

Poland EMT PCPM medical staff entering a red zone of a COVID-19 hospital in Khorog, Tajikistan.

## D1.3 – Changing workflows and methods to support COVID-19 outbreak surveillance

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## Executive Summary

**PCPM - Polish Center for International Aid manages an Emergency Medical Team which is the second-most active EMT in COVID-19 deployments in Europe.** From March 2020 to August 2021, EMT PCPM was deployed on seven COVID-19 response missions, both in ICU support / case management roles (Italy in March 2020, Lebanon in August-October 2020, Ethiopia in August-October 2020) and in predominantly training and capacity-building roles, supporting COVID-19 hospitals and training of ICU staff (Kyrgyzstan – April 2020, Tajikistan – June 2020, Uganda – July-August 2021).

**Based on its extensive deployment experience,** PCPM prepared a revised monitoring tool, based on EMTs' Minimum Dataset (MDS) methodology, how the results EMTs' COVID-19 deployments can be measured in real time. The output-driven data-driven minimum data set supplements a monitoring tool, focusing on outcomes, being developed by WHO and piloted during the EMT PCPM deployment to Uganda. D1.3. also includes procedures and document templates that streamline request for assistance, deployment of EMTs, reporting, mission wrap-up and evaluation. These procedures and protocols were **field-tested during the EMT PCPM 4-week deployment to Uganda**, under the auspices of the WHO, where Polish experts set up the third COVID-19 ICU in this 45-million country. During August 2021 draft COVID-19 MDS monitoring tool, deployment protocols and other documents were shared with other European EMTs active in COVID-19 response, as well as the WHO Regional Office, for their review and feedback. In September 2021 the complete package of documentation was shared with the WHO Regional Office for Europe and the EMT Secretariat at the WHO Geneva.

The main deliverables include:

- Updated Minimum Dataset daily case and activity monitoring tool, adapted to EMT deployments in response to COVID-19 pandemics

Inputs to the WHO's KIMEP EMT coordination and monitoring tool:

- Updated Standard Operating Procedures (SOP) on deployment of EMTs for COVID-19 response missions.
- Sample EMT introduction letter to the Ministry of Health and the WHO Country Office
- EMT end-of-mission report template
- EMT weekly report template, coupled with sample Poland EMT PCPM weekly reports from Uganda

All above deliverables were field tested during Poland EMT PCPM four-week deployment to Uganda to support the COVID-19 response, under the auspices of the WHO.

In other words, this deliverable is both a report and a demonstration how the results EMTs' COVID-19 deployments can be measured in real time. The output-driven data-driven minimum data set supplements a monitoring tool, focusing on outcomes, being developed by WHO and piloted during the EMT PCPM deployment to Uganda.

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## List of Acronyms

Abbreviation / acronym	Description
<b>ARDS</b>	Acute Respiratory Distress Syndrome, a severe stage of COVID-19 disease
<b>COVID</b>	Coronavirus Disease - abbreviation from COVID-19
<b>EMT</b>	Emergency Medical Team
<b>EMTCC</b>	Emergency Medical Team Coordination Cell
<b>ICU</b>	Intensive Care Unit
<b>INSARAG</b>	International Search and Rescue Advisory Group
<b>MDS</b>	Minimum Data Set
<b>OCHA</b>	United Nations Office for the Coordination of Humanitarian Affairs
<b>PCPM</b>	<b>Polish Center for International Aid</b>
<b>PPE</b>	Personal Protective Equipment
<b>SARS-COV</b>	Severe Acute Respiratory Syndrome Coronavirus
<b>SARS-COV-2</b>	Severe Acute Respiratory Syndrome Coronavirus 2, responsible for COVID-19 pandemic
<b>SOP</b>	Standard Operating Procedure
<b>UN</b>	United Nations
<b>USAR</b>	Urban Search and Rescue
<b>WCO</b>	WHO Country Office
<b>WHO</b>	World Health Organization

# 1 Introduction

The HERoS project concept assumed that the international responders, including the Emergency Medical Teams (EMTs), will play an increasingly active role in epidemiological surveillance and data collection. As in many other areas, the pandemics took different course. The majority of EMTs, as well as other international surge deployment mechanisms, worked in their home countries, with only limited ability to deploy overseas. In fact, only a handful of EMTs deployed internationally.

The countries affected by the COVID-19 pandemics did not require field hospitals with surgeons and internists, but specialized care teams that support case management or can train and build capacity of medical staff in the hospitals and Intensive Care Units (ICUs). This necessitated a shift in EMTs' response towards EMT Specialized Teams, focusing on ICU support or Infection Prevention and Control (IPC). The growing importance of such Specialized Cells was recognized in the new version of EMT guideless, issued by the WHO in June 2021. On the other hand, many governments are unaware of the full scope of the pandemics or due to political reasons tend to play it down, as PCPM EMT witnessed first-hand in, among others, Tajikistan. Therefore, there is no political agreement from many governments for international EMTs to play any role in epidemiological surveillance.

In contrast to natural disaster or humanitarian emergencies, where full-size EMTs arrive in one country for a finite duration of time and are coordinated by the WHO country office, COVID-19 response features much smaller, specialized teams, being deployed to multitude of countries. Furthermore, deployment of the teams in ICU support and case management roles may last up to 6 months, which requires multiple staff rotations. This prompted WHO to develop online EMT coordination tools, one of them being the KIMAP project managed by the WHO Regional Office for Europe.

## 2 Emergency Medical Teams' response to COVID-19 pandemic

### 2.1 COVID-19 deployments and changing role of the EMTs in COVID-19 response

The COVID-19 pandemic is a global pandemic of unprecedented scope and complexity, as well as economic and societal impact. While other global pandemics have been ongoing concurrently, such as HIV-AIDS, the COVID-19 is a particular challenge due to its airborne nature, high infection rate and transmissibility, as well as the strain on the healthcare system, resulting in very high excess mortality. The table below compares SARS-CoV-2, the virus responsible for COVID-19 viral diseases, with other influenza pandemics:

	SARS-CoV-2	SARS-CoV	Pandemic influenza 1918	Pandemic influenza 2009	Interpretation
Transmissibility, $R_0$	2.5	2.4	2.0	1.7	SARS-CoV-2 has the highest average $R_0$
Incubation period, days	4-12	2-7	Unknown	2	Longer incubation period; SARS-CoV epidemics form slower
Interval between symptom onset and maximum infectivity, days	0	5-7	2	2	SARS-CoV-2 is harder to contain than SARS-CoV
Proportion with mild illness	High	Low	High	High	Facilitates undetected transmission
Proportion of patients requiring hospitalisation	Few (20%)	Most (>70%)	Few	Few	Concern about capacity in the health sector
Proportion of patients requiring intensive care	1/16 000	Most (40%)	Unknown	1/104 000	Concern about capacity in the health sector

Table 1: Selected characteristics SARS-CoV-2, SARS-CoV (East Asia) and pandemic influenza. Source: The Lancet

In contrast to SARS-CoV that affected East Asia in 2002, the COVID-19 pandemic had a longer incubation period and resulted in a much higher number of mild cases that contributed to the infection quickly expanding from individual / community level to uncontrolled community transmission. The same factor resulted in quick spread along the globe, facilitated by business and private travel by airplane. As a result, all healthcare systems around the world were affected, which limited their ability to surge to the countries in most needs through WHO's Emergency Medical Teams mechanism. The majority of EMTs, as well as other international surge deployment mechanisms, worked in their home countries, with only limited ability to deploy overseas. In fact, only a handful of EMTs deployed internationally and many of them were EMTs fielded by NGOs, not governments. While this analysis is beyond the immediate scope of the HERoS research, it may be assumed that the governments faced

the risk of political fallout and criticism in case their medical staff and resources were sent to support another country, particularly if the situation in the home country deteriorated over a short period of time. In contrast, EMTs managed and fielded by NGOs did not face the same political and decision-making limitations, although their operations were severely constrained by funding and staffing pool, insufficient for several deployments per year.

