

Access this article online
Quick Response Code:

Website: <a href="http://www.jehp.net">www.jehp.net</a>
DOI: 10.4103/jehp.jehp_483_21

# Documenting the managerial experiences of Isfahan Khorshid educational and medical center in dealing with the coronavirus crisis

Zohreh Abnilli, Ramin Sami, Masoud Ferdosi

## Abstract:

**BACKGROUND:** One of the crises facing human beings is coronavirus disease. This disease was identified in December 2019 in Wuhan, China. With the death of two patients with respiratory complications in Qom Hospital on February 20, 1998, and the confirmation of their positive test, the arrival of COVID-19 disease in Iran was officially confirmed and Khorshid Medical Center as the main reception the Medical Center for patients with COVID-19 from August 3, 2010. The purpose of this study is to document the experiences of Khorshid Training Center in coronavirus crisis management to improve crisis management knowledge.

**MATERIALS AND METHODS:** This research was conducted qualitatively with grounded theory method in the period from March 1998 to the end of May 1999. The study population was Khorshid Educational and Medical Center. Sampling was done purposefully among medical staff, support, and hospital officials. The number of samples with the mentioned conditions reached 44 people. Data were collected using a semi-structured questionnaire and analyzed in the style of grounded theory in the style of Strauss and Corbin.

**RESULTS:** Data collected after sorting, analysis, conceptual analysis; they were coded and categorized into four groups of challenges, weaknesses, strengths, and actions based on the specific objectives of the research in 5 natures, reorganization, accident control system, medical equipment and supplies, human resources, and clinical approaches.

**CONCLUSION:** According to the points classified in the challenges and weaknesses, it was found that the hospital has faced several problems in corona crisis management. The management team, taking advantage of strengths in various areas, has taken effective measures to improve corona crisis management. It has led to the provision of appropriate services to the patients of the Medical Center.

## Keywords:

Corona, crisis, documentation, grounded theory, management

## Introduction

Throughout history, human beings have witnessed various natural and unnatural disasters that have disrupted normal routines. They caused human, financial, economic, and social losses so that ordinary resources will not meet these needs.<sup>[1]</sup> One of the crises facing human beings is coronavirus disease. The new

coronavirus was identified in December 2019 in Wuhan, China. The virus is now known as acute respiratory syndrome. China quickly implemented health, medical and experimental protocols to control the spread of the virus. This country also built several hospitals, including two field hospitals, 15 days apart in Wuhan. The World Health Organization declared the outbreak of coronavirus a global epidemic in March 2020 and outlined strategies to

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-Non Commercial-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](mailto:WKHLRPMedknow_reprints@wolterskluwer.com)

**How to cite this article:** Abnilli Z, Sami R, Ferdosi M. Documenting the managerial experiences of Isfahan Khorshid educational and medical center in dealing with the coronavirus crisis. *J Edu Health Promot* 2022;11:260.

Department, Khoeshid Hospital, Isfahan University of Medical Sciences, Isfahan. Iran

## Address for correspondence:

Dr. Zohreh Abnilli, Khorshid Medical Educational Research Complex, Ostandari Street, No 105, Isfahan, Iran.  
E-mail: [nour@mui.ac.ir](mailto:nour@mui.ac.ir)

Received: 13-04-2021  
Accepted: 11-11-2021  
Published: 25-08-2022

prevent and treat it.<sup>[2]</sup> After the death of two patients with respiratory complications in Qom Hospital on February 20, 1998, and the confirmation of their positive test by the reference laboratory, the arrival of COVID-19 disease in Iran was officially confirmed. To control the disease, the Ministry of Health took measures such as traffic restrictions, designating certain corona hospitals, issuing health instructions, and treatment protocols. Isfahan University of Medical Sciences initially allocated 10% of the beds capacity of its treatment centers to coronary patients under the conditions of isolation, but due to the spread of the disease, hospitals were selected as referral centers for these patients and Khorshid Center. From 3 August 2019, it became the main reception of the Medical Center for patients with COVID-19.<sup>[3]</sup> Making important decisions are very difficult in times of crisis. Prompt action is necessary to contain the crisis and its consequences, and managers must ensure that decisions are taken into account.<sup>[4]</sup> Khorshid Medical Center was chosen as a referral the Medical Center for COVID-19 at a time when there was still little global knowledge in the management and treatment of the disease. Health officials did not have an understanding of the dimensions of the epidemic, and the course of the disease was not predictable in the future. Therefore, the managers of the Medical Center began to survey the condition and adapt it to the needs for controlling and treating of coronary heart disease through identifying its strengths and weaknesses. They tried to provide an environment that achieves the best results in the reception and treatment of patients. The purpose of this study was to document the experiences of Khorshid Medical Center in coronavirus crisis management in the areas of re-engineering the hospital structure, using the accident command system, human resource management, providing personal protective equipment, and localizing guidelines related to coronavirus for improving management knowledge in the corona crisis.

