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## Original Research

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# COVID-19 as an Accelerator of the Implementation of Emergency Medical Teams Initiative in the AFRO Region

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### Abstract

**Objective:** This study describes the progress that the World Health Organization (WHO) African (AFRO) region has made in establishing National Emergency Medical Teams (N-EMTs), the coordination mechanisms of the EMTs, and the regional training centers.

**Methods:** It used a retrospective descriptive analysis of the formulation and implementation of the EMTs Initiative from an insider perspective. The analysis is based on the review of available documents such as EMTs mission reports, assessments, surveys, EMT monthly bulletins, and meeting minutes in addition to key informant interviews ( $n = 5$ ) with the EMT teams' members to validate the findings and share field experiences.

**Results:** The emergence of coronavirus disease 2019 (COVID-19) acted as an accelerator for the implementation of the EMT initiative in the AFRO region. A total of 18 EMT deployments were carried out in 16 countries in the AFRO region through the WHO EMT-network during COVID-19, providing support to countries in managing severe and critical COVID-19 cases.

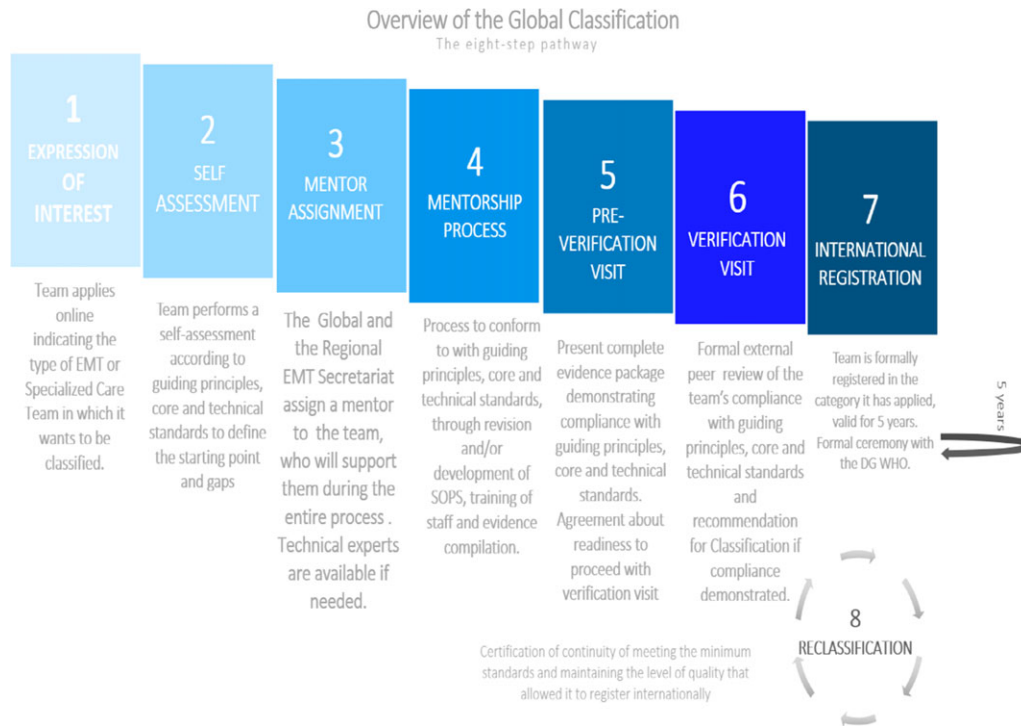
**Conclusions:** A Regional Training Center for N-EMTs is being set up in Addis Ababa to train the N-EMTs and strengthen local capacity of health personnel in the region. Challenges include unavailability of mentors to support countries in implementing N-EMTs and the Regional Simulation Training Center, poor funding, and coordination in the rolling out of the N-EMTs.

Disasters, outbreaks, and other complex emergencies contribute substantially to the global health burden, especially in low-income countries (LIC) and low- and middle-income countries (LMIC).<sup>1</sup> Responding to the needs of the population in these countries during emergencies can be challenging given the already weak health-care system strained by inadequate infrastructure, lack of supplies, and limited health workforce; hindering the needed quality health care.<sup>2</sup> Also, the LIC and LMIC are disproportionately affected by the lack of resources and disaster-preparedness systems.<sup>3</sup> While the importance of health and logistical needs during emergencies has been well documented,<sup>4</sup> the coronavirus disease (COVID-19) pandemic has emphasized the need for better planning and preparedness for the management of emergencies and the necessity for a surge in external health-care professionals for direct clinical care and capacity-building support. The Emergency Medical Teams (EMT) initiative works to strengthen the national surge capacities and facilitate the deployment of internationally classified teams of health-care professionals to countries and territories during emergencies especially in outbreaks and natural disasters to provide immediate assistance when national health systems are overwhelmed.<sup>5</sup>