### 2.1.1 Poland EMT PCPM deployments in response to COVID-19 pandemic in 2020

The implementation of HERoS deliverable 1.3. took place in a changing organizational environment, where the tasks and responsibilities of the EMTs in COVID-19 response started to deviate significantly from the pre-pandemic objectives.

PCPM was second-most active EMTs in COVID-19 response in WHO's European Region, and among the most active in the world. Its deployments in 2020 included:

1. **Italy** - city of Brescia in Lombardy.  
 Dates: 30 March - 9 April 2020.  
 Staffing: 7 EMT PCPM + 5 from Military Institute of Medicine  
 Mode of transportation: military aircraft.  
 Funded by: Government of Poland.  
 Physicians and medical staff of EMT PCPM, supported by medical staff seconded by Warsaw's Military Institute of Medicine, worked in the ICU of Brescia City Hospital during the critical 10 days at the peak of the first wave of pandemics. The mission was organized based on a bilateral agreement between the governments of Poland and Italy and funded by the Polish government.
2. **Kyrgyzstan** - Bishkek and 5 cities in the Ferghana Valley.  
 Dates: 18-27 April 2020.  
 Staffing: 10  
 Mode of transportation: private jet (private donation)  
 Funded by: WHO  
 At the request and thanks to funding of WHO, Poland EMT PCPM supported case management, as well as on-job training and capacity building in IPC and COVID-19 case management. An important challenge was streamlining the IPC procedures in the hospital, including designation of red and green zone.
3. **Tajikistan** - Dushanbe, as well as hospitals in Pamir (Gorno Badakhshan Autonomous Region) and Ferghana Valley  
 Dates: 9-27 June 2020  
 Staffing: 21



Picture 1: Italian ambassador is witnessing deployment of Poland EMT PCPM to Italy onboard of a Polish Air Force aircraft



Picture 2: Poland EMT PCPM medics in the ICU of Brescia Hospital, Italy



Funded by: WHO

At the request and thanks to funding of WHO, Poland EMT PCPM supported case management, as well as on-job training and capacity building in IPC and COVID-19 case management. An important challenge was streamlining the IPC procedures in the hospital, including designation of red and green zone. The mission faced lack of cooperation from the side of Tajik authorities who even discharged patients from the hospitals to pretend the pandemic was under control.

4. **Lebanon** - Halba and Tripoli hospitals in northern Lebanon

Dates: 20 August - 15 October 2020

Staffing: 10

Funded by: Government of Poland

Following surge deployment in response to the explosion of ammonium nitrate in Beirut, EMT PCPM remained in Lebanon and at the request of WHO and the Lebanese MOH provided staffing support to two out of six governmental hospitals tasked with COVID-19 case management, located in Halba and Tripoli. The mission initially planned for one month had to be extended due to continuous shortage of both doctors and nursing staff in the two hospitals. The mission was terminated due to the quickly deteriorating pandemic situation in Poland.

5. **Madagascar** - Antananarivo

Dates: 25 August - 5 October 2020

Staffing: 3

Funded by: WHO

At the request of WHO, EMT PCPM deployed its three most experienced staff (one emergency medicine physician and two nurses) to provide staffing and training support to the UN clinic in Antananarivo.

6. **Ethiopia** - Addis Ababa

Dates: 21 September - 16 October 2020

Staffing: 21

Funded by: Government of Poland

Further to an invitation from the Ministry of Health of Ethiopia, a team of Poland EMT PCPM supported the operations of the largest COVID-19 temporary hospital in East Africa, set up in the Millennium Hall conference center in Addis Ababa. In this 600-bed facility, EMT PCPM's support



Picture 3: Arrival of Poland EMT PCPM experts to Kyrgyzstan onboard of a private jet due to suspension of commercial air transport.



Picture 4: Poland EMT PCPM travelling to Pamir Mountains in Tajikistan along Tajik - Afghan border.



Picture 5: Donning of PPEs in the Children's Hospital in Dushanbe, Tajikistan.



Picture 6: Verification of patients' records in one of hospitals in Tajikistan.

focused predominantly on operations of the 8-bed ICU and case management. One of the main challenges was improper sedation of the patients, resulting from shortage of opioid drugs.



Picture 7: Departure of Poland EMT PCPM from Tajikistan onboard of a Polish military airplane.

Almost immediately after the return of EMT PCPM's medical staff to Poland they were directed to support the set-up of several COVID-19 temporary hospitals. EMT PCPM members with their significant deployment experience, particularly from working in a Chinese-built temporary hospital in Ethiopia, became important resource persons in Polish temporary hospitals that were set up in the cities of Warsaw, Cracow, Kielce, Katowice and others.

Between November 2020 and May 2021 Poland experienced two major waves of pandemics, reaching up to 40,000 new confirmed infections per day. For almost half a year the number of new confirmed cases did not drop below 6,000 per day, which necessitated continuous operation of COVID-19 temporary hospitals and prevented the EMT personnel from responding to other requests for assistance. PCPM's HERoS project coordinator, Mr. Madeyski, was also involved in the set-up of a second COVID-19 temporary hospital in Warsaw in one of the airport hangars.

### **2.1.2 Challenges in the EMT response to COVID-19 pandemics**

In the year and a half of COVID-19 pandemic response several new, unexpected challenges appeared that were not envisaged by the WHO's EMT initiative in the pre-COVID-19 period.

**1. Shortage of medical staff for deployment.** The main challenge and limitation in EMTs' response is limited availability of the medical staff. As outlined below, EMTs' rosters usually include medical personnel in active service in hospitals and other emergency services, such as ambulances. In case the country is experiencing a wave in COVID-19 infections and hospitalizations, these specialists are obliged - either by their employers or by their own patriotism - to support pandemic response in-country. The second important limitation is that this personnel has a limited amount of leave days that can be taken from their regular jobs, which limits their availability for several deployments per year.