### Research objectives

- Documenting hospital experiences in reorganization
- Documenting the experience of using the hospital accident command system
- The experience of the Medical Center concerning providing consumed medical equipment
- The Medical Center's experience in providing human resources
- Documenting the clinical approach to corona treatment and localizing the relevant guidelines.

## Materials and Methods

### Study design and setting

This research was conducted as a qualitative study using grounded theory method with the aim of documenting the management experiences of the Khorshid Medical

Center in Corona crisis to improve the knowledge of crisis management in Corona. Grounded theory is a qualitative research method used to examine social processes in human interactions.<sup>[5]</sup> This method is suitable for research on phenomena that are not well known or to gain new insights into familiar phenomena. Grounded theory enables the researcher to achieve the complexity of reality and to reach a convincing understanding of it.<sup>[6]</sup>

### Study participants and sampling

The research community of the Khorshid Educational Research and Treatment Center and the sample selection method were purposeful. The inclusion criteria were being employed in the Medical Center and being aware of the hospital events in each axis. If there was not enough time for the interview or lack of cooperation, the sample was excluded from the study and a replacement was selected for them. The number of samples with the mentioned criteria included the management team, supervisors, nurses, doctors, pharmacy personnel, medical equipment, medical and laboratory documents and senior members of the crisis team, which reached 44 people. In qualitative research, the criterion for selecting the number of samples is saturation. Data saturation in qualitative research is achieved when the data are duplicated and no new code is obtained.<sup>[7]</sup> Moreover, there is no regular law on the number of samples needed for this type of research. The number of samples in a large number of qualitative studies was between 10 and 30.<sup>[8]</sup> The time period was from March 1, 2017, to May 20, 2016.

### Data collection tool and technique

This research was conducted in the form of a survey. The study included open and semi-structured interviews with the managers and staff of the Medical Center. Then, the purpose of the study explained to participants, and they were ensured that their characteristics will not be revealed in the research. In the meantime, some participants withdrew from participating for various reasons. The researcher did not examine the 5 key questions in order based on the objectives of the study as he had noted. The interviewee tried to talk about everything he knew about the general subject of the research and to answer as he/she wanted. However, the researcher tried to keep the conversation in the main direction. To get the desirable answers, the order and number of questions depended on the answers of the participants. Besides, in some cases, it was not necessary to ask all the questions during the interview because some of the participants could easily express their opinions without asking additional questions. In each axis, additional information such as key indicators, approvals of the crisis committee, approvals of joint meetings with residents and residents, approvals related to the revision of guidelines, and statistics of consumables and equipment were reviewed.

Then, all the collected comments were written and signed by the interviewees. For data analysis, the method of continuous comparative analysis of Strauss and Corbin (Corbin and Strauss) was used.<sup>[7]</sup>

In this method, the text of the interviews in three stages of open, central, and selective was coded in the four groups of challenges, weaknesses, strengths, and actions that they were based on the specific objectives of the research in 5 areas that are reorganization, accident control system, medical equipment and supplies, manpower and clinical approaches that all were categorized according to Table 1.

Moreover, the present study is a qualitative research, and based on the nature of qualitative research, it is necessary to mention the validity and reliability of the research because and no two researchers of philosophy and thought have not the same experiences in the past and present. Even the phenomena and events themselves are subject to the passage of time, place, conditions, etc., Therefore, we cannot expect that even when all the conditions are the same, the results and findings of qualitative research should be completely repeated by another researcher, in other words, as Bagheri *et al.*<sup>[9]</sup>

have also stated that reproducibility (reliability) will not be necessary for qualitative research. However, the results were semantically and substantively validated by the interviewees and a number of experts in the field of accuracy through member control and review by observers to determine the validity of the findings.

