

**Discussion:** During a four month period, with a team of physicians, government officials and public health staff developed a model trauma registry. The registry emphasized simplicity in design and execution and will serve as a stepping stone for a nation-wide trauma registry. Data collected from JDWNRH will provide the MoH with a detailed set of injury data to help with policy and resource utilization decisions. Logistical and technical challenges of developing a trauma registry are similar across health systems and this data collection tool and the lessons learned could be adapted to fit other institutions or health systems worldwide.

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### (A20) Injury Pattern and Disaster Plan for Landmines and Improvised Explosive Device Blast

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Landmines and improvised explosive device (IED) explosions induce bodily injuries through the primary, secondary, tertiary, and quaternary mechanisms of blast among civilians, mostly children which results in a complicated, multidimensional injury pattern. If > 80 percent of countries can ensure the security of their borders without using anti-personnel mines, surely India can too. A change in mindset and a change in defense doctrine are needed, as well as an UN-backed world body campaigning against the use of landmines to urge the Indian government to sign a global treaty to ban the weapons. An estimated four to five million anti-personnel mines exist in India, which is the sixth-largest stockpile in the world. Non-state armed groups in the central, southern, northern, and northeastern regions frequently have used anti-personnel mines and improvised explosive devices to target convoys of soldiers and civilians. Using historical, current research and related literature reviews, this study provides description about the types of explosion, the device, pattern of injury, prehospital and emergency department care, and challenges for the disaster plan. Hand amputation is the most common type of upper limb amputation (more common among the 7–18-year age group) and below-knee amputation is the most common type of lower limb amputation. Using these data, a focused disaster response for future attacks has been created. It includes the planning, monitoring, and coordination of all aspects by hospitals and the regional disaster system's plan—"upside-down" triage—the most severely injured arrive after the less injured, which bypass emergency medical services (EMS) and go directly to the nearest hospitals. Details about the nature of the explosion, potential toxic exposures and environmental hazards, and casualty location from police, fire, EMS, health department, and reliable news sources must be recorded.

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### (A21) Injury Patterns of Blast Type Antipersonnel Land Mine Victims

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Anti-personnel land mines are deployed in many regions of conflict around the world. A large number of civilians and militants are affected regularly due to the blasts of such mines. Once set,

they remain as silent concealed killers for decades and challenge the safety of the civilians even during the times of peace. A descriptive study was carried out at the Anuradhapura Teaching Hospital during a six month period starting in July 2007. The total number of anti-personal land mine injuries admitted during this period was 89. In all cases, the body part primarily in contact with the mine had been a lower limb. Except for few occasions, extensive soft tissue damage associated with compound fractures necessitated some form of an amputation for those limbs in primary contact with the blast mines. Closed fractures of the calcareous, talus, and the tarsal bones were seen in two cases. Nearly two thirds of the patients sustained either soft tissue or bone injuries to the opposite lower limb. Twelve percent of the victims had compound fractures on the opposite tibia and fibula. Injuries to external genitalia were seen in 8% of the cases. Upper limb injuries were not rare and predominantly found on the contra lateral upper limb (17%). The majority of them were soft tissue injuries. Chest wall injuries were seen among 2% of the cases. Superficial facial injuries were seen among 7% of the cases. In one occasion a gingival injury was detected. Seven percent of the victims developed deterioration in level of consciousness. None of them clinically showed any external physical trauma to the head. In some instances, the Glasgow Coma Scale (GCS) was ranked as 7 in which tracheal intubation and ventilation were needed. It was evident in this study that the majority of the affected patients sustained severe injuries in both lower limbs in contrast to some of the previous available studies.

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### (A22) Impact of Karachi Terrorist Bombing on an Emergency Department of a Tertiary Care Hospital

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**Objectives:** The objective of this study was to collect epidemiological injury data on patients presenting to the emergency department of a tertiary care hospital after the bombing on 29 December 2009.

**Methods:** This was a retrospective review of the medical records of the victims that were brought to a tertiary care hospital. Bombing victims were described as requiring acute care due to the direct effect of the bombing.

