



COVID-19 in Iran: What was done and what should be done?

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Abstract

The current COVID-19 pandemic started in Wuhan, China, in December 2019. The World Health Organization (WHO) declared the COVID-19 as a public health emergency of international concern on January 30, 2020, and recognized the situation as a pandemic on March 11, 2020. Around 135 million confirmed cases and around 2.9 million deaths until the first week of April 2021 have been among its direct impacts on human health.

All countries have been affected in different degrees, and each of them has used different strategies to protect themselves against health and nonhealth consequences of this epidemic. Although all approaches are full of mistakes with fatal and painful results, some of them were successful in limiting the epidemic. One of the astonishing improvements is development of several vaccines in a relatively short period of time, which has increased hopes for epidemic control. This review aims to critically appraise the strategies for COVID-19 epidemic control in Iran since the beginning of the disease until the fourth peak of disease in March 2021.

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Review

The pandemic of SARS-CoV-2 started in Wuhan, China, in December 2019 (1). The disease caused by the SARS-CoV-2, known as COVID-19, is a severe acute respiratory syndrome (SARS). The World Health Organization (WHO) declared COVID-19 as a public health emergency of international concern on January 30, 2020, and recognized this disease as a pandemic on March 11, 2020 (2, 3). Since starting the pandemic, more than 88 million confirmed cases have been reported until January 8, 2021, from all countries and territories and are increasing in daily basis. Out of these cases, around 2 million

deaths have been reported as well. The crude unadjusted estimates for case fatality rate (CFR) of this disease varies in different countries from 14.2% in Italy, 5.5% in Iran, and to 2.2% in India (4); however, such estimates of CFR are not comparable across space and time (5).

The first report of confirmed cases from Iran was on February 19, 2020, in Qom province (6). As of third week of August 2020, more than 350,000 COVID-19 patients and more than 20,000 deaths have been officially reported as confirmed cases and deaths by the Ministry of Health and Medical Education (MoHME) in Iran (7). Later, The MoHME announced, on March 27, 2020, the epidemic

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↑What is “already known” in this topic:

The control of COVID-19 epidemic needs consideration of disease nature, existing scientific evidences, socioeconomic characteristics of the population, and finally a good stewardship. Many countries considered these factors and used the best methods to control of this disease. These methods are known and accessible for all countries to review and evaluation in order to select the best one.

→What this article adds:

In this articles, the methods of control of COVID-19 epidemic in Iran were assessed and criticized based on the existing knowledge and experiences of other countries. We evaluated the strength and weakness points of these methods and recommended some ways to manage the disease better than what was done.

had probably started earlier than the officially stated date, in month 11 of the solar year 1398 (01/21/2020-19/02/2020) (8). On July, 30, 2020, clinical and virologic characteristics of the first 7 cases of COVID-19 in Iran were published by academics from Tehran University of Medical Sciences and officials from Iranian Centre for Communicable Disease Control, MoHME (9). Numbers and dates of cases and deaths were not the same as those officially announced. Analysis of excess deaths showed a potentially higher number of deaths due to COVID-19 (10).

After reporting of the first cases, the Corona National Anti-Virus Headquarters (CNAVH) was established by the order of the President who is also the secretariat of the National Security Council. Seven ministers, the Attorney General, representatives of the Military forces and the police, and a broadcasting agency are among the members of this headquarter. It has a scientific committee with technical members mainly with medical and public health background. The minister of Health and Medical Education was determined as the head of the CNAVH. This was somehow different from the WHO recommendation that the head of COVID-19 national control committee should be the head of government, and the whole government should be involved in the control of the epidemic (11). However, the President arranged weekly meetings with the members of this committee, and adherence to the decisions of this committee was considered mandatory for all organizations (12). Also, the highest military person was appointed by the leader, who is also the commander in chief, to collaborate in epidemic control.

A team of the WHO experts, with leadership of Dr Richard Brennan visited Iran in March 2020. After 5 days of meetings and field visits, they publicly announced that the country's strategies and priorities to control COVID-19 are evolving in the right way: "A comprehensive coordinated approach is being carried, and hard work is being done, especially in the areas of case management, laboratories, and risk communications. The efforts of health officials to saving lives was very impressive for the WHO team." Later, the official report of their mission appeared on the web and detailed some concerns about the initial stages, including the real number of cases and deaths (13).

