ASEAN Journal of Disaster Health Management https://doi.org/10.22146/ajdhm.v2i2.31945
Vol. 2 (2) 2026: 169-180

THE SINGAPORE EMERGENCY MEDICAL TEAM'S RESPONSE TO THE 2025 MYANMAR EARTHQUAKE – EXPERIENCE AND INSIGHTS

Raihan Rafiek[1]*

[1]*Ministry of Health, Singapore:* raihan_rafiek@moh.gov.sg

**Correspondence:* raihan_rafiek@moh.gov.sg

Submitted: 25-06-2026 **Revised**: 24-07-2026 **Accepted**: 14-08-2026

List of Abbreviations

AHA Centre	: ASEAN Coordinating Centre for Humanitarian Assistance on Disaster Management
ASEAN	: Association of Southeast Asian Nations
DDM	: Department of Disaster Management of Myanmar
DHM	: Disaster Health Management
EMT	: Emergency Medical Team
EMTCC	: Emergency Medical Team Coordination Cell
IFRC	: International Federation of Red Cross and Red Crescent Societies
MFA	: Ministry of Foreign Affairs
MGH	: Mandalay General Hospital
MOH	: Ministry of Health
MRCS	: Myanmar Red Cross Society
NGO	: Non-Governmental Organization
OFW	: Operation Falcon Wing
SGEMT	: Singapore Emergency Medical Team
SIM	: Subscriber Identity Module
WASH	: Water, Sanitation and Hygiene
WCH	: Women's Central Hospital
WHO	: World Health Organisation

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ABSTRACT

Introduction: The Singapore Emergency Medical Team (SGEMT) was deployed on its first mission to Mandalay, Myanmar from 3 to 16 April 2025, codenamed Operation Falconwing (OFW), providing medical assistance to communities devastated by a 7.7-magnitude earthquake. **Objective:** This case study examines how effective EMT deployment requires capabilities that extend beyond WHO-prescribed clinical and operational capabilities. **Methods:** SGEMT deployed a 34-member multidisciplinary team operating from a self-sufficient Type 1 Fixed EMT facility, with referral pathways and coordination established with local authorities, partner hospitals and humanitarian partners. Post-deployment, an after-action review was conducted with all team members across a range of operational data sources. **Results:** Over eight operational days, SGEMT attended to 1,803 patients, more than double WHO Type 1 Fixed minimum standards (1), with no compromise to safety or quality of care. Additionally, SGEMT's self-sufficiency model and established clinical and operational processes were validated under field conditions. However, challenges emerged that were either unanticipated or differed from planning norms, demanding additional capabilities which will be examined in this case study. **Conclusions:** OFW (Myanmar) demonstrated that effective EMT deployment demands additional capabilities that should be integrated into future EMT frameworks.

Keywords: Emergency Medical Team; Humanitarian Assistance; Disaster Response; Myanmar Earthquake; Health System Resilience

INTRODUCTION

Emergency Medical Teams (EMTs) have become a cornerstone of international disaster health response, providing structured medical assistance in the immediate aftermath of crises. The World Health Organization's (WHO) classification and standards for foreign medical teams ensure that standards of care and self-sufficiency in deployment are met (2). This case study aims to demonstrate that effective EMT deployment demands capabilities beyond WHO-prescribed standards, and that these capabilities can be integrated into future EMT frameworks.

Singapore Emergency Medical Team (SGEMT)

SGEMT was established by Singapore's Ministry of Health (MOH) to render medical assistance on regional and international fronts, particularly in crisis situations affecting Southeast Asia. It attained WHO classification in September 2024 as a Type 1 Fixed EMT (3),

positioning Singapore to provide an internationally recognised capability in emergency medical response focusing on primary care whilst operating in self-sufficiency – with its own generators, water filtration systems, field tents and food supplies – so as not to burden local resources in disaster-struck regions.

