social Security Organization.^[16]

In point of fact, the reform programs in the healthcare system cannot function properly.^[17,18]

Notably, CoI in the MLS is inescapable in many situations. As a result, governments around the world are making attempts to manage CoI in the related organizations in the best way. To do so in the MLS, relying merely on guidelines and documents does not suffice, and other mechanisms, such as values and norms, are among the useful tools for building an ethical culture and avoiding CoI.^[19-22]

Conceptual framework in this research is used to understand recognizing the CoI situation in medical laboratories and serves a roadmap in managing CoI in these organizations.

As acclaimed, it is not always possible to avoid CoI or prohibit it for decision-makers; so, unavoidable situations should be identified, disclosed, and effectively managed.^[23]

Against this background, this study as a scoping review aimed to explain the concepts and examples of CoI and its management in the MLS of Iran. It seems that similar to this scoping review, research in the MLS, which has

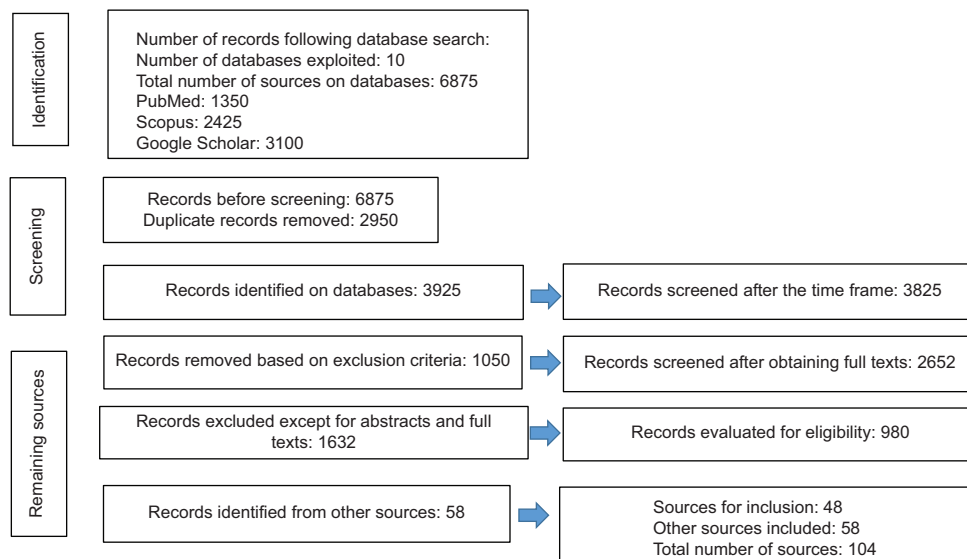


Diagram 1: Process of identification, screening, and selection of articles

its own characteristics in the healthcare system, has not been conducted in Iran and other countries.

Materials and Methods

This scoping review was conducted to explain the concepts and examples of CoI and its management in the MLS of Iran in 2023.

To meet the study objectives, all articles published from 2000 to 2023 were searched on the Persian and English databases of Magiran, IranDoc, Scientific Information Database (SID), Google Scholar, Scopus, PubMed, MEDLINE, Embase, ProQuest, and Web of Science (WoS), using the keywords of CoI, healthcare system management, CoI management, and MLS, based on the Medical Subject Headings (MeSH) with OR and AND operators. The inclusion criteria were the dates of publication, as well as the delineation of the concepts, examples, definitions, and the nature of CoI in the MLS and its management. In contrast, the exclusion criteria were duplicate articles and those with no access to their full texts.

The Arksey and O'Malley methodological framework was correspondingly utilized to collect the findings, which were then presented descriptively, reporting the findings used by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) checklist, and consulting and employing the Open Science Framework (OSF).

Afterward, all the retrieved articles were imported into EndNote X8, and then, the researchers selected the articles, compared them in all steps, and evaluated their compatibility, with reference to the inclusion and exclusion criteria. If two researchers did not agree about the articles, the third researcher was asked to get involved until consensus was reached. To evaluate the quality of the selected articles, the Mixed Methods Appraisal Tool (MMAT), as an effective tool for evaluating various types of studies, including scoping reviews, was recruited. Each article was accordingly rated in terms of their inclusion criteria, using the response categories of "Yes, No, Can't tell," and their quality was confirmed. The process of identification, screening and selection of articles was illustrated in Diagram 1.

Result

Remarkably, CoI in the MLS is not by itself at odds with ethical principles and professional behaviors, but its recurrence calls for close attention. Making effective changes in academic programs and curricula and providing short-term training courses for the staff and managers of medical laboratories, and holding courses

to identify ethical principles for marketers in these enterprises were thus among the key recommendations.^[24]

In this context, Shirdel (2019) argued that the MLS of Iran was grappling with structural CoI, for example, the trustees and the service providers were the same.^[25]

Memari Beiragh (2022) also put the main sources of CoI in the MLS of Iran into three groups, viz., shareholders, chief executive officers (CEOs), and members of the board of directors of private companies and businesses involved in producing and distributing laboratory materials and equipment.^[26]

In this line, Decamp (2013) reported that the majority of students in medicine, pharmacology, and laboratory sciences had rejected establishing strong interactions between physicians, managers, and policymakers of the MLS and private companies producing laboratory equipment, but a significant percentage had agreed with such relationships. In this vein, financial gains resulting from these interactions could play a significant role in shaping attitudes among students.^[27]

Likewise, Parsa *et al.*^[28] (2013) described that the decline of dignity in the MLS and unnecessary expenses burdened on patients and the healthcare system in Iran were among the concerns with the greatest importance, leading to CoI in this domain.

