Practice Article

How differently we should prepare for the next disaster?

Mineko Yamashita, RN, PhD1 and Chikako Kudo, RN, BScN2
1School of Nursing, Faculty of Health Sciences, University of Human Arts and Sciences, Saitama-shi and 2East Japan Railway Co., Tokyo, Japan

Abstract
Following the Great East Japan earthquake (the Big Quake) that hit the northeastern parts of Japan on March 11, 2011, aid was dispatched from multiple levels of organizations including the Japanese Nurses Association (JNA). Evidence indicates that the JNA did not play an effective role in the aid efforts, since the professional organization had pulled out and stopped sending nursing personnel from the end of April 2011. In view of the way that things were handled in terms of aid efforts immediately, a year, or two years after the Big Quake occurred, the authors of this paper have identified issues related to nurse’s role at the time of the disaster. By looking back at what happened, we have gained insights into how to prepare for future disasters.

Key words
community health nurses, disaster nursing, natural disasters, Japan, earthquakes, the Great East Japan earthquake, volunteer aid.

INTRODUCTION
As a result of the 9.0-magnitude Great East Japan earthquake (the Big Quake), the northern parts of Iwate through to the southern parts of Ibaragi were affected by a tsunami. The areas destroyed extended some 500 km from the north to the south along the Pacific Ocean, and 200 km from the east to the west towards the interior. Some 16 000 people were estimated dead, with 4000 people still missing in August 2011 (Matanle, 2011), as reported by the National Research Institute for Earth Science and Disaster Prevention. The Institute also confirmed that 62 municipalities over six prefectures (Aomori, Iwate, Miyagi, Fukushima, Ibaragi, and Chiba) were devastated by the tsunami (http://www.wpro.who.int/wpsar/volumes/02/4/2011_Nohara/en/). The Miyagi Prefecture was the worst hit by the tsunami, flooding 16% of towns and villages (Miura et al., 2012). Thirty months after the Big Quake as of August 2013, the statistics showed that some 15 883 people were dead, 2654 were still missing, and 289 611 people were uprooted from their home towns to be dispersed into temporary living quarters across the country (http://www.wpro.who.int/wpsar/volumes/02/4/2011_Nohara/en/).

Consequently, many municipalities were left paralyzed in terms of assuming administrative responsibilities. In the midst of a chaotic situation with no definitive leadership taken by the national government for the people, a number of nonprofit organizations (NPO) started posting requests on their websites for volunteers. The second author of this paper decided to join a NPO since she had not been able to contact her family who had lived close to the disaster sites. She thought that going into the disaster-hit areas might serve two purposes: contacting her family and helping the disaster victims. Her activities from June through August 2011 are summarized in Table 1. She was a senior in the post-registered nurse (RN) program and had clinical experience. The first author supervised a project to write about her experience (Kudo, 2012).

PROJECT REPORT
Volunteers joining the aid effort
Many of the volunteer workers did not tell their families or friends that they were taking time off in order to join the aid efforts in the disaster areas. They could have taken paid leave but only if they disclosed the reason for their time off. However, in fear of being persuaded not to go into the disaster areas, they took unpaid leave for the purpose of joining the aid effort.

The leader of the group from a NPO, which the second author joined, was a Big Quake victim himself. He urged the group members to take pictures of the disaster areas and to put them on their website. His intent was to help those people who had contemplated going into the disaster areas to assist, based on the information that had been updated on their organization’s website on a regular basis from the disaster areas.

Community health nurses’ role
Interviewed by the first author, a group of the community health nurses (CHNs) felt that their expertise was not fully
utilized. They stated that they had not been given an opportunity to exercise their clinical judgment so as to prioritize their plan for action (Yamashita, 2011). Instead, the CHNs were instructed to “take care of the public” by their superior, a male public servant who did not have a healthcare background. The CHNs, who were employees of the local government, where the structure is hierarchical and bureaucratic like the national government, were subject to their superior’s directives.

