Overview of Japan Medical Association Team (JMAT) for Disaster Relief

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Introduction

The Japan Medical Association (JMA) is Japan's largest NGO that assists the medical practice of physicians, and such professionals working in any position can join voluntarily. Based on close collaboration with prefectural and municipal medical associations in affected areas and elsewhere, the JMA is entrusted to perform various disaster management in order to support the lives and well-being of those affected. To achieve this, it assists people involved in community health care who endeavor to provide care despite their own hardships, and supports the efforts of municipal medical associations in charge of community health care. The concept of Japan Medical Association Team (JMAT) was proposed by the JMA Emergency and Disaster Medicine Management Committee a year before the Great East Japan Earthquake of 2011 following extensive deliberations on the development of more specific activities toward the fulfillment of the association's disaster management roles.

Disasters of a certain scale occurring in developed countries are likely to develop into complex disasters involving a variety of complex factors. Indeed, no place on the earth offers guaranteed safety in this regard. Especially in Japan, which is an earthquake-prone nation located in the Pacific Rim zone, physicians involved in community health care must be constantly trained and prepared for potential compound disasters as part of their continuing medical education (CME). The important things to carry out disaster management are *disaster preparedness* and *crisis management*. With regard to JMAT activities in the former, a disaster medicine relief agreement between medical associations and Japan's administration plays an important role. In the latter, unexpected situations can always arise regardless of the extent of safety measure implementation. When pre-planned measures fail and following a manual is not an option in case of disaster, it is important to have strong leadership and appropriate coordination to organize action and prevent the spread of damage.

Professional Autonomy and JMAT

Large numbers of physicians contribute to the JMAT program based on their professional autonomy regardless of whether they are JMA members, self-employed or hospital-employed. Professionals other than physicians also participate in the program based on their professional autonomy.

Regarding professional autonomy, the World Medical Association (WMA) has adopted *Declaration of Geneva* (September 1948, revised May 2006), *WMA Declaration of Seoul on Professional Autonomy and Clinical Independence* (October 2008), and *WMA Declaration of Madrid on Professionally-led Regulation* (October 2009)

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Table 1 WMA declarations with regard to professional autonomy and disaster medicine

WMA Declaration of Geneva http://www.wma.net/en/30publications/10policies/g1/index.html	September 1948 (revised May 2006)
WMA Declaration of Seoul on Professional Autonomy and Clinical Independence http://www.wma.net/en/30publications/10policies/a30/index.html	October 2008
WMA Declaration of Madrid on Professionally-led Regulation http://www.wma.net/en/30publications/10policies/r4/index.html	October 2009
WMA Declaration of Montevideo on Disaster Preparedness and Medical Response http://www.wma.net/en/30publications/10policies/d3/index.html	October 2011

Table 2 Basic JMAT guidelines

1. Participation should be based on professional autonomy.
2. Appropriate consideration should be given to the formulation of disaster medicine relief agreements (between medical associations or between such associations and administrative bodies), as well as to disaster management planning, approaches to the Five Diseases and Five Areas of Medicine policy and other issues.
3. Dispatched teams should be self-sufficient.
4. Teams will be dispatched based on requests from prefectural medical associations in affected areas.
5. Dispatched teams should work in collaboration with local relief efforts in affected areas.
6. Appropriate consideration should be given to withdrawal and smooth transfer of duties to local medical institutions after disaster damage is contained (including relief activities by the prefectural medical associations involved).
7. Appropriate consideration should be given to extended care for areas requiring long-term assistance.

(**Table 1**).

In October 2011 at the WMA General Assembly held in Montevideo (the capital of Uruguay), *Declaration of Montevideo on Disaster Preparedness and Medical Response* was unanimously adopted (**Appendix 1**). The declaration upholds the promotion of standard ability to secure the consistency of disaster training programs for physicians, and today's event, the JMAT Training Course on Disaster Medicine, represents an attempt to put this idea into practice.

Basic JMAT Guidelines

When a disaster strikes, the JMA moves into action to dispatch physicians with various areas of expertise to affected areas along with pharmacists, nurses, other health professionals and administrative staff. In this regard, JMAT activities can be said to symbolize the diverse and broad range of systematic activities carried out by the JMA. The "A" in JMAT stands for "Association," not "Assistance," to indicate that this program is a JMA's own initiative.