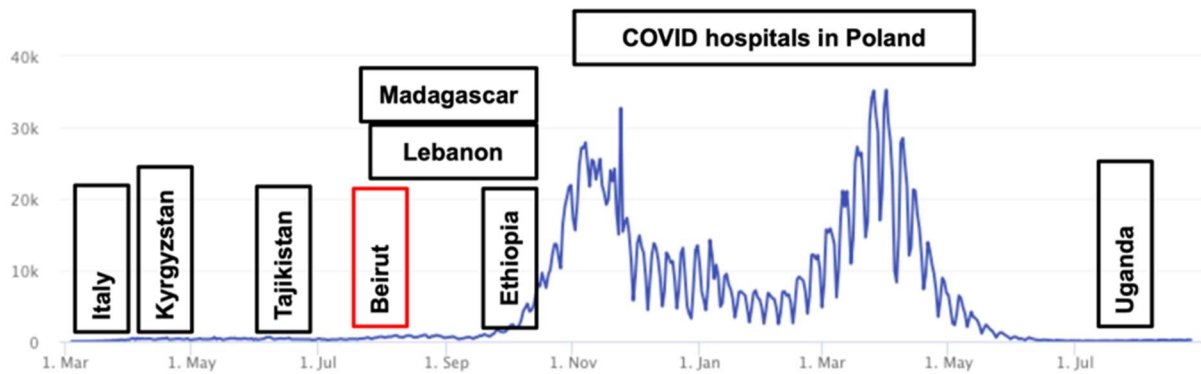


Figure 1: Limitations in EMT deployment for COVID-19 response missions: timeline of Poland EMT PCPM deployments overlaid on a graph of COVID-19 infections in Poland. Red box indicates a short deployment to a sudden-onset disaster in Beirut.

**2. Shortage of funding.** The EMT initiative was designed by the WHO to act as a rapid response support arm of the Organization, with the team being funded and maintained by governments, chiefly ministries of health, or NGOs and deploying at the request of WHO at their own expense. In this, WHO tried to mimic the successful system of Urban Search-and-Rescue Teams, managed by United Nations Office for the Coordination of Humanitarian Affairs (OCHA) under the umbrella of INSARAG. Such USAR teams are deployed at their own cost and are an additional asset for the UN response system.

The EMTs participating in the WHO-coordinated system are undergoing a classification exercise that checks their operational readiness against the criteria set out by the EMT Initiative. During WHO classification, EMTs are being evaluated whether, among others, they can finance once deployment per year. Both governmental and NGO classified teams meet this criterion. However, the COVID-19 pandemics resulted in unprecedented demand for EMTs' and specialized assistance.

As illustrated in Annex 1, while pre-pandemic years usually had 1 or 2 calls for EMT deployments, usually in response to natural disasters or disease outbreaks, the pace of EMT deployments increased significantly due to pandemic. In 2020, EMT Secretariat shared 11 requests for assistance, ten of them related to COVID-19 pandemic. In 2021 the pace of deployments increased further with 13 alerts conveying requests for assistance from 16 COVID-affected countries and territories.

As there is a limited number of EMTs that deploy to COVID-affected regions, these organizations are faced with shortage of funds, which prevents them from engaging in more deployments. This is particularly the case with NGO-led EMTs, such as EMT PCPM.

**3. New expectations.** As outlined in point 2.1.3. below, EMTs' role in COVID-19 pandemic response shifted from direct clinical care and case management to more capacity-building and training role, which is a foreign for the majority of medical teams. Several EMTs shy away from engaging in training / capacity-building training due to a number of factors. Out of 32 EMTs classified by the WHO, only some 13 were involved in COVID-19 response missions abroad. Others responded only in-country, which was of limited assistance to the highly strained global disaster response system.

**4. Political interference.** In case of several authoritarian countries, the authorities either artificially suppress the true number of infection and fatalities (among others Syria, Belarus, Tajikistan, Tanzania) or deny that any cases exist (Turkmenistan, North Korea). While EMTs deployments are seldom requested and approved by such countries, in the case of Tajikistan EMT PCPM faced major political interference. In Tajikistan's capital COVID-19 positive patients, even those with severe ARDS, were discharged from hospitals, while hospitals were emptied to show to EMT that the situation is under

control and the pandemic is on the wane. In another instance, Tajik authorities blocked helicopter flights for EMT and WHO staff to the mountainous Pamir region. During the mission, the deputy minister of health in charge of COVID-19 pandemics was unexpectedly laid off.

### **2.1.3 Changing role of the EMTs in COVID-19 response**

In the WHO guidelines for Emergency Medical Teams, updated in June 2021, EMTs are defined as “groups of health professionals, including doctors, nurses, paramedics, support workers, logisticians, who treat patients affected by an emergency or disaster. (...) They work according to the minimum standard agreed upon by the EMT community and its partners, and deploy fully trained and self-sufficient so as not to burden an already stressed national system.” [EMT Blue Book, pg. 19] In this capacity EMTs deploy to natural disasters or sudden-onset emergencies, such as the recent explosions of an ammunition depot in Equatorial Guinea and an ammonium nitrate warehouse in Beirut, or earthquake in Haiti.

WHO’s EMT guidelines also contains a guide on desired duration of EMT deployment to sudden-onset emergencies. The EMTs are required to maintain field operations from 2 weeks in case of Type 1 EMTs to 4 weeks in case of Type 3 EMTs, fielding a full field hospital. [Ibid, pg. 33]

Annex 2 includes parts of sample Terms of Reference (TORs) for EMT missions in the African region, requested by WHO in 2021. These illustrate a pattern in place since April / May 2020, where EMTs were called to the affected countries in a double case management - capacity building role.

Calls for EMT assistance in responding to COVID-19 pandemic, issued by almost 30 countries since March 2020, allows to establish a pattern of EMTs’ tasks that start to vary considerably from those laid out in the WHO guidelines. In particular, EMTs are expected to:

- a) Deploy for a longer period, usually not shorter than 1 month and often exceeding 3 months. This in turns necessitates turnover of staff, who due to pandemic affecting all countries are unable to take an extensive leave of absence, as well as results in high financial cost of such protracted missions;
- b) Engage in training of hospital staff, training of trainers, and other types of capacity-building activities;
- c) On a positive side, the EMTs are usually not expected to deploy with field hospitals and extensive amounts of equipment, which allows to minimize logistics costs.

In addition, there are new challenges faced by WHO. While in pre-pandemic times, when EMTs deployed to natural disasters and other sudden-onset emergencies, numerous EMTs usually deployed to one emergency and were coordinated on the ground by WHO Country Office and/or the EMT Coordination Cell (EMTCC). With the pandemic affecting a number of resource-poor countries, there is a need to coordinate concurrent EMT deployment taking place to several countries, as well as measuring the stage at which EMT is (pre-deployment, deployed, winding down) in order to ensure that another EMT could continue the work started by a predecessor EMT.

### **2.1.4 Impact on HERoS Deliverable 1.3. outputs**

After the completion of six COVID-19 response missions in 2020 and waning of the first (autumn) wave of the COVID-19 pandemic, PCPM held an internal retreat to reflect on our EMT COVID-19 experience and possible links with the HERoS project. This identified following challenges, in the order of priority:

1. How can EMTs such as EMT PCPM monitor the effectiveness of its deployment to a COVID-19 response mission? Result: MDS for EMT COVID-19 response missions

2. How can EMTs streamline their deployment to COVID-19 response missions, which varies significantly from the sudden-onset emergency deployment? Result: EMT COVID-19 deployment SOP.
3. How EMT management, such as PCPM, and WHO can track stages in deployment of EMT to a COVID-19 response mission?
4. How can EMTs deployed on mission better report to and request follow-up action from WHO Country Office and the EMT Secretariat in Geneva? Result: Amended EMT reporting form.

