

## COVID-19 management in Iran and international sanctions

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### Abstract

Iran has one of the highest death rates from COVID-19 among Middle Eastern countries. In addition to having a better disease registration system compared to neighboring countries, many factors including economic conditions, have played an important role in increasing the number of mortality rate. This is while that during the Corona pandemic, Iran has been undergo severe sanctions by the United States, that has faced this country with a severe economic crisis. Considering the role of sanction on the country's health management in our study, we examined Iran's management plans against the Corona pandemic and the effect of sanctions on it. Quarantine and corona restrictions, on the one hand, and international sanctions, on the other hand, have put double pressure on the Iranian government. Although drugs and basic medical equipment are exempted from economic sanctions, direct and indirect effects of the sanctions have limited Iran's banking system and created widespread restrictions in the fields of trade, production, and investment. Fortunately, despite the sanctions, many hospitals had an appropriate performance in line with the health promotion program. It is obvious that economic sanctions have severe and harmful effects on public health and have led to poor health consequences in Iran, but attention to planning, standards and improving the quality of the hospital is an important issue in Corona management. Despite multiple mutations, this virus is likely to face with a more dangerous virus in the world future. Now, it is time to take appropriate management measures to remove these sanctions by relying on international solutions and interactions.

**Key Words:** COVID-19; sanction; management programs; crisis management; health; health management.

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In March 2020, the Director-General of the World Health Organization declared Coronavirus disease 2019 (COVID-19) as a pandemic disease.<sup>1</sup> Iran, like many other countries, was severely affected by the Corona virus and the first official case of this disease was registered in Qom on February 20, 2017. In a short time, Corona virus infected a large part of Iran.<sup>2</sup> In fact, the Islamic Republic of Iran was among the countries with the highest rate of COVID-19 infection.<sup>3</sup> Iran was the first country with COVID-19 in the Middle East and its key role in spreading the virus to other neighboring countries such as Iraq, Pakistan and Afghanistan was also very likely.<sup>4</sup> According to official statistics, Iran is

placed on the eighth ranking among 10 countries in terms of infection rate with more than 6312387 cases based on positive PCR test and 135974 deaths due to COVID-19 by the end of January 2022.<sup>5</sup> So far, the control and treatment of COVID-19 disease has imposed huge costs on countries both socially and economically. Diagnosis, screening, hospitalization in the hospital, the exorbitant costs of treatment on the one hand, and the cost of providing essential supplies and health items for medical staff and those who are in quarantine conditions on the other hand have put a lot of economic pressure on countries. Economic costs resulted in job closures, especially in the tourism, hotels, transportation, retail, and socio-economic costs

resulted in educational institutions closures, the social consequences of locked down, isolation, quarantine, and psychological consequences obtained of it, are among very important cases during this challenge. Taking preventive measures, treating and reducing the socio-economic consequences of the COVID-19 epidemic requires funding to reduce the adverse effects of these costs, which needs government budget. The epidemiological situation of Iran and the complexity of its political and economic challenges have converted this country into a special subject for study; since that economic sanctions act as a major obstacle against scientific advice for effective prevention and treatment to control the COVID-19 epidemic.<sup>6</sup> This epidemic disease requires physical distancing and closure of many economic activities, and in the meantime, the Iranian government should encourage the people to stay at home and maintain a physical distance by offering economic assistance to the people and providing food and health for them. Also during this period, due to job closures, government revenue sources including taxes, government services and domestic sales of energy and electricity have decreased significantly, and this is while that current production costs of the public sector and private jobs continue. The direct costs of prevention, screening, control and treatment of the disease are also borne by the government.<sup>6</sup> Many political and economic sanctions have been imposed on Iran since the Islamic Revolution (1979). In 2016, an agreement between Iran and members of the United Nations Security Council [known as the Joint Comprehensive Plan of Action (JCPOA)] led to the cancel some of these sanctions. Of course, however, after the victory of Donald Trump in the US presidential election and the withdrawal of the US from Barjam in 2018, the sanctions were imposed again. As a result, in 2019, Iran recorded the highest inflation rate and the lowest economic growth rate (35.7 vs. -9.5%, respectively) during the last 20 years. On October 8, 2020, the Trump government announced that the last round of sanctions would be imposed on Iran's banking system which its goal is merely collapsing Iran's economy.<sup>7-11</sup> One of the major challenges in the Iranian health system is the restrictions imposed by these sanctions. In fact, due to the limitations of the Iranian banking system, the purchase of raw materials for drug synthesis as well as medical equipment and supplies for hospitals and medical centers is limited. Also, as a result of the sanctions imposed, Iran has restrictions on the import of some essential equipment with advanced technology; including test equipment (such as real-time PCR and X-ray machine) and some hospital equipment needed for Intensive Care Unit (ICU)/ Coronary Care Unit (CCU) beds. However, despite the production of some personal protective equipment (PPE) such as face masks, disinfectants, etc. in the country due to sanctions, there are restrictions on providing advanced testing and hospital equipment.<sup>6,12,13</sup> During the COVID-19 pandemic in Iran, many drugs