Rajaei (2019) further reflected on the possible emergence of CoI in the MLS of Iran, above all in the management and provision of healthcare services, which could pave the ground for corruption in the healthcare system.^[29]

In this respect, Milanifar *et al.*^[30] (2011) stated that CoI in the healthcare system could, in general, occur objectively. Therefore, the leading causes of CoI in the MLS of Iran could be traced back to no consistency in goals, cross-role and authority interference, and disparities in the levels of financial relationships in medical laboratories and other institutions.

Ghafari and Mohammadzadeh (2022) additionally argued that CoI could ensue in the MLS of Iran if policymakers, managers, and the staff in this field potentially abused their positions and power, and corruption could occur when they actually did so. Therefore, it was vital to learn about the roots of corruption to fight against it and manage CoI.^[31]

Dunn *et al.* (2016) as well as Lockwood (2010) similarly maintained that the legitimacy of the healthcare system could be realized through much more transparency along with the control and management of CoI.^[17,32]

Moreover, Sibia *et al.*^[33] (2017) reported that CoI in the MLS could relentlessly damage the relationships

between physicians, laboratories, and patients, and consequently destroy trust between them.

According to the American Society for Clinical Laboratory Sciences (ASCLS), public trust in laboratory processes and services heavily depended on how to clarify CoI in the planning and implementation of programs in medical laboratories.^[34]

Farhud and Zokaei (2022) also believed that nepotism, self-dealing, and demand for excess compensation were among the most common causes of CoI in the MLS of most countries. Here, nepotism refers to some activities to do favors for close friends, relatives, and family members, showing unethical behaviors and actions, but getting promotions instead of punishments.^[35]

Although CoI can specifically have adverse effects on the activities and duties of managers and the staff in the MLS, this phenomenon has been ignored in most cases.^[36]

In the healthcare systems across the world, CoI turns out between high-ranking managers and policymakers of the MLS and even physicians and patients. This negatively affects organizational structure, interactions between stakeholders and beneficiaries of providing medical laboratory services to patients, and establishment of management systems in laboratories.^[37]

Goldacre *et al.*^[38] (2019) stated that CoI could occur once physicians could earn passive income, for example, through medical laboratories in which they had shares or ownership.

In a research study, Lowenstein (2012) verified two types of CoI, financial and non-financial, in the MLS of all countries, including unnecessary contacts between physicians and managers of medical laboratories and manufacturers and owners of the companies and industries producing laboratory materials and equipment, which were inevitable, but could even be useful.^[39]

Also, Muth (2017) assumed that all communications between the managers of medical laboratories and other individuals were not CoI and might not be detrimental. Despite this, the managers of medical laboratories were required to clearly disclose the type of their relationships with stakeholders, companies, and related organizations in the event of CoI. To create a transparent environment to prevent CoI, it was thus necessary to publish public reports regarding the receipt of gifts from the companies manufacturing medical and laboratory materials and equipment on the websites of laboratories or companies.^[40]

As stated by Thoupson (2023), the nature of professional jobs in the MLS was apparently accompanied by CoI, which was not illegitimate, and might even happen as part of this work. Although laws on CoI were mainly laying emphasis on financial issues in the workplace, other related problems could also be more harmful.^[41]

Fineberg (2017) also acknowledged that building and maintaining trust in medical laboratory managers and employees was one of the essential goals in CoI policies, which could be achieved through caring, protecting, and maintaining the general health of patients, conducting research and reporting new clinical laboratory findings, implementing professional guidelines skillfully in laboratories, and consulting with policymakers and legislators in the healthcare system. If public trust in the managers and employees of medical laboratories is damaged, their roles and duties could be disrupted.^[42]

In this line, Chirkov (2022) argued that the connection between industries and universities could also lead to the invention of new products and bring benefits to researchers and manufacturing companies. Nevertheless, this connection could have its own aftermaths and trigger CoI between academic researchers and research institutions. It could further threaten the objectivity of science, the integrity of scientists and institutions, and the safety of medical products. Also, the staff of biomedical laboratories might face limitations.^[43]

In this sense, Fink (2020) shed light on CoI in all stages of the working life of managers, employees, and the employees of medical laboratories. It was thus possible to encounter CoI in different situations for those deciding to maintain their sensitive job positions in medical laboratories and the research ones, and at the same time interacting with the industries producing laboratory materials and equipment.^[44]

Ngo-Metzger *et al.* (2018) as well as Nissen (2017) established that CoI in the healthcare system could be formed by a driving force or temptation that could not be the same as its acceptance. Awareness, confirmation, and acceptance of CoI along with the evaluation of the impact of secondary and personal interests were also very important. In this respect, the ethical management of CoI by the relevant organizations could be specified and then clarified through rules with sufficient cooperation and supervision through governance systems in countries or by select committees. For that reason, observing hierarchy during revisions and prohibitions was among the best strategies for managing CoI in healthcare systems.^[45,46]

Also, Anderson *et al.*^[47] (2020) came to the conclusion that all managers and the employees working in this

system needed to first understand their duties and roles in monitoring laboratories and then proactively consider some strategies to reduce CoI at work.