There were numerous instances of initial denial and downplaying of the presence of the disease in Iran, or the epidemic state, its spreading potential, and its mortality, and contradicting statements, by governmental officials within and outside the MoHME, and even clinical experts. Statements that are in clear contradiction with visible truth, and contradicting statements, decrease the public trust. Decrease in public trust decreases people's compliance with recommendations and contributes to increase in cases and deaths (14).

The majority of activities to control the epidemic were informing people about the risk of disease using mass media, setting up of 1,000 fixed and mobile detection clinics, involving the army to work alongside the medical staff, and producing face masks and gloves by new producers (including volunteers) (15-17). One of the best and a unique function of the MoHME was preparing a screen-

ing online system just by 3 questions to identify the suspected persons. The suspected individuals with at least 1 positive answer to the screening questions were introduced to the nearest health care center for follow-up. Since the development of this system, more than 70 million people were screened (18). Although there are concerns about the coverage and representativeness of the screening program, another project (multiple cross-sectional studies) is undergoing, which is based on random sampling (19).

During the first week after the reporting of first cases, all educational centers and nonessential business centers were ordered to be closed; one major issue in effective fight against spread of the epidemic was limited financial support and refrainment of government from providing effective financial aid for people to continue the temporary closure of nonessential business and services.

The religious centers were closed later. Some of the most important Shia religious centers in Iran (Fatima Masoumeh Shrine and Jamkaran Mosque in Qom; Imam Reza Shrine in Mashhad) were open to visitors and prayers until 16 March, almost 1 month after reporting the first cases. The city of Qom, as the place of the first confirmed cases, was never quarantined in spite of the discussions around this subject. In fact, many of the discussions around this subject were politicized.

More than 50 laboratories until March 2020 were capable to detect the virus with performing 6000 tests daily. This rate was reached to about 100 laboratories with capability of more than 15,000 tests daily on April 2020 (20).

After all these interventions, officially announced daily cases and deaths decreased in April 2020. Daily new cases decreased from a high of 3186 on March 30th to a low of 802 on May 2nd. Daily deaths decreased from a high of 158 on April 4th to a low of 51 on May 17th (21). From April 11, the government began to ease the restrictions in the country with some exceptions for Tehran. Despite the easing in restrictions, the government has urged Iranians to continue health protocols and social distancing. On April 22, a further easing of COVID-19 disease restrictions was done despite a gradual re-escalating of cases and deaths from 24 to 26 April (21). Public parks, gardens, and recreational areas were opened as a part of the easing measures, followed by gyms and restaurants. Schools and large gatherings remained suspended under the current restrictions. Soon after the lockdown continued to be eased and almost all restrictions were suspended, and the social and economic activities returned to work. From March 30 to May 2, 2020, the statistics continued to decrease from 3186 to about 800 cases per day (21).

Soon after the easing of restrictions, the cases began to increase to around 3570 on June 4, 2020. The disease was spreading again. The number of daily confirmed deaths that had dropped to 34 on May 25 increased to more than 200 by July 6, and 235 on July 28. In the first peak of the epidemic, the deadliest day was November 24 with 483 deaths (21).

Although there was an expectation for a second surge after easing the restrictions, the increasing of the cases was higher than expectations (21). It means that without

the restrictions, the virus could circulate easily even in hot weather and could impose a burden higher than the first peak of the disease.

On several occasions, open letters have been sent to various levels of authorities in the government and in the MoHME by scientific and professional communities regarding risks of further and faster spread of the epidemic and vital necessity of more effective response and decisive leadership in the fight against the disease and measures like prevention of population crowding, widespread use of masks, and alike.

After around 12 months from the official start date of the epidemic in Iran, it is time to ask ourselves what has been done by now and what should be done in the future?

“Decisive leadership” was introduced as a key and important factor for successful measure to control COVID-19 epidemic, especially in Eastern Mediterranean Regions (22).

Examples of decisive leadership was mentioned as rapid response, good coordination, and an evidence-based approach that is well communicated, and partnership spirit.