Historically, the coordination and responses of the medical teams have been characterized by a lack of standardized care<sup>6</sup> such as during the management of the Haiti earthquake in 2010 which had concerns of lack of accountability, standardization, and coordination.<sup>7</sup> Subsequently, the World Health Organization (WHO) launched a series of steps toward the development of principles, criteria, and standards for medical teams in 2010 and the Global EMT registry in 2015.<sup>1,8</sup> The aim of the registry is for EMTs to voluntarily apply to the EMT classification process (Figure 1) to demonstrate compliance with international agreed EMT minimum standards, adherence to quality of care and accepted guidelines; after which the classified EMTs are to be deployed to emergency situations following a request of the host government with support from WHO.<sup>8</sup> The EMT Initiative focuses on the timeliness and the quality service provision in emergencies, while building capacity and strengthening health systems through coordinating the deployment of qualified medical teams.<sup>9</sup>

Globally, there are 32 EMTs that have been classified between 2016 to date; 5 are from the Americas (AMRO) region, 16 from the WHO European (EURO) Region, 1 from South-East

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**Figure 1.** EMT Classification process.

Asia (SEARO) Region, and 10 from West Pacific (WPRO) region. To date, no EMT has been classified in the Africa (AFRO) Region.<sup>10</sup> Specifically, AFRO was the last region to instigate the initiative in 2018. The first years focused on enhancing awareness of the initiative's implementation and classification, particularly in the 2 first countries (South Africa and Senegal). While the classification of the EMT in AFRO region is ongoing, the demand for international support from EMTs has surged across all regions during the COVID-19 pandemic and in solidarity, the WHO has facilitated the transfer of knowledge and practices. Largely, the international EMTs (I-EMTs) have traditionally focused on responding to sudden onset disasters (SOD) but have also been mobilized in response to outbreaks for the first time in the AFRO region in 2014 during the Ebola crisis.<sup>1</sup>

There is paucity of literature on EMTs in Africa. Equally, EMTs that have been deployed to the member states in AFRO region have mostly been from other parts of the world than AFRO. Given that every emergency is context-specific, its impact varies based on scale, the capacity of the affected country and community to manage the event, and the pre-existing vulnerability of the populations affected.<sup>2</sup> The deployments of the I-EMT from outside Africa to tackle emergencies is not without challenges. For instance, there are issues with language barriers, cultural differences, and in most instances, the concept of the EMT is still not well-understood by many member states. In today's multilateral response environment, coordination is at the heart of an effective rapid response to health-related emergencies and for the delivery of humanitarian assistance.<sup>11</sup> Following the lessons learned in responding to health emergencies, the implementation of the EMT Initiative seeks to complete the existing framework of emergency response in AFRO countries by reinforcing the case management and its surge capacity component. It requires an interlinked strategic pillar-approach for scaling up an adapted and context specific regional EMT program for the African countries as shown in Figure 2.



**Figure 2.** Interlinked strategic pillars of implementation (source: Authors).

*Strategic pillar 1* entails the development and implementation of N-EMTs with the focus on outbreaks at national and sub-national levels for responding timely and effectively to health emergencies in the region. In responding to any type of emergencies, N-EMTs are always better placed to provide immediate assistance to those in need.<sup>12</sup> The EMTs provide support to affected health systems through technical support for the clinical management of cases, implementation of infection prevention and control measures and training of health personnel. Due to the heterogeneous characteristics (socio-demographic,

physical, and environmental) of the different countries in the AFRO region, the EMT initiative needs to tailor the response of COVID-19 and other health emergencies. Additionally, coordination of such N-EMTs is vital and thus the strategic pillar 2 and 3. *Strategic pillar 2* involves the establishment of regional and sub-regional EMT training centers to reinforce the technical and operational capacities of the members of the EMT regional network; and *Strategic pillar 3* holds the establishment of a functional regional EMT governance structure to accompany and support a coordinated roll out of the program in the AFRO region.

Recently, the AFRO region has focused on establishing the N-EMTs but also started the development of the first regional training center for EMTs. This study will describe the progress that the WHO AFRO region has made with the establishment of N-EMTs (strategic pillar 1), the coordination mechanisms (strategic pillar 3), and the regional training centers (strategic pillar 2) cognizant of the fact that implementation science involves analyzing the implementation, the processes of the interventions, the fidelity, and how the actors and contexts interact.<sup>13,14</sup> It further elucidates the complexity and challenges related to setting up the aforementioned and proposes recommendations for improvement of both the N-EMTs, the regional coordination and training centers.

