



# Establishment of a Military Field Hospital by Police Medical Workers in Procession of Arba'in: Sharing an Experience

Zeinab Tabanejad <sup>1,\*</sup>, Mahdi Zareei <sup>2</sup> and Morteza Mesri <sup>3</sup>

<sup>1</sup>Department of Medical Sciences, Faculty of Intelligence & Criminal Investigation Science & Technology, Amin Police University, Tehran, Iran

<sup>2</sup>Department of Medical Parasitology and Mycology, School of Public Health, Tehran University of Medical Sciences, Tehran, Iran

<sup>3</sup>Research Center for Cognitive & Behavioral Sciences in Police, Directorate of Health, Rescue & Treatment, Police Headquarter, Tehran, Iran

\*Corresponding author: Research Center for Biotechnology and Health in Police Operations, Directorate of Health, Rescue & Treatment, Police Headquarter, Tehran, Iran.  
Email: ztabanejad@yahoo.com

Received 2023 September 04; Accepted 2024 February 07.

## Abstract

This article reports the measures related to the creation and establishment of a military field hospital by police medical workers in the procession of Arba'in as part of preventive preparation and national support in the field of health and treatment. After the multi-faceted investigations by the health deputy of the police, the University of Ilam province, Iran, and the governorate, considered to install four inflatable tents for the establishment of treatment areas in a land of 2 800 square meters in a part of the Arba'in walking path between the Mehran city and the border terminal with Iraq. The parking lot for the vehicles carrying troops, medical equipment, and ambulances was in the hospital area. The 40-bed military field hospital or compliance plan included the command room, men's and women's departments with two operation room beds, intensive care units, and support units, such as a pharmacy, drug storage, and medical equipment. Healthcare services were provided to more than two thousand five hundred pilgrims over 20 days. Telemedicine was connected with hospitals around the clock.

**Keywords:** Field Hospital, Healthcare Workers, Police, Arba'in

## 1. Background

Field hospital is not a new concept (1), and it is considered to provide emergency medical aid and care in special areas and conditions with the ability to manage and provide fast services (2). According to the definition of the World Health Organization (WHO), field hospitals are units consisting of containers, tents, and inflatable modules or containers with at least 10 beds, operating rooms, a basic laboratory, and mobile X-ray equipment (3). Field hospitals are designed to accommodate as many patients as possible in a defined area (4).

Field hospitals are a great help in controlling epidemics, such as the spread of viruses, and natural events, such as earthquakes (5). The primary task of the mobile or field hospital is to assess the patient's health status (6). Depending on the outcome of the assessment, they should provide immediate care to the patient on-site and transport him/her to a permanent healthcare facility for definitive treatment. Extreme situations with a large number of victims and a large territory, such as natural disasters and a hospital, must provide the field with a

definitive treatment and conversion on the spot (2).

In this regard, the establishment of military field hospitals is very important to increase the capacity to support the local capacity in order to solve the national crisis. Along with the health systems, the military can bring basic capabilities to increase the capacity of community healthcare services in emergency situations (7).

Throughout history, military forces have been used to legitimize their presence in domestic and foreign environments by providing healthcare activities for society (8). For example, the development of chloroquine anti-malarial treatments by the US Military Committee on Medical Research during World War II (9) or since the outbreak of the world's latest pandemic, coronavirus disease 2019 (COVID-19) in December 2019, military forces around the world have various types of domestic duties. They have taken on the unknown (10). In low- and middle-income countries, military forces often fill gaps in under-resourced health systems (11). In most situations, military actors are involved in emergency response,

preparedness, and planning (9). The COVID-19 crisis has shown that the armed forces and military medical services must be considered key components of national resilience (7).

In this regard, we can mention the Arba'in religious procession, one of the world's largest annual pilgrimages in Iraq, with about 17 to 20 million participants, and most of the individuals who start the journey go to Karbala on foot (12). Any mass gathering can be associated with health risks, and the public health risks associated with such a large gathering can be serious at the local and global levels (13). In similar cases, such as Hajj days, respiratory tract infections are the most common type of infectious disease that affects 50-93% of the participants (14). In another case, in the largest mass gathering in West Africa, individuals who were referred to health centers had a prevalence of respiratory and gastrointestinal symptoms of 4.6% and 5.3%, respectively (15).

The preparedness of the health system can reduce public health risks related to Arba'in. In the modern globalized world, the health risks of a large community, such as Arba'in, can be serious if not managed properly. Apart from local consequences, these risks might include the spread of infections worldwide, including through epidemics. Iran's health and medical system also plays a big role in providing services to the huge flood of Arba'in pilgrims. Military healthcare systems are very helpful in helping population health and health system policies. The subject of civil-military relations in public health emergencies focuses on the relationship between international armed forces (including military medical services) and humanitarian actors in intervention operations abroad.

## 2. Objectives

This study aimed to share an experience related to the establishment of a military field hospital by police medical staff in Arba'in walk.

