

## Injuries from Landmines and Unexploded Ordnance in Afghanistan

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**Background:** Afghanistan is among the countries worldwide most affected by landmines and unexploded ordnance (UXO). Landmines/UXO injure or kill at least 1,200 Afghans each year, and may undermine post-conflict recovery. In 2002, approximately two million returning refugees were at high risk for injury because they were unaware of dangerous areas.

**Methods:** Surveillance data were obtained from the International Committee of the Red Cross clinic-based surveillance for landmine/UXO injuries in 390 health clinics and hospitals in Afghanistan from March 2001 to June 2003. Surveillance data were used to describe victim demographics, risk behaviors, circumstances, and explosive types related to landmine/UXO incidents.

**Results:** During this time period, 81.2% of 1,637 landmine victims were civilians, and 51.4% were under 18 years of age. Ten times more injuries occurred among males than among females, and children aged 10–14 years were at highest risk. Children under 18 years of age were 2.4 times more likely than adults to be injured by UXO rather than by landmines (95% Confidence Interval = 2.1–2.8). The most prominent risk behaviors for children and adolescents were playing and tending animals; for adults, military activity. The case-fatality ratio of 9.4% probably is underestimated because surveillance predominantly detects victims who survive long enough to receive medical care.

**Conclusions:** Mine risk education (MRE) should specifically target males and adolescents, because these groups are at the highest risk. In addition, MRE should focus on UXO hazards to children and adolescents, and on landmine hazards to adults and should address age-specific risk behaviors. Expanding community-based reporting will improve sensitivity and the representation of surveillance.

**Keywords:** adult; Afghanistan; behaviors; case:fatality ratio; children; injuries; landmines; mine-risk education; Red Cross; refugees; risk; surveillance; unexploded ordnance

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## Free Papers: Global Sharing: Coordination & Control — International, Local, Remote Areas

### Medical Relief During the Gujarat Earthquake in India

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On 26 January 2001, an earthquake with a destructive force of 7.9 on the Richter scale struck near the city of Bhuj, in the state of Gujarat in India. This catastrophe was reported to have affected 350 million people, injured 100,000, and killed 10,000. The Singapore International Foundation in collaboration with SingHealth Group and the Ministry of Environment, sent a medical relief mission, which was

coordinated in partnership with the Indian Medical Association, Rajkot to Bhuj. The team of six doctors, five nurses, a public health official, and an emergency behavioral officer, along with 1.8 metric tons of medical equipment and supplies, was deployed in the city of Bhuj to provide medical relief. The work included emergency medical care, critical and intensive care, critical care transport, primary health care, public-health assessments, and interventions. We discuss lessons learned in mission planning, preparation, evaluation and needs assessment, emergency behavior and response, and integration with other NGOs.

**Keywords:** Bhuj; critical care; earthquake; emergency; evaluation; Gujarat; primary care; Rajkot; relief; Singapore; team; transport  
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### Regional Command and Control of the Health Emergency Services in the Western Part of Sweden

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The western part of Sweden (Västra Götalandsregionen, population 1.6 million) has experienced a number of major incidents during the last 15 years. As a result, we have formalized the rapid establishment of a regional command post in order to coordinate the medical support activities from prehospital and in-hospital healthcare providers.

A physician and a nurse with special training in disaster management are constantly on call. The ambulance dispatch center has been instructed to alert these persons by pager as soon as three or more ambulances are dispatched to a single incident. Information regarding the specific incident is fed from the command and control vehicle to the physician and/or nurse, who have been given the mandate to activate and coordinate all emergency medical facilities in this part of Sweden. This is done from a command post equipped with maps, phones, faxes, computers, and radios immediately adjacent to the ambulance dispatch center. The physician will act as the "gold" commander and the nurse as chief of staff, as more people are called in to carry out the eight different functions of the staff.

Most incidents can be handled by phone. However, the command post has been in full operation twice each year since it was established in 1999. The result has been faster activation of the different healthcare providers and more efficient cooperation.