that showed promising results for this disease (such as Remdesivir, dexamethasone, and interferon beta) were developed and made available to the public. But, the increase the number of patients admitted to the hospital and also the use of these drugs outside the instructions, led to a shortage of some of these drugs. Iran for the production of some of these drugs and also chronic non-communicable diseases (NCD) drugs and the elderly people is facing with shortage of drug. This is because this country has a high rate of chronic non-communicable diseases such as cancer, diabetes, high blood pressure, etc., which has a high financial burden and sanctions and the COVID-19 pandemic were doubled these problems. In this review study, we intend to examine how the way manages and organizes the Iran country against the Corona virus and the effects of sanctions on it.<sup>14</sup>

#### *Management programs for prevention and control of COVID-19 in Iran*

From the beginning of outbreak this disease, health policy makers and decision makers began to implement intervention policies to prevent, control and treat people of the community.<sup>6</sup> The National Committee for Fighting COVID-19 (NCFC) was established. According to the recommendation of this committee, interventions such as the nationwide closure of kindergartens, schools, universities and dormitories, the temporary release some of prisoners, the suspension of public transportation services and shopping malls, the closure of sports clubs and scientific institutions, the cancellation of congregational prayers and the closing of the holy shrines was done for the first time in the history of Iran. Moreover, from the National universities were asked to provide critical advices regarding COVID-19 coping strategies.<sup>15</sup> The government, aware of the dangers that this disease can endanger health and of course other sectors, began to inject funds and in the first step to cope with the burden of COVID 19 and strengthen the budget health system allocated to the National Headquarters of management and control the outbreak this disease and the country's medical universities. This budget was applied for purchasing masks, disinfectants materials and related equipment.<sup>16,17</sup> Usually in crises, especially the crisis of the new coronavirus outbreak, the weak and vulnerable groups of any society suffer the greatest damages. Therefore, the government and its organs must provide facilities to this group, so that they can meet their basic needs, including their physical and mental health. In addition, during the crisis, there are many problems such as business closures, lack of service providing personnel, insufficient control over the transmission chain and the recommendations of the Ministry of Health to stay at home, lack of equipment and medical space and convents, and so on. In this regard, a grant was allocated to individuals of the community during this pandemic. One of other policies included allocating