## 3. Methods

### 3.1. Organizing Coordination Meetings

First, by holding meetings with the president of the provincial university of medical sciences and the governor, the location of the hospital and the role of each headquarters in the process of setting up the military field hospital and mutual interactions were determined.

### 3.2. Choosing the Location of the Military Field Hospital

The first goal was to identify the location of the field hospital because in terms of distance from the place of traffic of pilgrims and other university medical services, it should be investigated and the highest outcome of service should be assumed. Various places in Ilam province and Mehran city were visited near the walking path. Finally, a land with an area of approximately 2 800 square meters, approximately 10 kilometers away from Mehran city, within a 15-minute drive from the main and support hospital, was chosen as the location of the military field hospital. The center had a number of notable features that facilitated effective care of pilgrims and rapid transfer of the injured to a support hospital. The draft plan was completed in almost 2 days for 40 beds, which were designed to comply with the adaptation plan of two departments for men and women, along with two beds in the operating room and the special care department.

### 3.3. Organization of Treatment Team

The core leadership team included the hospital director, nursing director, and administrative and support officer with experience in military and emergency situations. Based on this, the administrative treatment units were formed based on the military headquarters structure of specialized clinical manpower, security and protection, procurement and supply, engineering, referee and medical equipment, program and budget, information technology and health, transportation, and documentation. The chain of command optimizes communication and accountability to minimize duplication of effort and confusion. The interdisciplinary nature was a strength of the planning process, where members of medical care, logistics, facilities management, security, and emergency management teams worked in close coordination.

### 3.4. Procurement - Supply of Resources

Logistics - providing resources to set up a military field hospital was a big issue. In this regard, under the support of the university, portable hardware, such as tents and inflatable modules, were installed for medical departments and bio-connexions for housing medical staff. In the meantime, tents were chosen due to easy and quick installation, especially in a short period of time and at a lower cost than other types of hardware. Additionally, the inflatable tent and modules are easily moved to another site, are easily repaired, and can be used several times. Materials that can be used in the construction of a field hospital are different depending on the magnitude of the disaster and the financial resources

of the country and the hospital. Finally, four inflatable tents were used to establish treatment areas.

### 3.5. Corporate Communications

One link was with the province's University of Medical Sciences, and another was with the Plebes organization. In order to provide and cover the needs related to the military field hospital, a memorandum of understanding was signed with related organizations. Additionally, telemedicine was considered to predict specialized clinical conditions with the capital's military hospital, which was connected to telemedicine around the clock.

### 3.6. Specialized Medical Workers

In order to quickly set up the military field hospital, staff was provided from the existing specialized medical staff. With this model, the capacity of specialized staff, especially doctors, was provided. The personal issues and individual flexibility of the specialized medical staff to progress the actions in a challenging operational environment were also considered. The proportion of specialized medical staff and support group allocation was determined by nursing management. The strategy department of the military field hospital consisted of two doctors with military experience, two nurses with experience in disaster response, and the commander.

### 3.7. Therapeutic and Non-therapeutic Units

The treatment units of the military field hospital include the waiting area and stretcher area, the triage unit and patient information registration area, two independent inpatient service areas for male and female patients, the operating room area, the intensive care unit area, the radiology unit area and the laboratory area, the ambulance parking area, and the helicopter landing area.

The support units of the military field hospital include the hospital command center, pharmacy area, medical equipment storage unit, and other areas, including the medical staff rest area, bathroom and toilet area, drinking water and food storage area, generator and uninterrupted power supply area, supply tank area, fuel, medical waste and waste area, inspection area, waiting area for patients' relatives, and parking area.

## 4. Results

In this mission, four inflatable tents were erected to form two outpatient departments, along with two doctor's examination rooms, one special care department, and one outpatient operating room. More than two hundred types of drugs and serums were considered for different

treatments. The number of specialized treatment and support forces introduced was 100 individuals, and four ambulances were used in each work shift. Considering 10 days before and 10 days after the Arba'in occasion, more than 2 500 pilgrims benefited from the medical services of the military field hospital. Moreover, six patients were referred to the provincial hospital due to unstable clinical conditions.

## 5. Discussion

Within 20 days, this multi-organizational effort was able to mobilize to care for more than 2 500 Arba'in pilgrims with various degrees of healthcare services in a short period. This temporary military field hospital was built in a few days and was designed to reduce the burden on the provincial hospital system and help moderate the burden on the Ministry of Health and Medical Education. As the first medical station of its kind on the walking route after Mehran city, it served as a model for other similar centers. This large-scale military field hospital allowed the hospitals of Ilam province to be relieved of the pressure while providing much more aid at the same time.

## Acknowledgments

The authors are grateful to all colleagues who participated in the establishment of the military field hospital.