**Keywords:** command post; disaster management; regional command; Sweden  
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### Medical Management in Major Incidents

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The Swedish National Board of Health and Welfare has developed and introduced the management system, SWEDE. This system, which now is being implemented in several counties in Sweden, consists of a doctrine part and a web-based information system IS SWEDE. The doctrine describes using a functional approach including

the principles of management and interaction between involved medical staff. The information system uses LAN technique to collect information at the scene of accident and Mobitex® and the Internet to send the information to management groups and/or emergency wards. A prerequisite of an information system in a major incident is that the principles of how a situation like this should be managed is well-known and accepted in the organization, and that the technique used is the same as that used in the daily routine. This video describes how the information system supports the medical management in a situation with several injured people. You can follow how the first ambulance on-scene reports digitally to the incident management, and how this information, combined with information of available resources, is used to ensure that the patients are conveyed to the most appropriate medical facility. The video also presents how IS SWEDE can be used during a major incident, to spread information within the Medicare system, and how patient information can be sent from ambulances on their way to a hospital.

**Keywords:** ambulance; doctrine; incident command; information systems; interactions; LAN; management; medical; report; staff, medical; SWEDE; technique

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### Computer-Aided Dispatch Systems and Their Application in Coordination and Control Situations

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This presentation will demonstrate the technologies already in place within the New South Wales (NSW) Ambulance Service, and will highlight some examples in which the technologies offer so much in the way of control and coordination.

Future emergency medical services (EMS) systems must be tested and proven in their intended field of operations. The systems for EMS agencies must have the ability to use closely aligned technologies such as Geographical Information Systems, automatic resource locating using satellite communications, and emergency incident messaging using mobile data and wireless personal devices. Together, these technologies can prove to be effective and efficient in resource allocation and deployment. For instance, geographical mapping systems can plot available agency resources, and, if data sharing is available, also can display inter-agency resources. This ability ensures that the right response is allocated in the right time frame — no over-resourcing or under-resourcing occurs!

With computer aided dispatch systems and automatic vehicle locating — emergency service managers and disaster planners can plan more efficiently. A greater visual analysis assists the manager or planner in deploying resources to the incident. The computer-aided dispatch environment offers the agency the ability to see the “bigger picture”. Emerging technologies, such as personal device assistants (PDAs), now enable the field supervisor/manager with the ability to visualize his or her resources. It enables two-way communication from the control centre. With greater planning ability, these new technologies offer the disaster situation greater control and coordination.

**Keywords:** automatic resource locating; communications; computer-aided dispatch; data sharing; emergency medical services (EMS); geographic information system (GIS); responses; technology

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### Major Incident Command and Control: “Communications: The Key to an Effective Response”

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In recent years, Bedfordshire and Hertfordshire Ambulance Service, in line with most UK medical agencies, has managed numerous Major Incidents involving significant loss of life. Resulting studies have indicated: (1) Communications at the incident site and between there and Emergency Dispatch centre; and (2) Emergency Dispatch to Strategic (Gold) Control, have been critical to the effective management of the incident.

For example, following the Potters Bar train derailment in May 2002, the Service reviewed its communication links and moved to update incident communications as a priority. Therefore, effective communications, which regularly are used and tested, are integral to sound disaster management.

The UK Government recommendations indicate that all emergency services and supporting agencies must have robust communication links, and, indeed, the UK now is introducing a single national radio system for emergency services, which will be inter-operable. Following the 9/11 terrorist attacks, weight and urgency have been given to communications between agencies following significant shortfalls identified after the event. Therefore, all medical agencies responding to the disasters should ensure that:

1. All personnel have hand-held communication systems capable of contacting each other and central control. (These should be systems in regular use);
2. Central control has robust links with other agencies that are regularly tested;
3. Identification of all medical personnel on site is essential.

These recommendations, while appearing simple and understated, if not acted upon (and maintained in a high state of readiness), potentially will cause increased loss of life and increased potential for associated litigious actions.

**Keywords:** communications; control, central; disasters; dispatch; identification; links; litigation; readiness

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### Using Self-Made Software for Managing a Medical Post

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**Introduction:** Using data processing in the forward medical post helps to save information and time, but purchasing such specific software may seem costly for hospital chief buyers, especially in areas in which disasters are extremely rare. Therefore, we created and tested our own forward medical post (FMP) program.

**Methods:** This FMP program is of a customer-server type, using by Access, in a computer permanently settled in a