Baro and Grundy (2016) additionally stated that financial CoI, such as commercial support for research, could thus lead to systematic deviations in all stages of research. Relating CoI to bonds and interests in general could accordingly muddy such situations and make CoI much more complicated.^[48]

Barnes (2017) also reflected on some grave issues regarding the effectiveness of continuing medical and laboratory science education in terms of educational design as well as its potential impacts on businesses and other interests. Thus, it was necessary to give emphasis to patients and public needs rather than looking for situations conflicting with their interests.^[49]

Moreover, Koch and Schmidt (2010) affirmed that CoI disclosure could aggravate biased reporting and even affect character and experience in individuals.^[50]

Although much attention is today devoted to CoI in the financial field, this situation is expected to occur in all aspects of the MLS, including the relationship between genetic counselors and the related industry. In this regard, the National Society of Genetic Counselors (NSGC) published some ethical codes for this purpose. However, new inventions in the 1990s provided good opportunities for the molecular diagnostics of genetic disorders in university-based medical laboratories and even expanded them from non-profit to private centers. The other concern could be the attraction and recruitment of genetic counselors in the industries and companies interested in developing and producing diagnostic kits for genetic diseases.^[51]

Senter *et al.* (2017) also reported that the NSGC had formulated a code of ethics for genetic counseling in 1992 and then developed and revised it in 2006 and 2007, respectively. The codes could change the nature of the genetic counseling profession and prevent CoI.^[52]

In the first systematic evaluation of CoI in the medical laboratories affiliated with the teaching hospitals in France, Coichard *et al.*^[53] (2019) further developed some strategies for predicting and preventing this situation to help protect patients, students, and laboratory technicians to deal with adverse reactions.

In their research, Feidman *et al.*^[54] (2018) acknowledged that reporting CoI in the medical laboratories affiliated with the National Health Service (NHS) in England was very poor and even lacked transparency. In this context, only 31 laboratories had sufficient information

about CoI among their managers and the employees and recorded them, but follow-ups had not become fully operationalized. Therefore, it was suggested to establish a simple national framework for reporting CoI in the MLS of this country, in the vein of the Sunshine Law in the United States.

Of note, financial CoI could occur when physicians were directly involved in providing more services to patients. In connection with the MLS, requests for more tests as well as more surgeries and excessive prescriptions arise. This could create CoI, particularly when there were no guidelines for patients on charging additional fees. Establishing connections between the MLS employees and laboratory equipment industries, receiving gifts, winning financial support by stakeholders and beneficiaries from the industries and companies producing laboratory materials and equipment to participate in scientific conferences, getting involved in laboratory research, and cooperating with companies as research sponsors were thus among the main reasons for CoI in the health system.^[55,56]

At present, the single tests for the diagnosis of genetic disorders have become monopolized by one or two service providers, which has limited research activities in this field, created unacceptable CoI, reduced patient access to specialty medical laboratories, led to unfair expenses and pays for related tests and research, and even provided a good opportunity for some to ignore ethical standards and codes, and thus interfere in laboratory activities.^[57]

In this context, Anjankar and Kute (2019) argued that it was necessary to observe ethical considerations in medical laboratories from the time of collecting the data and samples and performing the tests to that of reporting the results. Compliance with ethical considerations in medical laboratories was also an ethical obligation and responsibility.^[58]

Stead (2017) concluded that CoI between professional responsibilities and personal interests, creating deviation, prejudice, and favoritism in the MLS, had become one-sided, as a form of bias, which could further affect professional judgment.^[59]

In their research, Schenk and Johanson (2021) stated that CoI and bias management had not been extensively implemented in the MLS, or lacked transparency.^[60]

Brems *et al.*^[61] (2021) correspondingly showed that the guidelines for CoI management in medical laboratories had not been implemented in most cases, and some policies had often been violated.

Besides, Bechoux *et al.*^[62] (2021) detected minor transparency regarding interactions between assistant students of specialty in laboratory sciences and the companies manufacturing laboratory materials and equipment in Belgium, which might give rise to CoI. As the practical measures to protect such students from the advertisements of such companies and train them to manage future interactions were not sufficient, new laws needed to be formulated and presented in this regard.

Ralston *et al.*^[63] (2021) further observed that the World Health Organization (WHO) had presented some diverging concepts of CoI and its consequences in the MLS, and some non-governmental organizations and academic institutions of the member states had supported them, but some other commercial and non-governmental entities had found them inappropriate, unfeasible, and inconsistent with the sustainable development goals (SDGs).

In their research, Fabbri *et al.*^[64] (2021) argued that CoI management in medical laboratories and hospitals in high-income countries was quite different, compared to that in developing and low-income nations. While most European institutions had been ranked lowest in CoI management policies, many medical laboratories and hospitals had developed strong policies in this vein in the United States.

In this sense, Smith *et al.*^[65] (2020) illuminated that CoI could generate risk of bias (RoB) in evaluating evidence and developing guidelines to establish medical laboratories. Therefore, it was necessary to adopt a systematic process for disclosure and management purposes to minimize RoB in the process of formulating laboratory guidelines.

Serra (2017) similarly reported that eliminating CoI was not always possible, but interactions based on knowledge interpretation between private organizations and laboratory service providers could benefit patients.^[66]

Baro and Grundy (2016) also maintained that one of the controversies over CoI in biomedical laboratory research was whether focus on financial CoI had overshadowed non-financial interests. The question raised here was whether non-financial CoI could expose scientific judgment to the same or greater RoB? It was obvious that financial CoI, such as the commercial support of companies producing and supplying laboratory materials and equipment and doing biomedical research, could lead to systematic RoB in scientific research at all stages.^[48]

Also, Gupta *et al.*^[67] (2015) stated that CoI in public policies, especially those related to biomedical

research, could negatively affect the lives of millions of people, so the United Nations Convention against Corruption (UNCNC) had considered CoI as a preface to creating corruption and destruction.