100 billion Tomans in insurance subsidies to the Ministry of Health to prevent the outbreak of the coronavirus.<sup>16,18</sup> The Iranian government also uses reliable public channels such as the SMS service, as well as mass media such as government television and radio stations to inform the public about the risk of contracting the virus and to encourage them to stay home. The dedicated websites and portals of some data analysis tools were also provided to identify urban areas with the highest risk of infection.<sup>3,16</sup> The Ministry of Health and Medical Education of Iran in response to COVID-19 performed special activities such as setting up more than 10,000 IVR lines, setting up 1000 comprehensive health centers for 16 and 24 hours on 7 days a week and self-assessment and self-reporting through responding to the questions of the site "salamat.gov.ir" for screening households; which in the first phase, about 75 million people were screened through self-assessment. Providing free health care to COVID-19 patients in hospitals or their homes was another government measure.<sup>19</sup> With increasing health service costs, mainly due to rising age and chronic diseases, hospitals' focus has been criticized only on treatment, so it is not surprising that hospitals improve their health services and their health promotion programs and disease prevention tasks are considered in their daily plans. According to the World Health Organization, hospitals should evaluate their internal departments to improve health promotion services using self-assessment tools.<sup>20</sup> To achieve this goal, standards for health-promoting hospitals have been developed by the World Health Organization, and measurable elements and indicators have been defined to facilitate the practical application of these standards in the planning, implementation, and evaluation of health promotion in hospitals. Hospitals that integrate health promotion programs into their day-to-day activities compared to hospitals that occasionally implement these standards, have better performance in health promotion. During the COVID-19 pandemic, the focus on this issue has become much more important than ever, and health promotion programs have received more attention than before.<sup>21,22</sup> Although the health promotion program was started in Europe about three decades ago with the aim of reducing costs and implementing effective prevention programs in hospitals, but this project is relatively new in Iran. Therefore, in the early stages of assessing its compliance with the standards of the World Health Organization as well as determining barriers to program implementation for increase the quality of services in hospitals will be useful.<sup>23</sup> One of the measures which has been taken during the corona pandemic to promote the health of patients and treatment staff was to prevent as many surgical procedures as possible for different patients, including cardiovascular patients; if urgent surgery is required, performing preoperative diagnostic procedures, including blood PCR coagulation specimens and COVID-19 are necessary.<sup>16</sup> As a result, paying

attention to the standards and improving the quality of the hospital is an important issue that should be considered. Also during the COVID-19 pandemic, the Iranian Ministry of Health and Medical Education announced that all public and private hospitals must cancel their elective procedures and elective admissions from February 29, 2020. Simultaneously with the decision to postpone the elective procedure, all colleges and hospitals were required to form multidisciplinary scientific and executive committees. In addition, all hospitals and clinics, with the exception of specialized centers, were prioritized the admission of patients with COVID-19.<sup>24,25</sup> With exponential increasing number of patients, internal medicine specialists, hematologists, nephrologists, general surgeons, and thoracic surgeons were joined to the multidisciplinary framework. Cardiac surgeons were also involved in performing extracorporeal membrane oxygenation (ECMO). These initial measures, combined with government restrictions, led to a fixed curve of newly diagnosed patients in March 2020. Domestic pharmaceutical and medical equipment companies have accelerated the production of personal protective equipment (PPE), drugs, diagnostic kits and necessary supplies to overcome the major shortcomings posed by international sanctions against Iran over the past few years. At present time, all hospitals that care for patients with COVID-19 are equipped with PPE for healthcare staff.<sup>26</sup>

#### *Sanctions and COVID-19 pandemic*

Every country may encounter problems in providing medicine for patients with its non-communicable disease, but further sanctions and restrictions in Iran have exacerbated this problem. The epidemiological characteristics of the COVID-19 in Iran showed that older age and people with comorbidities significantly increase the risk of death, so the prevention and control of COVID-19 in these patients should be paid more attention, but unfortunately people with older age due to economic conditions, had to expose in the community. Drug shortage is one of Iran's main restrictions in this epidemic which was exacerbated by sanctions.<sup>6</sup> Although drugs and basic medical equipment are exempt from economic sanctions, but foreign banks that are afraid of being affected by these sanctions avoid from doing these activities. Therefore, many foreign transactions are not related to the health sector. As a result, Iran faces with problems in importing health and pharmaceutical supplies, which thus this issue has led to shortage and the provision of health services is one of the problems of the Iranian health system during the COVID-19 crisis. Therefore, beyond the severe effects of political and economic sanctions against Iran, the country's health system is more at risk and to deal with this crisis must be relieved of these sanctions. With the increasing number of COVID-19 patients admitted to hospitals, including mothers and babies, an additional

workload has been imposed on medical staff and more staff have become infected with COVID-19. In these circumstances, the lack of sufficient funding to hire experts jeopardizes the control of COVID-19, and sanctions can exacerbate these measures, especially over a long period of time. Sanctions against Iran have several direct and indirect consequences during the COVID-19 outbreak, which are graphically illustrated in Figure 1. Restrictions on the provision of some essential test equipment with advanced technology for the diagnosis of COVID-19, restrictions on the provision of necessary hospital equipment for CCU and ICU beds, restrictions on the provision of health services to patients with non-communicable diseases, the elderly and their mothers and children, drug shortage for patients with COVID-19, non-communicable diseases and the elderly people, the impact on medical and health professionals and nurses, problems on disease control and prevention due to financial constraints, and adverse effects on scientific research are among the effects of sanctions.<sup>27</sup>