**Results:** The results are derived from a sample size of 198 bomb blast victims, most of which were first transported to government hospitals by private cars rather than ambulances. After the government announced free treatment, there was a wave of patients, among which, most were stable and already had received some form of treatment. Approximately 5–6 patients who had life-threatening injuries were brought directly to the tertiary care facility and needed surgical intervention. The lack of security in the emergency department could have lead to another terrorist activity. There were no procedures done in the field as there is lack of emergency medical services training in Pakistan, but in the hospital most of the interventions included intravenous (IV) lines, wound care, and laceration repair. The most common treatments included

the administration of IV fluids, antibiotics, and analgesia. Radiographs of specific sites and trauma series were used to rule out bone injuries. There was lack of documentation in most of the medical charts.

**Conclusions:** The emergency department was overwhelmed with the number of patients that it received. Therefore, an updated disaster plan and regular disaster drills are required. Rapid and accurate triage could minimize mortality among bombing survivors significantly. The majority of patients were discharged home.

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### (A23) Mass Casualty Incident and Terrorist Attack Preparedness of German Hospitals and Physicians Compared to Austria, Switzerland, the USA and a Worldwide Collective

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**Context:** Because of worldwide increase of catastrophes and recent terrorist attacks, hospitals and physicians are devoting increased attention to disaster and mass casualty incident (MCI) preparedness not only outside but also inside hospitals. In case of a terrorist attack physicians have to cope with injuries caused by conventional, biological, chemical, or radioactive weapons.

**Objective:** The aim of this study was to evaluate the current state of preparedness of German hospitals and physicians in case of an MCI or terrorist attack and to compare those results to the preparedness of hospitals and physicians from Austria, Switzerland, the United States of America and a worldwide collective.

**Materials and Methods:** Using an online questionnaire, we interviewed 1343 physicians in Germany, Austria, Switzerland, the US and a worldwide collective. The replies were analyzed statistically with the Shapiro-Walk test and the Mann-Whitney-U test.

**Results:** in Germany physicians are less prepared than their colleagues worldwide for disasters inside and outside hospitals. 48,4% of German physicians (37% worldwide) did not know their area of responsibility as a physician in case of an “internal” emergency (fire, water pipe burst, power cut), even though 30,2% of German physicians (29,1% worldwide) have already had a real emergency in their hospital. Only 65,3% of physicians in Germany (75,5% worldwide) knew their area of responsibility in case of an MCI; MCI training was given less often in Germany (42,7%) than worldwide (64,3%). Most physicians in every country were unaware of injury patterns and treatment strategies in patients following bombings or nuclear, chemical and biological contamination.

**Conclusions:** Hospital Physicians are insufficiently prepared for internal emergencies and MCIs. There is a need for more drills in hospitals. In spite of the recent threat of terrorist

attacks, the physicians’ emergency training should be modified to accommodate the increased risk of catastrophes and terrorist attacks.

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### (A24) An Disaster Education Framework to Bridge Natural Disaster Medical Response and Primary Care Development in Developing Countries

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**Introduction:** Natural disasters cannot be prevented but their human impact can be mitigated. Effective medical and public health mitigation and responses require multidisciplinary efforts and appropriate training. Whilst Asia is currently ranked as the most natural disaster prone area globally, limited disaster medical and public health response training opportunities are available in the region. Our paper reports efforts to identify the training gaps and ways to fill them to prepare frontline practitioners and academic researchers in disaster and medical humanitarian emergency relief efforts in Asia.

**Methods:** Grounded on the disciplinary principles of academic training in public health, emergency & disaster medicine and primary care, our paper reviews the current disaster related academic training offered in these disciplines and maps out the training and knowledge gaps in disaster mitigation and response for frontline practitioners and academic researchers. We suggest ways to fill such gaps.

**Results:** A two-dimensional (clinical versus non-clinical), three-tier education training framework (Entrant level, Continuous medical education needs and Expertise level) is developed. Experiences and key training needs in Asia are highlighted.

**Conclusion:** The proposed framework identifies areas for comprehensive training for medical and public health practitioners who are interested to engage in medical disaster relief. The proposed framework also aims to strengthen mitigation and response capacities in health systems.

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### (A25) Does Community Emergency Care Initiative Improves the Knowledge, Skill And Attitude of Healthcare Workers and Laypersons in Basic Emergency Care in India?

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**Background:** Basic emergency care at primary, secondary and tertiary health care level in India is in its infancy. Lack of