Throughout the pandemic PCPM has cooperated closely with the EMT Secretariat in Geneva, as well as EMT focal point at the WHO's Regional Office for Europe. PCPM is supporting the KIMEP project, operated by the WHO's Regional Office for Europe, that seeks to build an online tool to monitor concurrent deployments of EMTs, as well as a repository of mission reports and best practices.

## 2.2 Minimum Dataset for EMT COVID-19 response missions

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### 2.2.1 Original EMT MDS Methodology

In 2018 the WHO piloted the use of EMT Minimum Dataset (MDS) that is supposed to be the main avenue for daily reporting of EMTs deployed on sudden-onset disaster response missions. The EMT MDS is a package of essential data items for EMT reporting derived from medical records of patients treated by EMTs. The daily report form is generated from medical files of individual patients and contains:

- summaries of patient flow (new cases admitted, discharged, deaths within facility, referrals, etc.)
- number and type of procedures conducted
- number of patients with main types of trauma, communicable and non-communicable diseases. Information on communicable and non-communicable diseases feeds into other reporting and allows WHO and the Health Cluster to track epidemiological situations in the disaster affected area.
- needs and risk information, meant to alert the WHO and Health Cluster on the specific EMT needs.

The MDS is predominantly a numerical reporting tool, and while effective in building statistical understanding of the medical aid provided and epidemiological profile of the affected population, it gives little leeway for EMTs to report on other observations, such as level of damage and needs of the affected population.

However, this EMT daily reporting system is of limited use in the COVID-19 response missions because:

1. EMTs deployed on COVID-19 response mission often work in the country alone, without parallel deployments of other EMTs, and therefore their reporting does not contribute to understanding the bigger picture;
2. EMTs usually work and support one or two facilities, therefore have a limited view of the entire epidemiological situation;
3. EMTs are deployed in case management / capacity-building roles and as they do not manage the facilities, unlike the EMT field hospitals in sudden-onset disasters, they do not manage patient intake and discharge. This makes this information hard to get.

4. As mentioned above, EMTs may be deployed to the countries where political interference in pandemic response is commonplace. In such environments, obtaining information on patient intake or deaths within facility become very sensitive.
5. Lastly, the EMT MDS does not include any section of capacity-building and training activities.

### **2.2.2 MDS for EMT COVID-19 response missions**

Based on review of lessons learned from the previous six COVID-19 response missions, PCPM's HERoS Team decided to focus the new monitoring tool on three main issues:

1. Tracking daily change in patients' condition and flow, based on direct observation from the EMT staff deployed or from the hospital staff if such information can be obtained.
2. Consultations and medical procedures conducted by EMT staff
3. Training provided by EMT staff and number of participants.

Implementation of such a monitoring tool would provide a value-based monitoring of EMT deployment's efficiency, while weekly and end-of-mission reporting would allow for narrative reporting and highlighting of action / follow-up points.

In contrast to the pre-COVID-19 MDS, which was a series of individual daily reports, MDS for COVID-19 response missions proposed by PCPM is a spreadsheet where daily values are inserted in columns, allowing to see change over time in patient flow or number of procedures conducted. Information on procedures and training is inserted into a narrative weekly report for the WHO. EMTs should retain the information on patient condition and turnover for their internal use.

The MDS for EMT COVID-19 response missions comprises of following sections:

1. Number of beds patients in various stages of COVID-19 treatment in the facility, disaggregated by sex and age. Number of beds vs. number of patients allows to track the facility's capacity.
2. Patients' condition is dividing into five stages:
  - Basic therapy - patients admitted to the hospital but not requiring supplemental oxygen therapy;
  - Oxygen therapy - patients on supplementary oxygen therapy, with oxygen usually delivered from a cylinder or an oxygen concentrator;
  - High-flow oxygen - patients on oxygen therapy using a high-flow nasal cannula or another similar device;
  - Non-invasive ventilation - patients on ventilator but without sedation and invasive ventilation;
  - Invasive ventilation - patients on a ventilator, usually fully sedated.
3. Patient flow data, transferred directly from pre-COVID-19 MDS:
  - New cases admitted to the facility;
  - Cases discharged, disaggregated into discharge without medical follow-up, with medical follow-up, against medical advice;
  - Cases referred to other facilities;
  - Death within facility;
  - Cases discharged or transferred, requiring long-term rehabilitation.
4. Consultations conducted, usually related to case management of COVID-19 patients, disaggregated by sex and age.

5. Medical procedures conducted - here the EMT can insert names of any relevant procedures.
6. Training provides - similarly to the section above, the EMTs can freely describe the trainings conducted. The reporting value is the number of participants from among the local medical staff. In case of multi-day training, the number of participants is recorded only against one day. Information in all sections should be inserted separately for every facility where EMT is working.

### **2.2.3 Use of the MDS during the Poland EMT PCPM deployment to Uganda in July - August 2021**

As mentioned in point 2.2.1. above, original MDS methodology was developed to facilitate information gathering on patient flow and medical procedures and consultations conducted by the EMTs responding to sudden-onset emergencies. In this respect, the MDS focused on main types of trauma, communicable and non-communicable diseases. This information formed the core part of a daily report, sent by EMTs to the WHO country office.

Such information is of limited use during the COVID-19 response missions, when the EMTs have limited access to number of patient flow in the healthcare facility as the EMT staff is usually confined only to a part of facility, most often the Intensive Care Unit. In this respect, the MDS for EMT COVID-19 response missions focuses on tracking patient flow in the departments with EMT staffing, as well as medical procedures, consultations and training provided during the mission.

The MDS for EMT COVID-19 response missions was successfully piloted during Poland EMT PCPM deployment to Uganda (16 July - 13 August 2021). The mission involving 13 medical and support staff was organized in response to WHO alert to EMTs issued on June 24th, related to supporting COVID-related case management and training / capacity building in a number of African countries, including Namibia, Botswana, Zambia, Eswatini, Lesotho, Mozambique and Uganda.

The new MDS was completed on a daily basis throughout the deployment, except for days where no clinical or training activities were conducted. The monitoring tool captured very efficiently a subtle trend in decreasing number of COVID-19 patients, which could have been lost during a 4-week period and staff rotation. It further corroborated EMT doctors' suspicion that the authorities were hesitant to direct patients to the hospital where EMT worked.

The new MDS captured the information on medical consultations and medical procedures conducted with equal efficiency. Coupled with the information on training, their location and number of participants, it well documents gradual shift of the EMT from case management towards in-hospital training and subsequent focus on capacity-building of ambulance / emergency medicine staff, requested by WHO and Ugandan MOH. Sections on consultations, medical procedures and training were also added to the weekly reports submitted by EMT PCPM to the WHO Country Office in Uganda and the EMT Secretariat in Geneva. Regular input of MDS data was also extremely useful for the preparation of the final mission report.

HERoS project funds allowed for travel of four persons directly involved in implementation of the MDS pilot, as well as an improved reporting tool. Three of the four persons were regular collaborators of HERoS, while the fourth acted as the main liaison to the hospital authorities.