## Methods

This article provides a retrospective and descriptive analysis of the formulation and the implementation of the EMTs Initiative from an insider perspective. Information used in this review were gathered through key informant interviews (KIIs) with the insiders and document reviews. In this analysis, the authors are considered as “insiders” since they have been involved in formulation and implementation of the EMT Initiative and strategy in the WHO AFRO Region. As insiders, they provided the insights into processes, dynamics, and approaches that were used by the EMT team to implement the initiative in the region as well as the challenges that they faced. Equally, 2 authors (EMT focal points), were active participants (as EMT lead and coordinators) in many EMT implementation activities and deployments in the region. They either led or participated in meetings with the different stakeholders (AFRO leaders, government officials, EMT teams) in the region and used this as opportunities for “participant observation” of the dynamics of the players of EMT initiative implementation. Additionally, a review of the available documents such as EMTs mission reports, assessments, surveys, EMT monthly bulletins<sup>5,8,9,12,15,16</sup> and meeting minutes on the implementation of the EMTs Initiative and contribution from the EMT Networking the different countries in AFRO region. The content of the review was analyzed using the framework in [Figure 1](#). Once the analysis was completed, we conducted key informant interviews ( $n = 5$ ) with the EMT teams’ members drawn from AFRO regional office and WHO headquarters to validate the findings and share field experiences. Information from the interview was only used to strengthen the analysis and clarify the findings.

## Results

### *Development and Implementation of the EMT-Methodology and the Establishment of a Functional Regional EMT Governance Structure*

#### *Awareness campaigns*

Concerns have been raised regarding the need for cultural awareness of the EMTs,<sup>17</sup> hence a significance for the cross-country awareness

campaigns. The EMT Initiative was launched in AFRO Region in December 2017 in Dakar, Senegal. Eleven countries (Burkina Faso, Cameroon, Côte d’Ivoire, Democratic Republic of the Congo, Kenya, Madagascar, Nigeria, Senegal, Rwanda, South Africa, and Uganda) participated.<sup>16</sup> An invitation was sent to all the 47 countries in the AFRO region through the WHO country offices (WCOs), and these 11 showed interest and thus were included. The objective of the awareness campaign was to galvanize action around enhancing preparedness for countries, promoting the rapid deployment of EMTs during emergencies including outbreaks, and efficiently coordinating the EMTs adherence to minimum standards to reduce morbidity, mortality, and disability associated with public health emergencies.<sup>16,18</sup> In June 2018, a second regional workshop was organized jointly with the West African Health Organization (WAHO) in Grand Bassam, Côte d’Ivoire involving Burundi, and 12 countries of the Economic Community of West African States (ECOWAS): Benin, Burkina Faso, Cabo Verde, Côte d’Ivoire, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Nigeria, Sierra Leone, and Togo. The second meeting initiated the preparation for the national implementation plans. Additionally, 5 N-EMT awareness workshops were conducted in 2018 in Senegal (April 2018), South Africa (June 2018), Nigeria (October 2018), Guinea (November 2018), and Ghana (November 2018); and, with 2 additional independent organizations such as the Alliance for International Medical Action (ALIMA) and Médecins d’Afrique (MDA). Concretely, the workshops resulted to Senegal, South Africa, and ALIMA signing up for the I-EMT classification.<sup>16</sup>

#### *Operationalization and governance*

The awareness workshops resulted in a consensus of the need for countries to strengthen their capacities for health emergency- and disaster risk management. The national governments were advised to adopt core and technical standards and adapt them to their country’s context in a way to better standardize and prepare national teams in the event of responding to outbreaks and other health emergencies. The proposal (the result of the awareness workshop, ie, the roadmap from the workshop on how to implement the different steps of the process of the institution of the N-EMT in the countries) entails a roadmap for the national EMTs to work to achieve and maintain EMT Minimum Standards, combined with the highest possible level of readiness. Consequently, the countries’ capacities were envisaged for assessment and strengthening based on the main components of health-care system readiness using the EMT Minimum Standards guide.<sup>9</sup> The guide supports the analysis and identification of the staff, supplies and equipment, structure, and systems as defined in [Table 1](#) and a model built around the capacity and capability of the teams, together with the ability to mobilize and coordinate them, therefore, contributing to overall country’s level of preparedness and operational readiness.

The coordination methodology is inspired by the international coordination for EMTs, its principles and technical standards of supporting the case management of patients during an outbreak, providing appropriate care by integrating a community dimension into its health package, and adapting care delivery strategies to the specificity of the event and the context. The distinguishing features between the WHO’s EMT Country coordination cell training ([Table 1](#)) and the proposed N-EMT framework is that the latter takes the specificity of the countries because all the countries are not at the same level of implementation (there are different challenges and different opportunities faced by the countries) while the former provides a more general overview. The proposed

**Table 1.** EMT Minimum Standards guide and support the analysis and identification of the staff, stuff, structure, and systems

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Source: Curated by the authors based on WHO's EMT Country coordination cell training: Strengthening Country Coordination of Emergency Medical Teams<sup>9</sup>

N-EMT framework sets countries to take ownership of their response and includes the establishment of a N-EMT Outbreak-Oriented structure at the Ministry of Health (MoH) involving other relevant stakeholders. In its structure and functioning, an outbreak-oriented N-EMT is composed of a *Permanent Coordination Cell* linked to the existing emergency structure of the MoH or other institution. This coordination cell works permanently (in preparation before the event, during the response, and after the intervention to integrate lessons learned from the response). Additionally, it acts as the *case management and services delivery pillar during outbreaks*, overseeing all needed resources for case management activities. Those resources (logistic, human, funding) should be prepared and well organized during its establishment and maintained throughout its activation.