*Management Strategies against Sanctions during the Corona Pandemic*

The International Covenant on Civil and Political Rights in 1966 (ICCPR), and the International Covenant on Economic, Social and Cultural Rights in 1966 (ICESCR), protects the right to health and access to medicine. Article 25 of the UDHR refers to a person's

right for having standard of life that allows him or her to maintain health and well-being. This issue includes access to food and medical care.<sup>10,27,28</sup> The negative consequences of economic sanctions during the COVID-19 crisis are unacceptable from a human rights perspective. They harm people and effectively restrict full access to humanitarian goods, which is a violation of international human rights obligations. Within the framework of the draft articles, the responsibility of governments for international misconduct, which was approved by the International Law Commission in its 53rd session (2001), a violation of international obligations by a state can lead to the international responsibility of the state. In addition to other strategies, in the first step, the responsible government must stop the wrongdoing and promise not to commit it again. According to this rule, the United States should suspend financial sanctions of Iran and not impose new sanctions during the Corona virus epidemic.<sup>28</sup> The United States has declared that humanitarian goods, such as food and health or medical equipment, are exempt. However, the Iranian officials say that due to the lack of payment mechanisms and financial channels for vaccines could lead to an increase the mortality rate due to COVID-19 among Iranian people compared to other parts of the world. Recently, Iran has been under pressure from a very troubling situation in its economic growth rate. So it is expected that economic growth rate is reduced to further 1.4%, as a result of the COVID-19 outbreak



*Fig 1. Effects of sanctions on the Iranian health system.<sup>27</sup>*

which may lead to economic collapse. All of these conditions have prevented Iran from dealing properly with the COVID-19. It is clear from this situation that Iran is increasingly exposed to the threatening consequences of the current epidemic more than before.<sup>10,29</sup> The ongoing economic sanctions are a major obstacle to funding the necessary preventive and control measures, including continuity physical distancing with jobs closure, reducing traffic, and providing essential health care to the elderly, and implementing a quarantine policy. Considering the importance of epidemic control in all countries to successful control the global epidemic, there is the need to remove economic sanctions to fund implement direct control, prevention, treatment and indirect measures such as providing support packages to continue physical distancing policies in Iran. In this critical periods, any reduction in Iran's revenue sources as a result of sanctions influence directly on the lives and health of the people, which is contrary to the Charter of Human Rights.<sup>6</sup> Successful experiences regarding some governments' performance in the COVID-19 pandemic have shown that implementing public health policies is associated with increased public trust in formal structures and mutual accountability of governments in advancing goals and programs. It is important to note that some governments, despite their willingness to take serious action, also suffer from severe shortage of funds to implement dealt with COVID 19 programs, and in this regard, the support of international institutions can play an important role. Eliminating economic pressures with political consequences in these circumstances can also be a part of the process for helping to properly control this worrying disease.<sup>11,30</sup> Iran in the shadow of the unparalleled efforts, cooperation and empathy that has shown throughout history, could repeatedly has resisted against the storm of natural and unnatural events and disasters and has emerged victorious, and this time there is no doubt that despite US government sanctions during these days, even in sending medical and health shipments to the people of Iran, and has doubled their suffering, thus Iran will come out victorious and proud in the fight against this pervasive calamity and also in the face of US sanctions.<sup>29</sup> To achieve this goal, all available capacities must be used including legal capacities, international organizations, associations and non-governmental organizations to reduce harm to public health. In fact, the best solution is to use different forces for achieve the desired goals to ensure public health and establish order in the health system, especially in the COVID-19 pandemic. Effective resolution of the Corona crisis in the face of sanction situation will be possible through reliance on self-sacrifice and intellectual, human and material resources in the light of technological approaches and leaps in national production of pharmaceutical products and empowerment improve in the field of diagnosis and treatment using the country's indigenous capacities.<sup>31</sup>