Likewise, Norris *et al.*^[68] (2011) underlined limited data for the high occurrence rate of CoI among laboratory guidelines, and only a few case studies had presented the influence of CoI on the recommendations included in these guidelines.

Discussion

This scoping review revealed that most articles in this field had centered on two general categories, viz., personal and organizational CoI. As CoI could be deeply correlated with decision-making, it was thus of utmost importance to devote much attention to personal CoI, with regard to its influence on public trust in decision-makers in the MLS.^[69]

Some studies had further shown that CoI in the organizational structure of medical laboratories could keep them away from achieving their main goals. Some mechanisms, such as monitoring and reviews, could be thus greatly affected by structural and organizational CoI.^[70]

Notably, CoI is a pervasive situation occurring in all processes of providing laboratory services. For this reason, there is a need to lay focus on its inevitability. Ethically challenging CoI is also one of the difficult and sensitive situations that should be respected from a legal point of view.^[71]

In terms of subjective CoI, only the person making the decisions could notice them, for example, no impartiality toward specialized fields in the MLS could play a significant role in their decision-making.^[72]

Another example of personal CoI was providing consulting services to the private sector by the government agents. Some studies had shown that relationships between the specialties of the MLS and the related industries were very common, affording the conditions for CoI.^[73] Some countries had further thought of developing measures in this regard. For instance, managers and government employees were limited in terms of consulting with the private sector companies according to the Employment Protection Act in Sweden, as it could undermine public trust in government activities.^[74]

Dual working by the medical laboratory managers and employees in the private and public sectors was also a clear example of personal CoI. It could usually culminate in favor of the private sector, because the revenues from

the private sector were much higher than the public one, and policymakers, managers, and technicians of medical laboratories were more inclined to providing services in the private sector. Many countries have further recommended applying for work permits by policymakers, managers, and employees of medical laboratories to have secondary titles in the private sector as one of the most common violations and at the same time one of the most difficult cases to control.^[75]

Remarkably, policymakers, shareholders, managers, and employees in the public laboratories involved in the private sector could influence decisions in the public sector. Holding shares in the private sector could thus lead to making improper decisions and distract individuals from their main responsibilities, that is, policymaking and decision-making for public interests.^[76]

Overcommunication and the revolving door were CoI in Iran's healthcare system. In this situation, policymakers would try to adopt policies for ones' future interests rather than the public ones upon assuming some jobs. Moreover, the revolving door could have a significant impact on the implementation of laws by policymakers, because they would return to groups of people treated strictly when they had high-ranking official roles after a few years. Therefore, there would be much attempt to have the least contact with them. It could also have a negative effect on public trust in government officials as it was likely to give certain people privileged access to policies and public information, and even contribute to financial crisis.^[77]

Another example of CoI was receiving gifts from the companies and private sector enterprises. It could turn out at all organizational levels and was not specific to one sector in public organizations. One of the negative consequences of receiving gifts from the private sector was its influence on decisions made by government officials or those outside the legal framework. Both cash and non-cash gifts could have the same effects on the decisions of policymakers and managers.^[56,78]

Identifying the conditions of CoI in the fields of evaluation was correspondingly one of the challenges facing the MLS, particularly in terms of management. It was thus implied that the supervisor and the supervised were the same. Placing people in supervisory positions could thus create different examples of CoI, especially the financial ones. In this respect, some mechanisms, such as accreditation in the MLS of Iran, were another clear example of CoI, including no independence of accreditation organizations and inappropriate organizational structure, some organizational and managerial problems, and the role of stakeholders in

determining the evaluation results of accreditation.^[79-81] One of the reasons for CoI and the abuse of these situations was the power gap between different actors. Shortening the distance between power and management could accordingly help manage CoI.^[82] Paying no attention to the external effects of decisions made in other areas on health care in this way accordingly requires serious reconsideration and movement toward a comprehensive and systematic approach.^[83]

One of the strategies for managing CoI in the healthcare system is the demands raised by civil institutions and the media from all stakeholders in the decision-making process. Undoubtedly, this can be a prelude to CoI.^[84]

The diversity and complexity of the healthcare system can naturally lead to the creation of multiple roles and duties, as an introduction to numerous examples of CoI which caused by the diversity, and complexity of the healthcare system can affect other aspects, including the provision of laboratory services.^[85]

Currently, it is not possible to avoid CoI in the healthcare system of all countries, especially in medical and research laboratories, and there are no specific policies in this field, so the best way is to manage it. The key to CoI management in the MLS is to tap communication skills and make transparency in the workplace. Thus, it is recommended to encourage managers and employees of medical laboratories to appraise the policies of CoI management and analyze the situations.^[86]

There are various strategies to reduce CoI in the healthcare system and laboratory services, including teaching honesty and integrity to managers and the employees, identifying workforce lacking competencies and qualifications and then training them, adopting CoI management methods and policies, creating conditions for participation and teamwork mechanisms, not accepting organizational responsibilities unsuited to personal interests and abilities, offering career development programs, requiring managers and the staff to avoid arguments about individual, racial, ethnic, and political differences, adopting appropriate policies for declining gifts, and boosting communication and official monitoring and supervision at work.^[87,88]

In this line, Boyd *et al.*^[89] (2012) reported much emphasis by the WHO on the use of CoI management processes in healthcare systems and their affiliated sectors to ensure the implementation of the recommendations presented for this purpose and promote them. The WHO accordingly intended to provide all conditions for disclosing financial CoI in order to implement the recommendations to prevent the multiplicity of some problematic cases in this field.