### Ethical considerations

To comply with ethical considerations, the topic of the project was clearly explained to the selected samples, and if they inclined to cooperate in the project, the steps were continued. Finally, after collecting data, they extracted in the written form to confirm. Then the information was heard by each sample in the research.

## Results

The collected data were coded in 42 topics after sorting. These topics were categorized into four groups of challenges, weaknesses, strengths, and actions taken with the focus on the specific objectives of the research.

### Challenges of reorganization

#### Evacuation of intensive care units

Sending patients from inpatient wards was associated

**Table 1: Research findings**

The nature of the subject	Challenge	Weak points	Strong points	Actions
Reorganization	Evacuation of special wards from noncoronary patients	Lack of coordination between departments and outsiders Weakness in physical infrastructure	Empathy of officials with employees Effective communication with upstream organizations	Coordination with organizations and organs Change the process of current processes and activities
	Transfer of dialysis ward to noncoronary centers			
	Transfer of the poisoned ward and emergency department to noncoronary centers			
	Transfer of psychiatric ward and emergency to noncoronary centers			
	Increasing the number of beds in the special ward			
Command system	Surprise at the macro level	Do not hold related maneuvers Lack of clear chart for epidemic crisis management	Quick decision of the commander	Regular meetings Use of virtual system and application
	Decision difficulties			
	Organizing volunteer forces			
	Determining patient admission routes			
Equipment	Organizing donations	Lack of facilities and equipment Low quality protective equipment	Support of upstream organizations in equipping the center Supporting donors in providing equipment	Forming a specialized team to review the needs of the center Quotation and distribution of personal protective equipment in a centralized manner Informing donors about related needs
	Supply of medicine and protective equipment			
	Check the authenticity of protective equipment and medicine			
Human resources	Fair distribution of equipment	Lack of power Lack of staff skills	Cooperation of volunteer forces	Use of volunteers Providing welfare facilities Staff training
	Power supply			
	Staff mental readiness			
Clinical approaches	Establishing staff welfare facilities	Elimination of the educational system No native guidelines	Type of center specialization	Formation of a specialized committee Indigenize the guidelines Approve guidelines
	Lack of coordination in treatment			
	Inefficient guidelines			
	Recognize native guidelines			

with many challenges so that it was done during a process of about 10 days and with different inter-ward coordination.

With the announcement of the emergency evacuation of the wards from noncoronary patients, there were problems such as lack of transmission force, lack of equipment including stretcher and ventilator in the reception wards (A1-2-B2).

The staff's lack of knowledge in the admission wards about the history and conditions of the patients leads to a prolonged process of transfer and conflict between the staff (B1-3, C1-5).

In some cases, the staff of the admissions department refused to admit patients due to lack of some file information (C1-8).

Lack of instructions from the treating physician to send patients is also a problem (B1-3, C1-5).

The dispatch of patients led to protests by the patient's companions because the transfer of these patients was associated with risks (B1-3, C1-5).

### *Transfer of dialysis patients*

Dialysis patients were among the permanent patients of the Medical Center and were accustomed to their admission conditions, they were not satisfied with transfer to other Centers (B1-5).

The head of the dialysis department also disagreed with the transfer of patients, thinking that this ward was completely separate from the rest of the Medical Center (D1).

Due to the limited number of dialysis boards in Isfahan, the admission of 180 patients to the Khorshid Center posed a major problem for the authorities (A1-2, B1-10, D1).

Lack of familiarity of the reception centers with the patients' condition was one of the problems that required the presence of nurses for each patient in the same Medical Center and giving the necessary explanations about each patient (B1-10).

### **Emergency transfer of poisoners**

The only emergency room and poisoned ward in Isfahan are in the Khorshid Center. When these patients were transferred to another hospital, there were serious concerns about how they would receive specialized care.

The destination hospital was not prepared to accept the poisoned patients because of physical space required, so the hospital did not agree to the transfer of this ward (D2).

The destination hospital had difficulty meeting the specialized medical needs of the poisoned (H1-3).

### **Transfer of ward and psychiatric emergency**

For the transfer of psychiatric patients, the coordination of the supervisor with other hospitals was not effective because apparently, the supervisors of the above centers were unaware of the transfer (A1, B1-4).

