

Stepping Back to Prepare for the Future

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Youichi Yanagawa and colleagues have candidly admitted the problems of the “Medical Evacuation of Patients to other Hospitals due to the Fukushima I Nuclear Accidents.”¹ The Fukushima nuclear accident was a Level 7 on the Nuclear Event Scale level, much like the Chernobyl disaster. While plans include evacuation of human settlements following such serious radiological events, they seldom are executed. There was much for the rest of the nuclear power-enabled countries around the world to learn from this *Prehospital and Disaster Medicine* article on mass medical evacuation.

In the technology environment of today, we take the physical communications infrastructure for granted. The sudden destruction of all modes of communication following such disasters leaves health care workers crippled and complicates the medical transfer process during mass evacuation. Japan is known to be a leader in technology, and Yanagawa reports that cell phones were used to type out the list of medical transfer patients, as all other modes such as facsimile and the Internet were non-functional.

On the human side, medical personnel and patients faced with such adverse situations often refuse to evacuate or transfer to other medical facilities, for a variety of personal reasons. In Takano Hospital, 39% of the patients refused to evacuate to the Iwaki Koyo High School. Human problems like refusal to move or evacuate are not usually a part of disaster management plans. While the authors have described attempts to make personal inquiries for evacuated and non-evacuated patients, they admit the problems discussed were hard to resolve. The detailed results of the investigation were not available, but this remains an area for further research in disaster medicine.

Finally, they recommend the very low-tech and low-end solution of wrist bands as a standard procedure, or a very high-tech information chip containing the patient’s medical information and embedded in the body. Given the chaos and confusion prevailing, perhaps embedded information chips would require additional technology to read and write into, and would be an inappropriate solution. Disaster management mock drills need to incorporate a complete loss of communication in disaster simulations, so that health care workers in ivory tower settings are able to remain functional in zero power settings. There are strategies to learn from modest communities in developing countries, where power failures are common in rural areas and small towns, and switching back to a paper trail is a part of the inter-hospital transfer system.

Reference

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Direct communication using a cellphone was almost impossible during the acute phase of the Great East Japan Earthquake Disaster because of the abrupt increase in traffic, failure of the communication bureau to relay electric waves or dead batteries due to the electric power failure. Multi-Channel Access radios that were installed in hospitals in case of disasters or satellite cellular phones were useful for communication during the acute phase.¹ The manuscript describes that the main medical evacuation was performed during subacute phase when the

main communication bureau or electric power were under restoration so that cellphone service was very limited.²

A follow-up survey of the evacuated or non-evacuated patients was difficult to perform because much of the data were incomplete, unclear or unrecorded.

Refugees had the option to seek refuge or stay in their own dwelling because the level of radiation contamination from 20 to 30 km from the Fukushima I nuclear plant was not immediately life-threatening in comparison to the fire or tsunami disaster. This may be a unique characteristic of radiation disasters.

Disaster management mock drills in zero power settings are also performed in Japan. However, some hospitals on the coast were totally damaged by the Great East Japan earthquake and

tsunami so that life lines were shut down and personal information was completely lost due to the destruction of medical charts, computers or electrical servers where medical records were stored.³ Hospital training is no longer useful in such a catastrophic disaster. Total evacuation of patients is required in such situations and protocols for transmitting medical personal information between hospitals are also important. One idea is that medical personal information could be transmitted to other areas under normal conditions,¹ but identifying the patients themselves is impossible if the patients are unconscious or have dementia. Another idea is to use a wrist band that can provide a patient's personal and medical information that has been encoded using the bar-code technique.⁴

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