The occasional CoI management rules within a legal context could further play a role in the occurrence of such situations. In some cases, the ineffectiveness of the existing rules can thus cause failure in realizing the CoI management goals, while there are rules related to CoI management in Iran's legal system. In other words, as long as the policymakers at the macro levels of the healthcare system fall flat to implement these rules and laws, it is not expected to see them in the affiliated sectors.^[90]

Reforming organizational structures and processes is thus one of the main strategies for managing CoI in the healthcare system and its various sectors in Iran, so they can be examined from the perspective of CoI. Therefore, it is necessary to screen these people in terms of being in CoI situations before placing them in decision-making situations.^[91,92]

In healthcare systems, much focus is on certain sectors, so it is very important to have a long-term perspective to manage CoI in such systems in all countries. Having long-term views, predicting future risks, and taking action in the short run are accordingly among the key factors to achieve long-term goals, which demand some legal requirements to show commitment to policies.^[93] Although CoI cannot be managed due to the pressures exerted by some stakeholders, aligning the interests of these groups with the public ones seems to be the right strategy.^[94,95]

To determine the policy priorities in the management of CoI in Iran's healthcare system, personal CoI among the employees should be taken into account. This is while the quality of diagnosis and the level of knowledge of the employees in the public and private sectors are not different. Improper tariffs also lead to the selection of the private sector by the employees or result in self-referrals from the public sector to the private one.^[96] In many countries, rules have been developed to prevent the referral of patients by medical and laboratory science specialists from the public to the private sector, such as the Stark Law^[97] or Breathing Techniques for agents and officials in the public sector of the healthcare system and its sectors during transitions between private and public sectors. This has been introduced as one of the uppermost strategies for CoI management.^[98]

For evidence-based policymaking regarding CoI management, it is thus obligatory to consider three actions, viz., data preparation, more effective use of available analytical tools, and policy monitoring and tracking results with different types of evidence. However, think tanks as an independent institution can play an effective role in publicizing knowledge for policymakers and the society.^[99]

It seems that there have been no educational platforms regarding the concepts and examples of CoI in the organizations affiliated with the healthcare system and its development in Iran. However, training provided to students as the future agents of the healthcare system has not been comprehensive enough. In this regard, organizations play a leading role in teaching the employees about CoI. Many countries have accordingly implemented some measures to educate and inform the staff about CoI. For example, the Anticorruption Bureau of Argentina created an online simulator of CoI. By choosing to answer certain questions, public officials could thus find whether they were in a situation of actual or potential CoI. This simulator could be exploited for the future, present, and past government officials, by asking a government official various questions. The simulator could also determine whether the official was in a CoI situation. If possible, CoI was detected; the simulator declared the violated norm of the law of public ethics and advised the government official to seek guidance from the relevant sources. This simulator was a useful tool for officials to clarify any doubts they may have about a situation.^[100,101]

Conclusion

In general, the main goal of CoI management is to identify potential conflicts, avoid some if possible, and how to disclose them. Establishing an effective policy for CoI management that reinforces public trust in the integrity of policymakers and their decision-making in the healthcare system, supporting partnerships between public and private sectors in accordance with public standards that identify responsibilities for parties in terms of integrity, and developing effective policies and procedures for identifying, disclosing, and managing CoI that make unfounded claims of bias easier and more efficient to deal with are among the main features of a CoI management tool.

In Iran, no certain rules have yet been developed for managing CoI in the healthcare system, and the programs presented in this line have merely focus on personal cases, such as dual working of policymakers in the private and public sectors, and some laws have been further formulated in this regard. In other words, no political will in the management of CoI in Iran outweighs the problem of the nonexistence of rules.

In Iran's healthcare system, corruption and CoI are also deemed quite equal, which seems to be one of the main challenges of CoI management. Whenever there are talks about the transparency of CoI examples, it is likened to corruption and much resistance is then received. This is despite the fact that CoI is only a situation facing everyone, and it is not unacceptable by itself.

Those with more power and authority in the implementation of CoI management in Iran's healthcare system are also less interested in managing this situation due to having much CoI, so it is suggested to utilize some mechanisms, such as aligning the interests of these people with the public ones to improve these conditions.

In formulating CoI management policies, comprehensiveness should be taken into account and policies should be established simultaneously with the participation of all stakeholders to minimize the possibility of CoI in the policymaking process and facilitate the involvement of all actors.

Acknowledgment

The authors declare their gratitude to the board members of directors of Scientific Association of Clinical Laboratory Doctorate to order the writing of this paper and the spiritual support of this publication.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