In consideration of JMAT activities carried out during the aftermath of the Great East Japan Earthquake, the JMA Emergency and Disaster Medicine Management Committee proposed the Outline of JMAT Activities (Draft). This outline details basic guidelines for the JMAT program (**Table 2**).

Preparing an Environment for JMAT

To prepare for future disasters, the environmental arrangement for JMAT needs to be organized based on prefectural and municipal medical associations. The necessary tasks include assessing where JMAT should be positioned within disaster planning and healthcare planning concerning the Five Diseases and Five Areas of Medicine policy of the Japanese government,

Table 3 Key items in disaster medicine relief agreements between medical associations and administrative bodies

1. Reimbursement of actual expenses incurred in dispatching JMAT
2. Compensation liability for secondary disasters
3. Rules such as the following: "JMAT will be dispatched based on requests from prefectural governors; however, in emergency situations, JMA may dispatch JMAT under its own initiative, and after-the-fact reporting will be regarded as a governor request."
4. Handling for JMAT teams to be dispatched to other prefectures (out-of-prefecture dispatch)
5. Chain of command and coordination
6. JMAT operation outline, dispatch request processing, team organization, modes of transportation, provision of medical supplies and information
7. Regular review and updating of agreements
8. Various forms of paperwork (activity reports, billing statements for reimbursement of actual expenses, per diem claims, damage reports on secondary disasters, lists of medical supplies to be carried/stored, etc.)

collaborating with relevant administrative agencies and organizations during normal operation, establishing means to share information (e.g., Internet, medical record sheets for disasters), raising public awareness of JMAT, providing disaster medicine training, evaluating disaster risk in individual responsible areas and formulating management plans.

The development of disaster medicine relief agreements among medical associations and between such associations and administrative bodies is particularly important. Especially in agreements involving prefectural medical associations and prefectural governments, the major issues include cost allocation, compensation, rules for what constitutes a valid dispatch request, regulations on out-of-prefecture dispatch, and rules for regular review and revision, as shown in **Table 3**. The subcommittee of the JMA Emergency and Disaster Medicine Management Committee previously conducted a questionnaire survey on disaster medicine to clarify the status of agreements made between prefectural medical associations and local governments and to highlight related issues.

Details of JMAT Activities

Once dispatched, the main activities of JMAT involve providing medical care and health management at first-aid stations and shelters and offering medical assistance for local hospitals and clinics in disaster areas to support the continuation of pre-disaster medical services.

JMAT is also responsible for providing public health management at shelters, responding to patients at home, clarifying medical needs, identifying locations where medical support is not available and making rounds in such areas, collecting local information and supporting the efforts to organize coordination meetings for relevant parties in disaster zones. Passing on duties smoothly to reconstructed medical institutions (including local medical associations) in affected areas is also an important activity.

Coordinated activities

In disaster situations, prefectural medical associations in affected areas serve as designated local public agencies as stipulated in the Disaster Countermeasures Basic Act and the Civil Protection Law, and join forces with prefectural headquarters for disaster management to collect and assess information. They also coordinate with administrative agencies, designated Disaster Core Hospitals and other relevant organizations and take charge of coordination among medical teams at the prefectural level.

JMAT teams are in principle dispatched only according to requests from prefectural medical associations in affected areas to avoid unnecessary confusion.

In addition, at the municipal level, municipal medical associations should ideally serve as coordinators of local efforts since they would be in charge of community health care after