### COVID-19 Illustrated the Need to Rapidly Implement the EMT Initiative in the AFRO Region

Following the importation of the first COVID-19 case into Africa on February 14, 2020, in Egypt, and in the WHO AFRO Region on February 25, 2020, the disease has spread over the whole continent. Coupled with the existing significant challenges of fragile health systems with multiple emergencies in some countries, the region has faced additional disruption of the socio-economic sector by measures put forward to curb the pandemic (lockdowns, closure of borders and schools, restriction of travel, trade, and mass gatherings restrictions).<sup>19</sup> Other compounding factors such as floods, internal displacements, protracted conflicts, and other outbreaks of epidemic prone diseases such as cholera and measles have hampered the continuity of health services in the region.<sup>2</sup> Recognizing the ongoing developments of the EMT initiative in the region, the WHO AFRO regional office Incident Management Support Team (IMST) has an EMT sub-pillar under the health operations technical expertise pillar (HOTE), which is a new sub-pillar that was instituted in March 2020, to organize the necessary support for countries affected by COVID-19.

Following the awareness and operationalization in January 2018 and subsequently accelerated by the COVID-19, 18 I-EMT deployments have been carried out in 16 countries in the AFRO region through the collaboration of the WHO and the EMT-network. The deployments have followed a request by the member states for external support by international EMTs rather than local teams. Deployment duration has varied from country to country based on the needs and country's initial request. As a result of the deployments, 34% (16 of 47) WHO African countries received support in the management of severe and critical cases of COVID-19, the targeted interventions to improve IPC practices among health workers, assessment of health facilities, Risk Communication and Community Engagement (RCCE). Health

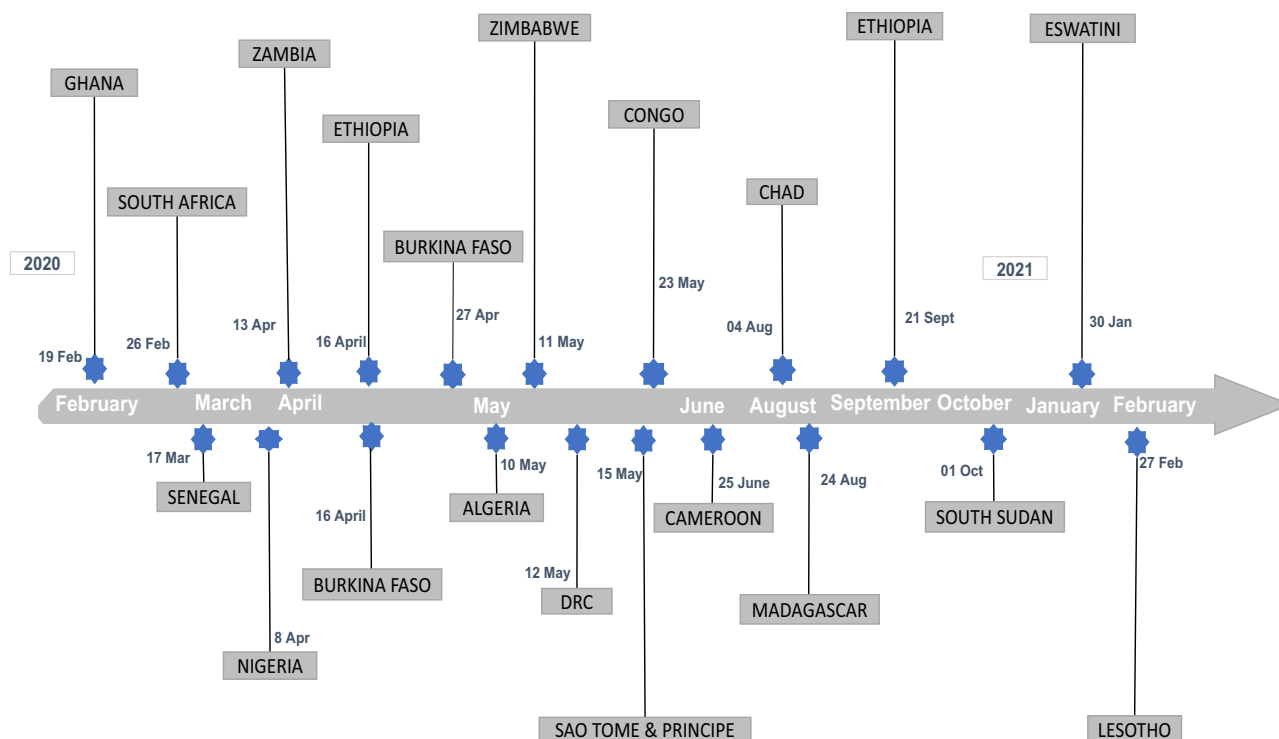
#### Box 1. Challenges in the deployment of international EMTs in Africa

