


# Deployment of the French Civil Protection Field Hospital (ESCRIM) in Gölbaşı, Turkey after the February 2023 Earthquake: Lessons Learned

Romain Kedzierewicz, MD;<sup>1,2,3,4</sup>  Anthony Couret, MD;<sup>1,2,3,4</sup> Nicolas Cazes, MD;<sup>1,4,5</sup> Alizée Süsler, MD;<sup>1,6</sup> Catherine Arvieux, MD, PhD;<sup>1,7</sup> Isabelle Arnaud, MD;<sup>1,8</sup> Philippe Agopian, MD;<sup>1,8</sup> Cédric Boutillier-du-Retail, MD;<sup>4,5</sup> Stéphane Travers, MD, PhD;<sup>4,9</sup> Mehmet Emin Aydin, MD;<sup>10</sup> Didier Pourret, MD;<sup>3</sup> Jérôme Bancarel, MD<sup>3,4</sup>

1. ESCRIM, French Civil Protection Field Hospital (EMT-2), Brignoles, France
2. French Civil Protection Unit N°7, Brignoles, France
3. Direction Générale de la Sécurité Civile et de la Gestion des Crises [Directorate General for Civil Security and Crisis Management], Paris, France
4. Service de Santé des Armées [French Military Health Service], Paris, France
5. Marseille Naval Fire Battalion, Marseille, France
6. Vaucluse Fire and Rescue Service, Vaucluse, France
7. Grenoble-Alpes University Hospital, Grenoble, France
8. Gard Fire and Rescue Service, France
9. Paris Fire Brigade, Paris, France
10. Gölbaşı State Hospital, Gölbaşı, Turkey

## Correspondence:

Romain Kedzierewicz MD  
Medical Service, French Civil Protection Unit N°7  
Route de Bras, 83170 Brignoles, France  
E-mail: [romainkedze@hotmail.com](mailto:romainkedze@hotmail.com)

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The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. Gölbaşı State Hospital received a medicines donation at the end of ESCRIM mission. The deployment of ESCRIM in Turkey was under the European Union Civil Protection Mechanism.

**Keywords:** disaster medicine; earthquake; emergency medical team; field hospital

## Event Identifiers

**Event Type:** Earthquake

**Event Onset Date:** February 6, 2023

**Location of the Event:** Gölbaşı, Adiyaman Province, Turkey

**Geographic Coordinates in Latitude, Longitude, Elevation:** 37.7977697 in Latitude; 37.6629853 in Longitude; Altitude = 900m

**Dates (or Times) of Observations Reported:** February 10 - March 9, 2023

**Response Type:** Field Hospital Deployment

## Abstract

Following the two earthquakes that occurred in Turkey on February 6, 2023 with magnitudes of 7.8 and 7.5, causing over 50,000 deaths and 100,000 injuries, France proposed to deploy, via the European Union Civil Protection Mechanism (EUCPM), the French Civil Protection Field Hospital (ESCRIM [Élément de Sécurité Civile Rapide d'Intervention Médicale]): the French World Health Organization (WHO)-classified Emergency Medical Team (EMT) Level 2 (EMT2).

After the acceptance from Turkey on February 8, a disaster assessment team (DAT) was sent on February 10, 2023. It was decided, with local health authorities (LHA), to set up the field hospital in Gölbaşı, Adiyaman Province where the State Hospital was closed due to a structural risk.

Arriving in Gölbaşı on February 13 at 2:00AM in -12°C (10°F) temperatures, the detachment had no choice but to begin setting up the base of operation (BoO). At dawn, the cold was so intense that one doctor suffered from frostbite. Once the BoO was installed, the team set up the hospital tents. From 11:00AM, the sun melted the snow and the ground became very muddy. The objective being to open the hospital as soon as possible, installation of the hospital continued, and it opened on February 14 at 12:00PM/noon, less than 36 hours after on-site arrival.

This article describes the mechanics of setting up an EMT-2 in a cold climate, the many problems encountered, and the solutions imagined and proposed.