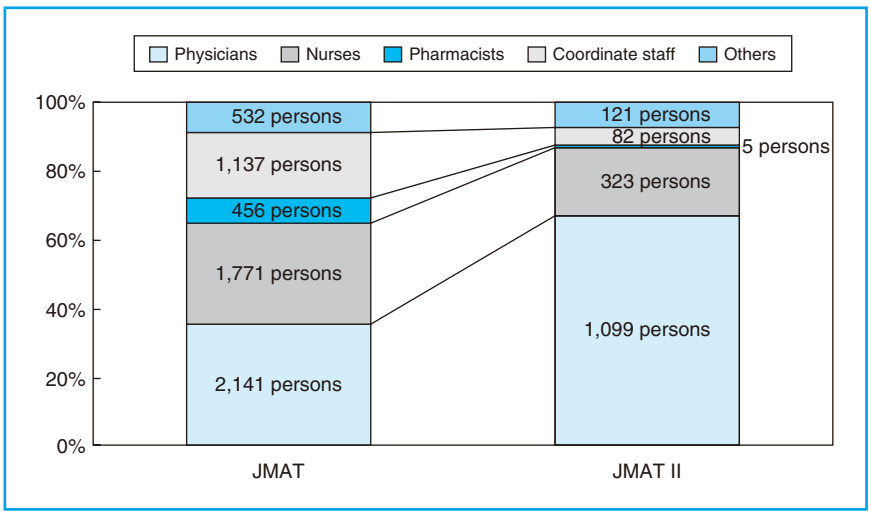

Fig. 1 Occupations constituting JMAT and JMAT II after the Great East Japan Earthquake (shown by proportion) (as of June 6, 2012)

restoration. In these activities, holding regular coordination conferences or morning and evening meetings with the president of such an association serving as the chair is effective in ensuring the continuation of efficient work. Various medical assistance teams also attend these meetings, including those from JMAT, Disaster Medical Assistance Team (DMAT) and the Japanese Red Cross.

Composition

A JMAT typically consists of one physician, two nurses and one coordinate staff member. However, team composition should be flexible in response to the situations at hand based on staff availability and local needs, both in terms of professions and staff numbers. In fact, after the Great East Japan Earthquake, other professionals such as pharmacists also played significant roles (**Fig. 1**).

Dispatch

The basic area for JMAT dispatch is the judicial districts of medical associations by considering several factors such as the geographical relationships of the prefectures involved in relief efforts and affected areas, the size of the relevant prefectural medical associations (i.e., the number of members), and other relevant factors. Exact dispatch sites (i.e., cities, towns, villages, shelters, etc.) are decided based on collaboration among prefectural medical associations involved in relief activities.

In principle, JMAT teams are sent from prefectural medical associations to areas within the prefecture sequentially, continuously and systematically, except during the period immediately after a disaster. The goals are to avoid a temporary gap between the withdrawal of medical assistance teams and the start of the next teams' activities and to secure organic succession of duties between previous and succeeding teams (**Fig. 2**).

Options are available to support the safety of JMAT members such as insurance plan provided by the JMA and compensation plans for secondary disasters based on agreements between prefectural medical associations and prefectural governors. Other possibilities include inoculation, collection and provision of information in the event of a major disaster, cancellation of dispatches and withdrawal of teams as required.

Dispatched JMAT teams are essentially asked to be self-consistency and to manage their own portable equipment, sleeping gear and food. In some cases, portable equipment to be taken to the field is specified in manuals or other materials. Other items to be taken include proof of professional qualifications (e.g., a JMA membership card), emergency transit passes and anti-dust/medical waste disposal equipment. JMAT is also expected to bring in relief supplies for

