

measures and evaluation methods, the hospital could create good practices. In the future, web-based evaluation methods should be developed so that all hospitals in Japan can work on measures to counteract power loss.

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### Simulation Model of Required Pre-deployed Auto-injectors and Stockpiled Antidotes against Chemical Terrorism

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**Introduction:** Chemical terrorist attacks using nerve gas require patients with immediate administration of antidote, or otherwise they will experience abnormal neurological activity, respiratory arrest, and death. When it occurs in large stadiums at mass gatherings such as the Olympics, under normal medical care systems, preventable deaths occur due to insufficient deployment of on-site auto-injectors and stockpiled antidotes in hospitals. In Japan, the government has stockpiled antidotes in confidential warehouses and deployed auto-injectors around possible terrorist sites. When a chemical attack occurs, a stockpile of antidotes go to hospitals, auto-injectors go to the site, and firefighters and police are allowed to administer auto-injectors to patients. However, few studies are conducted on pre-deployment of auto-injectors and antidotes in chemical terrorism. Therefore, the number of pre-deployment was examined. **Method:** A single chemical attack with 750 patients was assumed. Response was divided into five steps: (1) transportation of stockpiles to hospitals, (2) transportation of auto-injectors to the site, (3) on-site use of auto-injectors, (4) transportation of patients to hospitals, and (5) patient care in hospitals. Computer estimation was used for the time required for transportation for (1), (2), and (4). Desktop exercises were conducted for on-site response time, outpatient response time, and the number of beds available at hospitals for (3) and (5). The values obtained from computer estimation and desktop exercises were imported into the simulation model to measure the number of paramedics, auto-injectors required to be deployed in advance, and the amount of stockpiles required to be delivered to hospitals.

**Results:** A minimum of 80 auto-injectors and ten paramedics were required to be pre-positioned at the scene. A minimum of 100 ampules of antidote was required immediately at the nearest hospitals.

**Conclusion:** The pre-deployment of auto-injectors and personnel are essential to reduce the number of deaths in the event of chemical terrorism.

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### Digital Psychological Support Systems for Post-Disaster Reconstruction in Japan: Empirical Study on the Effectiveness of the me-fullness<sup>®</sup> Application

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**Introduction:** Asia is one of the regions most affected by natural disasters such as major typhoons. In Japan, recovery from natural disasters is said to take more than 10 years, and local government officials are primarily responsible for this recovery. In this study, we investigated the effectiveness of the me-fullness<sup>®</sup> smartphone application in maintaining the well-being of local government employees involved in recovery efforts.

**Method:** We conducted a survey of 35 employees of the town of Shichigahama, one of the areas affected by the 2011 Great East Japan Earthquake. The Chalder Fatigue Scale (CFS), Athens Insomnia Scale (AIS), and Depression, Anxiety and Stress Scale–21 Items (DASS-21) were used as survey instruments. 22 of the 35 employees used the me-fullness application on their smartphones for one month. During the month the application was in use, there was a heavy rain warning and an election for the House of Counselors, which the Shichigahama town employees had to cope with in parallel with the recovery from the Great East Japan Earthquake.

**Results:** The percentage of insomnia indicated by an AIS score of four or higher was 53.5% (7/13) before and 30.8% (4/13) after the use of the me-fullness application. The percentage of stress was 38.5% (5/13) before and 7.7% (1/13) after the use of the me-fullness application.

**Conclusion:** This study showed that the me-fullness<sup>®</sup> application could improve the sleep and stress of local government employees and maintain their well-being for a long time during the recovery efforts.

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### Introducing Advanced Paramedics into the Rural General Practice Team in Ireland – General Practitioners Attitudes.

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**Introduction:** As Ireland's population increases and chronic disease becomes more prevalent, demand for limited general practice services will increase. Nursing roles within a general practice are now considered to be standard, yet alternative non-medical professional roles are under-explored within an Irish context. Non-medical personnel such as Advanced Paramedics (APs) may have the capability to provide support to general practice.

**Method:** A sequential explanatory mixed methodology was adopted. A questionnaire was designed and distributed to a purposeful sample of GPs attending a rural conference followed by