Contacting the referral staff and determining the admitting hospitals was also a challenge because contacting was a time-consuming process (A2, B1-3).

Transfer of psychiatric patients was associated with patient resistance in many cases (B1-B5, C1-C3).

The transfer of psychiatric patients to a specialized transfer team, including a physician, bodyguard, and paramedic, was required, and the lack of manpower and ambulance created many problems (D1-2, C1-2, B1-2).

### **Increasing the beds of special sections**

The treatment of noncoronary patients was supposed to continue until their discharge, but due to the influx of coronary patients and the lack of intensive care unit (ICU) beds, we were required to transfer patients (A1-3, B1-10).

To increase the number of ICU beds, we had to transfer the ICU patients to another hospital. The destination hospital made the admission of these patients conditional on a negative PCR test (B1).

Adding special beds require official permission from insurance companies, which was not possible in the crisis, so the cost of the bed was not calculated as an ICU (A1-2).

### **Challenges of the command system**

#### *Surprise at the macro level*

The biggest challenge managers faced in the corona crisis was the surprise challenge of facing an epidemic. Not knowing how to deal with such situations, despite writing the crisis system, we faced with the challenge of surprise in all areas because in times of crisis, opportunities are limited (A1-2).

#### *Difficulty in crisis decision making*

The announcement in the media led to the influx of a large number of patients with the slightest symptom into the hospital, which prevented a correct and timely decision at the hospital level (A1-5, D1-3).

The individual decision of the commander-in-chief and its communication to a number of individuals left others unaware of the decisions (G1-4).

### *Organizing volunteer forces*

Some of the staff were in the vulnerable category, and some of the nurses and other staff of the medical center were terminated for various reasons over time. The medical center faced a shortage of staff (B1-10).

Familiarizing the staff with the condition of the medical center and the equipment of the medical center was one of the problems facing the nursing office (A1-3).

Due to the cancellation of clinical training, a number of professors expressed their desire to work in Khorshid Hospital. The division of wards to visit patients faced many challenges (A1-4, D1-10).

The recruitment of people who had no employment record with the University of the Medical Sciences as a volunteer was a subject that everybody has with differing views, some agreeing and some disagreeing due to legal issues (A1-5).

### *Determining patient admission routes*

The large volume of patients led to the lack of empty capacity for admission of patients in the emergency room and a triage did not meet the need (B1-10, C1-10).

The large number of patients caused congestion, which in addition to making it difficult for patients to be referred correctly. Besides, it increased the likelihood of transmitting the virus from carriers to healthy individuals (B1-10, C1-10, D1-5).

### *Organizing donations*

Benevolent people wanted to help patients and staff but the large number of these people and their assistance became a challenge.

The number of staff and patients and the statistics of the amount donated by the officials became a challenge in observing justice in distribution (A1-5).

Examining the quality and standardization and the poor hygiene of donations was also one of the challenges that caused their consumption with controversial opinions (A1-5, G1-3).

## **Resources and equipment**

### *Supply of medicine and protective equipment*

In the early days, pharmaceutical companies avoided providing the required medications and personal protective equipment. This was a major challenge for the medical center which caused stress of deficiency (H1-5, A1-5).

Purchases of medicines, etc., were subject to cash payments, which caused the hospital many financial problems and challenges (A1-5).

### *Check the authenticity of protective equipment and medicine*

The supply of protective equipment and medicine alone is not enough, but all of these products must be tested for standardization to ensure their effectiveness.

Finding suitable suppliers and selecting authorized companies to purchase equipment was time consuming in the 1<sup>st</sup> days (A1-5, H1-5).

Sometimes companies wanted the hospital to accept equipment and take the opportunity to sell without a license, challenging the acceptance or nonacceptance of these items in the medical center crisis (A1-5).

### *Fair distribution of equipment*

The fear and anxiety of all employees and the demand for full and even multilayered personal protective clothing by all employees were challenging. In addition to wear full clothing, some people wore waterproof guns, glasses with shields, surgical masks, and N95 masks together (B1-10, H1-5).

Disposal of disinfectable personal protective equipment, including glasses, was a challenge that, if left unchecked, would impose significant costs on the medical center (B1-10, C1-10).

## **Human resources**

### *Power supply*

With the change in the duties of the hospital, the provision of manpower corresponding with the need, was accompanied by a challenge. Ordinary wards became ICUs and we faced a shortage of ICU nurses (A1-5).