## Footnotes

**Authors' Contribution:** All authors have been involved in the implementation of the design and compilation.

**Conflict of Interests:** The authors declare that there is no conflict of interest regarding the present research.

**Funding/Support:** No financial aid has been received for this project.

## References

1. Luo H, Liu J, Li C, Chen K, Zhang M. Ultra-rapid delivery of specialty field hospitals to combat COVID-19: Lessons learned from the Leishenshan Hospital project in Wuhan. *Autom Constr.* 2020;**119**:103345. [PubMed ID: 33311856]. [PubMed Central ID: PMC7334964]. <https://doi.org/10.1016/j.autcon.2020.103345>.
2. Khan NA, Ahmed S, Vambol S, Vambol V, Farooqi IH. Field hospital wastewater treatment scenario. *Ecol Quest.* 2019;**30**(3):57. <https://doi.org/10.12775/eq.2019.022>.
3. Tekin E, Bayramoglu A, Uzkeser M, Cakir Z. Evacuation of Hospitals during Disaster, Establishment of a Field Hospital, and Communication. *Eurasian J Med.* 2017;**49**(2):137-41. [PubMed ID: 28638258]. [PubMed Central ID: PMC5469841]. <https://doi.org/10.5152/eurasianjmed.2017.16102>.

4. Smith SR, Jenq G, Claffin T, Magnant C, Haig AJ, Hurvitz E. Proposed Workflow for Rehabilitation in a Field Hospital Setting during the COVID-19 Pandemic. *PM R*. 2020;**12**(8):823-8. [PubMed ID: 32412176]. [PubMed Central ID: PMC7273075]. <https://doi.org/10.1002/pmrj.12405>.
5. Al-Ayyad M, Abu Owida H, Al-Nabulsi J, Alnaimat F, Alrasheed M. Design of Uninterrupted Oxygen Supply for Field Hospital in Jordan. *2022 13th International Conference on Information and Communication Systems (ICICS)*. 21-23 June 2022; Irbid, Jordan. 2022. p. 432-5.
6. Chen Z, He S, Li F, Yin J, Chen X. Mobile field hospitals, an effective way of dealing with COVID-19 in China: sharing our experience. *Biosci Trends*. 2020;**14**(3):212-4. [PubMed ID: 32238673]. <https://doi.org/10.5582/bst.2020.01110>.
7. Gad M, Kazibwe J, Quirk E, Gheorghe A, Homan Z, Bricknell M. Civil-military cooperation in the early response to the COVID-19 pandemic in six European countries. *BMJ Mil Health*. 2021;**167**(4):234-43. [PubMed ID: 33785587]. [PubMed Central ID: PMC8011427]. <https://doi.org/10.1136/bmjmilitary-2020-001721>.
8. Beaumier CM, Gomez-Rubio AM, Hotez PJ, Weina PJ. United States military tropical medicine: extraordinary legacy, uncertain future. *PLoS Negl Trop Dis*. 2013;**7**(12). e2448. [PubMed ID: 24386494]. [PubMed Central ID: PMC3873258]. <https://doi.org/10.1371/journal.pntd.0002448>.
9. Gibson-Fall F. Military responses to COVID-19, emerging trends in global civil-military engagements. *Rev Int Stud*. 2021;**47**(2):155-70. <https://doi.org/10.1017/S0260210521000048>.
10. Wilén N. The Military in the Time of COVID-19: Versatile, Vulnerable, and Vindicating. *PRISM*. 2021;**9**(2):21-33.
11. Lakoff A. *Unprepared: Global Health in a Time of Emergency*. Berkeley: University of California Press; 2017. <https://doi.org/10.1525/9780520968417>.
12. Nikjoo A, Razavizadeh N, Di Giovine MA. What draws Shia Muslims to an insecure pilgrimage? The Iranian journey to Arbaeen, Iraq during the presence of ISIS. *J Tour Cult Chang*. 2021;**19**(5):606-27. <https://doi.org/10.1080/14766825.2020.1797062>.
13. Al-Ansari F, Al Ansari M, Hill-Cawthorne GA, Abdulzahra MS, Al-Ansari MB, Al-Ansari B, et al. Arbaeen public health concerns: A pilot cross-sectional survey. *Travel Med Infect Dis*. 2020;**35**:101546. [PubMed ID: 31838209]. <https://doi.org/10.1016/j.tmaid.2019.101546>.
14. Gautret P, Benkouiten S, Sridhar S, Al-Tawfiq JA, Memish ZA. Diarrhea at the Hajj and Umrah. *Travel Med Infect Dis*. 2015;**13**(2):159-66. [PubMed ID: 25765485]. <https://doi.org/10.1016/j.tmaid.2015.02.005>.
15. Sokhna C, Mboup BM, Sow PG, Camara G, Dieng M, Sylla M, et al. Communicable and non-communicable disease risks at the Grand Magal of Touba: The largest mass gathering in Senegal. *Travel Med Infect Dis*. 2017;**19**:56-60. [PubMed ID: 28847495]. <https://doi.org/10.1016/j.tmaid.2017.08.005>.