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Physical and Personnel Modifications in the Emergency Department of Shahid Sadoughi Hospital, Yazd, Iran, Considering Resilience during the COVID-19 Pandemic: A Letter to the Editor

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Letter to the Editor

Abstract

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Dear Editor

One of the most important challenges in pandemics, such as SARS and COVID is the resilience of health and medical systems. It should be mentioned that in disasters and pandemics, such as SARS and COVID-19, urban infrastructures and hospitals are not seriously damaged. On the other hand, the required resources and training should be available for hospitals so that they can treat and care for a large number of special patients and injured [1]. Since the prolongation of the pandemic limit health and treatment facilities, the power of the countries in allocating the budget to the treatment sector is also restricted, and the personnel of the health and treatment sector suffer from burnout and depression due to the disease and the fear of infection. Accordingly, resilience refers to the means and abilities to deal with adverse conditions. The resilient system is able to withstand environmental pressures so that it can provide optimal performance during crisis. Aderborzi et al. in a study suggested influencing factors, such as cooperation and education administration, the ability to expand resources, as well as equipment and organizational structure on hospital resilience in addition to providing recommendations for increasing the resilience of hospitals [2]. The ultimate goal of crisis management is to eliminate and reduce the effects and adverse outcomes of risks and hazards on human health [3].

Implication of Resilience at Shahid Sadoughi Hospital, Yazd, Iran

This hospital is the most important center for the referral of patients with acute respiratory infection in Yazd province and neighboring cities for treatment. Therefore, the physicians, nurses, and other personnel working in this hospital were well acquainted with the methods of management and treatment during the pandemic, and they also underwent continuous training. Moreover, this hospital made the following modifications to continuously provide services to patients:

Around-the-clock attendance of an emergency medicine specialist in the hospital and emergency department; attendance of infectious and internal medicine specialists at two shifts in the hospital clinic; reduction of hospitalization of elective patients; cooperation of respected infectious disease specialists in quick patient visits and discharge if necessary (focal point); provision of specific antiviral medications, such as remdesivir and favipiravr inside the hospital in order to minimize the gap for initiating the treatment of patients; holding several training sessions for the personnel and students of medical fields considering recognition and prevention of Corona Disease in order to improve their performance; allocating masks, gowns, and personal protective equipment continuously in order to prevent the staff from getting infected; and allocating hospitalization capacity of many departments to

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patients infected with COVID.

Emergency Department of Shahid Sadoughi Hospital

This department has been managed by around-the-clock emergency medicine specialists since 2018.

Patient triage: Separation of patients based on Emergency Severity Index (ESI), separation of ESI-3 patients with a history of febrile respiratory illness upon admission (transferring to a separate room, allocating a surgical mask, and color printing of the triage level for easy identification of patients), and patient's referral to be examined by the relevant physician. It should be mentioned that this policy was also used during the COVID-19 pandemic after its successful implementation during the influenza crisis in 2018 [4].

Modifying the physical structure of the emergency department: the physical space of the emergency department was divided into several sections

1. Triage by a nurse and quick transfer of level 1 and 2 patients to visit an emergency medicine specialist

2. The emergency medicine physician's office is located in the center of the emergency department to have easy access to other sections. Moreover, it has proper ventilation and the patients waiting in the respiratory department have easy and quick access to this section.

3. Fast track for examination and treatment of level 4 and 5 patients

4. Waiting room for level 3 patients

After the visit, these patients were transferred to the following sections:

A: The unit allocated for COVID-infected patients: this unit with 18 inpatient beds has been set up and equipped to hospitalize and cure all patients suspected of acute respiratory disease and fever immediately after the visit (Figure 1). This unit emphasized seriously on the observing personal hygiene, providing washing facilities, and equipping the personnel with N95 masks, protective clothing and face shields. It should be mentioned that the air conditioning cycles in the emergency room were increased to 12 times per minute.

B: The unit allocated for non-COVID-infected patients: this unit with 20 beds was equipped and allocated for patients whose initial history, tests, pulse oximetry, and lung CT scan did not show positive results for COVID.

C: The unit under supervision: this unit includes 9 beds for isolation and treatment of suspected patients until their test results are determined in terms of being infected with COVID. This room is well ventilated.

5. A room allocated for examination and treatment of trauma patients

Personnel

Nursing section: increasing the number of nurses in the emergency department

Physician section: The constant attendance of emergency medicine specialist, general physician, medical interns (volunteers during Corona pandemic), and assistants of specialized groups all led to the provision of improved medical services.

Education

Constant updating of the protocols and making modifications in protocols in writing and verbally to all personnel

The obtained outcomes of the above measures

1. While providing appropriate treatment to the patients referred to the emergency department (those suffering from COVID and non-COVID patients), the wandering of patients was prevented, and the number of registered complaints in this center was 2130 cases.

2. Despite this hospital along with its emergency department is the only referral center in the province accepting numerous referrals from all over the province, the errors and mistakes due to overcrowding in the care of patients were prevented in this center.

3. Management and treatment of about 8200 COVID patients in one year (from March 2018 to March 2019); In the meantime, about 50% of the patients were hospitalized in the emergency department, treated, and then discharged. Moreover, the remaining 50% were transferred from this department to other special wards for COVID patients after being admitted to the emergency department.

4. Approximately, 11,000 patients infected with COVID were examined, treated, and discharged on an outpatient basis.

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Discussion

The triage aims to categorize the patients in order to save more lives and provide services according to the patients' condition. For this purpose, triage systems have been constantly being updated for years. During the COVID-19 pandemic, when hospitals faced a shortage of facilities due to the large number of patients, the effectiveness of this system was proved again. A study suggested to use the triage systems for ICU patients during the COVID pandemic [5]. Furthermore, several studies have been conducted on the difference between the triage by physicians and nurses [6]. In this proposed method in this study, a double triage was performed (Figure 1). The use of a double triage (combination of the nurse and physician triage) in this hospital was one of the optimized proposed ways that reduced the possibility of errors in the management of emergency patients (due to various types of patients and the unpredictability of the number of clients and the deterioration of the patients' condition). Moreover, it led to the proportional division of workload among different services. Therefore, the use of double triage in referral hospitals in the provinces is one of the recommended ways that reduces the possibility of errors in the management of patients and leads to an optimized distribution of workload among different services.

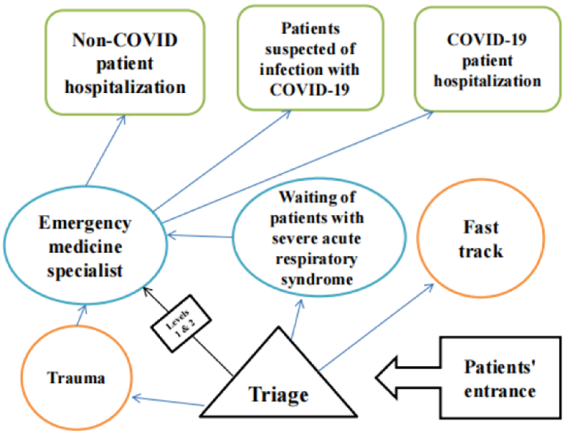

Figure 1. Physical space of the emergency department of Shahid Sadoughi Hospital and double triage of incoming patients

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