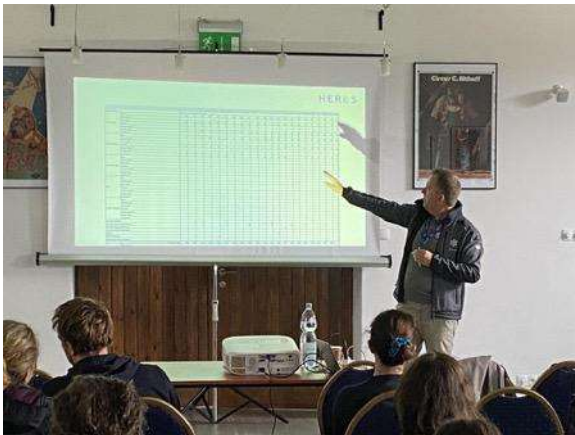
Picture 8: Poland EMT PCPM staff in the COVID-19 ward of the Entebbe Regional Referral Hospital



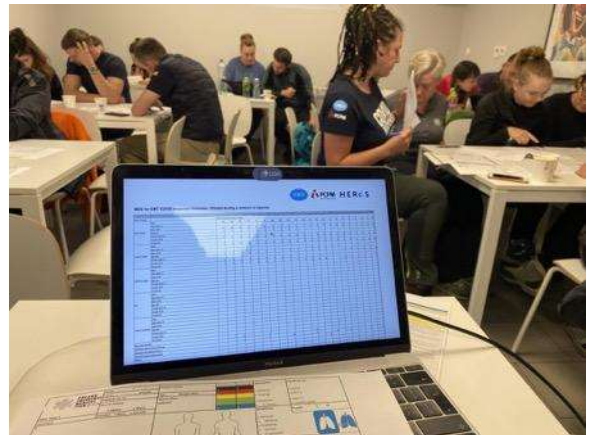
Picture 9: Training on Point of Care Ultrasound by EMT PCPM expert, Mr. Galkiewicz.

### 2.2.4 Use during the field exercise (27-29 August 2021)

The last stage of MDS for COVID-19 response missions pilot was the training for the large group of Poland EMT PCPM medical staff, conducted as part of an annual field drill and in-class training session from 27 to 29 of August, 2021. The EMT members participated both in a lecture on MDS and its version adapted to the COVID-19 setting, as well as filled in these documents by shorthand.



Picture 10: MDS for EMT COVID-19 missions lecture on August 27th, 2021



Picture 11: Practical exercise in basic and COVID-19 MDS on August 28th, 2021.





Pictures 12 and 13: Poland EMT PCPM exercise allowed for the simulated set-up of large sections of the Type 1 EMT and its hospital tents in possession of EMT and conduct both daytime and night drills.

Unfortunately due to the location of the training grounds within the boundaries of a national park, it was not possible to combine it with simulated use of drones as the latter are not permitted to operate within the national parks or its protection buffer zone.

MDS for COVID-19 response methodology will be used by PCPM during the next EMT COVID-19 response missions that may take place in Q4 2021, with the possible destination countries being Malawi or Mauritania.

### **2.2.5 Collaboration between PCPM and the WHO**

PCPM operates one of a few dozen EMTs that have been classified by the WHO, confirming they meet the international standards. As outlined above, majority of classified EMTs globally are operated by governments (chiefly ministries of health or disaster response authorities), which severely limited their deployment capacity as the governments are less inclined to take the risk of a political fallout and share precious resources, including medical staff, with third countries. In such an unprecedented environment, EMTs operated by the NGOs took much greater role in mounting COVID-19 response missions, supporting other countries' ICU capacity, as well as staff training and capacity building. With the exemption of governmental EMTs from two countries less affected by the pandemics – Australia and New Zealand – it is mainly NGO-managed EMTs that supported health facilities in Africa and Central Asia.

EMT PCPM has been second most active EMT in area covered by the WHO Regional Office for Europe with seven missions undertaken between March 2020 and August 2021. Among others, manager of EMT PCPM is a member of EMT Initiative's Strategic Advisory Group that reviewed and approved the new EMT guidelines, released in June 2021. EMT PCPM presented also lessons learned from its deployments during several global EMT teleconferences. EMT PCPM is also included in WHO's EMT alert system that allowed us to track requests for international assistance (see Annex 1) and respond to these whenever our staffing and financial capacity allowed.

MDS for COVID-19 response, as well as improved reporting and deployment mechanisms, were developed by PCPM in Q1-Q2 2021, based on the lessons learned from six deployments in 2020. While the testing of the MDS for COVID-19 response methodology was underway during our seventh deployment to Uganda, on August 6, 2021 PCPM briefed the WHO EMT Secretariat in Geneva on its objectives and initial outputs, highlighting the enabling role of the HERoS project. WHO EMT Secretariat indicated that the MDS for COVID, as developed in the framework of the HERoS project, will be shared with the WHO working group tasked with improving reporting, monitoring and evaluation of the COVID-19 response missions. Furthermore, PCPM is having a teleconference with WHO and U.S.-based EMT Team Rubicon, which took over the support role in Uganda from PCPM in mid-August, on possible continuation of this pilot exercise in Uganda.

The MDS for COVID-19 response works hand in glove with the monitoring tool, being developed by the WHO EMT Secretariat for COVID-19 pandemic deployments. The latter tool was developed by the WHO EMT Secretariat with the purpose of providing a structure to assessing the impact of such deployments. It is not meant for comparison, nor judgement but for learning. It identifies core structure and process/procedural elements at facility level and assess the practical impact of training, considered essential for the clinical management of severe/critically ill patients. While it focuses on outcomes (e.g.

decreased patient mortality rate), in the immediate monitoring attempts to capture effectiveness of the training and other capacity-building activities implemented by the EMTs in the health facility, such as a hospital or an ICU.

The data-driven MDS for COVID-19 response works hand in glove with the outcome-driven WHO monitoring tool, focused on capturing the effectiveness of capacity-building provided. The MDS for COVID-19 response captures core data, on a day-by-day basis, that allow to track processes observed in the facility and the interventions undertaken by the EMT medical staff. It also provides an ability to support the WHO monitoring tool with core data, such as hospital bed occupancy rate or turnover of patients. Furthermore, MDS for COVID-19 response missions facilitates daily collection of raw data (outputs) and allows spotting larger trends. On the other hand, WHO monitoring tool, focuses on the areas not covered by the MDS, such as effectiveness of the training provided (outcomes), and most of it is completed after the EMT mission has been concluded.

EMT PCPM deployment to Uganda, where some of its staff were co-funded by the HERoS project, has also completed the trial version of the WHO monitoring tool. In this respect, the HERoS project contributing to development of both output and outcome focused EMT monitoring tools.

## 2.3 Streamlined EMT deployment procedures

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### 2.3.1 EMTs in COVID-19 response: change in deployment procedure

While responding to a sudden-onset disaster, such as an earthquake, an EMT Type 1, such as the one fielded by PCPM, is expected to assemble its staff and supplies, as well as depart, within 24 hours of obtaining a go-ahead from the WHO or authorities of the affected country. The team deploys in full force of 20 or more staff, alongside with - in case of EMT PCPM - over 5 tons of supplies, ranging from the hospital tents, through medicines, dressing materials and disposables, to their own food, water purification system and power generators.

