

**Introduction:** The earthquake-resistant standard of the buildings of Japan is maintained by several levels. After the Great Hanshin-Awaji Earthquake(1995) the Ministry of Land, Infrastructure, Transport, and Tourism in Japan classified the earthquake-resistant performance for the base facilities into 3 levels. The hospital manager often selects the middle level of earthquake-resistance. However, 10 hospitals were closed down for the destruction of facilities by the Kumamoto earthquake. Who may evaluate the safety of a hospital after a great earthquake? The purpose of this study is to consider the methods to evaluate the safety of hospital buildings just after a great earthquake.

**Methods:** The damage to hospitals and the measures based on Japanese Law are arranged. Then it is considered who can declare the safety of hospital buildings after a great earthquake.

**Results:** Hospital buildings collapsed in the Hanshin-Awaji Great Earthquake and many hospitals lost a function by a tsunami in the Great East Japan Earthquake. In addition, the glass and the ceilings of the hospital were damaged in the Kumamoto Earthquake. The damage occurred although these many hospitals had an earthquake-resistant standard established in the Building Standard Act of Japan. It is necessary for the experts to judge the safety of the hospital building just after a great earthquake.

**Discussion:** The safety of hospital buildings is the responsibility of the hospital manager. However, there isn't an expert of building structure employed as staff at a hospital. Thus, the hospital personnel must allow the expert of the building structure to advise a manager. In the future, it is important that the evaluation methods that can judge the damage of a hospital are developed, and the practical training for the hospital personnel are repeated.

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### A Verification Test for an Assessment System: Rapid Assessment System of Evacuation Center Condition-Gonryo and Miyagi (RASECC-GM) that Utilizes Mobile Devices

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**Introduction:** On March 11, 2011, the Great East Japan Earthquake struck the northeastern coast of Japan with the magnitude nine. Ishinomaki medical zone was affected most severely with 328 evacuation shelters and approximately 50,000 evacuees. The Ishinomaki Zone Joint Relief Team gathered information directly from all evacuation shelters using assessment sheets. Based on this assessment data, various measures were carried out for environmental improvement of the shelters. To prepare for the next major disaster, a software program called Rapid Assessment System of Evacuation Center Condition - Gonryo and Miyagi (RASECC-GM) was

developed, which computerizes the whole process, including entering, tabulating, and managing of shelter assessment data. **Aim:** To verify the feasibility, usability, and accuracy of RASECC-GM, a verification test was performed using mock shelter data on October 23-26, 2018, to coincide with Logistics Training Course of Medical Logistics for Disasters held by Iwate Medical University.

**Methods:** On October 22, 2018 at four simulated disaster relief and health care branches, participants at each branch were asked to enter two mock shelter data items, submit a closed shelter request, and register a new shelter using RASECC-GM, respectively. The next day participants were asked to enter two mock shelter data items per branch while offline and upload the data to the server when next online. The uploaded data was checked for accuracy and whether it could be viewed on the management screen. After the test, a questionnaire survey was given to participants to verify the feasibility and usability of RASECC-GM.

**Results:** It was confirmed that RASECC-GM functioned almost correctly. All participants answered that input operation was easy to understand, and 90.9% of participants could input without a mistake and did not feel stress when inputting data.

**Discussion:** RASECC-GM appeared to be useful to shelter assessment, but further improvements are needed for practical use.

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### Who Revisits Medical Services at a Music Festival?

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**Introduction:** Attendees at music festivals rely upon on-site medical services for their emergency and medical care needs. Patients previously cared for can re-present for services at different times over the course of an event.

**Aim:** To identify the proportion of visits that are repeat presentations at music festivals and discuss themes in the medical care needs of these potentially resource-intensive patients.

**Methods:** This study included a review of prospectively enrolled patients presenting for health services over five years at a number of music festivals in Belgium and Canada. Patient data were extracted from existing databases of visits as well as visit documentation, and linked by name and date of birth to identify repeat visits. Data were de-identified and visit times, triage acuity, chief complaints, treatments, and discharge instructions were extracted.