References

- Kassir JP. Financial conflict of interest: An unsolved ethical frontier. *Am J Law Med* 2001;27:149-62.
- Crigger NJ. Pharmaceutical promotions and conflict of interest in nurse practitioner's decision making: The undiscovered country. *J Am Acad Nurse Pract* 2005;17:207-12.
- Mehran H, Stulz RM. The economics of conflicts of interest in financial institutions. *J Financ Econ* 2007;85:267-96.
- Lemmens T, Freedman B. Ethics review for sale? Conflict of interest and commercial research review boards. *Milbank Q* 2000;78:547-84.
- King M, Bearman PS. Gifts and influence: Conflict of interest policies and prescribing of psychotropic medications in the united states. *Soc Sci Med* 2017;172:53-63.
- Blum JA, Freeman K, Dart RC. Requirements and definitions in conflict of interest policies of medical journal. *JAMA* 2009;302:2230-34.
- Cherla DV, Viso CP, Holihan JL, Bernardi K, Moses ML, Mueck KM, et al. The effect of financial conflict of interest, disclosure status, and relevance on medical research from the United States. *J Gen Intern Med* 2019;34:429-34.
- Perry HB. Understanding financial conflict of interest: Implications for information literacy instruction. *Commun Inf Lit* 2018;12:215-25.
- Sah S. The professionalism paradox: A sense of professionalism increases vulnerability to conflicts of interest. *Acad Manag Perspect* 2021;36. doi: 10.2139/ssrn.4004107.
- Whitton H, Bertók J. Managing Conflict of Interest in the Public Sector: A Toolkit. OECD Publishing; 2005.pp. 7-94.
- Anonymous. Managing conflict of interest, a how to guide for pharmaceutical sector committees in low and middle income countries. World Health Organization; 2022. Available from: www.who.int.
- Preventing and Managing Conflicts of Interest in the Public Sector: Good Practice Guide. World Bank Group; 2020. p. 1-113. Available from: www.undoc.org.
- Williams-Jones B. Beyond a pejorative understanding of conflict of interest. *Am J Bioeth* 2011;11:1-2.
- Dargahi H, Einollahi N, Dashti N. Color blindness defect and medical laboratory technologists: Unethical problems and the case of screening. *Acta Med Iran* 2010;48:172-77.
- Anonymous. Conflict of Interest Policy and Disclosure Restatement; 2012. Available from: www.ifcc.org.
- Bero H. Addressing bias and conflict of interest among biomedical research. *JAMA* 2017;317:1723-24.
- Lockwood M. Good governance for terrestrial protected areas: A framework, principles and performance outcomes. *J Environ Manage* 2010;91:754-66.
- Komesaroff PA, Kerridge I, Belinson SE. Conflict of interest: New thinking, new processes. *Int Med J* 2019;49:574-77.
- Grundy Q, Habibi K, Shnier A, Mayes CH, Hipworth W. Decoding disclosure: Comparing conflict of interest policy among the United States, Frana, and Australia. *Health Policy* 2018;122:509-18.
- Salinas DZ. Towards integrity machines: Design theory for information systems addressing conflicts of interest in the public sector. *CEUR Workshop Proceedings*; 2018.
- Dargahi H, Sharifi Yazdi MK. Quality of work life in Tehran University of medical sciences hospitals clinical laboratories employees. *Pak J Med Sci* 2007;23:630.
- Ferguson K, Masur S, Olson L, Ramirez J, Robyn E, Schmalink K. Enhancing the culture of research ethics on university campuses. *J Acad Ethics* 2007;5:189-98.
- Dargahi H, Changizi V, Jazayeri Gharebagh E. Radiology employee's quality of work life. *Acta Med Iran* 2012;50:250-60.
- Ebrahimi A, Zand S, Amiri FB, Shahi F, Jafarian A, Kaviani A. Conflict of interest: Are Iranian breast cancer specialists prone to it? *Asian Pac J Cancer Prev* 2020;21:1653-8.
- Shirdel R. Surveying health system of Iran about financial structural conflict of interest. *Soc Secur J* 2019;15:113-25.
- Memari Beyragh B, Talebian M, Fatemi Ardestani F. Instances of conflict of interest in Iran's health system. *Iran J Public Policy* 2022;8:67-82.
- DeCamp M. Physicians, social media, and conflict of interest. *J Gen Med* 2013;28:299-303.
- Parsa M, Namazi HR, Larijani B. Conflict of interest solution and instances in education and medicine. *Med Spirit Cultivation* 2013;21:5-13.
- Rajaie S. Conflict of interest: A serious challenge in the health system. *J Strateg Stud Public Policy* 2019;9:333-40.
- Milanifar A, Akhondi MM, Paykanzadeh P, Hanijani B. Assessing conflict of interest in Iran's health legal system. *IJEHM* 2011;5:1-16.
- Ghafari I, Alimohamadzadeh K. Conflict of interest Iran's health legal system with an emphasis on managerial positions. *Iran J Cult Promot* 2022;6:473-80.
- Dunn AG, Coiera E, Mandi KD, Bourgeois FT. Conflict of interest disclosure in biomedical research: A review of current practices, biases and the role of public registries in improving transparency. *Res Integ Peer Rev* 2016;1:1.
- Sibia U, Turcotte JJ, Macdonald JH, King PJ. The cost of unnecessary hospital days for medical joint arthroplasty patient's discharging to skilled nursing Facilities. *J Arthroplasty* 2017;32:2655-57.
- Anonymous. Clinical Laboratory Sciences Conflict of Interest. The American Society for Clinical Laboratory Sciences. Available from: www.ascls.com. [Last accessed on 2023].
- Farhud DD, Zokaei SH. Conflict of interest in medicine and health. *Iran J Public Health* 2022;51:i-ii.
- Williams CH, Moore E, Williams C, Jones R, Bell R, Halloway R. Using an integrated system approach to manage conflict. *J Leadersh Account Ethics* 2019;16:1-13.