Over the six missions of EMT PCPM in 2020 it became apparent that deployment of EMTs of COVID-19 response is very different in numerous aspects:

- EMT usually departs between 2 and 8 weeks after the initial call, so much later than during a sudden-onset emergency;
- EMT carries little equipment, usually limited to its own PPEs, which enables travel by commercial airlines instead of chartering a cargo aircraft;
- EMT deployment should be preceded with solid understanding of the main tasks by the EMT, as well as careful management of expectations on behalf of the receiving authorities;
- Countries of deployment may require more documents to issue license to practice than initially outlined in the WHO guidelines.

Following discussions with the EMT focal point at the WHO Regional Office for Europe, PCPM's HERoS team developed a draft SOP to be used during EMT PCPM's deployment on COVID-19 response mission.

### 2.3.2 Use by Poland EMT PCPM

EMT COVID-19 deployment SOP, developed in the framework of the HERoS project, was field-tested during EMT PCPM's deployment to Uganda, which resulted in addition of several new points, among

others related to new and unexpected documentation requirements put forward by the MOH. The post-mission evaluation resulted also in addition of a point stressing an importance of a scoping / assessment mission to be conducted prior to deployment of a full EMT expert team to agree with the WHO Country Office and the MOH on EMT's main tasks, as well as the management of expectations on behalf of the receiving authorities. The SOP was developed further to an encouragement of the WHO Regional Office for Europe, for potential sharing with other EMTs. During September 2021 PCPM EMT is exchanging deployment best practices including this SOP with the UK EMT, operated by UK NGO UK-Med, as both UK-MED and PCPM are planning joint EMT deployments to, among others, Malawi.

The package of HERoS documents contains also a sample EMT introduction letter that is usually prepared by PCPM as a modality to introduce its experience and staff to the WHO Country Office and host MOH.

Update on the EMT COVID-19 deployment SOP was one of the points of a teleconference between PCPM and EMT Secretariat on August 6, 2021. Similarly to the MDS, WHO EMT Secretariat indicated that the SOP will be shared with the WHO EMT working groups.

Furthermore, the deployment SOP includes 10 markers for specific stages of EMT deployment. These will be shared with the KIMEP project ran by the WHO Regional Office for Europe, which aspires to establish an online platform monitoring deployment of EMTs in the European region. Also at the request of the WHO Regional Office for Europe, PCPM prepared a template request that the MOH of a country struggling with COVID-19 pandemic could direct to WHO regarding support of EMT experts.

EMT COVID-19 deployment SOP will be used by PCPM during the next EMT COVID-19 response missions that may take place in Q4 2021, with the possible destination countries being Malawi or Mauretania.

No.	Step	Date attained	Status
1	<b>EMT availability confirmed to the EMT Secretariat</b>		
2	<b>Mission TOR and dates agreed upon</b>		
3	<b>Travel arrangements made</b>		
4	<b>EMT medical documentation submitted to WCO</b>		
5	<b>Insurance arrangements made</b>		
6	<b>Visas issued</b>		
7	<b>Equipment waybill sent to WCO</b>		
8	<b>EMT deployment</b>		
9	<b>EMT commences operation</b>		
10	<b>MOH issues license to practice</b>		

Table 2: Ten stages of EMT deployment on a COVID-19 response mission for the WHO KIMEP project dashboard, as included in the EMT COVID-19 deployment SOP.

## 2.4 Streamlined EMT reporting

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### 2.3.1 Narrative reporting

The HERoS deliverable 1.3. also allowed PCPM to reexamine reporting mechanisms from EMT involved in COVID-19 response mission and the WHO Country Office, as well as the EMT Secretariat in Geneva. The standard template used by the WHO includes only the basic data about the team deployed, as well as short narrative description of activities implemented during the reporting week. This, in the opinion of PCPM, was too limited. During the mission to Ethiopia (21 September - 16 October 2020), this template was amended by adding a section on action points - the issues that the EMT requested the WHO Country Office or other stakeholders to follow up. Such issues in Ethiopia included urgent need for delivery of improved sedatives for ICU patients under intensive ventilation or delays in issuance of a license to practice. The report template was further revised prior and during the EMT PCPM mission to Uganda, with an expanded section on follow-up requests, as well as adding data from MDS on the number and types of consultations, procedures and trainings conducted.

The package of HERoS documents contains several sample reports from EMT PCPM COVID-related deployments to Ethiopia and Uganda.



Main areas of the Millennium Hall COVID Care Center in Addis Ababa, Ethiopia. Approximate boundary of the red zone marked with a dashed line. (Background map: Google Maps)

For four weeks, 20 medical and support staff of the Polish Emergency Medical Team PCPM (EMT PCPM) supported operations of a 600-bed Millennium Hall COVID Care Center in Addis Ababa, Ethiopia. This report is meant to document observations of EMT PCPM members, supported by a doctor and nurse from Sweden's Karolinska Institutet. In the rest of the report, Millennium Hall COVID care center is abbreviated to Millennium Hall.

EMT PCPM is an Emergency Medical Team (EMT), operating within the WHO response system to both natural and man-made disasters. While it was classified by the WHO as Type 1 EMT in October 2019 with a focus on natural disaster response. Since March 2020 it has been actively involved in COVID response. Between March and October 2020, EMT PCPM mounted six COVID response missions to Italy (March 2020), Kyrgyzstan and Tajikistan (April and June 2020 respectively), Lebanon (August – October 2020), Madagascar (WHO expert mission, August – October 2020) and Ethiopia. In the latter country, thanks to an invitation from the Federal Ministry of Health, a 20-person team of EMT PCPM supported operations of a COVID treatment facility, set up in Addis Ababa's Millennium Hall (converted to a COVID-19 care center from a conference / exhibition center). The facility has a capacity of 1,000 bed, at the time of our deployment some 656 beds were in use:

- 40 Intensive Care Unit (ICU) beds
- 86 High Flow Capacity Beds (oxygen flow of >10 liters / min)
- 155 Low Flow Oxygen Delivery Beds
- 375 beds for Moderate and Mild cases

#### Millennium Hall setup – example of multi-bed COVID care facility

Millennium Hall COVID Care Center is set up in Addis Ababa's largest conference facility, measuring some 170 x 120 meters (approximate floor area: 20,000m<sup>2</sup>). The facility was primarily used for concerts and exhibitions and offers a large open space of at least 15,000m<sup>2</sup>. The floor area is generally a red (contaminated) zone and is divided into:

1. Separate male and female wards (capacity of few hundred beds each), where moderate cases are under observation. Pregnant women, especially in the third trimester, were referred to other healthcare institutions,

Pictures 14-16: PCPM EMT in the Millennium Hall temporary COVID-19 hospital in Addis Ababa and an end of mission report prepared for the WHO.