Due to sanctions and lack of access to sufficient financial resources, Iran did not perform pre-purchase the vaccine at an appropriate time and mostly sought to produce domestic vaccines which may be one of the reasons for the conflict of interest of decision makers in preventing the import of vaccines. Therefore, by the end of August 1400, only 6% of Iranian people had been vaccinated.<sup>32</sup> This is while that 594 days after the World Health Organization announced the outbreak of the unknown disease in Wuhan, China, 4.72 billion doses of corona vaccine were produced worldwide and 23.6% of the world's population was vaccinated against this virus and even more than 30 countries had managed to inject two doses of the vaccine to more than 50% of their population and introduced several approaches to prevent infections and manage also the long term consequences of COVID-19.<sup>33-42</sup> Despite the role of vaccines in saving human life, different countries have been looking for ways to increase the effectiveness of vaccines. In this regard, the US Food and Drug Administration had authorized the injection of the third dose of modern vaccine and Pfizer for some people.<sup>43,44</sup> With the measures taken by the Iranian government to vaccinate the country's population better and more, in particular the purchase of 110 million doses of vaccine, in January 2022 Iran reached an acceptable status in terms of 2 doses of vaccine with 72.11 percent of the population vaccinated.<sup>48</sup> This percentage compared well with other countries, including Italy with almost 90 %, United States with 75 percent, Russia 52 percent, Iraq 22 percent and Afghanistan 12 percent.<sup>45</sup>

### *Conclusions*

This review impartially has examined the management of corona heart disease despite sanctions. The current outbreak of COVID-19 disease has created an emergency and threatening status for public health in international level. Hence, governments have adopted new decisions to control and manage this crisis so that less damage is entered into communities. But despite the oppressive sanctions, Iran is struggling with double problems and in this meantime, the Iranian people have been severely affected by economic and health conditions, and the support of the international community can greatly reduce many problems. In crises, the weak and vulnerable groups are more facing with the greatest damage, so the attention of the government and organs towards the physical and mental health of this group is important. Oil sanctions are another important issue that has put a lot of pressure on the Iranian government and people with a direct impact on revenue generation, and in such circumstances, the Iranian health system is facing with a major crisis. In addition, although the drug is not on the sanctions list, but the sanctions have significantly affected the preparation and management of drugs, of course, the Iranian government and the Ministry of Health offered appropriate solutions in the information sector during

the epidemic. Fortunately, despite the sanctions against Iran, many hospitals had a good performance in implementing the health promotion program. This issue indicates that the planning and implementing the health promotion program is important in the management plan of hospitals. Allocating funds to cope with the COVID-19 burden and strengthening the health system can reduce the pressure of sanctions on the medical staff and the people of Iran. In general, the ongoing economic sanctions are a major obstacle to providing the necessary funding for preventive and control measures, and this issue endangers the public health of the Iranian people. The negative consequences of economic sanctions during the COVID-19 crisis are unacceptable from a human rights perspective, and the global health system must address this issue. In fact, the control and treatment of COVID-19 imposes direct and indirect socio-economic costs, which require government support packages, and make the economic and political problems of treatment management difficult. It is obvious that economic sanctions have severe and harmful effects on public health and have led to poor health consequences in Iran, but paying attention to standards and improving the quality of hospitals is another important issue that should be appropriate management strategies in this regard. It is time to take appropriate management measures, including by the government of Iran, based on international solutions and interactions to lift these sanctions or to help shape the structure and reduce economic sanctions to ensure the health of the Iranian people. Certainly, paying attention to public health is more important than political and ideological issues, which should be considered by the relevant organizations.

#### List of acronyms

COVID-19 - Coronavirus disease 2019  
 CCU - coronary care unit  
 ECMO - extracorporeal membrane oxygenation  
 ICESCR international covenant on economic, social and cultural rights  
 ICCPR - international covenant on civil and political rights  
 ICU - intensive care unit  
 IVR - Interactive Voice Response  
 JCPOA - joint comprehensive plan of action  
 NCD - non-communicable diseases  
 NCFC - national committee for fighting COVID-19  
 NRITLD - national research institute of tuberculosis and lung diseases  
 PPE - personal protective equipment  
 UDHR - universal declaration of human rights  
 US - United States

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The authors declare no conflict of interests.

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We confirm that we have read the Journal's position on issues involved in ethical publication and affirm that this report is consistent with those guidelines.

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