- Limited understanding of the processes of deploying I-EMTs and their capabilities by some stakeholders (government, private, and advisory) in some countries leading to hesitancy of the submission of the EMT request for assistance, despite worsening epidemiologic situation.
- Lack of a liaison person in some countries to coordinate and provide regular updates on activities carried out in the field; and, to assess and agree on the need for deployment of EMTs.
- Delay in the deployment of international EMTs with constraints in mobility due to border closures, quarantine protocols and lockdowns.
- Difficulty in communication with patients (language barrier), cultural differences between deployed EMT and population served, and some difficulties in adapting delivered services to the local context.

workers have reported greater level of confidence and the process of working together to come to the solution right for the context allowed for a genuine sense of international solidarity.

The decentralization of the response at sub-national and district level was enhanced and more than 4500 health personnel were trained by EMT-members. Overall, there was the deployment of international EMT civilian experts (123) and military experts (93) to support the COVID-19 pandemic response in the AFRO region (as of the writing of this study in March 2021). However, a limited relationship can be found between the countries that participated in the EMT initiative workshops and the ones that requested EMT support. The request and deployments were mainly based on the country's need, the challenge faced at the time, and awareness efforts since the beginning of the COVID-19 pandemic response (Table 1).

Nevertheless, such requests went hand in hand with the challenges of deployments (Box 1) and have further confirmed the need for member states to develop their own national EMT system to respond quickly and effectively to any health emergencies that may occur in their countries in the future. The key challenges were and still are the logistical difficulties of deployment and inadequate sensitization of the member state countries to understand the process and steps to mobilize medical surge capacities; however, the recipient member states, with WHO support, have been able to facilitate the arrival and work of the teams in their respective countries. Implementing the EMT Initiative has faced challenges due to lack of awareness and understanding of the added value of the initiative at country level. These missions have supported the initial understanding of the differences and the complementarity that exists between an EMT and a RRT (Rapid Response Team) and set the basis for future alignment. Additionally, twinning arrangements between international and national teams can generate a potential win-win situation where we can expect



**Figure 3.** Timeline of EMT deployment in WHO AFRO region from start of February 2020 to end of February 2021.

benefits from pre-existing agreement to respond with increasing predictability and effectiveness of the response itself.

To do so, the EMT system would benefit from the identification of a national focal point at country level to further expedite requests and processes in alignment with the wider EMT Initiative. Currently, there is lack of a regional pool of mentors to support countries in the process of implementation of National EMTs and low level of awareness of EMT initiative in some WCOs, operational partners, and the MoHs.

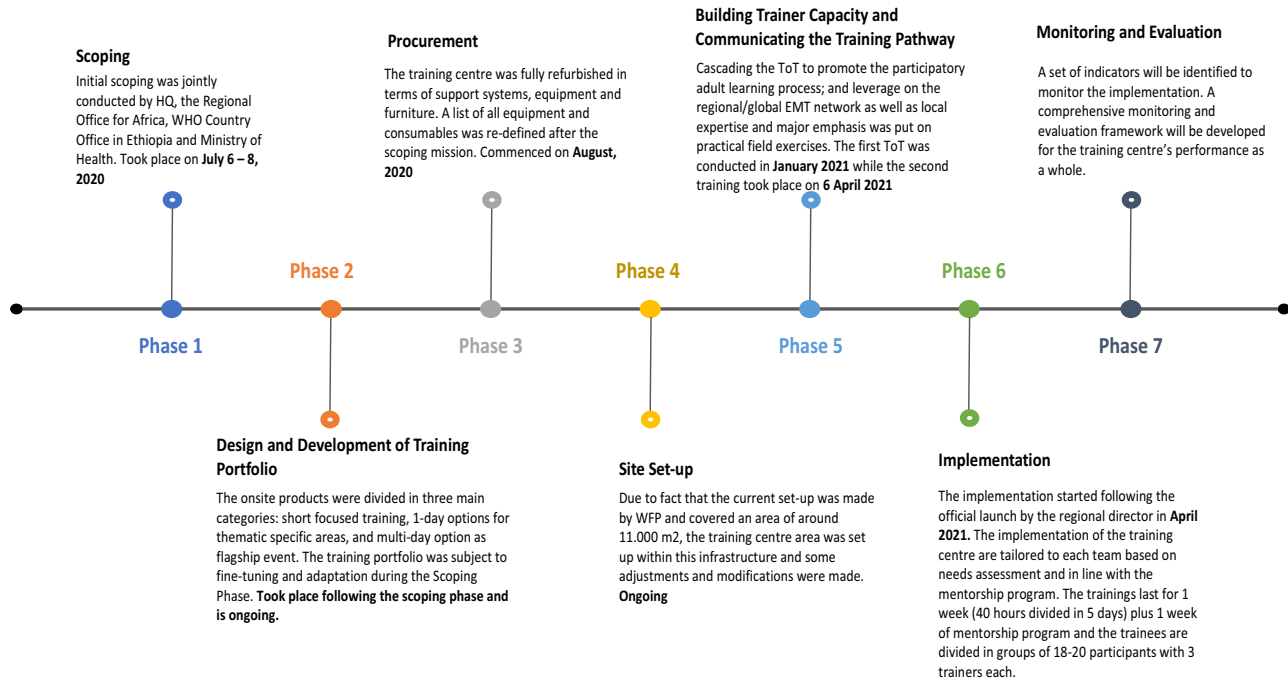
#### **Development of the Regional Training Center for EMTs and Acceleration of the Implementation of National EMTs**

