

Emergency Ambulance Dispatch and Drive Times: An Analysis of Prehospital Vehicular Response in the Kingdom of Bhutan

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Introduction: The Kingdom of Bhutan is a small, mountainous country with limited financial resources. Its population is scattered in hard-to-reach villages with poor road access. Ambulance drivers piloting Toyota Landcruisers provide the majority of the country's emergency response and are dispatched by the national emergency response center (Health Help Service/112) to calls in the nation's twenty districts.

Aim: By collecting and analyzing prehospital response data, we aimed to describe Bhutanese emergency medical response (EMS) ambulance activities and make system-wide recommendations to improve the speed of emergency vehicle dispatch, reduce the time between ambulance activation and ambulance arrival on scene, and adequately describe emergency vehicle drive time as it relates to distance driven.

Methods: The following data was compiled in Excel: Dispatch center phone records, EMS ambulance activation times, drive times, vehicle geospatial data, and written records of ambulance drivers. No identifiable data was collected.

Inclusion Criteria: All prehospital calls from 2017 and 2018 where complete data was available.

Exclusion Criteria: Complete data unavailable, i.e. geographic data without a matching call or report.

Statistical Tools: SPSS Statistics Version 25, NVivo 12-12.2.0.3262.

Results: Preliminary analysis of the data shows a significant difference between data collected and data previously reported, the speed of emergency vehicular response and dispatch, drive times, and distance traveled. Facility transfer rather than scene response was found to take more time.

Discussion: Due to adverse road conditions, lengthy drive times, and an inadequate number of personnel and satellite ambulance locations, we recommend optimizing ambulance location using an optimization model that will minimize the number of ambulances needed and maximize response time. Future considerations may include adding a ground arm to the Bhutan Emergency Aeromedical Retrieval team, or a second aeromedical team in the eastern part of the country.

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An Emergency and Disaster Course on Responding to Community and Family Healthcare Problems with Interprofessional Education for Undergraduate Medical, Nursing, and Dietitian Students

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Introduction: Emergencies and disasters need inter-discipline and inter-professional approaches because many problems in a disaster are due to poor coordination and collaboration. The disaster events during a decade in Indonesia highlighted the limitations of the healthcare system in responding to large-scale public health problems. Disaster health preparedness is the key to an effective response to any problems in community and family. Thus, education for health students has become a priority.

Aim: Preparing fourth-year health students to be aware of disaster health problems in family and community with an inter-professional approach.

Methods: Faculty of Medicine, Public Health, and Nursing UGM were prepared for the fourth year undergraduate health students through a semester "Emergency and Disaster Course" under Community Family and Healthcare with the Inter-professional Education Program, first given in 2016 for four hundred students. Mix method between class lecture, training skill, and simulation. The course goals are to (1) educate students on disaster health management, (2) understand the health preparedness and disaster family kit, and (3) define the principle of health worker's role and collaboration in disaster.

Results: The course was well received and at the 2017-2018 session was improved based on students and faculty feedback. Disaster knowledge of students changed. However, they still had a problem in communication between professions. And addition, they became aware of the function and each role of health profession competency during a disaster.

Discussion: A course for fourth-year health students about emergency and disaster health management is extremely relevant because they will be health workers soon. They must have good awareness, knowledge, and attitude to cope with disaster health problems in the future.

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An Emergency Medical Triage Tool for Swiftwater Rescue

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Introduction: Climate change and overdevelopment increase the intensity and frequency of flash flooding, which may generate more swiftwater rescue (SWR) incidents. Rescue personnel may fail to properly risk stratify (triage) these victims due to limited medical and/or variable SWR training, or due to an adverse rescuer-to-victim ratio. Some victims may attempt to refuse medical evaluation due to lack of awareness of incident-related morbidity and/or comprehension of risk.

Aim: To develop an SWR emergency medical triage tool.

Methods: A cross-sectional literature search identified SWR-related medical conditions. A flow diagram reliant upon incident history, chief complaint, and observational exam rather than interpretation of vital signs was created to guide medical decision-making.

Results: Every SWR victim should receive a medical screening exam focused on six clinical categories—drowning, hypothermia, hazmat exposure, physical trauma, psychological trauma and exacerbation of pre-existing disease. Drowning potential is identified by dyspnea, new cough or a history of (even brief) submersion. Shivering SWR victims and those with altered mental status but no shivering are assumed to be hypothermic. Any victim with open skin lesions/wounds who was immersed in floodwater and anyone who has swallowed floodwater is contaminated; these victims require decontamination and possible antibiotic therapy. SWR victims injured upon entering the water or from contact with either water-borne stationary or floating objects require trauma evaluation. Distraught victims and those who exhibit exacerbation of pre-existing organ-system disease also require ED evaluation.

Discussion: Most SWR course curricula are oriented towards technical rescue; they do not address comprehensive medical decision-making. We present a rapid medical screening exam designed to determine which SWR victims require an ED evaluation. Such a triage tool will assist rescuers to simultaneously honor patient autonomy and avoid risky and uninformed refusal of medical aid. Simplified medical decision-making should enable the application of this tool worldwide.

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Emergency Patients with Mental Crisis Accessing Emergency Medical Services in Thailand

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Introduction: Emergency responders face an increasing number of calls involving people with behavioral and mental crisis issue. Integrated multi-agency schemes involving ambulance, police and mental health services are now being developed to provide urgent and emergency care pathways for these vulnerable patients.

Aim: The objectives were to study the situation, characteristics, issues, and accessibility to emergency medical services (EMS) and appropriate treatment for emergency patients with a mental crisis in Thailand.

Methods: The sample included 26,511 mental crisis patients accessing EMS. Data were obtained from the database of the Information Technology for Emergency Medical System between 2015–2017 and from stakeholders from four provinces distributed regionally using focus groups and in-depth interviews. The data were analyzed using descriptive statistics and content analysis.

Results: The number of patients with mental crisis accessing EMS increased in the past three years. Most patients are male in the working age group from the Northeastern area during the raining and winter season, especially between September and October. During patient encounters with maniacal attacks, assistance will be requested from the police and the emergency medical units. The response depends on the experience and community capability. The emergency responder teams had insufficient knowledge and skills. Emergency rooms in most hospitals lack specific caring unit. Psychiatric hospitals have different criteria for admitting patients. Most had no fast track system and even refuse admittance.

Discussion: Mental crisis patient calls with EMS were rising. However, accessibility to appropriate service centers was still an issue. Most hospitals lack prioritized access and staffs had insufficient knowledge and skills. Cooperation among the police, emergency medical operation team and the rapid psychiatric emergency team is need to be reinforced.

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Emergency Response Training Program for Theme Parks: Experiences of Taiwan

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Introduction: “Tailor-made” training programs have been started in two theme parks in North and East Taiwan after the dust explosion of Ba-xien theme park in 2015. The training programs emphasized several areas. They work to strengthen the incident command system (ICS) and the skills of first responders, especially evacuation, placement, triage, and first aid, as well as to assist the park’s cooperation with local disaster response units, such as the fire department and Health Bureau.

Methods: The first step was to find out the practical problems of the two theme parks, and then make a one-year, tailor-made training program according to the needs of parks and different levels of staff: senior supervisors, middle-level district supervisors, and frontline colleagues. After the phased training, the training results are inspected in the non-scripted exercise mode.

Results: It was found that the staff are relatively familiar with the evacuation process and placement of tourists. The initial