**Potential health hazards**

Following the initial triage, the CHNs visited individuals door-to-door to ascertain that they were safe and that they would not require immediate medical attention. They also conducted health assessment on those who were placed into school gyms or community halls. People were cooped into small spaces without means to protect their privacy. There were no private rooms and partitions were made out of cardboard. They could not take a shower or bath for days or weeks on end.

**Shelter-related health hazards**

The CHNs were on guard for potential health hazards, such as infectious disease break-outs. They took vital signs of the victims on a regular basis. Health problems, such as circulatory issues, soon surfaced. Many of the victims were farmers/fishermen who used to have daily active routines prior to the disaster. When they were placed into temporary housing in strange environments, their activity levels dropped both physically and mentally, which led to a decline in their health. They sat on the gym floor for weeks or months doing nothing.

**Mental health problems**

Levels of victims’ social interactions dropped with few words exchanged even between family members. Victims’ stress levels increased even to harming self or others. An increase in child abuse cases was noted in the disaster-hit areas. An increase of 24% of child abuse was reported among the victims, including those who had to be evacuated from the radioactive areas. A total of 120 cases of child abuse occurred in the disaster hit areas in 2012. The figure was twice as many compared to the previous year, accounting for 40% of the total cases of child abuse cases put together across the country (http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0088885). The increase of child abuse could have been attributed to the fact that the victims had no privacy because they were housed in public facilities. Nonetheless, the increase is alarming.

Coupled with the Big Quake and the tsunami, the Fukushima nuclear power plant disaster involved a series of equipment failures, nuclear meltdowns and releases of radioactive materials. People who had resided in the radioactive areas had to be evacuated immediately when the accidents occurred at the nuclear plants. Farm animals and crops had to be abandoned. Out of despair, some people started drinking alcohol or developed mental health problems such as depression. Long-term absenteeism was noted in the employees over 42 municipalities that were designated as radioactive areas. Employees of the affected municipalities were overloaded because their coworkers were swept away by the tsunami. Approximately 30% of the employees in some municipalities reportedly died or were missing. As a result of stressful workload, many were absent from work due to mental health problems as shown in Figure 1 (Anon, 2013). Some victims died by suicide, because they experienced numerous losses – losing family member, separation from their family members, losing homes or jobs, losing their livelihood such as cattle/fishing boats, being dispersed into temporary housing in strange towns or cities, not knowing what was to be expected of them on a daily basis, and high levels of anxiety related to an unforeseen future (The Cabinet Office, 2013). Table 2 shows the number of suicides over the past three years (The Cabinet Office, 2013).

**Volunteer aid**

At the time of the Great Hanshin-Awaji earthquake in the Kobe area in 2005, some one million volunteers participated
in the rescue efforts (Anon, 2011). However, at the time of the Big Quake, the number of volunteers was a quarter of a million. Four reasons were identified as contributing factors to the decrease in volunteer numbers this time: (i) roads were wiped out by the tsunami thereby leaving no means of transporting people or goods to the disaster areas; (ii) towns or municipalities were swept away crippling administrative functions of receiving or directing personnel for rescue efforts; (iii) those who wanted to volunteer their services had to be self-sufficient, which meant they were responsible for paying their transportation, for lodging, or for other expenses incurred as a result of participating in their rescue efforts; and (iv) the nuclear plants disaster influenced people’s decision against joining in the rescue efforts for fear of their own safety (Anon, 2011).

DISCUSSION

A lesson we learned from the Big Quake experience was that the vertical structure of the Japanese Government was the factor that prevented nurses from assuming a leadership role in rendering aid to the disaster areas. Japan has three tiers of government: national, prefectural, and municipal. Although prefectural or municipal governments have their own governance, they are subject to the directives of the national government.