In the same context, a Regional Training Center for N-EMTs is being set up in Addis Ababa (detailed timeline is in the phases described in [Figure 4](#) below), with the objective to train the N-EMTs and to strengthen technical and operational skills of health personnel in WHO's AFRO region. Through the establishment of a dedicated simulation center in the AFRO region, health-care workers can benefit from exposure to training, using innovations that would never have been available in their regular working environments. The project will make use of the EMT-network and the associated WHO-collaborating centers, academia, and other WHO-technical units to assist with the development of the training curriculum evaluation criteria, and follow-up. They can provide specialized human resources to develop and provide specific training, training of trainers from all over the Region and evaluation of the implementation of the project. The immediate purpose for establishing this training center is to enhance the technical skills of Regional EMT members (all National EMTs and other EMT in the Region), and other clinical care management personnel, in the management of severely sick and critical patients, using simulation centers. Simulation-based training has shown to be superior to lecture-based training for learning overall situation awareness because it improves

perception ability.<sup>20</sup> Simulations also improve success rates of first attempts of intubations in critically sick patients.<sup>21</sup> Technical skills as intubation, use of ventilators, interpretation of blood gas results, and monitoring the patients are very hard, if not impossible to be trained without simulation. Bringing the technical skills to the health-care worker in AFRO-region could be enhanced by providing simulation-based training in identified centers.<sup>22</sup> A road map of activities is shown in [Figure 3](#) (some done and others ongoing).

**Phase 1: Scoping Phase:** Capacities can only be built effectively when there is an accurate understanding of the context, including existing capacities and needs. Time to conduct a proper analysis is needed, also in dialogue with local and regional actors. An initial scoping mission was conducted on July 6-8, 2020, jointly by HQ, the Regional Office for Africa, WCO in Ethiopia, and Ethiopian Ministry of Health to clarify the scope and the role of all stakeholders involved in the project, clarify the role of the center and the project coordinator based in Addis. Following the mission, the outcome of this phase was a scoping report, and it was identified and proposed that the UN Field hospital structure built by World Food Program (WFP) required adjustments and support from the government to make the tent structure functional and operational for both treatment and training center. For the time being, the trainers are to be provided by the EMT network, including collaborating centers. The outcome of the scoping review was a workshop on EMT/Disaster Management to train on mass causality and the kick-off of the implementation of N-EMT. The organizations involved in this phase were the WHO headquarters, WHO AFRO, WCO Ethiopia, WFP, and Ethiopia MoH.

**Phase 2: Design and Development of Training Portfolio:** In this phase, the potential training products to be delivered onsite were proposed to be divided in 3 main categories, including short-focused products, 1-day options for thematic specific areas, and multi-day options as flagship events. The training portfolio was further fine-tuned following the discussion with the Ethiopia MoH.



**Figure 4.** A road map of activities in the development of the regional training center.

The organizations involved in this phase were the WHO HQ and AFRO and the processes that led to this phase started during the scoping phase, but it is still ongoing.

**Phase 3:** Procurement started immediately after phase 2 (in August 2020) and is ongoing. The list of all equipment and consumables was re-defined following the needs under the scoping mission. Currently, the procurement of the equipment is ongoing, but the center is using the existing equipment that were made available by the Ethiopia MoH such as beds and ventilators. The organizations involved in this phase have been the WHO HQ, AFRO, WCO Ethiopia, and is still ongoing.

**Phase 4:** Site set-up was based on the already existing structure by the WFP. The current structure covers an area of approximately 11,000 m<sup>2</sup>, and some adjustments and modifications were done to fit the training portfolio as was envisaged during the scoping phase. The organizations involved in this phase were the WHO HQ, AFRO, WCO and Ethiopia MoH.

**Phase 5:** Building Trainer Capacity and Communicating the Training Pathway, the cascading Training of Trainers (ToT) approach is proposed with the intent to promote the participatory adult learning process of having a core group of trainers to manage the implementation of training and leverage on the regional/global EMT network as well as local expertise. In addition to classroom-based presentations and discussion, major emphasis is put on practical field exercises. The first training was conducted in January 2021 while the second training took place on 6 April 2021. It is envisaged that training will be extended to 10 pilot countries which will be identified in consultation with the countries MoHs). The organizations that have been involved in this phase are the WHO HQ, AFRO, and WHO Academy.