## Abbreviations:

BoO: base of operation  
DAT: disaster assessment team  
ED: emergency department  
EMT(1-2): Emergency Medical Team (Level 1- Level 2)  
EMT-CC: Emergency Medical Team coordination cell  
ESCRIM: French Civil Protection Field Hospital (EMT-2) [Élément de Sécurité Civile Rapide d'Intervention Médicale]  
EUCPM: European Union Civil Protection Mechanism  
HAC: hot air cannon

LHA: local health authorities  
OR: operating room  
WHO: World Health Organization

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## Introduction

Following the two earthquakes that occurred in Turkey on February 6, 2023 with magnitudes of 7.8 and 7.5, causing over 50,000 deaths and 100,000 injuries,<sup>1,2</sup> France proposed to deploy, via the European Union Civil Protection Mechanism (EUCPM), the French Civil Protection Field Hospital (ESCRIM [Élément de Sécurité Civile Rapide d'Intervention Médicale]): the French World Health Organization (WHO; Geneva, Switzerland)-classified Emergency Medical Team (EMT) Level 2 (EMT2).

After the acceptance from Turkey on February 8, a disaster assessment team (DAT) was sent on February 10, 2023. The Turkish health authorities and the EMT coordination cell (EMT-CC) indicated the location of ESCRIM deployment in Adiyaman Province. The city targeted by health authorities was initially Besni. The DAT went to the site and found that the hospital was functional and that it was not possible to set up in the location identified by the authorities due to a lack of space. The DAT pushed its reconnaissance to Gölbaşı, where the hospital was closed due to a structural risk. Even though inhabitants had massively fled the city (there were less than 10,000 inhabitants left, whereas the city had 50,000 before the earthquakes) and the surrounding area was rural and mountainous, local authorities were interested in deploying ESCRIM in Gölbaşı (Figure 1). This article discusses the mechanics of implementing an EMT-2, the problems encountered, and the solutions found.

## Sources

All figures presented are from the daily reports requested and sent to the EMT-CC.

## Observation

The cargo plane left Paris, France on February 12, 2023 while the personnel took off from Marseille. Arrived in Gaziantep, the embassy had rented buses and six semi-trailers to reach the final destination. It was 2:00AM and -12°C (10°F) when the detachment arrived in Gölbaşı. There was no other solution than to start setting up the base of operation (BoO). At dawn, one of the doctors suffered from Stage 1 frostbite on his right big toe. Once the BoO was set up, the hospital tents began to be erected while construction machinery was finishing levelling the area. By 11:00AM, the sun warmed the frozen ground and melted the snow. The team sank into 5cm of mud. As the goal was to open the hospital as soon as possible, they finished setting up the tents in the mud and received the first patients on February 14 at midday (12:00PM), less than 36 hours after on-site arrival.

With a capacity of 80 beds, ESCRIM had eight intensive care beds, two operating rooms (ORs), and an emergency department (ED) theoretically designed for 100 patients per day (Figure 2 and Figure 3; Table 1). The team decided to open with only 30 beds with the idea of being able to add tents if necessary. However, few patients required hospitalization. The most critical patients were evacuated to hospitals in the country's major cities before arrival. Patients preferred out-patient care to stay with their relatives.

Moreover, the standards of a field hospital are far from those of Turkish hospitals: camp beds, no pressure sore prevention possible, and no armchair to hasten recovery. On the other hand, the transfer capabilities, even in this mountainous region of Turkey, were easy and fast.

Given the extreme cold, reversible air-conditioning units intended to heat the structure were ineffective. Fortunately, hot air cannons (HACs) were used as backups (Poly-Combus, Polypoies; Le Haillan, France; Supplementary Figure 1 – available online only). However, there were not enough of them: three tents (including one OR and the pharmacy) were not directly heated, but the airflow generated by HACs pushed warm air into those tents by contiguity. The first week, 1,500 liters of diesel fuel were needed per day to heat ESCRIM, which was not that easy to find (the city's construction engines also had an important consumption). Local authorities were unable to pay for the fuel and the French embassy assumed the additional cost.