In order to allow nurses to utilize their expertise at the time of disaster, we make a few recommendations are made as follows. The professional bodies, nursing, and other healthcare allied bodies, should lobby the National Government of Japan so that the information is disclosed promptly at the time of disaster. The Japanese Government should also explain delays on reconstruction work to the Japanese people as well as decontamination work near the nuclear power plant. Even two years and eight months after the crisis at Tokyo Electric Power Company’s Fukushima No. 1 nuclear plant broke out, about 150,000 remain evacuees (http://www.wpro.who.int/wpsar/volumes/02/4/2011_Nohara/en/). Their anxiety levels increase as the decontamination/reconstruction work is further delayed. Urgent attention to the mental health needs of evacuees is required.

Since the CHNs are the first contact for people seeking help we also make some recommendations about CHNs.

The CHNs need to be involved in all aspects of care

The CHN’s role at the time of disaster should be made clear. Their expertise should be recognized and utilized. Since CHNs, work in towns or villages, know the community individually or as groups through their regular contacts, it is imperative that CHNs become involved in all aspects of disaster care from the initial stage through recovery (Cox & Briggs, 2004; Yamashita, 2011). In terms of prioritizing the care of victims, people of high risk come first; that is, pregnant women, people with pre-existing medical or mental health problems, those who have severe and persistent mental disorders, requiring extensive help due to lack of family and social support, and those who are not ambulatory. It is crucial for CHNs to assess and provide care as necessary on a long-term basis. Scope of activities change as needs change.

Hospital nurses need to be in charge of organizing aid efforts

Senior nurses should be in charge of designating their coworkers to go to the disaster areas in order to work with and care for victims. Arriving at disaster sites, hospital nurses should function effectively in collaboration with CHNs who are knowledgeable about the locale and people at disaster sites.

Nurses, community or hospital, should be allowed to take leadership in their areas of expertise. If nurses had taken a leadership role at the time of the Big Quake, the severity and the extent of damage or numbers of victims might have been different. Since the CHNs know the community through their regular contacts with those who require attention, they are in a position to attend to those who require assistance in a timely fashion.

Scope of activities changes as needs change

The CHNs may alter their regular activities in order to accommodate newly detected needs of the community. Instead of providing physical check-ups or well-baby clinics, they may need to lead a group for grief work. Traumatized directly or indirectly, people would be under duress and may experience higher levels of anxiety. Stress management workshops may be beneficial for all ages. Group members would be allowed to share their experiences, and to ventilate thoughts and feelings. Since CHNs may have to alter their practice to suit the community needs, many of their activities may be outside the usual scope of practice. The CHNs’ learning needs should be identified and appropriate assistance should be provided in the form of staff development on a regular basis (Yamashita et al., 2009). The CHNs should educate people about possible psychological effects of the disaster. Therefore, CHNs may demonstrate that they have the expertise and a strong commitment to public or private welfare from the beginning until long after the disaster.

Table 2. Suicides related to the Big Quake

<table>
<thead>
<tr>
<th>Year</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>42</td>
<td>13</td>
<td>55</td>
<td>18</td>
<td>6</td>
<td>24</td>
<td>22</td>
<td>5</td>
<td>27</td>
</tr>
<tr>
<td>2012</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013 (as of August)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSIONS

A lesson learned from the Big Quake experience was that the Japanese Government failed to disclose the necessary information. Without this, people, lay or professional, were unable to act effectively. In anticipation of the next disaster, the healthcare professional should continue to lobby out to the government so that they may obtain the information necessary to assess the situation, plan for aid, and act for disaster victims in a timely fashion.

REFERENCES

Anon. 147 municipality workers absent due to mental illness. The Daily Yomiuri 30 September 2013 (p. 1).
Matanle P. The Great East Japan Earthquake, tsunami and nuclear meltdown: Towards the (re)construction of a safe, sustainable, and compassionate society in Japan’s shrinking regions. Local Environment 2011; 16 (9): 823–847.

© 2014 Wiley Publishing Asia Pty Ltd.