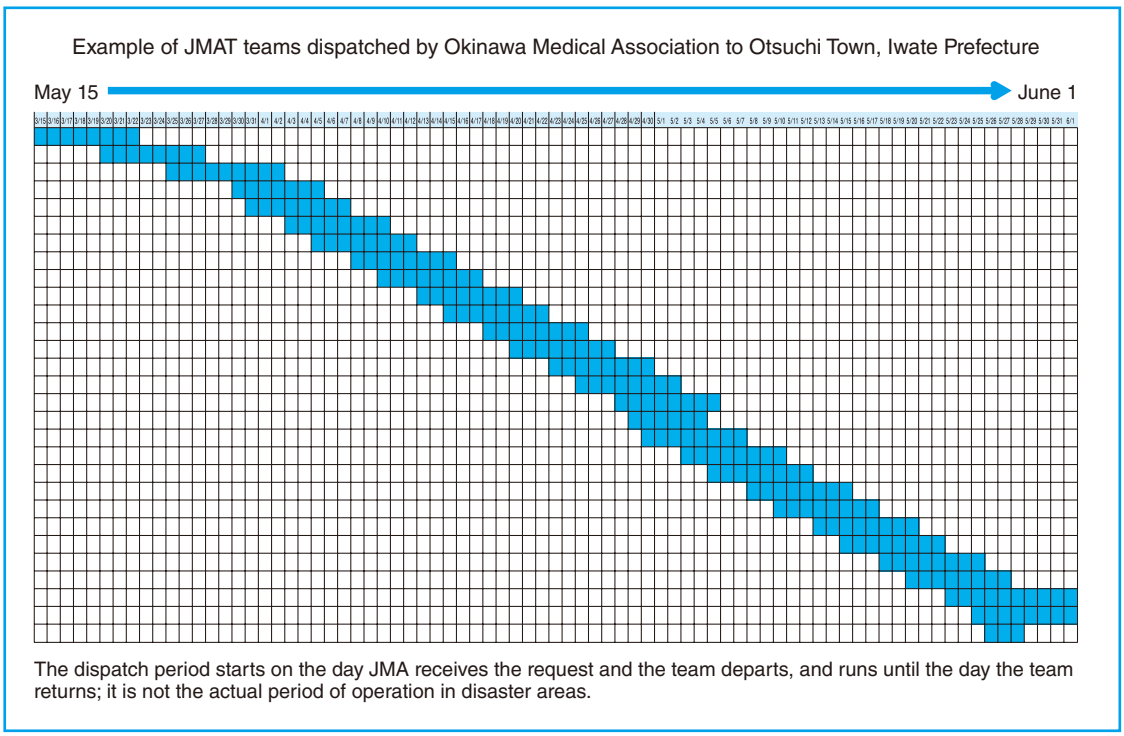

Fig. 2 "JMAT Support Calendar" for continuous and planned dispatch of JMAT teams

shelters and other places, such as AED units, portable cots, first-aid manuals for the general public and educational materials to combat infections and promote public health.

Withdrawal

When disasters strike, the three types of health care provided in Japan are: 1) disaster-relief medicine funded by public budgets based on laws such as the Disaster Relief Act and the Civil Protection Law; 2) health care covered under the universal health insurance system, in which the insured are either given a grace period to make co-payment or exempted from it; and 3) health care covered under a regular public health insurance system involving co-payment. When the latter two begin to appear feasible again after a disaster, the possibility of JMAT withdrawal is considered. Upon withdrawal, any succeeding medical teams should already be stationed, and all resources must be entrusted to local medical institutions or medical associations to promote the restoration of community health care in affected areas.

When JMAT teams withdraw, primary importance is placed on *assessing the future medical needs of affected areas under the coordination of those involved*. This includes resumption of regular services by local medical institutions (i.e., medical practice covered under public health insurance with co-payment), downsizing and merging of shelters, reduction of evacuee numbers, mitigation of the need for disaster medicine, and commencement of relief activities by prefectural medical associations in affected areas (e.g., JMAT Iwate).

Next, for *smooth transition of duties*, controlling how patients and residents respond to changes in medical care providers and how relevant information is shared becomes an issue when medical institutions in affected areas take over duties from JMAT teams (and medical assistance provided by affected prefectural medical associations). Examples of the former include cases in which JMAT teams continue to provide care for after-hours and weekend periods or only in specific fields of medicine while regular practice is provided by local medical institutions. Examples of the latter include shelter checklists (such as those used after the Great

East Japan Earthquake) and standardized duplicate medical record sheets (or electronic medical records) for disasters.

Lastly, key points for JMAT teams engaging in *planned withdrawals* include minimizing confusion among medical care providers in affected areas and alleviating resident concern and anxiety. To achieve this, phased withdrawal or planned transfer of duties to local medical institutions is essential. If possible, a road map covering the period from JMAT withdrawal to local medical service restoration should be drawn up for residents. Planned withdrawal also of course requires JMAT teams to coordinate their activities with other parties involved.