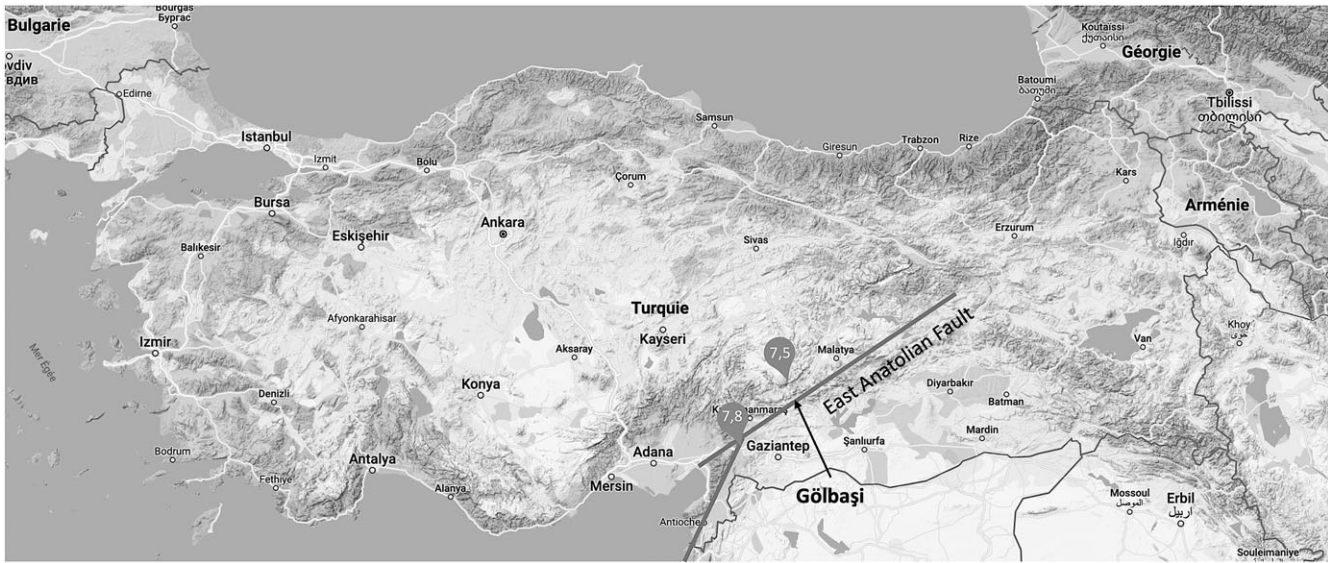
A patient with peritonitis presented the evening on the day of opening. She needed surgery (Figure 4). A power cut occurred during the surgery; the backup generators didn't take over as the logisticians had not powered them. The available diesel fuel was prioritized to power the HACs. The ventilator connected to an oxygen generator was immediately switched to a safety oxygen cylinder; the surgeons were equipped with headlamps; the surgery continued and the power came back on after a few minutes. Nevertheless, the temperature in the OR dropped rapidly. Despite the forced air blanket, the patient's core temperature dropped to 31°C (88°F). The OR, whose entrance had been closed for the surgery, was no longer warmed up by the hot air flow coming from the next tent HAC. The surgery was completed and the patient was transferred the next morning to Adiyaman Hospital; she was discharged a few days later. In the morning, a duct system was improvised to warm up this OR even with closed doors.

In the following days, the flow of patients gradually increased, but the number of patients requiring hospitalization didn't take off. It was decided to close the three hospital tents and reallocate HACs. Until then, the pharmacy had not been a priority to heat because it didn't receive any patients. However, the pharmacy housed the laboratory and some equipment doesn't work below 18°C (64°F). A hospital without a laboratory offers little added value. It was therefore a priority to warm up this tent.

As the dedicated in-patient tents were closed, patients requiring hospitalization were all hospitalized in the intensive care tent (Supplementary Figure 2 and Figure 3 – available online only).

