suggested a severe hypovolemic shock state but not an early indicator for shock.

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Radiation: Preparing for the Glow That You Can't See

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Introduction: In 2013, a multinational collaboration met to improve the global and nation-specific preparedness and response in managing casualties from nuclear and radiological disasters. From this meeting, a survey was developed and distributed in both Japanese and English. The results published four years later illustrate a lack of understanding about radiation and risks to the health care provider.
Aim: To dispel myths and increase understanding regarding trauma treatment and healthcare risks for healthcare providers during a radiologic event.
Methods: IRB approved survey and literature review
Results: A total of 418 surveys were analyzed. Although 44% of participants acknowledged that they had taken at least one radiological training course, the majority of the respondents were still not comfortable with radiological emergencies.
Discussion: Despite the plethora of both online and in-person radiological training availability, healthcare providers are not comfortable with the topic. Based on information from the survey, it is important to dispel myths and educate healthcare providers so that they have reasonable expectations regarding risks and to ensure that they are comfortable coming to work. By doing this, there will be an adequate healthcare presence to help take care of patients who are not only in need of immediate trauma and radiologic exposure care but also with non-affected patients coming for emergent and scheduled health care needs.

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Real-Time GIS for Health Disaster Response in the Largest Archipelagic Country

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Introduction: Besides being located on the Pacific Ring of Fire, Indonesia is the largest archipelago country in the world. Some parts of the country are not very accessible. It raises difficulties in controlling and monitoring a disaster response mission remotely in real-time. Muhammadiyah, the Indonesian non-governmental organization (NGO) that has been responding to disaster since 1919, used Geographic Information Systems (GIS) for Health Disaster Response (HDR) in the Lombok Earthquake 2018, in cooperation with ESRI Indonesia, as one alternative to disaster response controlling and monitoring.
Aim: To show the benefit of using real-time GIS for HDR in an archipelago country.
Methods: While responding to the disaster in Lombok, the Muhammadiyah Health Disaster Response Team was collecting data of patient, medication, problem, need, location, and resource with computers and smartphones, inputting the data that was forwarded to the ArcGIS platform. The Health Disaster Response Team coordinator and Muhammadiyah Board monitored and analyzed the health response through the GIS dashboard in Yogyakarta, 652km far from Lombok Island.
Results: Using real-time GIS has been useful for disaster response. It was efficient by cutting flight and other transport costs, connected by the internet, and communicative by graphic and map dashboard. It was a green approach since it was paperless, and analysis-friendly by real-time data compilation and computation.
Discussion: One of the big gaps in disaster response monitoring seems to be real-time data. Especially in an archipelago country, it is costly, time-consuming, and resource consuming. Daily big data may be frustrating and can become "white paper syndrome." One of the good approaches to that is GIS Web services although it must be realized that the internet connection in a rural area can be another challenge. It can be solved by in-gadget data memory that can be delivered while the internet connection is available.

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Regional Engagement Program: Supporting Local Leadership and Building Local Skills and Knowledge in Order to Develop a Systematic Approach to Disaster Medical Management

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Introduction: One of the key components in any effective disaster response is the capacity of local communities to respond in a timely and efficient manner. Over the last 3 years, the National Critical Care and Trauma Response Centre in Darwin has been involved in building regional capacity across the Asia-Pacific, supporting local leadership and building local skills and knowledge in order to develop a systematic approach to disaster medical management.
Aim: This presentation is to describe the Regional Engagement Program, its strengths, weaknesses, and outcomes.
Methods: We will describe the background to the program, the process for regional engagement and the Results of our evaluation. The program used the Major Incident Medical Management Systems (MIMMS) approach which was delivered in-country and included identifying and using local personnel to deliver the program. The program was conducted across the region in Myanmar, Fiji, Tonga, Vanuatu, Samoa, Timor, and Indonesia. Initially the courses were run by personnel from Australia but through engagement with local Ministries of Health and collaboration with identified key

