

Report from the Field

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What Do Patients Seek Care for at a Health Facility in the Aftermath of an Earthquake? Experiences From an Emergency Medical Team in Türkoğlu, Türkiye 2023

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Abstract

On February 6, 2023, a strong earthquake (7.8 Richter scale) shook southwestern Türkiye, and also affected areas in northwest Syria, resulting in over 50 000 fatalities and more than 100 000 injured in Türkiye, in addition to the displacement of approximately 3 million people. In response to an international request for assistance from the Turkish government, the United Kingdom (UK) government deployed an Emergency Medical Team (EMT) Type 1 to provide outpatient care. This report describes the type of medical conditions treated at the facility from 1 week to 3 months post-earthquake. Consultations and diagnoses were recorded using standardized UK EMT patient records and reported through the WHO Minimum Data Set (MDS) format. A total of 7048 patient consultations were documented during the deployment.

The majority of cases involved infectious conditions, primarily respiratory illnesses, rather than trauma. Noncommunicable diseases (NCDs), such as cardiovascular diseases and diabetes, were also prevalent, particularly among adults and older patients. The report outlines some recommendations to better adapt data collection in order to improve EMT preparedness for future earthquake responses.

On February 6, 2023, a 7.8 Richter scale strong earthquake struck southwestern Türkiye and areas in northwest Syria. According to WHO,¹ the earthquake killed around 50 000 and injured more than 100 000 in Türkiye alone. One of the worst affected areas was Türkoğlu, a district of Kahramanmaraş Province. National authorities identified it as an area for international support, as the district hospital, normally serving the district with a population of 80 000, was partly destroyed and out of use. The United Kingdom (UK) Emergency Medical Team (EMT), the front line of the UK's response to humanitarian crisis overseas, set up an EMT Type 1 (equivalent to an outpatient health center) in Türkoğlu, adjacent to the damaged hospital. The UK EMT also later deployed mobile clinics to areas around Türkoğlu to serve displaced populations residing in temporary centers. The deployed EMTs adhered to set EMT standards as outlined by WHO, whereby a Type 1 EMT should be capable of providing emergency and outpatient care during daylight hours.² The UK EMT was staffed by a national and international workforce on rotational basis. A Turkish EMT Type 1, Ulusal Medikal Kurtarma Ekibi (UMKE), was already established at the site in Türkoğlu. UMKE and the UK EMT worked side by side for the duration of the deployment, coordinating patients between the 2 facilities based on needs and resources.

Narrative

Earthquakes have both direct and indirect effects on health and health care services. Direct/immediate effects cause trauma and destruction of health facilities, while indirect effects may negatively affect health and exacerbate noncommunicable diseases (NCDs) due to increased vulnerability and disruption of existing health services, as well as loss of shelter, lack of access to

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safe water, hygiene, etc.³ Studies following earthquakes have reported outbreaks of infectious diseases—mainly gastrointestinal, dermal, and respiratory diseases—as a result of extensive population displacement and lack of basic hygiene.⁴ Trauma, mainly limb injuries and wounds, are the most common type of direct health effect of earthquakes. For every deceased person, it is estimated that around 3 become injured.⁵

Following the initial surge of trauma, the dominating burden of diseases (BoD) after major earthquakes will, depending on context, be NCDs. The indirect effects may further lead to the exacerbation of NCDs by the interruption of access to medications, and the fact that immediate needs like shelter and food are prioritized over health care.⁶

A total of 7048 medical records were collected from those seeking care at a UK EMT Type 1 fixed facility in Türkoğlu and from the mobile clinics visiting the surrounding areas. Patient records were filed after each consultation by clinicians, and a daily WHO Minimum Data Set (MDS) template compiling the results was reported to the EMT Coordination Cell.⁷⁻⁹ The WHO MDS template was designed and developed by WHO in order to ensure standardized reporting from EMTs deployed to disasters in any country, and systematic reporting is mandatory from any deployed EMT deployed.⁹

The collected records reflect patients' visits between February 8, 2023 and April 20, 2023. The UK EMT did not use more than the required WHO MDS template as a reporting mechanism of collected patients' data. The descriptive analysis was conducted using Power BI to visualize the data that was collected manually and entered into an excel sheet. All the secondary data used were totally de-identified. An IRB approval (number E-72321963-300-215498) was obtained from the Social and Human Science Ethics Committee at Kahramanmaraş Sutcu Imam University in Türkiye.

The aim of this report from the field is to describe types of medical conditions presented to primary health care Type 1 facilities in the first weeks after an earthquake.

The descriptive data are presented in Table 1.

A predominant number of medical conditions were reported and labeled as “other diagnoses” (4833, 72%) and not all those “other conditions” were reported by UK EMT clinicians or by the data manager. Upper respiratory tract infections and musculoskeletal pain were the most commonly reported within this category, 836 (17%) and 687 (14%) respectively. The MDS format is more appropriate for trauma cases rather than primary care patients.