### 2.3.2 After-action reporting

After-action report is not usually required by the WHO in case of natural disaster response missions as the EMTs are usually evaluated on the ground by EMTCC, WHO Country Office and/or MOH staff. During the pandemic-related deployments, EMT PCPM prepared several end of mission reports, that were included as a reference documents in the HERoS project. These include end of mission reports

from EMT PCPM deployments to Kyrgyzstan and Tajikistan, as well as an important report on the functioning of a COVID-19 temporary hospital in Addis Ababa, Ethiopia.

Further to an encouragement received from the WHO Regional Office for Europe in the framework of the KIMEP project, PCPM prepared an amended end of mission report template that was used to prepare the end of mission report from the deployment to Uganda.

In September and October 2020, further to an invitation from the Ministry of Health of Ethiopia, a team of Poland EMT PCPM supported the operations of the largest COVID-19 temporary hospital in East Africa, set up in the Millennium Hall conference center in Addis Ababa. In this 600-bed facility, EMT PCPM's support focused predominantly on operations of the 8-bed ICU and case management. This was the first instance when Polish doctors worked in a purpose-built COVID-19 temporary hospital. The experience in Ethiopia was particularly interesting as the facility was built by Chinese and operated already for several months. As the EMT mission to Ethiopia was nearing to an end, Poland decided to set up several COVID-19 temporary hospitals to tackle the growing wave of infections. PCPM quickly prepared an after-action report, focusing on practical solutions applied in the temporary hospital in Ethiopia that was shared with the Polish MOH. Many of its findings were applied in the COVID-19 temporary hospitals in Poland, mainly in the area of IPC.

## 3 Conclusion

EMTs have deployed as surge during the COVID-19 pandemic undertaking a variety of activities ranging from the direct provision clinical care to capacity building, with a strong focus on Infection, Prevention and Control (IPC) and care for severe/critically ill patients. However, these missions pose new challenges on the existing global emergency response architecture, particularly on Emergency Medical Teams, due to their frequency and unprecedented length of deployment. The main challenges include:

- 1) Shortage of medical staff for deployment, caused by both high demand for medical staff in the countries where the EMTs originate from, destination countries' expectations that the medical staff will remain there for even several months, as well as global shortage of ICU doctors and nurses in this unprecedented pandemic. This also severely constraints EMTs' deployment when their home country experiences surge in infections and leads mainly NGO-led EMTs to seek innovative staffing solutions, such as sharing rosters with other EMTs or building multinational rosters.
- 2) Shortage of funding, also caused by high frequency of EMT and length of deployment. As outlined above, shortage of funding is, next to staffing, among two major impediments preventing greater involvement of EMTs to support developing countries in mounting and improved COVID-19 response, particularly in intensive care. The arrangement where EMTs cover full cost of their deployments does not live up to the high frequency of missions needed during the pandemics, while the existing funding mechanisms (such as European Civil Protection Mechanism) are too constrained to facilitate this response.
- 3) New roles for EMTs. EMTs' role in COVID-19 pandemic response shifted from direct clinical care and case management to more capacity-building and training role, which is a foreign for most medical teams.

- 4) Political interference. An increased number of developing countries, particularly those with autocratic governments, often seem unwilling to show the real extent of the pandemics to a foreign EMT. In case of EMT PCPM mission to Tajikistan, we have observed emptying the hospital of COVID-19 patients as the authorities attempted to show that the situation is under control.

MDS for COVID-19 response, as well as improved reporting and deployment mechanisms, were developed by PCPM in Q1-Q2 2021, based on the lessons learned from six deployments in 2020 and successfully field tested during EMT deployment to Uganda (July – August 2021). The original MDS methodology was developed to facilitate information gathering on patient flow and medical procedures and consultations conducted by the EMTs responding to sudden-onset emergencies. In this respect, the MDS focused on main types of traumas, communicable and non-communicable diseases. This information formed the core part of a daily report, sent by EMTs to the WHO country office.

Such information is of limited use during the COVID-19 response missions, when the EMTs have limited access to number of patient flow in the healthcare facility as the EMT staff is usually confined only to a part of facility, most often the Intensive Care Unit. In this respect, the MDS for EMT COVID-19 response missions focuses on three main issues:

1. Tracking daily change in patients' condition and flow, based on direct observation from the EMT staff deployed or from the hospital staff if such information can be obtained.
2. Consultations and medical procedures conducted by EMT staff
3. Training provided by EMT staff and number of participants.

The data-driven MDS for COVID-19 response works hand in glove with the outcome-driven WHO monitoring tool, focused on capturing the effectiveness of capacity-building provided. The MDS for COVID-19 response captures core data, on a day-by-day basis, that allow to track processes observed in the facility and the interventions undertaken by the EMT medical staff. It also provides an ability to support the WHO monitoring tool with core data, such as hospital bed occupancy rate or turnover of patients. Furthermore, MDS for COVID-19 response missions facilitates daily collection of raw data (outputs) and allows spotting larger trends. On the other hand, WHO monitoring tool, focuses on the areas not covered by the MDS, such as effectiveness of the training provided (outcomes), and most of it is completed after the EMT mission has been concluded.

EMT PCPM deployment to Uganda, where some of its staff were co-funded by the HERoS project, has also completed the trial version of the WHO monitoring tool. In this respect, the HERoS project contributing to development of both output and outcome focused EMT monitoring tools that both supplement each other.

EMT PCPM will use both monitoring tools during out upcoming COVID-19 response missions, as well as encourage other EMTs deploying on COVID-19 missions to do the same. PCPM is also collaborating with WHO staff developing outcome based EMT monitoring tool, which – as outlined above – needs raw data to establish the baseline against which the progress and improvement can be measured. In the upcoming months, PCPM plans to:

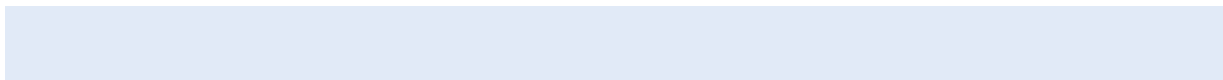
- a) collate reports and lessons learned from other EMTs' COVID-19 deployments, in order to create a repository of best practices available for both EMT network, as well as the EU-based institutions involved in emergency response;

- b) share the MDS for COVID-19 mission and deployment SOPs with other EMTs, particularly as PCPM is involving in capacity building of EMTs in Ethiopia, as well as potentially also Georgia and Armenia;
- c) further test the MDS for COVID-19 mission and deployment SOPs in the upcoming missions;
- d) collaborate with WHO on testing and improving both, output and outcome based, monitoring tools.

D1.3 is both a report and a demonstration how the results EMTs' COVID-19 deployments can be measured in real time. The output-driven data-driven minimum data set supplements a monitoring tool, focusing on outcomes, being developed by WHO and piloted during the EMT PCPM deployment to Uganda.

PCPM as an operator of an Emergency Medical Team is grateful for the European Commission and the HERoS consortium for allowing us to participate in the project and review the procedures and practices of EMT deployments as they changed during the COVID-19 pandemic. Without the HERoS project this review and analysis would probably not have been possible, with adverse consequences for EMT PCPM's deployment and operating capacity.

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## 4 Bibliography

- Classification and Minimum Standards for Emergency Medical Teams, WHO, Geneva 2021 (<https://extranet.who.int/emt/guidelines-and-publications>)
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- EMT PCPM weekly reports from its deployments to Tajikistan, Lebanon, Ethiopia, and Uganda.
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## 5 Annexes

### Annex 1 - List of EMT deployment alerts issued by the EMT Secretariat and received by PCPM

In bold - countries requesting assistance due to COVID-19 pandemic.