Called to Action

On 28 March 2025, a 7.7-magnitude earthquake struck central Myanmar, affecting an estimated 28 million people and causing widespread devastation across Naypyitaw, Sagaing, and Mandalay regions. The Department of Disaster Management (DDM) of Myanmar recorded 3,655 deaths, 4,824 injured, and 129 missing persons, with 41,733 individuals displaced across 145 temporary shelters (4). Critical infrastructure, including hospitals, collapsed or sustained significant damage, whilst electricity, water, and communication networks were disrupted across affected areas.

Myanmar declared a state of emergency and requested for assistance through the AHA Centre. In response, Singapore's MOH activated the SGEMT, with objectives encompassing the delivery of life-saving trauma and emergency care to affected populations, the provision of critical health services in disrupted communities, and psychosocial support to survivors and responders (5).

Prior to the operation, SGEMT's deployment proposal was presented to the Mandalay Cabinet. Support was sought for the operational plan, as well as for the engagement of relevant local government bodies, municipal authorities, hospitals, universities and NGOs as collaborative partners. The Cabinet endorsed the deployment plan and the partnership arrangements and expressed deep appreciation that the plan was well thought through and required no additional resources from the local government who was already operating at its limits in managing the aftermath of the earthquake.

METHODS

Study Setting

OFW (Myanmar) ran from 3 to 16 April 2025, with a 34-member multidisciplinary team composed of clinicians, operational support officers and logistics officers, all trained across a wide range of disaster scenarios. The team operated from Bahtoo Stadium in Mandalay, which was located between two medical facilities, the Mandalay General Hospital (MGH) and

Women's Central Hospital (WCH). A partnership with the local hospitals allowed mutual referral pathways to be established, facilitating the right-siting of care for the patients.

Study Design

Post-deployment, an after-action review was performed with all team members, covering findings from the debriefing sessions of the team members, operational data collected using WHO EMT reporting formats throughout the mission, mission reports prepared by team leads, coordination meeting minutes from engagements with local and international partners, and referral patterns and patient outcomes. The collected data was categorised into meaningful themes through iterative analysis, before being reviewed by multiple analysts to ensure reliability and validity. Their review examined the interplay between actual ground situations to distil learnings from the deployment, and the operational challenges and the adaptive responses employed to overcome them.

RESULTS

EMT Capacity

Over eight operational days, SGEMT attended to 1,803 patients, averaging 200-250 daily. This is higher than the anticipated 150 patients per day, and more than double the WHO Type 1 Fixed facility minimum technical standard of 100 patients daily.

Patient presentations evolved rapidly during the deployment period. Directly earthquake-related cases accounted for 21.6% of presentations, with indirect cases comprising a further 7.9%, spanning fractures, wound complications, displacement-related skin conditions, and gastroenteritis. The majority of presentations were non-earthquake-related (70.5%), predominantly chronic conditions such as hypertension, diabetes, and osteoarthritis, reflecting the broader collapse of routine healthcare access in the affected population. The team also managed approximately six resuscitation-level cases daily, including acute pulmonary oedema and acute myocardial infarction. Paediatric presentations peaked in the latter days of deployment, likely reflecting delayed healthcare-seeking as families stabilised before seeking care.

Table 1. Patient Presentations

Condition Category	Count	Percentage
Directly earthquake-related	389	21.6%
Indirectly earthquake-related	143	7.9%
Not earthquake-related	1,271	70.5%
Total	1,803	100%

Source: R. Rafiek., 2026

During the deployment period, WCH referred 62 obstetric and gynaecological cases to SGEMT and MGH referred five patients requiring non-obstetric care. This referral allowed SGEMT to help relieve patient loads from the emergency department of both hospitals. SGEMT referred 22 patients requiring higher-level care to MGH.

With a Myanmar MOH official and MGH nurses working alongside SGEMT, patients treated by SGEMT were seamlessly integrated back into the local health system with follow-up medical appointments, medication replenishment and medical data sheet exchange.