37. Panuha Tosanloo M, Adham D, Ahmadi B, Rahimi Foroushani A, Pourreza A. Causes of conflict between clinical and administrative staff in hospitals. *J Educ Health Promot* 2019;8:191.
38. Goldacre B, Reynolds C, Smith AP, Walker AJ, Yates TA, Croker R, et al. Do doctors in dispensing practices with a financial conflict of interest prescribe more expensive drugs? A cross-sectional analysis of English primary care prescribing data. *BMJ Open* 2019;9:e026886.
39. Lowenstein G. The unintended consequences of conflict-of-interest disclosure. *JAMA* 2012;307:669-70.
40. Muth CC. Conflict of interest in medicine. *JAMA* 2017;317:1812.
41. Orellana L, Shnettler B, Miranda-Zapata E, Saracosttim M, Poblete H, Lobos G, et al. Job satisfaction as a mediator between family-to-work conflict and satisfaction with family life: A dyadic analysis in dual-earners parents. *Appl Res Qual Life* 2023;18:491-580.
42. Fineberg HV. Conflict of interest. Why does it matter? *JAMA* 2017;317:1717-18.
43. Chirikov I. Does conflict of interest distort global university ranking? *Higher Educ* 2022;86:1-18.
44. Fink NE. Conflict of interest and an approach to managing them. *EJIFCC* 2020;31:292-301.
45. Ngo-Metzger Q, Moyer V, Grossman D, Ebell M, Woo M, Miller T. Conflict of interest in clinical guidelines: Update of U.S. preventive services task force politics and procedures. *Am J Prev Med* 2018;54:570-80.
46. Nissen SE. Conflict of interest and professional associations: Progress and remaining challenges. *JAMA* 2017;317:1737-38.
47. Anderson TS, Gellad WF, Good CB. Characteristics of biomedical industry payment to teaching hospitals. *Health Aff (Millwood)* 2020;39:10-15.
48. Baro L, Grundy Q. Why having a nonfinancial interest is not a conflict of interest. *PLoS Biol* 2016;14:e2001221.
49. Barnes BB. Financial conflict of interest in continuing medical education: Implication and accountability. *JAMA* 2017;317:1741-42.
50. Koch CH, Schmidt C. Disclosing conflict of interest – Do experience and reputation matter? *Account Organ Soc* 2010;35:95-107.
51. Stoll KH, Mackinson A, Allyse M, Michie M. Conflicts of interest in genetic counseling: Acknowledging and accepting. *Genet Med* 2017;19:864-66.
52. Senter L, Bennett RL, Madeo AC, Nobin S, Ormod KE, Schneider KW, et al. National society of genetic counselors' code of ethics: Explanation of 2017 revisions. *J Genet Couns* 2017;27:9-15.
53. Coichard CG, Perraud G, Cailleu H, Gaillac V, Scheffer P, Mintzen B. Inadequate conflict of interest policies at most French Teaching hospitals: A survey and website analysis. *PLoS One* 2019;14:e0224193.
54. Feidman HR, De Vito NJ, Mendel J, Carrol DE, Goldacre B. A cross – sectional study of all clinicians' conflict of interest disclosure to NHS hospital employees in England 2015-2016. *BMJ Open* 2018;8:e019952.
55. Thirumoorthy T. Conflict of interest in medicine: Understanding the concepts to preserve the integrity of professional judgment and promote trust in the profession. *Singapore Med J* 2023;64:121-6.
56. Scheffer MC, Pastor-Valero M, Russo G, Hernandez E, Aguado L. Revolving doors and conflict of interest in health regulatory agencies in Brazil. *BMJ Glob Health* 2020;5:e002325.
57. Stoll KS, Mackison A, Allysw MA, Michie M. Conflict of interest in genetic counselling: Acknowledging and accepting. *Genet Med* 2017;19:814-66.
58. Anjankar A, Kute P. Bioethics in laboratory medicine. *J Datta Meghe Inst Med Sci Univ* 2019;14(Suppl 2):103-6.
59. Stead WW. The complex and multifaceted aspect of conflicts of interest. *JAMA* 2017;317:1765-67.
60. Schenk L, Johanson G. Management of bias and conflict of interest among occupational exposure limit expert groups. *Regul Toxicol Pharmacol* 2021;123:104929.
61. Brems JH, Davis AE, Clayton EW. Analysis of conflict of interest policies among organizations producing clinical practice guidelines. *PLoS One* 2021;16:e0249267.
62. Bechoux L, De Vleeschouwer O, Vanheuverzwijn C, Verhegghen F, Detiffe A, Colle F. Conflict of interest policies at Belgian medical faculties: Cross-sectional study indicates little oversight. *PLoS One* 2021;16:e0245736.
63. Ralston R, Hil SE, da Silva Gomes F, Collin J. Towards preventing and managing conflict of interest in nutrition policy? An analysis of submissions to a consultation on a draft WHO tool. *Int J Health Policy Manag* 2021;10:255-65.
64. Fabbri A, Hone KR, Hróbjartsson A, Lundh A. Conflict of interest policies at medical schools and teaching hospitals: A systematic review of cross-sectional studies. *Int J Health Policy Manag* 2021;11:282-298.
65. Smith EJ, Plass K, Darraugh J, Shepherd R, Briganti A, Cornford P. European association of urology guidelines office: How we ensure transparent conflict of interest disclosure and management. *Eur Urol* 2020;77:397-99.
66. Serra ME. Conflict of interest: Nuances between principles and the aim. *Arch Argent Pediatr* 2017;115:501-4.
67. Gupta A, Holla R, Suri S. Conflict of interest in public health: Should there be a law to prevent it? *Indian J Med Ethics* 2015;12:172-7.
68. Norris SL, Holmer HK, Ogden LA, Burda BU. Conflict of interest in clinical practice guideline development: A systematic review. *PLoS One* 2011;6:e25153.
69. Grundy Q, Mayes CH, Holloway K, Mazzarello S, Thombs BD, Bero L. Conflict of interest as ethical shorthand: Understanding the range and nature of non-financial conflict of interest in biomedicine. *J Clin Epidemiol* 2020;120:1-7.
70. Romain PL. Conflict of interest in research: Looking out for number one means keeping the primary interest front and center. *Curr Rev Musculoskeletal Med* 2015;8:122-27.
71. Koot S, Hebinch P, Sullivan S. Science for success a conflict of interest? Researcher for reflexivity in socio-ecological research for CBNRM in Namibia. *Soc Nat Resour Int J* 2023;36:554-72.
72. Dhingra VK. Understanding the conflict of interest. *J Curr Med Res Opin* 2021;4:917-39.
73. Ansari B. Managing conflict of interest in the public sector. *Public Law Stud Q* 2022;52:298-316.
74. Conflict of Interest Laws in EU Member States. Available from: www.oecd-ilibrary.org. [Last accessed on 2023].
75. Derakhshan D, Afshari F. Managing the conflict of interests of the stock market in the mirror of legislative norms. *J Modern Adm Law Res Publication* 2020;2:165-89.
76. Shepherd AR, Balasubramanian P, Gautham M, Hutchison E, Kitute FE, Marten R. Conflict of interest: An invisible force shaping health systems and policies. *Lancet Glob Health* 2021;9:e1055-6.
77. Luechinger S, Moser C. The value of the revolving door: Political appointees and the stock market. *J Public Econ* 2014;119:93-107.
78. Brezis ES. Legal conflict of interest of the revolving door. *J Macroecon* 2017;52:175-88.
79. Zamani R. The effect of political instability on economic growth in Iran between two revolutions (1907-1979). *Iran Econ Rev* 2021;25:790-77.
80. Bahmaei J, Bastani P, Keshtkaran A, Mohammadpour M, Sarikhani Y. Challenges of the execution of hospital accreditation in Iran: A critical review. *J Health Res Commun* 2020;5:98-82.
81. Mosadeghrad A, Ghazanfari F. Iran hospital accreditation governance: Challenges and solutions. *Payavard Salamat* 2020;14:332-11.
82. Yates S, Cardin-Trudeau E. Lobbying "from within": A new perspective on the revolving door and regulatory capture. *Can Public Adm* 2021;64:301-19.