It has been shown that earlier implementation of control strategies is associated with better outcomes even for identical lockdown methods in the COVID-19 epidemic (22). Germany, Jordan, Vietnam, and New Zealand have done a decisive action against the COVID-19 epidemic. Rapid response had an important role to control the epidemic in Jordan with stopping any gathering and closing all educational centers (22). One of the caveats of the epidemic control in Iran was its extremely centralized nature. While the status of epidemics is obviously different among the provinces, most of the decisions and executive orders are with the central government. It seems crucial to allow provincial authorities to monitor, analyze, and decide based on the local status. Even if the human resource capacity is not enough in all provinces for this purpose, the 10 larger subnational zones (combinations of a few neighboring provinces with relatively similar epidemiologic profiles) could be authorized for this purpose (23).

Iran was late to stop travels from and to China. One of the airline agencies did not halt flights to and from China in spite of the recommendation by the MoHME. Also, no limitations were enforced against traveling between epicenters of the disease and other places at the beginning of the epidemic. Even after the rapid progress of the epidemic during the last month of the winter, there was not any strictly enforced bans for travels between cities. There were several reports of heavy traffic between cities right before the Persian New Year (Nowruz) holidays on March 20, 2020. Thereafter, the government banned all unnecessary travels between the provinces on March 25, 2020. The implementation of the majority of these limitations did not have a proper supervision. Therefore, the virus circulated easily around the country.

It seems the government response to the epidemic was almost rapid after the public announcement of the first cases on February 19, 2020; however there have been some statements about the accurate starting time of the epidemic. There are reports about the presence and circulating of the virus since at least January 21, 2020 (24).

However, delay on restricting some of the religious centers, public gatherings, and traveling of people because of the Persian New Year holidays made the control of the epidemic hard during the first weeks. Also, easing of the mandated restrictions (such as reopening of the governmental organizations and nonessential businesses because of economic problems) was very fast. From April 11, 2020, the governmental offices reopened nationwide with exception of Tehran. Despite these, the government encouraged people to follow personal health protection protocols. Reopening was not gradual and step-by-step, as recommended, and the Iranian people were among the first nations who experienced a second escalation of COVID-19 cases and deaths. It has been claimed that the second escalation is with a more contagious virus (25).

According to the WHO recommendations, the whole government should be involved to control the epidemic. The CNAVH has several members from the government, but it is mainly focused on the Ministry of Health. Decisions of the CNAVH are not as effective as it should be because of a weak intersectoral coordination with other organization. There are some discrepancies between decisions of CNAVH and other important organizations. For example, the municipality of Tehran enforced its usual traffic restrictions protocol against using personal cars in the central part of Tehran (the traffic zone). This strategy is usually used to increase using public transportation to reduce traffic and air pollution, but this is not a reasonable strategy during the COVID-19 epidemic, especially because the public transport network of Tehran is very crowded. Another example is to allow shopping centers to advertise their discounted sale on mass media. It gathers many people in the crowded indoor shopping centers, with a minimal or no commitment to social (physical) distancing strategies or wearing face masks. The Ministry of Communication and Information Technology announced for some encouraging services just during the peak of the epidemic, followed by people crowding in offices of this ministry. Even in some pharmacies under direct supervision of the MoHME, there was crowding for drugs for special and rare diseases without a proper supervision. These discrepancies beside the weak supervision of adherence to health protocols were important reasons of the second escalation of the COVID-19 epidemic.

A good example of the whole governmental approach was seen in Singapore (26). The coordination between regional and national committees in Tunisia is another example of a good coordination (27).

In Iran, a consulting scientific committee was established in the MoHME. However, the majority of the members of this committee are clinicians. Also, representatives from the relevant scientific and professional associations, such as the Iranian specialists of public health, epidemiology, community and preventive medicine, health economics, sociology, and social work, have not been reported. The current combination of expertise is expected to guide reasonably on patient management, but they do not necessarily have enough expertise about the epidemiology, control of epidemic, and prevention measures.