Mission Success

As a whole, OFW (Myanmar) was a very successful mission. Throughout the operation, medical supplies and consultations remained adequate. While the number of patients served was approximately 1.5 times above anticipation, this elevated throughput was achieved without any compromise to safety or quality of medical services delivered. The heartening feedback received from patients and local medical teams affirmed this. This accomplishment was attributed in large part to SGEMT's complete self-sufficiency operational model, rigorous pre-deployment training and the incorporation of established clinical and operational processes from Singapore (6, 7), which allowed the team to sustain high service delivery standards even under demanding field conditions. Nevertheless, real-world operations including evolving local conditions and considerable media interest presented challenges that were not anticipated or differed from planning norms. The support from local authorities, the local medical community and the network of local and international partners played important roles in the deployment's success.

The team attempts to share key insights and experiences from this deployment that could better prepare future teams embarking on such EMT operations.

DISCUSSION

SGEMT's experience at OFW (Myanmar) has shown that disaster health management continues to be a complex endeavour and highlighted the importance of adaptive responses to manage ground situations.

Operational Agility – Ready to Calibrate According to Evolving Ground Situation

The original deployment location for the SGEMT was in Meiktila. After arriving and finalising site plans with the local hospital, the team was redirected to Mandalay due to further assessment of the situation by the local authority and the region that required more urgent humanitarian aid. The change demanded rework of operational plans and logistics had to be re-coordinated across unfamiliar routes and an extensive network of damaged roads. The transit involved additional flights, an overland journey and overseeing transportation of the team's equipment which had to take a separate route. These evolving situations were not anticipated during pre-deployment planning, but the team remained resilient and recognised the changes reflect a rapidly evolving disaster environment. Such resilience and readiness to adapt to unexpected situations superseded all logistical preparation.

Collaboration with Local Authorities and Leveraging on Network of Partners

The Mandalay Regional Government facilitated site access and mobilised local security, municipal and community resources to support relief efforts, which were critical for the setting up of the operation base. Additionally, real-time coordination with partner hospitals (MGH and WCH) was essential to appreciate evolving needs, ensuring integration with the local healthcare system and not operating as an isolated parallel structure. The assignment of a Myanmar MOH official and MGH nurses to work alongside SGEMT facilitated these coordination work, as well as arranged for patient's subsequent follow-up at the hospital. Such collaboration reinforced SGEMT's role as an extension of Myanmar's healthcare resources during deployment and ensured continuity of care for patients.

To ensure international aid was properly spread out across the disaster area, SGEMT hosted an international coordination meeting at the SGEMT base of operations. The meeting brought together the WHO Emergency Medical Team Coordination Cell (EMTCC), international medical teams from Russia, India, and Japan, and humanitarian actors including International Federation of Red Cross and Red Crescent Societies (IFRC), Myanmar Red Cross Society (MRCS), and local and international NGOs. The forum, facilitated by the EMTCC,

performed gap identification in response coverage, shared best practices and enhanced collective action planning and relationship-building among responders. The session was very fruitful, and outcomes extended well beyond what any team could have achieved independently.

Responding to Evolving Medical Needs

Whilst the primary mandate of any EMT deployment is to respond to those directly affected by the disaster, the patient profile encountered in OFW (Myanmar) serves as a timely reminder that the medical needs on the ground will rarely conform neatly to that mandate. As reflected in the patient data above, the predominance of non-earthquake-related presentations — chronic disease, acute medical emergencies, and paediatric cases — underscores the importance of EMTs being nimble and broadly equipped, both medically and logistically. Teams that arrive prepared only for trauma and disaster-specific presentations risk being ill-equipped for the fuller spectrum of need they are likely to encounter. Adequate medical supplies, adaptable clinical protocols, and the readiness to serve a population whose healthcare access has been broadly disrupted, in addition to victims of the calamity are essential attributes of an effective and responsive EMT deployment.

Managing Local Culture and Language

In the days preceding the Songkran festival, one that carries profound cultural and spiritual significance for many Myanmar families, SGEMT had medically assessed and was actively monitoring over 20 expecting mothers, all anticipated to give birth during the Songkran festival period. SGEMT was fully equipped to manage two deliveries at a time, with midwives on standby and the necessary clinical processes and infrastructure in place. However, not a single expecting mother turned up from the eve through the Songkran period. It was only through subsequent engagement with local communities that the SGEMT realised that Songkran is an auspicious period during which home birth is strongly preferred. This tradition takes precedence over the availability of modern clinical care. Understanding and taking cultural practices and beliefs into planning consideration could help in further field deployments to provide quality medical care for the community without going against tradition.

