Great East Japan Earthquake—A message from Japan IV

From the Field of Disaster Medicine

JMAJ 55(3): 266–269, 2012

Sho HASHIMOTO*1

Introduction

Villages along the Sanriku Coast—Japan's northeastern Pacific coast—have a saying: *tsunami tendenko*. In the local dialect, *tendenko* means each one or individual. So, *tsunami tendenko* means that when a tsunami comes, each person must take responsibility for him or herself. Put the other way, however, it also means that person who gets involved with others when a tsunami comes will lose his/her own life, and this is the main warning behind the saying. These words were brought back to mind by the Great East Japan Earthquake.

The giant tsunami triggered by the earthquake off the Pacific coast of the Tohoku region that occurred at 2:46 P.M. on March 11, 2011, hammered at coastal districts one after the other, mainly in Iwate, Miyagi, and Fukushima prefectures, from 30 to 80 minutes after the earthquake, taking countless lives. Many of those were irrational deaths. When a young nurse from a home care organization at the south of the city of Sendai learned that a tsunami warning had been issued, she rushed to the home of one of her patients, a woman nearly 90 years old and an ALS patient. In an effort to move the patient to the second floor, the woman's husband of over 90 years old pulled from above while the nurse pushed from below. The tsunami struck just at that moment, sweeping the young nurse away. She lost her life while the two elderly people were saved. Though it is said that no person's life is worth more than another, this incident nevertheless makes me feel disconsolate. It is known that many people, like this young nurse, lost their lives trying to help others in the disaster sites, just as the *tsunami tendenko* saying portends. The noble actions of those people are laudable. At the same time, the willingness to help others even at the danger of losing one's own life could be shared by many Japanese. As one man who lost his wife while barely managing to save a neighbor said, "I probably would have regretted it had I just stood there and watched my neighbor die without trying to help. I think my wife would have felt the same."

The same scenario was played out with medical professionals as well in each area. A young physician selected by *Time* magazine as one of the 100 most influential people of 2011 is said after having escaped to safety on the fifth floor of the hospital, which had been annihilated by the tsunami (**Fig. 1**), to have saved the lives of many patients, who had survived on the fourth floor, in the short window before the second wave of tsunami came. While we physicians, whose mission it is to save lives, must at the least ensure our own safety so that we do not lose our own lives, we should make our utmost effort to save people in a disaster.

Establishing Command on at Disaster Medicine Sites

In any disaster, not just a large-scale disaster, the most important thing is to establish command. The same is true in disaster medicine, and the disaster medicine coordinators fulfilled that role in Miyagi prefecture during this disaster. In Miyagi five coordinators who would take command centrally were appointed in July 2010.

*1 Chairman of Sensory Organ Medicine, National Sendai Medical Center, Sendai, Miyagi (sho@snh.go.jp). Senior Director, Miyagi Medical Association, Miyagi, Japan.

This series is being published from Volume 54, No. 5 (2011), in which members of the JMA Global Health Committee in 2010–2011 wrote about experiences and lessons learned in the Great East Japan Earthquake.

Fig. 1 Shizugawa Municipal Hospital
The Tsunami rose as high as the fourth floor and swept away everything.

Fig. 2 A Staging Care Unit (SCU) in suburban Sendai
A Disaster Medical Assistance Team (DMAT) is taking care of disaster survivors.

Then, in February 2011, just one month before the disaster struck, coordinators were appointed for each area within the prefecture. As a result, these coordinators took the initiative in medical care centrally and in their respective areas and played a role not only in medicine but in supporting disaster survivors' lives as evacuees.

The central coordinators, working in the prefecture's disaster response headquarters, made a concerted effort together with Miyagi Medical Association to ascertain the damage situation, arrange transportation outside the area, and implement the transfer of patients and staffs from hospitals where continued medical care was not possible. In cooperation with the Japan Self Defense Forces (JSDF), they set up a staging care unit (SCU) in the city of Sendai and provided aid and transport to disaster survivors throughout the coastal region (**Fig. 2**). After the acute phase, they engaged in maintaining disaster medicine and promoting medical care recovery in coastal communities, which centered on positioning Japan Medical Association Team (JMAT) and coordinating the functions.

Local coordinators, on the other hand, were at the center of efforts to mobilize medical resources in areas that were practically isolated, with communications with the surrounding areas having been cut off, and to provide emergency disaster medicine at core hospitals. They also set up first aid stations after surveying numerous evacuation shelters and did their best to help maintain the health of disaster survivors according to the situation, including food, drinking water, and living conditions. Particularly in disaster sites, people involved in medical assistance in a variety of positions get jumbled together. In this kind of chaotic situation there is all the more need for unity in the chain of command structure. Since the disaster medicine coordinators were the only position appointed by the prefectural governor, they were able to establish command surmounting differences of people in various other positions. This enabled rapid decision making in a situation that was changing moment by moment, as a result, making it possible for the Japanese Red Cross Society, JMAT, and others to demonstrate their unique abilities under a unified policy.