Mid-/long-term medical assistance after the completion of JMAT activities

In large-scale disaster situations, affected areas require mid-/long term medical assistance even after JMAT activities are completed. Medical resources in affected areas were mostly limited even before the Great East Japan Earthquake, and the additional effects of the nuclear plant accident were significant in Fukushima Prefecture. To address the need for continued medical relief in these areas, the JMA dispatched JMAT II (the second phase of JMAT) teams to the three prefectures of Iwate, Miyagi and Fukushima. Regions expected be damaged by the predicted Tokai (eastern sea), Tonankai (southeast sea) and Nankai (southern sea) earthquakes also include areas that are poor in medical resources.

The ultimate goal of JMAT II is to prevent disaster-related fatalities, and their activities focus on providing appropriate care for residents in temporary housing, including prevention of solitary deaths and attending to mental care needs. The team typically consists of one or more physicians.

After JMAT activities are completed, some areas experience a shortage of physicians and other medical staff, increased need for medical care, and/or poor accessibility to such care for local residents. When these areas require external medical relief, JMAT II teams are dispatched in response to various requests from prefectural medical associations in affected areas.

Issues to be addressed after JMAT return and activity completion

After JMAT complete their activities, the work is summarized, examined and reviewed for future improvement. Prefectural medical associations undertaking the dispatch of JMAT teams also create archived records for future use.

Additionally, the costs of JMAT activities will be billed accordingly based on Disaster Relief Act, agreement with prefectural governors, and other relevant arrangements. The participation of coordinator staff on JMAT teams also supports the preparation and management of the records necessary for these billing procedures. Furthermore, the periods and terms applicable under Disaster Relief Act must be noted. Japanese Ministry of Health, Labour and Welfare (MHLW) may issue announcements or correspondence regarding this act, as seen in the example of Great East Japan Earthquake. Different government funds (e.g., the MHLW community health care restoration fund) may become available to partially cover the cost of JMAT activities.

JMAT members are exposed to considerable stress. According to the results of surveys on disaster medicine, possible options for addressing post-traumatic stress disorder include collaboration with the Japan Psychiatric Hospitals Association, questionnaire surveys, compulsory vacations, educational programs during periods of normal operation, and post-JMAT care programs.

Training for JMAT Members

According to a survey on disaster medicine, 13 of the 47 prefectural medical associations in Japan offer training or seminars on disaster medicine, and such programs serve as a model for education in disaster-related care. Besides such initiatives, issues to consider include the chain of command within and among disaster medicine teams, types of disaster to which response should be provided and related legal systems, information gathering and management including the Emergency Medical Information System (EMIS), logistics, media relations and coordination of incoming medical teams.

Disaster medicine training for all JMA members

During the period known as Zero Hour (the time immediately after a disaster before external medical relief teams such as DMAT arrive), local physicians and medical associations in affected

areas must respond to local medical needs. Disaster medicine training during periods of normal operation should be linked to CME systems, and such programs should include disaster risk evaluation based on specific local characteristics, medical skills required, and collaboration between DMAT and JMAT.

Information Sharing in JMAT Activities

First and foremost, information sharing among the parties involved is a crucial part of local coordination. Members of medical teams such as JMAT, DMAT and the Japanese Red Cross, physicians and local medical associations in affected areas, and representatives from government agencies should all attend morning/evening meetings and liaison conferences with the local medical association in charge.

Shelter checklists and *triage cards* were used after the Great East Japan Earthquake to share information. However, triage cards in particular remained issues in terms of the number of copies distributed, related public awareness, name and style.[1] Many parties involved have also highlighted the need for standardized and simplified duplicate medical record sheets.

It is also important for JMAT in the field to have access to EMIS operated by Japan's MHLW [http://www.wds.emis.go.jp] (Japanese only). EMIS has a password-protected members-only page, and MHLW recommends that all hospitals register as members.[2] The indices listed in "Guidelines for establishing medical systems in times of disaster" under the Five Diseases and Five Areas of Medicine by MHLW also list the proportion of hospitals registered in EMIS and those providing regular training on EMIS operation.[3]

One of the lessons learned from the Great East Japan Earthquake concerns the importance of sharing information via the Internet.[4] JMA is currently in collaboration with the Japan Aerospace Exploration Agency (JAXA) in this regard. Nationwide information sharing and analysis in the future will require even more efficient use of the Internet.