The enlistment of local medical students as volunteer translators, arranged through the local government, addressed a key operational obstacle - language. Their clinical background made them considerably more effective than general translators, enabling more accurate consultations and reducing the risk of miscommunication in medical settings. They also

provided the link to guide the SGEMT on local culture that might impede treatment. Beyond their practical contribution, local medical students' involvement fostered a sense of shared purpose and local ownership that enriched the deployment in ways that go beyond what any logistical arrangement alone could achieve and offers a replicable model for future EMT deployments.

Managing Public Communications

The scale and international visibility of the disaster attracted considerable media interest throughout the deployment, with SGEMT receiving multiple requests for interviews, site visits, and information from both local and international press. While media engagement could build public confidence in humanitarian response and reassure affected communities that help is present, it saps disproportionately the team's operational bandwidth. The challenge lies not in whether to engage, but to do so without disruption to operations and assist in the host country's broader communication effort.

Each engagement required dedicated time and attention from team members simultaneously managing a high patient load and complex operational demands. Whilst individual interactions were manageable, the cumulative effect of multiple concurrent requests added a layer of administrative burden. Every request also necessitated careful internal clearance. Figures and operational details had to be verified before disclosure, and local authorities' endorsement was required before any statistics or plans could be shared publicly. Any figures released by SGEMT that contradicted official government tallies risked undermining public confidence and straining host country relationships. Alignment with official communications was therefore a non-negotiable discipline throughout the deployment. Media presence in clinical or patient-facing areas risked compromising privacy, and more acutely the dignity of those still in the acute stages of grief and trauma. SGEMT was deliberate in managing the boundaries of media access, ensuring that the pursuit of coverage never came at the expense of those it was there to serve. Throughout the ordeal and events, the team needs to be clear in the pursuit of the mission of providing medical care and saving lives.

While WHO EMT standards require EMTs to make provisions for media management (8), the need to balance operational demands with media engagement would warrant a more detailed and perhaps standardised set of media management guidelines or a framework for EMT deployments.

Team Safety

In a post-earthquake environment where ground conditions were uncertain and infrastructure had sustained varying degrees of damage, team safety had to be actively secured and not assumed. From the outset of OFW (Myanmar), SGEMT operationalised this principle by working closely with the Singapore Embassy in Yangon and Myanmar authorities to gather the intelligence necessary for safe operations, including road conditions along planned ground routes, identification of hotels certified as structurally unaffected by the earthquake, and vetted providers for clean and safe meals.

Safety was maintained as an active and ongoing discipline rather than a one-time pre-deployment consideration. Regular earthquake drills were conducted before the deployment and sustained throughout the operation, with evacuation plans established and communicated to all team members to ensure a coordinated response in the event of aftershocks. Aftershock intelligence was a key feature to ensure the team could respond to secondary seismic events rather than be caught unprepared by them.

SGEMT also coordinated with local authorities to halt or delay demolition works on earthquake-affected buildings within the vicinity of its base of operations — recognising that such works posed a direct respiratory and health hazard to both team members and the patients. These measures reflected a deliberate and comprehensive approach to safety that extended beyond personal security to encompass the operational environment.

Securing the necessary intelligence and formal safety support through close collaboration with host government authorities and diplomatic channels, maintaining active safety protocols in-theatre, and anticipating environmental hazards beyond the immediate disaster event must remain non-negotiable prerequisites. This posture will be incorporated as a standing feature in all future deployments.

Mental Health of the Team

One of the lessons that emerged from OFW (Myanmar) was the critical importance of mental health resiliency for the team. Existing international guidelines covering mental health and psychosocial well-being support in emergency settings have focused on supporting affected population groups, with coverage of mental health support for healthcare providers kept brief (9–11). To ensure sufficient and tailored support for the team, the SGEMT put in place relevant measures before and during the deployment, and they proved essential in sustaining team resilience across eight demanding operational days.