The facts that command was rapidly established in this way during this disaster and worked could serve as a reference at the time of future large scale disasters throughout the world.

Ensuring Communications in a Disaster

In preparation for a large scale disaster, the Miyagi Medical Association, with the cooperation of Miyagi Prefecture, equipped each disaster base hospital and municipal medical association with multi-channel access (MCA) radio. During the Great East Japan Earthquake, this radio system demonstrated its power in the beginning. But, wide-area communication was lost when the fiber optic lines connecting relay stations were cut off by aftershocks. Normal telephone lines were knocked out early on and calls via mobile

phones could not be made as a result of overloading of the network and the destruction of relay stations in the disaster-affected areas. Consequentially, the remote cities of Kesennuma and Ishinomaki fell into a situation in which their only way to communicate with the disaster response headquarters in the Miyagi prefectural government office was via satellite-based mobile phones. Moreover, information from the town of Minamisanriku, which was severely damaged, was not obtainable until local physicians arrived in Sendai, since the town had no satellite phones.

It goes without saying that disaster relief cannot be implemented effectively without being able to ascertain the situation on the ground in the disaster-afflicted areas. Accordingly, the ensuring of information transmission—that is, communications—is extremely important in a large scale disaster like this one. It is not too much to say that this is the most important and the top priority issue for future disaster countermeasures. MCA radios did, however, amply demonstrate their power within their respective areas of coverage. Considering that they worked as the only means of communication, it seems that they have the potential to become a powerful means of communication if communication with distant places were enabled, such as by increasing their output in times of emergency.

Securing and Supplying Drugs

When the situation in the disaster-stricken areas became clearer four or five days after the disaster occurred, it was obvious that there was a shortage of all kinds of goods. There were even some evacuation shelters with a shortage of food, where people were staving off hunger with a single sparse meal per day. In regards to medical care, first aid stations were using their remaining drugs to care for patients, but the shortage of drugs was becoming graver day by day; some hospitals had even reduced three times daily administration to once daily administration to tide over the emergency.

In such a situation, the Japan Medical Association called on Japan's pharmaceutical industry for help and gathered together more than 10 tons of drugs. Of this, it was decided to supply Miyagi prefecture with six tons, which would be transported by the U.S. military. And so, in the afternoon of March 19 We headed to Sendai Airport to pick up the shipment. I remember being enormously shocked at the frightful situation at the airport (**Fig. 3**), which had been entirely washed by the tsunami, with several cars stuck into the control tower. In these circumstances, the runway had been made usable through rapid rehabilitation performed by the U.S. military and the JSDF, whose high mobility was truly impressive.

Fig. 3 The area around Sendai Airport
Hundreds of cars were destroyed and buildings were burned in fires.

The U.S. military plane transporting the drugs was initially scheduled to arrive at 4:00 P.M., but due to whatever reasons it faced, did not arrive at Sendai Airport until after 9:00 P.M., when the airport was enveloped in darkness. A private transport company was supposed to transport the drugs after they were received, but the company's trucks withdrew at 8:00 P.M., since the area around the airport was dangerous at night, with people stealing from vehicles and robbers wandering about. When we were at our wits end, having lost the means of ground transportation, we were fortunately able to get in touch with the JSDF's U.S. military coordination officer, who immediately arranged two 10-ton trucks when we explained the situation. So, after the U.S. military's C-130 transport aircraft landed easily at the pitch-black airport in the dead of night, the JSDF delivered the drugs to the Miyagi Medical Association's health center, where it was past 2:00 A.M. the next morning by the time the association's staff got them stored away. After daylight came, the association's officers and staff sorted the drugs and the private transport company delivered them to the local disaster-affected

medical associations.

During this period, we were truly helped by the U.S. military and the JSDF, and I would like to take this opportunity to express my heartfelt appreciation. Under the name Operation Tomodachi (*tomodachi* means friend in Japanese), the U.S. military did tremendous work in unseen ways while the JSDF clearly demonstrated its raison d'etre through its rapid and flexible actions.

Conclusion

Somehow we have come this far after going through a disaster inflicted by a giant tsunami of a size that is said to come only once in a thousand years, but restoration still lies ahead. The disaster-affected areas are places with declining populations, and they face a variety of difficulties in the reconstruction of community medicine. The disaster this time was too severe and so the disaster response manual prepared in advance was almost totally useless. But, numerous lessons were learned that could be useful in the future. The issue from here on is to decide how to make use of those lessons.