The medical center's need for infectious disease and lung specialists had increased and the high volume of its work had caused the burnout of the present physicians, and the need for cooperation of other physicians was facing a great challenge (A1-10, D15).

### *Personality morale*

Due to the emergence and unknown nature of the virus, fear and anxiety arose in colleagues, and some staff reacted negatively to the admission of coronary patients (B1-10, C1-10).

The staff was more concerned about their families than they were about themselves, which was a major challenging for us (A1-5).

### *Establishing staff welfare facilities*

The residence of personnel who applied to stay in the hospital permanently for fear of transmitting the disease to their family posed a challenge in this regard (A1-5).

Preparing some items to satisfy the staff and trying to get more cooperation from them was another concern of the hospital (A1-5, B1-10).

### **Clinical approaches**

#### *Lack of coordination of patients' treatment*

One of our challenges is with physicians who have good clinical vision but do not have a sociological perspective and do not notice that we are not just dealing with one patient but one community and one epidemic (A1-5).

Due to the fact that the disease was new, the physicians did not have the same treatment pattern and the physicians constantly violated each other's instructions and prescribed other medications. The treatment variable was encountered (B1-10, C1-10).

Uncodified prescriptions by physicians, such as IVIG prescriptions that were not accepted by insurance companies, would impose costs on patients (A1-5, H1-5).

#### *Inefficient guidelines*

Initially, there was no country clinical guide. Clinical guidelines issued by the ministry were ineffective for a variety of reasons. Even their implementation would cause problems (A1-5).

#### *Recognize guidelines*

To attract the attention of physicians who did not participate in the sessions and scientific opinions from the beginning, waterfall sessions were needed to implement the relevant guidelines, which limited the time and accumulation of the sessions (A1-5).

### **Weaknesses in reorganization**

#### *Lack of coordination between departments and outsiders*

Despite the order of the deputy director of treatment to refer the Medical Center, proper information was not provided to other centers for unconditional admission of patients (A1-5).

With the transfer of the poison ward, it was not planned by the Food and Drug Administration to meet the specialized drug needs of the destination hospital (B1, A1).

Lack of coordination with insurance organizations in many cases led to the shortcomings of these organizations, especially in the field of increasing the number of beds in the special ward (A1-5).

### **Weaknesses in physical infrastructure**

Some wards of the hospital did not have central oxygen and capsules were used, and the capacity of the oxygen tank was relatively low due to consumption (H1-2, A1-5).

### **Weaknesses in the command system**

#### *No maneuver*

The province's disaster command plan had not previously provided a specific role for Khorshid Medical Center in controlling epidemics (A1-5, G1-4).

To execute the command system in the best possible way, it is necessary to hold related maneuvers that have not been provided in the field of disease epidemics so far (G1-4).

#### *Lack of clear chart for epidemic crisis management*

There was no operational planning with clear charts in controlling the epidemic crisis (G1-4).

Failure to hold joint meetings with upstream organizations such as the Deputy Minister of Treatment regarding the development of epidemic crisis control program (A1-5, G1-4).

### **Weaknesses in resources and equipment**

#### *Lack of facilities and equipment*

Lack of laboratory kit, ICU bed, and ventilator, bypass device, etc., led to delays in diagnosis and treatment (H1-4, A1-5).

#### *Low-quality protective equipment*

The protective equipment was of poor quality so that the masks were not fixed on the face and the hats of the clothes were very small and some clothes were warm (C1-10, B1-10).

### **Weaknesses in human resources**

#### *Lack of power*

There was a shortage of medical, nursing, secretarial, and other support staff due to changes in the hospital, sick and sick duties of vulnerable people (A1-5, B1-10).

#### *Lack of staff skills*

New patients needed care that not all staff knew about, not all nurses mastered ICU services. The volunteers were unfamiliar with the Medical Center's facilities and equipment (A1-5, C1-10, B1-10).

### **Weaknesses in the clinical approach**

#### *Elimination of the educational system*

With the elimination of the educational system and the elimination of interns and residents, the problems of physician shortage increased and the process of patient registration was out of the standard mode (A1-5, D1-10).

### **Strengths of reorganization**

#### *Empathy of officials with employees*

Encouraging remarks by officials made it easier for employees to accept the crisis (C1-10).