The evidence-based approach is also necessary for all planning and interventions. Although the information about this virus is not complete, there is not enough consensus, but the countries should use the successful experiences of other parts of the world. The good control of the COVID-19 epidemic in Canada, Singapore, and parts of China (such as Hong Kong and Taiwan) was probably because of the experiences of the Severe Acute Respiratory Syndrome (SARS) epidemic in 2002-2003 (28).

A reopening protocol was planned by CNAHV, but the implementation of this plan was not right. The interval between reopening of low- and high-risk businesses was very short, without a proper supervision and reassessment of the epidemic situation. In fact, many protocols were prepared for safe and gradual reopening and prevention of the second escalation, but there was not enough commitment and supervision for their implementation. Therefore, adherence to health protocols of COVID-19 prevention was not enough to keep the decreasing of statistics in Iran. In many countries, the government has considered penalties for noncompliance with COVID-19 containment measures.

After the third peak of the disease in November and December 2020, it was expected that if restrictions were not managed efficiently for the new year holiday (Nowrouz 1400; Mar 2021) it would spark the fourth peak of COVID-19, and it did so (29). These learned lessons must be used for attenuation of the height of the next peaks.

One of the main promising improvements in the COVID-19 epidemic control is the development and introduction of a few efficacious vaccines in <1 year from the identification of SARS-CoV2 (30). Many of the countries bypassed regular bureaucratic pathways and issued emergency use authorization to start vaccination in the earliest possible time. Considering the huge demand for COVID-19 vaccine products and currently limited supply, there are frank competitions between all countries to procure enough vaccines (31). Iranian authorities reflected very slowly to this development, and then announced that they do not trust vaccine brands produced by the United States and the United Kingdom; the decision was non-transparent from the technical point, and raised negative reflections among professional groups and the general public (32). Since then, Iran has imported different brands of COVID vaccines from Russia, China, India, and South Korea as well as trial vaccines from Cuba. However, both the procurement process and vaccination process have been very slow. With this pace of vaccination, herd immunity needs several years to be taken place in Iran. Different teams in the country are working on development of vaccines, but it is not expected to have any internal product before June or July 2021 (33).

New variants of SARS-CoV2 create another concern for epidemic control activities. The most recent increase in the number of cases and deaths (started in February 2021 from Khuzestan province) is accompanied with circulation of the British variant (B.1.1.7) in almost all provinces of Iran (34). The high rate of circulation of the virus in population creates the potential for possible new variants.

The Global Outbreak Alert and Response Network

Steering Committee urges all governments and other partners to focus on outbreak response pillars: engage communities and build trust among the society, avoid politicization of the response, expand advisory pool, rapidly expand the public health workforce, make evidence-informed decisions, ensure equitable access health care and preventive measures, and support multilateral action and international solidarity (35).

Conclusion

In conclusion, we experienced the increasing cases of COVID-19 after a relatively good control. It seems that we did not pay enough attention to some important points in our approach. Some of these points could be categorized as follows:

- Recognizing CNAHV as the steward of the epidemic control, with all-of-government (or all-of-state) authorities and responsibilities
- Having clear protocols for conducting and enforcing social distancing interventions and universal masking, as well as protocols for easing mandates
- Increasing financial supports from individuals who have been negatively impacted from COVID-19, especially the most vulnerable groups
- Decentralizing authorities to the provinces (or groups of provinces) to let them monitor the situation, analyze, and decide based on their local data
- Redirecting the CNAHV scientific committee toward prevention and population-level epidemic control through additional public health expertise
- Using principles of implementation science toward increasing commitment to CNAHV decisions and its subnational substitutes
- Increasing community engagement and intersectoral collaboration, parallel to a decisive leadership
- Increasing capacity for testing, tracing, and isolating of contacts and high-risk individuals
- Using penalties to increase adherence to COVID-19 containment measures, especially in public settings, if necessary
- Increasing activities to procure efficacious vaccines and increase pace of vaccination in the county from any available source
- Urgent need for more efficient and coherent decision-making with regard to setting the levels of restrictions before specific events that are known to increase the spread of the virus through an increase in travels and gatherings, like the national holidays, religious customs, end of summer vacations, and alike

Conflict of Interests

The authors declare that they have no competing interests.

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