Consultation cases (not necessarily related to the earthquake) were mainly reported during the month of March 2023, occurring in 3953 (59%) of patients visiting during that month. Communicable diseases were highly prevalent during the month of February and accounted for 1825 (27%) of cases seen within the UK EMT facility.

This field report has some methodological concerns. Data is facility-based and count each case as a new patient. Results may not be generalizable to the entire affected area. Moreover, it is not clear if the presentation of conditions across the 3 months is due to an increase in cases, or if people with trauma started to visit hospitals and other health care facilities close to the affected area. Moreover, an additional national study is necessary for accurate nationwide BoD assessment, as the data presented in this report does not fully capture the actual disease burden in Türkoğlu.

Discussion

This study shows that the medical cases treated by UK EMTs outpatient clinic in Türkoğlu from a week after the earthquake to

Table 1. The distribution of cases based on medical conditions, sex, age, and months

Category	Subcategory	Number of cases	Percentage (%)
Conditions treated	“Other” Conditions	4833	72%
	Minor Injuries	818	12%
	Acute Respiratory Infections	639	9%
	Skin Diseases	347	5%
	Moderate Injuries	109	2%
Gender	Female Patients	3781	54%
	Pregnant Women (subset of females)	292	4%
Age distribution	Adults (18–65 years)	3258	43%
	Children and Adolescents (5–17)	1455	21%
	Preschoolers (1–4 years)	927	13%
	Older Adults (Above 65 years)	859	19%
	Infants (Less than 1 year)	247	4%
Consultations by month	February	1825	27%
	March	3953	59%
	April	968	14%

3 months after, were predominantly non-trauma related, countering the common belief that earthquake-related medical needs are dominated by trauma. The main BoDs will rapidly dominate primary health care needs.¹⁰ A major event like an earthquake entails destruction of infrastructure and displacement of a significant number of the population. The living conditions in temporary informal tented settings will increase vulnerability and risk worsening existing medical conditions and spreading of infectious diseases.¹¹ A recent study conducted in Türkiye following the earthquake confirmed that fragile infrastructure, weather, and living conditions contributed to infectious disease spread.³

In addition, during an emergency crisis, communities might not be equipped with the right knowledge on how to prevent and treat certain diseases, resulting in increased spread of communicable diseases.¹²

As mentioned in the systematic review by Najafi, Rezayat, and Beyzaei *et al.*, respiratory infections increase after earthquakes.¹¹ This is confirmed in Türkoğlu following the earthquake where cases of infectious diseases were raised. This increase might be due to harsh weather, seasonal infections, overcrowding, and poorly-ventilated spaces.^{3,11} The increased occurrence of respiratory diseases during winter is attributed to several factors. These include the influence of weather on virus survival, changes in behavior such as increased indoor crowding, and alterations in individuals' susceptibility to diseases.¹³ Additionally, physiological elements like day length affecting influenza morbidity, exposure to cold increasing susceptibility, and seasonal changes in vitamin D levels are considered contributory factors.¹³ Furthermore, infants and unvaccinated children are especially vulnerable to respiratory infections regardless of the presence of other risk factors.¹¹

Other medical conditions that are noticed after natural disasters are skin diseases, such as scabies. However, skin diseases seem to be part of the major BoD on a national level for a certain age category (5-17 years) specifically, and are on the lower end of the spectrum of BoD for the remaining age categories.¹⁴ Similar to a previously conducted meta-analysis, our results speculate the prevalence of dermal conditions occurring after the earthquake.¹¹

Chronic diseases, and specifically NCDs, are among the top BoDs in Türkiye.¹⁴ However, data about the several NCDs—besides hypertension and diabetes—are not registered within UK EMT Type 1 records following an earthquake. Continuous surveillance is advisable, as most people will be affected by medication scarcity and displacement, in addition to the focus on treating acute diseases following the disaster.¹⁵

Therefore, EMTs should have a more context-adapted data management system that allows for more data gathering, stratified by different sociodemographic factors, leading to better analysis of post-disaster health care. Also, strategies where primary health care capacity is strengthened are equally needed, optimizing facilities for disaster response.¹⁶

Data availability. Data are available upon reasonable request.

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Author contribution. DM and GI drafted the initial manuscript and adjusted it based on other author's suggestions. RMT helped drafting part of the results' section. NA, MB, DW, AM, and DAT helped with the entry of patients' records and consultations information into the system, and cleaning the data whenever necessary. Both RV and JVS overruled the manuscript separately and revised it.

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Competing interest. The authors have no conflicts of interest to declare.

Ethical standard. This study was approved by the Social and Human Science Ethics Committee at Kahramanmaraş Sutcu Imam University (number E-72321963-300-215498).

