

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

Yuichi Koido MD, PhD<sup>1</sup>, Kouki Akaboshi MD<sup>1</sup>, Ruki Masudome<sup>2</sup>, Manabu Ichikawa<sup>2</sup>, Ayako Takahashi MD<sup>3</sup>, Akinori Wakai MD<sup>1</sup>, Hideaki Anan MD<sup>4</sup>

1. National Hospital Organization Headquarters DMAT Secretariat, Tachikawa, Japan
2. Shibaura Institute of Technology - Faculty of Systems Science and Engineering, Tokyo, Japan
3. Aichi Medical University Research Center for Disaster Medicine, Nagoya, Japan
4. Kanagawa Prefectural Government, Yokohama, Japan

**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

Junko Okuyama MD, PhD<sup>1</sup>, Shuji Seto PhD<sup>2</sup>, Tomonori Motokawa PhD<sup>3</sup>, Tomomi Kato<sup>3</sup>

1. Tohoku University Hospital, Sendai, Japan
2. International of Research Institute of Disaster Science (IRIDeS), Tohoku University, Sendai, Japan
3. Frontier Research Center, POLA Chemical Industries, INC., Yokohama, Japan

**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.

Fintan Feerick PhD(c)

University of Limerick, Limerick, Ireland

**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

semi-structured interviews. Data was recorded and transcribed verbatim and thematically analyzed.

**Results:** In total n=27 GPs responded to the survey and n=13 GPs were interviewed. The majority of GPs were familiar with APs and were receptive to the concept of closely collaborating with APs within a variety of settings including out-of-hours services, home visits, nursing homes, and even roles within the general practice surgery.

**Conclusion:** GP and AP clinical practice dovetail within many facets of primary care and emergency care. GPs believe that current models for providing rural general practice care are unsustainable, and they realize the potential of integrating APs into the general practice team to help support services into the future. These interviews provide a detailed insight into the opinions of rural general practitioners in Ireland on healthcare provision and the clear necessity for support and change.

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### Key Competencies of Pediatric Disaster Medicine as Determined by a Systematic Review of Gray Literature

Schyler Grodman MD, MS<sup>1,2</sup>, Alexander Hart MD<sup>1</sup>, Attila Hertelendy PhD<sup>1</sup>, Christina Woodward MD<sup>1,2</sup>, Amalia Voskanyan RN<sup>1</sup>, Issa Fadi MD, JBEM, EMDM<sup>1</sup>, Debra Weiner MD, PhD<sup>3,2</sup>, Greg Ciottone MD<sup>1,2</sup>

1. Beth Israel Deaconess Medical Center, Disaster Medicine Fellowship, Boston, USA
2. Harvard Medical School, Boston, USA
3. Boston Children's Hospital, Boston, USA

**Introduction:** Children are often disproportionately impacted by disasters, and yet pediatric specific considerations are not properly emphasized during disaster planning and training, resulting in the desperate needs of children falling through the cracks during disasters. Children differ from adults developmentally, physiologically, and psychologically, and are more vulnerable to negative long-term medical, social, and behavioral outcomes. Additionally, children lack autonomy and rely on adults to gain access to the healthcare system and other resources. Despite the distinctions between adults and children, time and curricula for pediatric disaster training is insufficient, and workforce capacity and competency to plan for and respond to the disaster related needs of children are inadequate; this is especially true for both physicians and other healthcare responders who do not complete a specific pediatric residency. Our study seeks to determine the key core competencies of pediatric disaster medicine that should be included in the training of responders.

**Method:** A systematic gray literature review of existing pediatric disaster medicine curricula was performed, from which a list of the most commonly present key core competencies was created.

**Results:** Data collection and analysis is expected to be completed by April 2023 and will yield a ranked list of core competencies.

**Conclusion:** There is a need for improved pediatric disaster training that addresses the specific considerations of children; this is especially true for non-pediatricians who may be treating

children following a disaster. The gray literature review will identify key components of pediatric disaster medicine, which should be applied to all such training curricula to ensure that the care of children who suffer during and after disasters is equitable across the globe.

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### International Comparison of Ambulance Times Terminology and Definitions: A Benchmarking Study

Edel Burton<sup>1</sup>, Kieran Crosbie-Staunton<sup>2</sup>, Conor Deasy<sup>3,4</sup>, Jerry Overton<sup>5</sup>, Aine Merwick<sup>6</sup>, David Willis<sup>2</sup>, Patricia Kearney<sup>1</sup>, Vera McCarthy<sup>7</sup>, Claire Buckley<sup>1</sup>, PHoCoS Stroke Consortium<sup>8</sup>

1. School of Public Health, University College Cork, Ireland
2. National Ambulance Service, Health Service Executive, Ireland
3. Emergency Department, Cork University Hospital, Ireland
4. College of Medicine and Health, University College Cork, Ireland
5. International Academies of Emergency Dispatch, Salt Lake City, USA
6. Department of Neurology, Cork University Hospital, Ireland
7. School of Nursing and Midwifery, University College Cork, Ireland
8. Consortium of, International Prehospital Practitioners, Ireland

**Introduction:** Ambulance times are internationally recognized Key Performance Indicators (KPI) for prehospital care. International benchmarking by comparing ambulance times between countries is a valuable method to help to identify strengths and weaknesses across healthcare systems. However, ambulance times are not standardized across or sometimes even within countries. Thus, this benchmarking study aims to compare terminology and definitions of ambulance times from the ambulance services of a range of countries to facilitate international benchmarking.

**Method:** A 23-point questionnaire was developed and pilot-tested on members of international emergency care organizations. The final questionnaire was administered to domestic and international Ambulance Services, who use the Advanced Medical Priority Dispatch System, asking for the terminology and definitions for times from “call received” to “arrival at hospital”. This included “clock start” and “clock stop” times. We asked for the ambulance terms and related variable names in the computer aided dispatch/reporting system. We engaged with clinical stakeholders and Patient and Public Involvement Contributors throughout the process.

**Results:** We gathered information from 10 international ambulance services, representing nine countries, and three continents. Some services in the United Kingdom have standardized ambulance times terminology and definitions. However, in the majority of cases terminology differed greatly between countries, and at times within countries and between reports. Definitions of ambulance times varied between countries and regions, with some having different clock start and stop times and others not collecting data on the same time periods.

**Conclusion:** The current level of variation in international ambulance times terminology and definitions poses a challenge for international benchmarking and research. International consensus or harmonization of language and definitions would