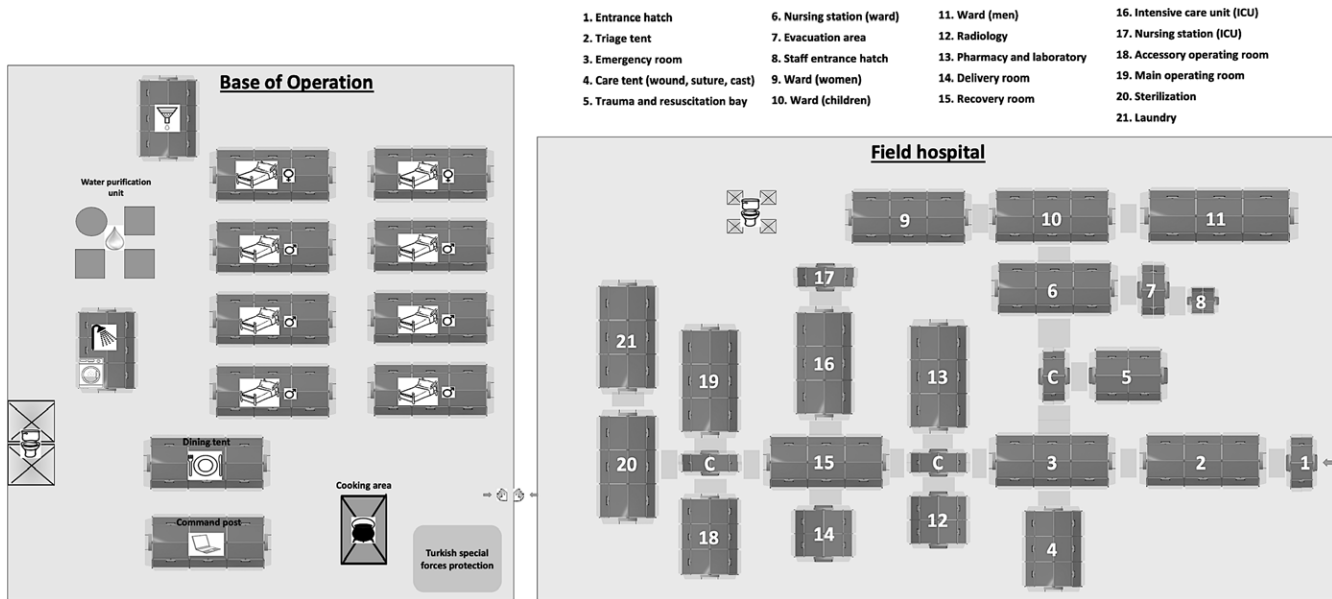
The day after the opening of ESCRIM, local health authorities (LHA) provided an ambulance with paramedics to carry out secondary patient transfers. Every day, one Turkish physician worked in ESCRIM to facilitate patient transfers, participate in ethical discussions, or simply exchange about medical management.

The typology of patients presenting to ESCRIM changed during the mission. At first, caregivers treated older patients who had been unwilling or unable to leave the area. They presented with complex wounds, burns, frostbites, immobilized fractures without prior X-rays, respiratory distress due to chronic bronchitis or cardiac pathology, and infections. Having witnessed antibiotic resistance, Turkish recommendations on antibiotic therapy were translated and provided to clinicians to avoid inappropriate therapeutic escalation. After the first fortnight, there was more pediatric and general practice, as reflected in the lesser use of the technical platform of ESCRIM (Figure 5). Patients also presented



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Figure 1. Location of Gölbaşı, Adiyaman Province, Turkey.



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Figure 2. Ground Plan of ESCRIM Base of Operation and Field Hospital (French Emergency Medical Team Level 2) in Gölbaşı, Turkey.

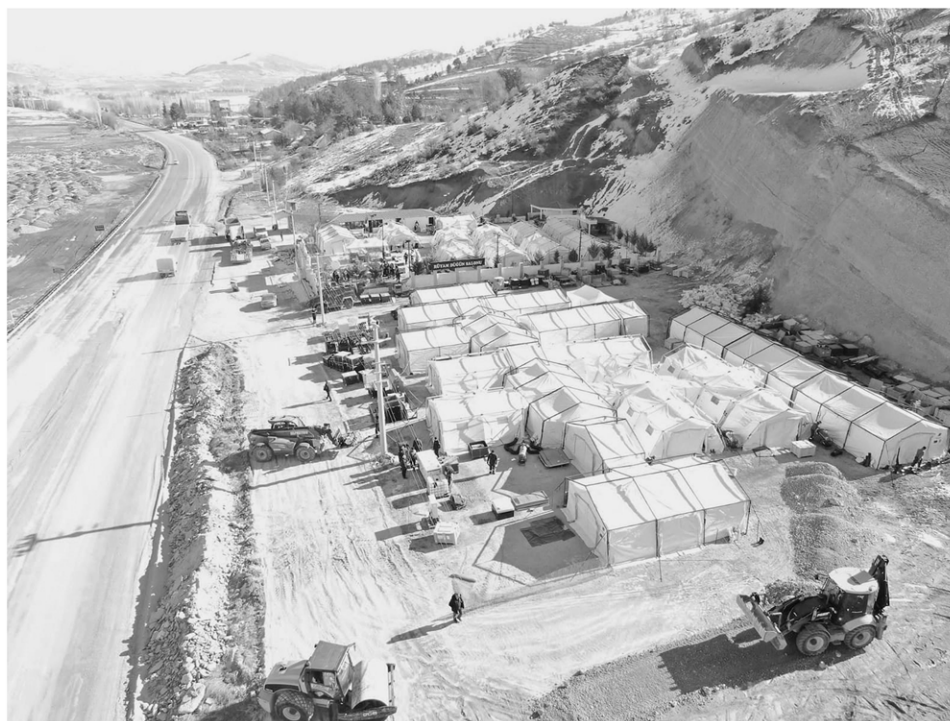
Abbreviation: ESCRIM, [Élément de Sécurité Civile Rapide d'Intervention Médicale].