The colorful presence of the hospital director in the virtual channels of the hospital solved many ambiguities (B1-B10).

### **Strengths of the command system**

#### *Quick decision of the commander*

The accident command system was activated in the presence of the accident commander, senior safety, and medical technician, and immediate decisions were made at the same time for proper emergency management (A1-5, B1-10).

### **Strengths of human resources**

#### *Cooperation of volunteer forces*

The active presence of some physicians in various specialties and the dispatch of nursing teams in coordination with upstream organizations were effective in reducing the manpower crisis (A1-5).

### **Strengths of the clinical approach**

#### *Type of the Medical Center specialization*

Fortunately, the Medical Center had a specialized lung ward, and many specialist physicians and nurses were familiar with the intensive care of respiratory patients (A1-5, D1-10).

### **Measures taken in reorganization**

#### *Coordination with organizations*

At the request of the hospital, joint meetings were held with insurance organizations and Bameh experts based in the hospital and the problems related to insurance deductions were partially resolved (A1-5)

The capacities of health centers and NGOs were used to follow-up discharged patients (D1-5, A1-5).

#### *Changing the process of activities*

By setting up two triages and three doctor's offices simultaneously in the clinic, patients' waiting time was reduced (A1-5, B1-10, D1-10).

The record of patients' files was changed from electronic to manual by the author due to the removal of the educational system and the increase of the speed of operation.

Due to the elimination of the educational system, the recording of two biographies was reduced to one biography in the patient file.

The format of the disease course sheet was changed in such a way that the results of the tests could be recorded easily and without forgetting and used in the next treatment, and a part was dedicated to the registration of drug side effects (A1-5, H1-4, D1-10).

With the establishment of an outpatient laboratory in the clinic, the number of patients in the hospital was

reduced and the test results were reduced from 3 h to ½ h (H5, A1-5, B1-10).

By changing the process of requesting equipment from the warehouse, the movement of personnel to administrative affairs to approve the requests was canceled and the time and paper of the requests were saved (A1-5, B1-10).

### **Actions in the command system**

#### *Regular meetings*

To make the necessary coordination, a meeting was held every week in the form of crisis management and the necessary decisions were made while reporting the current situation (A1-5).

#### *Virtual system*

The shortest way to inform approvals or quick decisions was to form a virtual system, but all approvals were notified in writing.

### **Actions in human resources**

#### *Use of volunteers*

In coordination with the deputy director of treatment, volunteers were sent to the hospital to help. Furthermore, spontaneously, Basij organizations provided assistance in disinfecting the hospital in two stages (A1-5).

#### *Providing welfare facilities*

Under normal circumstances, the Medical Center was in harmony with other units of the University of Medical Sciences in terms of amenities, but with the current situation and hard work, the Medical Center management decided to increase some amenities (snack distribution, lunch and mineral water, distribution) to attract participation and create a sense of encouragement. Soft music and.) (A1-5, B1-10).

#### *Staff training*

Training on the correct use of personal protective equipment, working with specialized equipment such as bypass, how to disinfect the ward and equipment in person and preparing clips and publishing in cyberspace was done (H1-4, A1-5, B1-10).

### **Measures in the clinical approach**

#### *Formation of a specialized committee*

To make the right decision for the treatment of patients with emerging diseases, it was necessary to obtain the opinions of expert groups, so by forming a specialized committee and holding regular meetings, opinions were reviewed and decided (A1-5, D1-10).

#### *Indigenous guidelines*

Because the centers did not have a proper guideline for treating the disease, hospitals were forced to make decisions based on the opinion of experts and specialists (A1-5, D1-5).

### Approval of guidelines

To legalize the guidelines, the need for scientific and legal gathering was done in the presence of representatives of forensic medicine, the medical system and treatment groups, and the necessary approvals were obtained (A1-5).