The official **phase 6:** Implementation (COVID-19) started on April 13, 2021, following the official launch by the WHO AFRO regional director. It is envisaged that the training center's implementation will be tailored to each team based on needs assessment and in line with the mentorship program. The training will enhance the health-care workers' technical skills through the

Research and Innovation approach and adjust training curricula to the specificities of the countries' contexts. Countries will access training and simulation opportunities and be supported by WHO and classified EMTs in developing their capacities, including equipment (twinning approach) or other EMTs during the response phase through just-in-time training and equipment. Of note, there is a plan to extend this approach to other sub-regional training centers with the WHO AFRO countries. This project includes a research and innovation component allowing front-line workers to practice in a safe environment and support possible reverse innovation defined as a bottom-up approach on innovations that come from less developed countries to more developed ones. The organizations that are being involved in this phase are the WHO HQ, AFRO, WCO Ethiopia, and Ethiopia MoH.

**Phase 7:** Monitoring and Evaluation, it is envisaged that the set of indicators identified during the scoping phase, to monitor the implementation will be used to evaluate the progress. Additionally, a comprehensive monitoring and evaluation framework will be developed for the training center's performance. The organizations that will be involved in this phase are the WHO HQ, AFRO.

## Conclusions

This study has described the progress that the WHO AFRO region has made in implementing the EMT Initiative so far including the establishment of N-EMTs, the coordination mechanism, and the regional training center as key components of the EMT strategy in the region. Despite the launching of the in the AFRO Region in December 2017, the implementation in different countries has faced significant challenges due to hesitancy by the member state governments, coordination difficulties involving working with multiple stakeholders, delay in deployment (such as issuance of visa and different countries requirements), and communication barriers (such as language challenges), as well as dedicated funding. However, COVID-19 has exacerbated the already existing challenges of fragile health systems; thus, it uncovered the need

**Box 2.** Recommendations for faster implementation of the EMT Initiative in the WHO's AFRO region

- Improve and coordinate better the processes of partners engagement at regional and countries levels. This could be done through the AFRO EMT focal point working with the partnership focal point at the sub-regional hubs and country level. This will form the interaction points between the country office and the region; provide regular updates of activities carried out in the field; and, to assess and agree on the need for deployment of EMTs.
- Develop a pool of regional mentors to support countries in the process of implementing N-EMTs and training at the Regional Simulation Training Center.
- Develop a good sensitization program to create and encourage more awareness about the processes and implementation of N-EMT and deployment of international EMT.
- Advocate for continued funding regarding the implementation of Regional Training Center in Ethiopia.
- Disseminate and present the new vision on the N-EMT for the AFRO context.
- Increase awareness and implementation of the EMT initiative and the N-EMTs in the context of long-term elimination program of COVID-19 through organization of webinar on N-EMT initiative in partnership with sub-regional institutions such as WAHO.
- Kick off the process to establish a formal EMT AFRO Regional Group conceived as the main forum at the regional level allowing for Member States, EMTs and other stakeholders to shape, guide, and drive the implementation of the EMT Initiative
- Increase the support to the EMTs currently in the classification process toward verification as those teams can play a catalyst role in guiding others in establishing similar capacities and capabilities.
- Launch a technical working group on N-EMT and continue documenting the socio-economic benefits of investing in the EMT model.

for better planning and preparedness to manage emergencies using N-EMT and even highlighted the need to bring in external health-care professionals for direct clinical care and capacity-building support. In the same context, COVID-19 has accelerated the need and implementation of the Regional Training Center for N-EMTs in Addis Ababa to train the N-EMTs and strengthen the local capacity of health personnel in WHO's AFRO region. Of note, some countries with existing classified EMTs have already committed and/or expressed the interest in supporting the implementation of the EMT Initiative in the WHO's AFRO region.

However, despite the progress, investments need to be made in supporting countries in implementing N-EMTs and sustain the Regional Simulation Training Center activities. Therefore, as a way forward, we provide recommendations for faster implementation of the EMT Initiative in the WHO's AFRO region as indicated in Box 2.

**Author contribution.** D.B., B.O., I.N.C. the authors conceptualized the study in a HOTE meeting that was held virtually in November 2020. D.B. and B.O. collected the data, conducted the analysis, and drafted the initial manuscript, which was subsequently revised for important intellectual content by all authors. All authors read and approved the final manuscript.