Year	Month	Number of EMT alerts	Cumulative number of countries for the year	Country & Emergency
2017	September	1	1	Caribbean - Hurricane Irma*
	December	1	2	Bangladesh - Diphtheria outbreak
2018	May	1	1	DRC - Ebola outbreak
2019	November	1	1	Samoa - measles outbreak
2020	April	1	1	<b>Sao Tome &amp; Principe</b>
	May	2	3	<b>Tajikistan, Guinea-Bissau</b>
	June	3	6	<b>South Sudan, Cameroon, Armenia</b>
	July	1	7	<b>Papua New Guinea</b>
	August	1	8	Lebanon - Beirut blast*
	September	1	9	<b>Greece</b>
	October	1	10	<b>Czechia</b>



	November	1	11	Armenia
	December	1	12	Maldives
2021	January	2	2	Eswatini, Slovakia
	February	1	3	Botswana
	March	2	5	Papua New Guinea, Equatorial Guinea*
	April	1	5	Botswana
	June	2	11	Africa (5 countries), Mongolia
	July	1	12	Tunisia
	August	5	17	Mauritania, Mozambique, Timor Leste, French Polynesia, Haiti*

Asterisk (\*) denotes calls in response to natural or sudden-onset emergencies, where requests for international assistance came through the UN Virtual On-Site Coordination Center (VOSOCC).

## Annex 2 - Sample Terms of Reference of EMT missions to some African countries

As requested by MOH and WHO:

### Generic TORs for EMT deployment to the African Region

Tasks:

- Strengthening or increasing the capacity of health facilities as a specialized care team. Review capacity of target health care facilities to manage and treat patients with COVID-19 infection, including isolation and intensive care unit (ICU) capacity.
- Advise on the development/adaptation of clinical management protocols for respiratory patients with COVID-19, including protocols to treat and manage potentially infectious patients in primary care settings, non-health facilities, and the community, including referrals and patient transport/transfer, as appropriate.
- Provide technical support to establish referral management and triage systems to identify priority cases (from identification until treatment), including isolation and ICU admission, at selected health care facilities;
- Provide trainings on IPC guidance in relation to COVID-19 infection in conjunction with clinical management, including but not limited to:
  - early supportive therapy and monitoring
  - management of hypoxemic respiratory failure and acute respiratory distress syndrome (ARDS)
  - management of septic shock
  - prevention of complications
  - specific anti-nCoV treatments and management of side-effects
  - appropriate PPE use (donning and doffing)
  - waste management

- Identify clinical staff at critical points within a hospital (e.g. reception/triage staff, wards, specialised departments etc.) and train them in standard precautions towards infectious disease management.
- Develop guidance and train on practical aspects of IPC measures in high dependency and intensive care units. Responding to all medical care needs of all hospitalised COVID-19 cases; providing training to all local clinical and allied health personnel
- Operational support for the review and set up of a COVID-19 treatment centre in tents and/or public spaces, as needed.

Each Emergency Medical Team deploying as a specialized care team comprising of:

- Team Lead
- Intensive Care Physician
- Nurse with ICU experience
- IPC expert
- Biomedical engineer
- Operational support specialists (Logistics, WASH)

Additional expertise requested includes:

- Rehabilitation Specialist
- Imaging based diagnostics
- Paramedic/EMS specialist

## Tunisia

The current clinical priorities are:

- To functionalize 9 Field Hospitals in the Country with a total of 38 ICU beds and 620 oxygen beds
- Deployment of Emergency Medical Teams will allow to provide patient care including intensive care
- EMTs will allow Field Hospitals to be fully functional, deliver needed care and prevent deaths

### Immediate Needs/EMT Requirements

The immediate need is for **specialized care teams** capable of deploying into selected health facilities for acute care support and/or supporting regional health authorities to plan and establish effective triage, intermediate care facilities, and acute care pathways/facilities. The scope of engagement would include:

- Deployment to designated Provinces/Districts
- Supporting care pathway review/planning to optimize healthcare resources and to optimize clinical outcomes
- Support the implementation of optimized care pathways through set-up of and operational support in intermediate care sites and/or in designated health facilities.
- Close coordination with the national MOH and WHO to ensure a consistent and high-quality approach to the implementation of optimized care pathways at the district, provincial and national levels.

Specialized care teams may propose team compositions based on availability of clinical and operational expertise, but would ideally include at least:

- Intensivists
- Nurses and Critical Care Nurses
- General Practitioners
- Specialists in pneumology or infectious disease
- IPC Experts

### **Mauretania (translated from French)**

The request for EMT support has two main key objectives:

Support MAURITANIA through the training of trainers who in turn can train the staff on the management of COVID patients.

Support to the following hospitals requiring upgrading of their knowledge for the coping with the burden of COVID patients:

- Mohamed Ben Zayed Mobile Hospital
- Hospital Center of Nouadhibou

### Main activities:

Strengthen or increase the capacity of health facilities as a specialized care team in Nouakchott through a training of trainers - 2 weeks each

Direct support to specific hospitals:

- Mohamed Ben Zayed Mobile Hospital - 2 weeks
- Hospital Center of Nouadhibou - 2 weeks

### Standard team composition

- Head of Mission - Liaison
- Medical profile:
- 2 emergency medicine MDs / intensive care specialists, 8 paramedics
- 2 biomedical engineers
- 2 logisticians
- 2 WASH Experts
- IPC Expert

### **Mozambique (translated from Portuguese)**

#### Deployment Objectives and main activities

- To establish and functionalize a field hospital for COVID response in the country, 2. Capacity building for the establishment and creation of National Emergency Medical Teams. These two main objectives will be achieved through:
- Set up a field hospital (EMT type 2) implementing care services including properly equipped intensive care unit, Internal Medicine, Pediatrics, Obstetrics, surgery room, and especially. The field hospital must have a Laboratory with needed equipment to respond to the COVID-19 pandemic for a period of 6 months.
- Provide clinical care of patients, strengthening and increasing the capacity of treatment centers as a specialized care team, and support operational readiness and response activities, including in job training for a period of 6 months.
- Direct support specific health structures

- Maputo City Polana Caniço General Hospital,
- Mavalane General Hospital and
- Maputo Central hospital for a period of 6 months.
- Conduct training of national health staff to support the establishment of National Emergency Team, its capacity building for ownership.

#### Standard Team Composition

- Head of Mission –Liaison officer
- Medical Profile
  - Intensivist,
  - Internist,
  - Gynaeco-Obstetric
  - Pneumologist
  - Paediatrician
- Nurses and critical care nurses
- IPC Expert

Duration of Deployment: The duration of the deployment requested is 6 months. The country is requesting for a long duration of deployment for 6 months, since the modelling is suggesting that the Epi-curve show resurgence and its predicted that this third wave will reach the peak in later October, and therefore it is important that the country maintains adequate functional field hospitals for this period to allow effective response, local capacity and system strengthening while supporting a national EMT capacity and establishment.