**Results:** Re-presentations constituted approximately 5% of all on-site medical visits. The majority were for minor care (e.g., wounds, dressings, foot care). Repeat visits for major issues included chronic disease (e.g., asthma, seizures, diabetes) and serial intoxications; these were high risk for transport to hospital. Festival duration was positively correlated with the number of patients with multiple visits. Three or more visits or visits in different years were rare occurrences.

**Discussion:** At music festivals, a small but significant proportion of attendees utilize medical services repeatedly. Most are

low acuity issues that could potentially be avoided with counseling or supplies at the initial visit. However, higher acuity re-registrations, both within and between event years, are a higher risk for transport and could benefit from early identification. Having a plan to identify and potentially remove the sicker, higher risk patients from the event could be important for safety and liability.

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### Why Patients Refuse to Enroll in Hospital-Based Research: Perception of Patients Presenting to KATH Emergency Department

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**Introduction:** Komfo Anokye Teaching Hospital Emergency Department (KATH ED) is a tertiary referral center in Ghana. Anecdotally, patients seeking care at KATH ED do not actively participate in research initiatives.

**Aim:** To find out why patients presenting to KATH ED do not enroll in research studies that are conducted in the department.

**Methods:** The study was a cross-sectional survey of patients presenting to the ED for one month in June 2017. A semi-structured questionnaire was presented to patients presenting to KATH ED from 8:00–20:00 each day. Patients who were interviewed were all patients presenting to the ED for care, including those who had refused to enroll in the ongoing ACESO study. Patients had to be conscious, alert, and with conditions that did not require immediate management.

**Results:** 35% of the interviewees (91/260) had been approached to enroll in research studies at some point in the past. 13.5% had refused to enroll in a research study. 45.7% of those who refused to enroll admitted that they were afraid to enroll in a study; 28.6% had inadequate information and 22.9% perceived enrolling in a study would delay their treatment. The Akan language (73%) was most commonly used by research assistants then English (26%), and finally Hausa (1%) to interact with patients. There was a significant association between educational background and explaining a study to a patient before they enrolled. Males were more willing to enroll in an ongoing study compared to females. All age groups correlated significantly with being approached to enroll in a research study and similarly all age groups also correlated with refusing to enroll in a research study.

**Discussion:** Patients are paramount to hospital research. Efforts must be made to ensure that patients concerns and needs are addressed to ensure increasing participation.

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### Working Together to Develop Best Practice: Rescue Operations in Confined Settings

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**Introduction:** Major injury incidents in confined settings such as tunnels and underground mineral- and metalliferous mines are rare, but when they do happen, the consequences may be severe with potential for many injured. The incident site is underground and it is difficult for the rescue and emergency medical service to get an overview and reach the injured. Therefore, it is important for the emergency medical service, rescue service, and the company responsible for the underground environment to have a good collaboration.

**Aim:** To develop best practices of conducting rescue response from a disaster medicine perspective in tunnels and underground mines through increased education.

**Method:** Within an EU-program, the university collaborates with stakeholders such as rescue service, emergency medical service, and two mining companies. Within this project, an explorative case study with participatory research is conducted. This is managed with the help of representatives of the stakeholders, workshops, and through planning for and conducting observations of table-top and full-scale exercises.

**Results:** At the first workshop the stakeholders built a timeline presenting their activities from a major incident occurring in an underground mine until the last injured was transported to the hospital. Thereafter, several workshops were conducted to find improvements that could be made regarding collaboration between the organizations. Table-top and full-scale exercises have also revealed further challenges. Within the project, prototypes are being developed and will be presented during the conference.

**Discussion:** This project involves stakeholders in the research process, and they, therefore, have a direct impact on the development of best practices of rescue in major underground incidents.

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### A Workplace-Based Observation Strategy to Assess Prehospital Care Delivery by Public Ambulances in Ukraine

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**Introduction:** Current methods to evaluate the delivery of urgent prehospital care often rely on inadequate surrogate measures or unreliable self-reported data. A workplace-based strategy may be feasible to assess the delivery of prehospital care by ambulances in selected populations.

**Aim:** To perform a nationwide assessment of the psychomotor performance of public ambulance workers in Ukraine, we created a plan of workplace-based observation. We conducted a post-hoc analysis of this strategy to assess feasibility, strengths,