## Discussion

The COVID-19 pandemic is now emerging worldwide as one of the emerging infectious diseases and because the outbreak of the disease is an unexpected event or sequence of events on a large scale and at high speed, it leads to a high degree of uncertainty and health systems are fraught with a variety of challenges.<sup>[6]</sup> Khorshid Medical Center in Isfahan province was selected as a referral hospital for COVID-19 when there was still little global knowledge in the management and treatment of this disease. Health officials did not understand the dimensions of the epidemic and the course of the disease in the future was not predictable. Problems such as the shortage of drugs and acceptable treatment, the complexity and unknown nature of the disease in terms of clinical manifestations, mode of transmission, consequences, and its unpredictable course have created many problems. On the one hand, the devastating and mysterious death of the patients, as they mentioned in the findings section, have put the center into many challenges in preparing the admission conditions for coronary patients. On the other hand, poor physical space infrastructure and many shortages in human resources and equipment have doubled the problems of managing the epidemic crisis. As Khorsand Choobdar *et al.* demonstrated in their studies, increasing the admission capacity in the peak of the disease is one of the reasons why hospitals could not deal with the challenge. Therefore, it is necessary that hospitals prepare themselves and officials should pay attention to the readiness of the hospitals and provide serious and quick solutions so as to increased readiness of hospitals to reduce the number of deaths.<sup>[10]</sup>

Although as it is mentioned in the research done in country of Nepal (2015), in the area of management crisis, issues such as economic and cultural conditions are obstacles for government in the management crisis.<sup>[11]</sup> However, the managers of these centers have made attempts to benefit from the strong points, e.g. specialists in different branches, the presence of authorized specialists, and interested manager team in the center take measures to change procedures to form specialist groups in the field of medicine, nursing, backing, speed in giving safe services to patients, and supporting personnel. These measures are also taken to deal with the disease crisis, in a study named "Development of the First Hospital Based on the Epidemic Management Program

Entitled Focus on Inter-departmental Coordination and Increased Communication, Support and Provision of Personal Protection Facilities, and Training of Incident Command in the hospital have been presented.<sup>[12]</sup> In this regard, Jebelli *et al.* in their study with the aim of presenting the experiences of Masih Daneshvari Hospital on how to manage, prepare, and deal with the COVID-19 epidemic stated that successful management in the spread of infectious diseases require the integration of clinical and nonclinical practices. Proper planning and having preparedness plans are the implementation of appropriate methods of infection control and sustainable management.<sup>[13]</sup>

Moreover, as Labaf *et al.* presented the most important challenges in hospitals during COVID-19's time is "Macro-level Surprises, the Inability to Control the Use of Protective Equipment and Medicine, and the Supply of Equipment," they said that to maintain preparedness for the crisis biological agents should be provided with diagnostic and therapeutic equipment, drugs, and personal protective equipment, and more effective management can be provided by the timely formation of crisis committees, flexible decision-making, and the management of emotions and motivations in the workforce.<sup>[14]</sup> The participants in this study also pointed to the two challenges of adding beds in the ICU and providing more medicine and personal protective equipment which indicated an increase in patients waiting in the ICU and also increased stress and staff concerns about direct contact with coronary patients. This issue is also mentioned in the article of leadership in times of crisis that the number of patients was increasing daily. Some patients with acute illness and some health-care workers have also contracted this infection. It was increasing among employees and people.<sup>[15]</sup>

Among the weaknesses of the hospital, people expressed the most important weakness of the hospital in its physical infrastructure because the 100-year-old hospital cannot make rapid and fundamental changes, although some parts are newly established, but not enough. In the experiences of Yaftabad Martyrs Hospital, insufficient oxygen capacity due to the type of crisis and lack of inpatient capacity of the isolated respiratory ward have been mentioned as hospital challenges.<sup>[16]</sup>

According to the interviewees, the most important strength of the hospital was in the focus of the clinical approach to the type of hospital specialty because the Khorshid Center, as an internal subspecialty hospital, has reputable physicians, especially in the specialty of lung. Moreover, the most important action taken in the hospital, according to the people present in the study, has been a change in current activities and processes, which has led to the correct and timely service to patients. It is



very serious and the only way to control it is to change your behavior and lifestyle.<sup>[17]</sup>

### Limitations and practical suggestions

There were no other specific restrictions except for hard access to the interviewees and little knowledge about the Covid 19 disease.

### Conclusion

Turning a specialist training center into a crisis referral center was not a small change that could be easily bypassed, especially when this change puts even the lives of employees at risk. In this situation, Khorshid Hospital, with the support of its specialized and self-sacrificing manpower, stepped on the front line of the battle against this infamous virus and through planning and holding frequent crisis meetings, took the necessary measures to create conditions for admission and management of coronary patients.