stakeholders, we have been able to build local faculty to ensure sustainability and local ownership.
Results: Thirty-six personnel have been trained across four countries. Thirty-six candidates are now instructors, with a further 36 identified for future development as instructors. The evaluation illustrates the long-term partnerships that have been developed and the ongoing capacity development of key regional partners.
Discussion: The Regional Engagement program demonstrates that prolonged engagement with key regional stakeholders and adequate and sustained mentoring will successfully build local capacity to the level needed to mount a successful response to a disaster. Personnel trained through this program helped guide the response to the Lombok earthquake and in Fiji, a MIMMS Team Member training program was conducted with minimal external support.

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A Registry Software for Road Traffic Injury Patients at Apex Trauma Centre in India: An Innovation

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Introduction: A trauma registry is a disease-specific data collection composed of a file of uniform data elements that describe the injury even, demographics, prehospital information, diagnosis, care, outcomes, and costs of treatment for injured patients.
Aim: To establish a trauma registry system on an electronic platform enabling data capturing through Android phones.
Methods: A software has been developed for the registry data collection for road traffic injury patients arriving at JPNATC, AIIMS, New Delhi. The software has been designed to use in the Emergency Department on Android phones/laptops with internet access.
Result: A detailed registry data set has been prepared to enter prehospital, in-hospital, and post-discharge details of all the admitted patients. This includes demographic data, prehospital data, injury event data, vital signs within 24-hrs of arrival, ED disposition (date and time), operative procedures within 48 hours of arrival, chest x-ray (date and time), CT (date and time), ventilation days, ICU-stay days, hospital disposition (date and time), injury coding data (region, severity level, ISS, AIS, ICD-10) and Others, e.g., first neurosurgical consultation (date and time) and first blood transfusion (date and time). There are two panels for this software; one for user panel and another for the administrative panel. User panel is being used for data collection by the trained data collectors 24/7 at the emergency department on a rotation basis. The administrative panel is accessible to only the investigator or other authorized persons. The administrative panel and user panels are password protected. The entered data is being saved in a spreadsheet in the backend and can be used for periodic data quality check and data analysis.
Discussion: There is no trauma registry in India so far for the road traffic injury patients. Present innovation would lay the foundation of national Trauma Registry in India.

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Required Competencies for Clinical Nurses during the Initial Phase of Disaster Emergence

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Introduction: A learning project was launched to prepare for natural disasters such as earthquakes and floods. Competencies were developed for clinical nurses in the Initial phase of disasters as an indicator to build a bridge between daily training and actions during crises. There are two predominant features of the competencies that differ from other works. First was to concentrate only on "the initial phase" of a crisis outbreak. The second was to associate each competence with services and roles of clinical nurses.
Methods: The development has been conducted in accordance with the ibstpi® competency development model. First, 50 outlining competencies from earlier studies were selected, like ICN Framework and Disaster Nursing Core Competency for undergraduates in Japan. Then a web-based questionnaire was carried out with a four-point scale of "able," "probable," "impossible," and "cannot understand meaning" for incumbent nurses in order to gauge their adequacy.
Results: There were 86 responses with an average of 14 years (1-40) of nursing experience. We compared them in three groups; those with a job post (G1), those with experience of longer than five years (G2), and those with experience of fewer than five years (G3). The average competency score (total 150 points) was 96.7 (67-129) in G1, 88.2 (53-145) in G2 and 80.2 (59-114) in G3.
Discussion: The results imply, even in G1, the average score is low at 65/100 points. This may indicate most clinical nurses should make efforts to develop their skills and knowledge of disaster nursing through daily work. Only 32 competencies (G1), 14 (G2), and 5 (G3) were marked as "able" or "probable" by over 80% of responders. Thus with consideration, depending on the result and expert reviews, the competencies determined to be "required" for clinical nurses were finally refined down to 35 items including the premise of ten.

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Rescue Operations in Underground Mines: Caring for Patients in a Challenging Environment

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