83. Cerrillo-Martinez A. Beyond revolving doors: The prevention of conflicts of interests through regulation public integrity. *Public Integrity* 2017;19:357-73.
84. Hernande M. Power (ful) connections: Exploring the revolving doors phenomenon as a form of state- corporate crime. *Crit Criminol* 2022;30:305-20.
85. Kenter JO, Raymond CM, Van Riper CJ, Azzopardi E. Loving the mess: Navigating diversity and conflict in social values for sustainability. *Sustainability Sci* 2019;14:1439-61.
86. Anonymous. Responsible Content of Research Training. PCR-Lab Management. Available from: ori.hhs.gov. [Last accessed on 2023].
87. Page K. The four principles: Can they be measured and do they predict ethical decision making? *BMC Med Ethics* 2012;13:10.
88. Farhud D. Epigenetic and ethics: How are ethical traits inherited? *Int J Ethics Soc* 2019;1:1-9.
89. Boyd EA, Akl EA, Baumann M, Curtis JR, Field MJ, Jaeschke R, et al. Guideline funding and conflicts of interest: Article 4 in Integrating and coordinating efforts in COPD guideline development. An official ATS/ERS workshop report. *Proc Am Thorac Soc* 2012;9:234-42.
90. Garde A, Jeffery B, Rigby N. Implementing the WHO recommendations whilst avoiding real, perceived or potential conflicts of interest. *Eur J Risk Regul* 2017;8:237-50.
91. Heidarzadeh A, Hedayati B, Alvand M, Rezaei M, Farrokhi B, Dadgaran I, et al. Referral system challenges of the family physician program in Iran: A systematic review. *Med J Islam Repub Iran* 2023;3749:1-10.
92. Arab Kameli M, Yahyazadeh Far M, Tahmasebi Roshan N, Razaghi Oji M. Investigating the effect of managers competencies on conflict resolution strategies in Babol University of medical sciences. *J Educ Plan Stud* 2023;11:199-212.
93. Oliver-Proksch S, Lowe W, Wackerle J, Soroka S. Multilingual sentiment analysis: A new approach to measuring conflict in legislative speeches. *Legisl Stud Q* 2019;44:97-131.
94. Sah S. Conflicts of interest and your physician: Psychological processes that cause unexpected changes in behavior. *J Law Med Ethics* 2012;40:482-87.
95. Dorff MB. Why Public benefit corporations. *Del J Corp L* 2017;42:1-8.
96. Khanjankhani K, Takian A, Najibi SM, Ashtariyan K, Emami-Razavi SH, Jafarian A, et al. The key features of think tanks in Iran: A qualitative case study of "good governance for health think tank". *Iran J Cult Health Promot* 2022;6:88-95.
97. Flores JH. Information asymmetries and conflict of interest during the Baring crisis, 1880–1890. *Financial Hist Rev* 2011;18:191-215.
98. Bolton P, Freixas X, Shapiro J. Conflicts of interest, information provision, and competition in the financial services industry. *J Financial Econ* 2007;85:297-330.
99. Kiyani M, Khanjankhani K, Haghighi H, Raoofi P, Mohammadi E, Oliyaimanesh A. A review of the laws, policies and reforms of Iran's health system during the last four decades: A retrospective approach. *Iran Health Insurance Magazine* 2022;4:260-8.
100. Yosifon DG. Opting out of shareholder primacy: Is the public benefit corporation trivial? *Del J Corp* 2016;41:461.
101. Vaughan SK, Arsneault SH. The public benefit of benefit corporations. *Pol Sci Politics* 2018;51:54-60.