more psychosomatic symptoms which revealed acute stress disorder. Many of them described nights with insomnia, the need to keep the light open or to sleep in their car, feeling dizziness or the ground collapsing as soon as they closed their eyes. Physicians also treated children and adults with panic attacks. The psychologist who was present during the second rotation carried out 36 interviews in eight days, but many more could have been done with more translators.

The average flow of the ED was 106 patients per day with a maximum of 154 patients on February 28, 2023. It was not the lack

of clinicians that was limiting, but the lack of translators. There were always at least four, sometimes five or six. It was estimated that at least eight, plus one per psychologist, were needed but there wasn't enough space in tents to accommodate all of them.

Small means made it possible to overcome the language barrier: lists of basic or medical vocabulary and bilingual French-Turkish standard prescriptions for main pathologies. Medicines were delivered in small bags (freezer type) with instructions in French-Turkish and with the help of pictograms for people who could not read (Supplementary Figure 4 – available online only).



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**Figure 3.** View of ESCRIM Field Hospital (French Emergency Medical Team Level 2) on February 14, 2023 in Gölbaşı, Turkey. Note: Construction engines add large gravels to stabilize the area and avoid sinking into the mud. Abbreviation: ESCRIM, [Élément de Sécurité Civile Rapide d'Intervention Médicale].

The ESCRIM closed on March 5, 2023 after having carried out 2,014 emergency room visits in 19 days, 23 surgeries including two major ones, and 24 new hospitalizations (Figure 6; Supplementary Figure 5 – available online only). Medical records were transmitted to LHA.

### Analysis and Recommendations

Four days elapsed between Turkey's agreement and the deployment of ESCRIM. This delay is explained by the lack of autonomy of projection, whether this autonomy is financial (to rapidly charter any aircraft) or capacity-based (to own aircraft).

The deployment in Gölbaşı at an altitude of 900m with a  $-12^{\circ}\text{C}$  temperature was a real challenge for the team and electronic equipment was not suited to cold climate. Without warmth to accommodate patients, it is impossible to open a field hospital in cold weather conditions. However, technical areas are also important to heat.

This deployment in a country with Western standards of care was very different from previous deployments. Health authorities are present and facilitative. Transfers to hospitals in large untouched cities are easy and fast. This raises some ethical questions: Is it legitimate to perform surgery in a tent when patients could be referred to a hospital? Is it legitimate to hospitalize patients on beds with poor-quality mattresses, with no possibility of being seated in an armchair? The LHA reassured the team that it was a disaster situation. Patients were also grateful to be able to stay closer to their relatives and not to be systematically evacuated.

An EMT-2 provides the greatest added value when combined with an EMT-1. At first, Gölbaşı State Hospital was not

functional. A few caregivers from all over Turkey were treating patients in two tents set up in front of the hospital on the model of an EMT-1; local staff had either died or fled the city. The LHA asked how to help; the team suggested not closing the EMT-1. Its unique position in front of the hospital, which remains the focal point for the population, was ideal. The EMT-1 did an extraordinary job triaging patients and referring to ESCRIM the ones who could benefit from the technical facilities of an EMT-2. Finally, it was a concern that if the EMT-1 had closed, then it would have been more difficult to re-open the hospital when operational again. The LHA, in conjunction with the city services, building engineers, and volunteers, did a great job allowing the hospital to be partially re-opened on February 22, 2023, starting with the ED, the radiology, and the laboratory. The ward area opened a few days later.

Having enough translators is crucial to be fully operational. The incredible work of translators listening to and translating patients' suffering necessarily had an impact on them; they deserve special psychological attention.

Patients rarely come to see a psychologist straight away. Another symptom is often a gateway to psychological evaluation. It is therefore important to deploy a psychologist or to co-locate cells of psychologists with EMTs. Ideally, psychologists should be of the same language as patients and trained in the very specific treatment of psychological trauma.