**Competing interests.** None declared.

**Patient consent for publication.** None required.

## References

1. El-Khani U, Ashrafian H, Rasheed S, *et al.* The patient safety practices of emergency medical teams in disaster zones: a systematic analysis. *BMJ Glob Health.* 2019;4(6):e001889.
2. **World Health Organization.** Primary health care and health emergencies: World Health Organization. 2018. Accessed January 21, 2021. [https://www.who.int/docs/default-source/primary-health-care-conference/emergencies.pdf?sfvrsn=687d4d8d\\_2](https://www.who.int/docs/default-source/primary-health-care-conference/emergencies.pdf?sfvrsn=687d4d8d_2)
3. **Watson JT, Gayer M, Connolly MA.** Epidemics after natural disasters. *Emerg Infect Dis.* 2007;13(1):1-5.
4. **Hughes A, Almeland SK, Leclerc T, et al.** Recommendations for burns care in mass casualty incidents: WHO Emergency Medical Teams Technical Working Group on Burns (WHO TWGB) 2017-2020. *Burns.* 2021;42(7):349-370.
5. **World Health Organisation.** Emergency Medical Teams Initiative. 2020. Accessed January 20, 2021. <https://extranet.who.int/emt/content/about-us>
6. **Lind K, Gerdin M, Wladis A, et al.** Time for order in chaos! A health system framework for foreign medical teams in earthquakes. *Prehosp Disaster Med.* 2012;27(1):90-93.
7. **Sphere Association.** Humanitarian Charter and Minimum Standards in Humanitarian Response. *The Sphere Handbook.* Geneva: Practical Action; 2018.
8. **World Health Organisation, International Federation of Red Cross and Red Crescent Societies.** The regulation and management of international emergency medical teams 2017. Accessed January 20, 2021. <https://www.ifrc.org/PageFiles/233516/EMT%20Report%20HR.PDF>
9. **World Health Organisation.** EMT county coordination cell training: strengthening country coordination of emergency medical teams: EMT. 2018. Accessed January 20, 2021. [https://extranet.who.int/emt/guidelines-and-publications#dfliip-df\\_manual9/11/](https://extranet.who.int/emt/guidelines-and-publications#dfliip-df_manual9/11/)
10. **World Health Organisation.** EMT global classified teams: EMT initiative. 2020. Accessed January 20, 2021. <https://extranet.who.int/emt/content/emt-global-classified-teams> accessed 20 January 2020.
11. **Management Sciences for Health.** Coordinating complex health programs Boston, Massachusetts: Management Sciences for Health. 2003. Accessed March 9, 2021. <https://www.msh.org/sites/default/files/Coordinating-Complex-Health-Programs.pdf>
12. **The EMT Secretariat.** Emergency medical teams: World Health Organization EMT Initiative Geneva: World Health Organisation. 2016. Accessed 11 March 11, 2021. <https://www.who.int/hac/techguidance/preparedness/emt-info-nov2016.pdf>
13. **Moore GF, Audrey S, Barker M, et al.** Process evaluation of complex interventions: Medical Research Council guidance. *BMJ.* 2015;350:h1258.
14. **Patton MQ.** *Utilization-Focused Evaluation.* Sage Publications; 2008.
15. **World Health Organisation.** WHO health emergencies programme in the African region: annual report 2016 WHO Africa Regional Office. 2017. Accessed January 29, 2021. <https://apps.who.int/iris/bitstream/handle/10665/258535/9789290233657-eng.pdf>
16. **World Health Organisation.** Emergency Operations Annual Report: saving lives and reducing suffering WHO's work in emergency response operations in the WHO African Region in 2018 WHO Regional Office for Africa. 2020. Accessed January 29, 2021. <https://apps.who.int/iris/bitstream/handle/10665/330396/WHO-AF-WHE-EMO-01-2020.pdf>
17. **Camacho NA, Hughes A, Burkle FM Jr, et al.** Education and training of emergency medical teams: recommendations for a global operational learning framework. *PLoS Curr.* 2016;8:ecurrents.dis.292033689209611ad5e4a7a3e61520d0
18. **Ravi SJ, Snyder MR, Rivers C.** Review of international efforts to strengthen the global outbreak response system since the 2014–16 West Africa Ebola Epidemic. *Health Policy Plan.* 2019;34(1):47-54.
19. **Organisation for Economic Co-operation and Development.** COVID-19 and Africa: Socio-economic implications and policy responses: OECD.org. 2020. Accessed March 11, 2021. <https://www.oecd.org/coronavirus/policy-responses/covid-19-and-africa-socio-economic-implications-and-policy-responses-96e1b282/>
20. **Lee Chang A, Dym AA, Venegas-Borsellino C, et al.** Comparison between simulation-based training and lecture-based education in teaching situation awareness. A randomized controlled study. *Ann Am Thorac Soc.* 2017;14(4):529-535.
21. **Mosier JM, Malo J, Sakles JC, et al.** The impact of a comprehensive airway management training program for pulmonary and critical care medicine fellows. A three-year experience. *Ann Am Thorac Soc.* 2015;12(4):539-548.
22. **Gallardo AR, Meneghetti G, Franc JM, et al.** Comparing resource management skills in a high-versus low-resource simulation scenario: a pilot study. *Prehosp Disaster Med.* 2020;35(1):83-87.