Keeping hospitals running even after a disaster

Muneichi Shibata

Abstract—The Great East Japan Earthquake struck on March 11, 2011. Although our hospital was not directly affected by the tsunami, our facility effectively became an unwired hospital due to the quake itself—without working telephones and with limited electricity—which forced us to find a way to continue operations. Managing the redistribution of patients and medical supplies between facilities by direct communication was the key to achieve the maximum therapeutic effect with the limited medical resources available in this region. The government also pushed forward the local redistribution of medical equipment and supplies by releasing more flexible rules.

To maintain the hospital function, securing of health care providers was a highly priority. Such individuals are not only health care professionals, but are also victims of the disaster. Flexible working arrangements and the support of health care providers from outside the disaster area is necessary.

I. INTRODUCTION

The eastern part of Japan experienced a magnitude 9.0 earthquake followed by a tsunami on the afternoon of March 11, 2011. More than 15,000 people died from these twin events, and more than 2,500 people remain missing [1]. A seismic intensity of 7 was recorded at Kurihara, where our hospital is located. Although our hospital was not directly affected by the tsunami, extensive leakage inside the building caused water damage to the medical equipment center and central monitor systems in addition to the damage to equipment caused by the quake itself. Immediately after the earthquake, we had lost one care unit that had 50 beds as a result of the seismic damage, one cardiac catheterization laboratory and two operation rooms not only due to the damage but also because of a lack of an adequate supply of water and electricity. Since our facility had effectively become an “unwired hospital”—without telephones and internet access and with limited electricity and gasoline,—we were obliged to find a way to manage our patients and medical supplies.

II. REDISTRIBUTION OF PATIENTS AND MEDICAL SUPPLIES

A. Redistribution of patients

First, we arranged the patients who were stable enough to allow them to be cared for at home to be discharged right after the quake in order to provide beds for victims. Without telephones, there was no way for us to transfer patients to more appropriate hospitals. Even with our limited hospital functions, we had to accept all kinds of patients. After our hospital and other local hospitals became “wired” once again, trans-hospital inpatient relocation was enhanced, allowing appropriate care to be given. In particular, patients who had been undergoing home oxygen therapy or were on ventilators were able to occupy hospital beds following the prolonged power failure in the tsunami-damaged areas. Online communication enabled us to contact a broad range of hospitals and patient-transfer carriers.

B. Redistribution of medical supplies

We had to coordinate with local medical facilities to redistribute medical equipment supplies so as to achieve the maximum therapeutic effect with the limited medical resources available in the region. Medical equipment vendors played an important role in redistributing the medical equipment supplies, despite the shortage of gasoline. The Ministry of Health, Labour and Welfare (MHLW) provided more flexible rules to push forward the local redistribution of pharmaceuticals and medical devices [2] and negotiated with Zensekiren and Petroleum Association of Japan to invalidate the limitation on refueling for the rolling stocks of pharmaceuticals and medical devices [3].

III. SECURING OF HEALTH CARE PROVIDER

To maintain the hospital functions, securing health care providers was a high priority. Arrangements regarding food, water and beds for health care providers, as well as patients, had to be made. The gasoline scarcity made their commutes stressful. Staff residences near the hospital were voluntarily shared with coworkers so that they would not have to commute from long distances. They also shared rides to save fuel. Some hospitals made a priority supply agreement with neighboring gas stations for their employees. The health care providers in a disaster area were also the victims of the disaster. They therefore needed to secure their family with regard to their houses, food, water and health. Flexible working arrangements and the support of health care providers from outside the disaster area were necessary.

REFERENCES