Having a multi-language medical software would have been a real added value to give patients consultation and hospitalization reports in their language. Software developers and WHO, particularly the EMT secretariat, should address this issue in a

Qualification	Number
Emergency Physician	11
Anesthesiologist	2
Surgeon	2
Pharmacist	1
Psychologist	1
Midwife	1
Nurse	12
Anesthesiologist Nurse	3
Operating Room Nurse	2
Laboratory Technician	1
Radiology Technician	1
Paramedics	14
Logisticians	22
Cooks	4
Water Purification Specialists	5
Command Post	7

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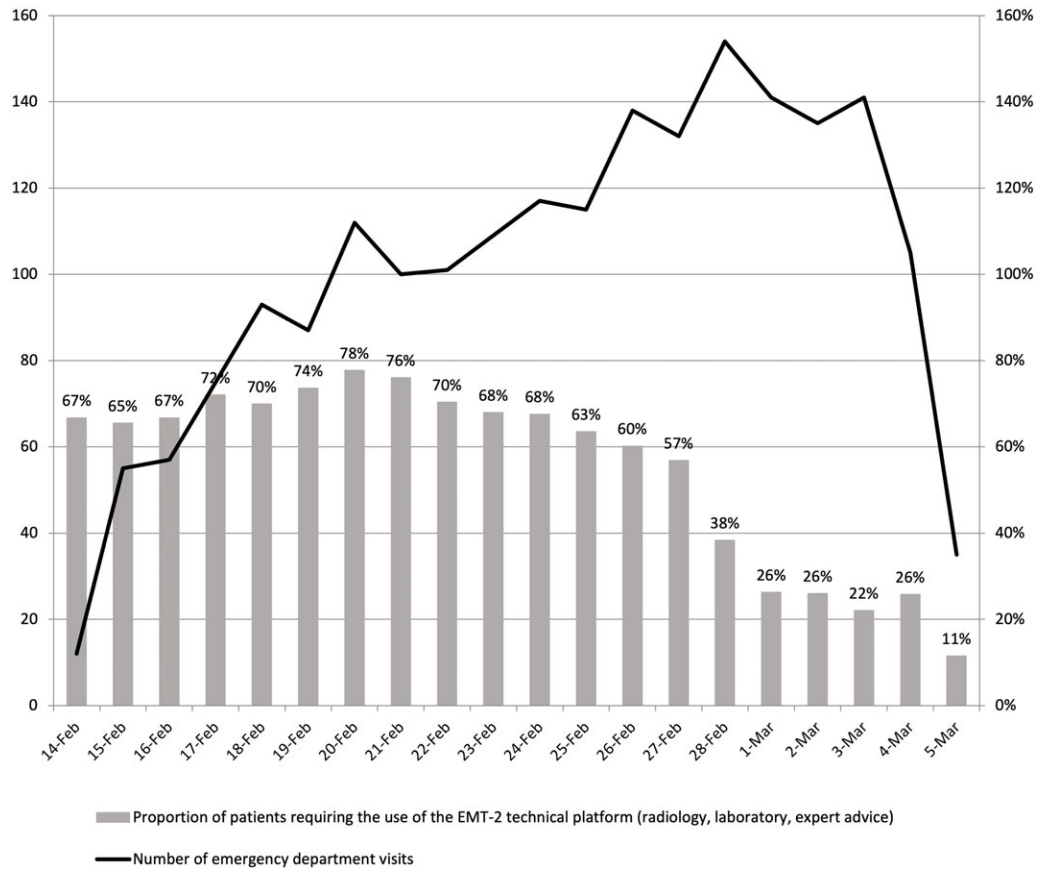
**Table 1.** Description of ESCRIM Field Hospital Staff (French Emergency Medical Team, Level 2)

Abbreviation: ESCRIM, [Élément de Sécurité Civile Rapide d'Intervention Médicale].



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**Figure 4.** The Old but Rustic Pierre Mathieu Surgical Table and the Dräger Fabius Tiro Anesthesia Column.



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**Figure 5.** Evolution of ESCRIM Field Hospital's Activity (French Emergency Medical Team [EMT] Level 2) Abbreviation: ESCRIM, [Élément de Sécurité Civile Rapide d'Intervention Médicale].



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**Figure 6.** A Little Girl Thanks a Nurse Who Gave Her a Teddy Bear.

comprehensive manner as it affects all EMTs, regardless of the country of deployment.

Despite all the difficulties inherent to this type of deployment in extreme conditions, ESCRIM field hospital showed all the necessary adaptability qualities for the successful completion of the mission.

### Supplementary Materials

To view supplementary material for this article, please visit <https://doi.org/10.1017/S1049023X23005873>

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