Members received pre-deployment preparation on expected challenges and potential exposure to traumatic sights and situations. The team's daily routine included peer debriefs, structured check-ins by the psychologist in the team, and a buddy system among team members normalised help-seeking behaviour. This in-built structure is to avoid the cumulative toll of sustained clinical demand, austere conditions, and exposure to emotional situations that might compromise individual wellbeing and collective performance.

In-theatre, physical exhaustion was actively managed through rest rotations, the procurement of local SIM cards to facilitate family contact, accommodation of dietary needs, and regular video conferencing with Singapore leadership served both as an operational update mechanism and a source of encouragement. Daily team briefings maintained collective situational awareness and morale throughout.

The team went through a daily dilemma at the end of each day, when the decision on closing the queue on time to allow timely rest for the team or to continue accepting all presenting patients had to be made. The team consistently chose the latter, unwilling to turn away patients who had travelled considerable distances to seek care. The choice between clinical compassion and sustainable operational tempo is real, and the SGEMT was fortunate that its resilience structures were robust enough to absorb this additional strain. Nevertheless, this is a lesson when planning for future deployment and not to rely on teams' fortitude to carry through extended operations.

The MOH Singapore Operations Center's check-in calls to team members' next-of-kin back home were a thoughtful touch as the wellbeing of families at home has a direct bearing on the focus and morale of personnel in theatre.

After returning, a psychological check-in for all deployed personnel was conducted by the SGEMT psychologist. This is recognised as an important step, as not all personnel who have experienced significant stress will immediately recognise or report its effects. The check-ins throughout deployment and after deployment aims to ensure the mental well-being of all deployed personnel, and to ensure all personnel remain psychologically effective and supported following demanding operations.

Recommendation

Beyond the clinical expertise and technical standards prescribed by WHO (2), OFW (Myanmar) has highlighted the need to be flexible and creative to deal with unexpected situations arising from local conditions, and the importance of collaborating with local

authorities and the wider network of partners. Best practices on navigating logistical and medical complexities, media management, stakeholder management and coordination, and the criticality of establishing robust mental health and psychosocial well-being support structures should be shared through WHO's EMT network and regional platforms such as the AHA Centre for discussion and implementation. This would contribute to this collective effort to build EMTs that are better prepared for the full complexity of real-world deployment.

LIMITATION

This study is performed as a single-case design, which may limit generalisability to other deployment contexts. The analysis relies primarily on self-reported data from team members, which may be subject to recall bias. Additionally, the study lacks systematic feedback from beneficiary populations, which would provide important perspectives on the effectiveness and cultural appropriateness of interventions delivered.

CONCLUSION

For the people of Myanmar, the earthquake's devastation will be remembered alongside the resilience demonstrated by its population in the aftermath. For SGEMT, OFW (Myanmar) represented its first international deployment following WHO classification, another milestone achievement for Singapore's DHM efforts.

SGEMT’s experience at OFW (Myanmar) reinforces the notion that investments into capabilities beyond clinical and operational expertise are essential. These should be integrated into future EMT deployments to allow for more holistic and effective disaster health responses. As ASEAN continues strengthening its DHM capabilities, the experiences documented here aim to contribute to collective learning and to build more prepared and resilient EMTs.

ACKNOWLEDGMENTS

The author acknowledges the contributions of CSOG officers Goh Han Thong, Yvonne Koh, Ivan Tan, Alexa Zeng, Dom Choong, Prem Singh, Eugene Yip, Isaac Ying, SGEMT Clinical Lead Dr Joy Quah and SGEMT OFW (Myanmar) contingent, MOH Ops Center, MOH International Cooperation Division, counterparts from Singapore MFA, collaboration partners from Myanmar MOH and Mandalay Regional Government, the ASEAN AHA Centre, WHO EMTCC, and other international and local collaboration partners whose collaboration made this mission possible.

FUNDING

The article has no financial grant.

CONFLICTS OF INTEREST

The author declares no conflict of interest.

ETHICAL APPROVAL

Not applicable. This study was based on a field response report and did not involve human subject research.

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