After the Fukushima Daiichi Nuclear Plant accident triggered by the Great East Japan Earthquake, the JMA published a map of radiation levels in Fukushima Prefecture on its members-only website.[5] This resource showed actual concentrations for areas of the map at a time when people were simply focusing their attention on the concentric circles with particular radii centered on the Daiichi Nuclear Plant, and acted as a useful reference for medical associations and medical institutions nationwide involved in dispatching JMAT. When serious or special disaster conditions arise, information needs to be disclosed accurately and carefully in order to avoid public panic based on erroneous rumors or misunderstanding.

Other JMA Efforts Related to JMAT Activities

In addition to running the JMAT program, the JMA also made various contributions to relief after the Great East Japan Earthquake that created synergetic effects with JMAT activities.

In particular, the Disaster Victims Health Support Liaison Council is a conglomeration of 34 groups from 18 organizations, with the JMA playing a major role in assembling parties involved in medicine and healthcare. Established at the government's request, it has official characteristics with the participation of many government agencies including the Cabinet Office, MHLW, the Ministry of Education, Culture, Sports, Science and Technology, the Ministry of Internal Affairs and Communications, and the Reconstruction Agency.

The JMA was also involved in the large-scale transport of medical supplies in collaboration with the United States Armed Forces (an initiative known as *Operation Tomodachi*), the Japan Self-Defense Force, the police, pharmaceutical companies and other organizations. Based on its own initiative, the Aichi Medical Association also helped with the transport of medical supplies.

Other relief efforts by the JMA included supporting the establishment of temporary clinics, implementing projects to assist women and children and public health promotion in general at shelters, providing first-aid support at shelters (AED units, first-aid manuals for seniors, etc.), dispatching medical examiners for post-mortems, responding to the Fukushima nuclear plant accident, and assisting with restoration of community health care in affected areas (e.g., the MHLW Community Health Care Restoration Fund). These efforts and JMAT activities produced mutual synergetic effects.

Conclusion

The keys to disaster management are *preparedness* and *crisis management*.

After the Great East Japan Earthquake, which created disastrous conditions on an unprecedented scale, the JMA dispatched JMAT teams to affected areas as a new initiative to form a unique disaster medicine relief program, and also made every effort to protect victims' well-being and restore health care systems in affected areas.[6] A debt of gratitude is due in this regard to JMA's members and the prefectural and municipal medical associations involved for all their support.

Japan is a disaster-prone country, constantly at risk of simultaneous multiple earthquakes, and metropolitan areas such as Tokyo face the threat of epicentral earthquakes that could strike at any time. We must take advantage of the lessons learned from this disaster and make use of them in future disaster preparedness efforts to arm ourselves for the next one.

Prefectural and municipal medical associations are encouraged to use today's training program as a resource for their efforts in promoting disaster medicine training, and to strive to prevent and minimize damage from disasters.

References

1. Deguchi M. Roles of Medical Associations and Future Issues in Relation to JMAT Activities after the Great East Japan Earthquake. Japan Medical Association Research Institute Working Paper No. 254. 2012.
2. Japanese Ministry of Health, Labour and Welfare Health Policy Bureau Director's Announcement. Enriching and Enhancing Medical Systems at Times of Disaster. Japan Medical Policy Announcement, No. 0321 Issue 2. March 21, 2012.
3. Japanese Ministry of Health, Labour and Welfare Health Policy Bureau Guidance of Medical Service Division Manager's Announcement. Medical Systems Concerning Diseases, Areas of Medicine and Medical Care at Home. Japan Medical Policy Announcement, No. 0330 Issue 9. March 30, 2012.
4. Nagata T, Halamka J, Himeno S, Himeno A, Kennochi H, Hashizume M. Using a cloud-based electronic health record during disaster response: a case study in Fukushima, March 2011. Prehospital and Disaster Medicine. Apr 26 2013:1–5.
5. Nagata T, Kimura Y, Ishii M. Use of a geographic information system (GIS) in the medical response to the Fukushima nuclear disaster in Japan. Prehospital and Disaster Medicine. Apr 2012;27(2):213–215.
6. Ishii M, Nagata T. The Japan Medical Association's disaster preparedness: lessons from the Great Eastern Japan Earthquake and tsunami. Disaster Medicine and Public Health Preparedness. 2013 (accepted).