At the beginning, due to the fear and panic created in the community about COVID disease, 19 large numbers of patients with the slightest symptoms went to the hospital. Appropriate physical space and two triage groups of patients were separated, and this separation and timely assignment of patients was effective in timely treatment of patients, reducing the waiting time of all clients and preventing the transmission of the virus to each other. Encouraging the staff with the presence of senior hospital officials in the staff and their presence on the front lines of patient admission and treatment was very effective.

As the results of this study showed, according to the recorded statistics, the mortality rate of patients admitted to Khorshid Hospital due to corona was 8%, which is 10.3% compared to the statistics of Isfahan province (except Kashan, Aran, and Bidgol). The total number of affected personnel in the province is 456, of which only 39 were Sun personnel. Its staff has been effective and fortunately has suffered the least damage among its staff.

### Code of ethics

This research has been registered with the ethics code 51716 in the research system of Isfahan University of Medical Sciences.

### Acknowledgments

The cooperation of all respected professors and physicians, as well as the staff of Khorshid Educational and Medical Center, who fully cooperated with the

research team in collecting information about this research, is appreciated and thanked.

### Financial support and sponsorship

Nil.

### Conflicts of interest

There are no conflicts of interest.

### References

1. Daneshmandi M, Nezamzadeh M, Zareiyan A. Assessment the preparedness of selected hospital to deal with disasters in Tehran. *MCS*. 2014; 1 (1) :28-35.
2. Lupia T, Scabini S, Mornese Pinna S, di Perri G, de Rosa FG, Corcione S. 2019 novel coronavirus (2019-nCoV) outbreak: A new challenge. *J Glob Antimicrob Resist* 2020;21:22-7.
3. The First Provincial Instruction of Corona Virus, Vice Chancellor for Treatment, Isfahan University of Medical Sciences, March 26. Report No: 16413; 2017.
4. Karbaschi K, Aliyari S. Corona virus (Middle East respiratory syndrome). *Journal of the School of Army Nursing*. 2015;15(1):55.
5. Polit DF, Beck CT. *Nursing Research: Principles and Methods*. Philadelphia, PA: Lipponcott Williams and Wilkins; 2004. p. 721.
6. Joybari L, Oskooi F, Ahmadi F. Comfort ward nurse: Experience and perspective of hospitalized patients. *Razi J Med Sci* 2005;12:59-68.
7. Streubert HJ, Carpenter DR. *Qualitative Research in Nursing, Advancing the Humanistic Imperative*. Philadelphia: Lipponcott Williams and Wilkins; 2003.
8. Vermeersch PE. *Nieswiadomy, RM (1987). Foundations of nursing research*. Norwalk, CT: Appleton and Lange, 436 pp., \$23.95 (soft cover).
9. Bagheri MA, Parvizi S, Salsali M. *Qualitative Research Methods*. Tehran: Bashari Publications; 2011.
10. Reynard J, Reynolds J, Stevenson P. *Practical patient safety*. OUP Oxford; 2009.
11. Janghorbani M, Raisi A, Deghani S, Mousavi A. Assessment of safety status in operating rooms of shahid beheshti hospital, Isfahan, Iran by the World Health Organization Standards for Safety-Friendly Hospitals. *Health Information Management*. 2013;9(7):1066-72.
12. Chobdar MK, Rahdar MA. Investigating the readiness of hospitals in Sistan and Baluchestan Province in crisis of COVID-19. *J Mil Med* 2020;22:553-61.
13. Jebelli B, Varahram M, Soltanifard Razlighi M, Palizdar M, Ghazanchaei E. Management strategies to control the covid-19 crisis in masih daneshvari hospital, Tehran, Iran. *Journal Mil Med*. 2020;22(6):616-22.
14. Labaf A, Jalili M, Jaafari Pooyan E, Mazinani M. Management of Covid-19 Crisis in Tehran University of Medical Sciences Hospitals: Challenges and Strategies. *sjsph*. 2021; 18 (4) :355-372.
15. AlKrawy B. Leadership in times of crisis. *BMJ Leader*. 2018 :leader-2018.
16. Farmanfarmaeian M. *Shohadae Yaft Abad Hospital*; 2016.
17. Ghasedi M. *Effective Change Management is Essential for the Successful Implementation of Organizational Strategies*. Iran, Tehran: National Conference on New Patterns in Successful Implementation of Organizational Strategies; 2018.