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Appendix 1. Example of MDS template¹⁷

Insert MOH Logo		EMT-MDS Tally Sheet					World Health Organization	
● Team Name:		● Location:					Ver 2019 WHO	
● Date of Activity:		● Staff Name:						
※How to: 1. Determine the vertical column according to the case's age group. 2. Check all the MDS items that apply for the case. 3.Count up the number of checks in each cell. ※Tally should be conducted daily per location of activity.								
MDS Items		No	<1 y.o.	1-4 y.o.	5-17 y.o.	18-64 y.o.	65- y.o.	Total
Sex	Male	1						
	Female non-preg.	2						
	Female pregnant	3						
			<5 years old		>=5 years old			
Trauma	Major head / spine injury <small>Requires hospitalization and/or general anesthesia (EMT Type 2&3)</small>	4						
	Major torso injury <small>Requires hospitalization and/or general anesthesia (EMT Type 2&3)</small>	5						
	Major extremity injury <small>Requires hospitalization and/or spinal or general anesthesia. (EMT Type 2&3)</small>	6						
	Moderate injury <small>Requires conscious sedation or regional blocks (EMT Type 1 Flo)</small>	7						
	Minor injury <small>Requires first aid and light dressing care with/without local anesthesia. (EMT Type 1 Mobile capable)</small>	8						
	Acute respiratory infection <small>Cough, colds or sore throat with or without fever</small>	9						
	Acute watery diarrhea <small>Loose stools, 3 or more in the past 24hrs, none gelatinous</small>	10						
Acute bloody diarrhea <small>Loose stools with visible blood</small>	11							
Acute jaundice syndrome <small>Yellow eyes or skin with or without fever</small>	12							
Suspected measles <small>Fever with rash</small>	13							
Suspected meningitis <small>Stiffness of neck (>10°C) with severe headache and stiff neck</small>	14							
Suspected tetanus <small>Spasms of neck and jaw (lock jaw)</small>	15							
Acute flaccid paralysis <small>Acute flaccid paralysis in a child aged < 15 years</small>	16							
Acute haemorrhagic fever <small>Fever with spontaneous bleeding</small>	17							
Fever of unknown origin <small>Fever (body temperature >38.5 °C) for >48 hours and without other known etiology</small>	18							
Additional		19						
		20						
		21						
		22						
Emerg.	Surgical emergency (Non-trauma) <small>Non-trauma case which needs emergency surgery</small>	23						
	Medical emergency (Non-infectious) <small>Non-infectious case which needs emergency intervention without surgery</small>	24						
Other key diseases	Skin disease <small>Non-infectious (excluding severe and burn)</small>	25						
	Acute mental health problem <small>Mental illness and psychological disorders requiring immediate treatment and/or psychological support</small>	26						
	Obstetric complications <small>Acute pregnancy related complications, e.g. severe bleeding, eclampsia etc.</small>	27						
	Severe Acute Malnutrition (SAM) * <small>Visible severe wasting, or in the presence of nutritional oedema</small>	28						
	Other diagnosis, not specified above <small>Other diagnosis, not specified above</small>	29						
Procedure	Major procedure (excluding MDS31) <small>Procedures usually require general anesthesia and/or hospitalization</small>	30						
	Limb amputation excluding digits * <small>Upper or lower limb amputations, excluding toe and finger amputations</small>	31						
	Minor surgical procedure <small>Procedures occasionally performed without general anesthesia not hospitalization</small>	32						
	Normal Vaginal Delivery (NVD) <small>Vaginal delivery</small>	33						
	Caesarean section <small>Delivery by Caesarean section</small>	34						
Obstetrics others <small>Other obstetrics procedure</small>	35							
Outcome	Discharge without medical follow-up	36						
	Discharge with medical follow-up <small>Inpatient who get instruction to visit medical facilities again</small>	37						
	Discharge against medical advice <small>Patient not against medical advice</small>	38						
	Referral <small>Patient also referred/transferred to other medical facilities</small>	39						
	Admission <small>Patient who have admitted to the facility on the day</small>	40						
	Dead on arrival <small>Death on arrival</small>	41						
	Death within facility * <small>Death within facility</small>	42						
Requiring long term rehabilitation * <small>Requires long term rehabilitation</small>	43							
Relation	Directly related to event <small>Patient visit with injury or illness directly caused by an emergency event</small>	44						
	Indirectly related to event <small>Patient visit with injury or illness caused or worsened by situational change after an emergency event</small>	45						
	Not related to event <small>Patient visit with health problem not directly/indirectly related to the emergency event</small>	46						
Protection	Vulnerable child * <small>Vulnerable child who are in urgent needs for protection</small>	47						
	Vulnerable adult * <small>Vulnerable adult who are in urgent needs for protection</small>	48						
	Sexual Gender Based Violence (SGBV) * <small>Sexual & Gender Based Violence</small>	49						
	Violence (non-SGBV) * <small>Violence (non-SGBV)</small>	50						