Appendix 1

WMA Declaration of Montevideo on Disaster Preparedness and Medical Response

(Adopted by the 62nd WMA General Assembly, Montevideo, Uruguay, October 2011)

In the last decade, the attention of the world has been drawn to a number of severe events which seriously tested and overwhelmed the capacity of local healthcare and emergency medical response systems. Armed conflicts, terrorist attacks and natural disasters such as earthquakes, floods and tsunamis in various parts of the world have not only affected the health of people living in these areas but have also drawn the support and response of the international community. Many National Medical Associations have sent groups to assist in such disaster situations.

According to the World Health Organization (WHO) Center for Research on the Epidemiology of Disasters (CRED), the frequency, magnitude, and toll of natural disasters and terrorism have increased throughout the world. In the previous century, about 3.5 million people were killed worldwide as a result of natural disasters; about 200 million were killed as a result of human-caused disasters (e.g., wars, terrorism, genocides). Each year, disasters cause hundreds of deaths and cost billions of dollars due to disruption of commerce and destruction of homes and critical infrastructure.

Population vulnerability (e.g., due to increased population density, urbanization, aging) has increased the risk of disasters and public health emergencies. Globalization, which connects countries through economic interdependencies, has led to increased international travel and commerce. Such activity has also led to increased population density in cities around the world and increased movement of people

to coastal areas and other disaster-prone regions. Increases in international travel may speed the rate at which an emerging infectious disease or bioterrorism agent spreads across the globe. Climate change and terrorism have emerged as important global factors that can influence disaster trends and thus require continued monitoring and attention.

The emergence of infectious diseases, such as H1N1 influenza A and severe acute respiratory syndrome (SARS), and the recent arrival of West Nile virus and monkey pox in the Western hemisphere, reinforces the need for constant vigilance and planning to prepare for and respond to new and unexpected public health emergencies.

The growing likelihood of terrorist-related disasters affecting large civilian populations affects all nations. Concern continues about the security of the worldwide arsenal of nuclear, chemical, and biological agents as well as the recruitment of people capable of manufacturing or deploying them. The potentially catastrophic nature of a "successful" terrorist attack configures an event that may demand a disproportionate amount of resources and healthcare professionals preparedness. Natural disasters such as tornadoes, hurricanes, floods, and earthquakes, as well as industrial and transportation-related catastrophes, are far more common and can also severely stress existing medical, public health, and emergency response systems.

In light of recent world events, it is increasingly clear that all physicians need to become more proficient in the recognition, diagnosis, and treatment of mass casualties under an all-hazards approach to disaster management and response. They must be able to recognize the general features of disasters and public health emergencies, and be knowledgeable about how to report them and where to get more information should the need arise. Physicians are on the front lines when dealing with injury and disease-whether caused by microbes, environmental hazards, natural disasters, highway collisions, terrorism, or other calamities. Early detection and reporting are critical to minimize casualties through astute teamwork by public- and private-sector health and emergency response personnel.

The WMA, representing the doctors of the world, calls upon its members to advocate for the following:

- To promote a standard competency set to ensure consistency among disaster training programs for physicians across all specialties. Many NMAs have disaster courses and previous experiences in disaster response. These NMAs can share this knowledge and advocate for the integration of some standardized level of training for all physicians, regardless of specialty or nationality.
- To work with national and local governments to establish or update regional databases and geographic mapping of information on health system assets, capacities, capabilities, and logistics to assist medical response efforts, domestically and worldwide, when needed. This could include information on local response organizations, the condition of local hospitals and health system infrastructures, endemic and emerging diseases, and other important public health and clinical information to assist medical response in the event of a disaster. In addition, systems for communicating directly with physicians and other front line health care providers should be identified and strengthened.
- To work with national and local governments to ensure the developing and testing of disaster management plans for clinical care and public health including the ethical basis for delivering such plans.
- To encourage governments at national and local levels to work across normal departmental and other boundaries in developing the necessary planning.

The WMA could serve as a channel of communication for NMAs during such times of crisis, enabling them to coordinate activities and work together.