How to Maintain Preparedness?

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Successful medical management of major accidents or disasters requires good preparedness. Preparedness can be maintained by the assessment of risks in relation to material and personnel resources, efficient planning, medical response tactics, and continual training of the staff including a sufficient amount of field exercise involving various rescue teams. Risk assessment is necessary to identify various types of accidents that may take place within the area where the medical services are provided. Traffic accidents happen most commonly on the road, but also may occur on the railway, boats, and during air travel. Industries that use hazardous materials as well as in their transportation within the area may create risks that need to be taken into account in advance. Also, fires in densely populated housing areas or in large buildings like hospitals or hotels, must be considered.

The personnel and the materials that are available for medical rescue and management of accidents need to be assessed at regular intervals. A prompt response to a call for help can be made when the lists of both official and volunteer rescue teams and the means to activate them are well-maintained. The vehicles available for transportation of the medical personnel to the scene as well as of the patients to the medical facilities must be recorded. First-aid and various medical materials that can be delivered readily to an accident scene also must be identified.

Tactics for medical responses need to be based on existing means of medical rescue. Good advance planning makes it possible to activate quickly all available medical staff independent of what is the time of day or day of the week. Well-prepared rescue plans take into account different types of emergencies as well as seasons and weather conditions, so that the teams can perform their work without delays. Planning also must consider how communication at the site of accident and from there to the successive health-care units can be maintained.

Medical personnel can maintain their professional skills by managing patients whose care is similar to those patients who are treated at sites of accidents. However, working outside of a hospital in makeshift shelters for the provision of first aid or in the open air is very demanding. Medical care in the field can be improved by sending the personnel to true accident sites and by "field exercise" training in which the medical rescue teams deal with simulated accident types. Triage may be trained using interactive computer programs. Only simulated accidents can provide an authentic possibility to train triage since accidents with mass casualties are very rare.

All rescue teams, fire department, police, medical personnel, etc., must work as a team at the accident site to promote the rescue of casualties and provide their medical care at the site and during their subsequent transportation to medical facilities. This team work often is of critical importance in order to save the critically but not fatally injured victims. Quick initiation of simple medical interventions needs to be concentrated on the patients who are expected to be revivable, and the rescue teams should cooperate efficiently to locate, recover, treat, and transport these patients. The subordination of various rescue teams and communication often fail at the site of accident. Field training of all rescue teams in simulated accidents provides valuable experiences that can save lives in true mass casualty situations.

Key words: accidents; computer-assisted education; disaster; emergency care; experience; field exercises; fire; hazardous materials; mass casualties; rescue; risk assessment; teams; training; transportation

Medical Preparedness for Chemical Accidents

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The Swedish National Board of Health and Welfare has updated its official recommendentions from 1990 dealing with medical preparedness for chemical accidents/disasters. In principle, the organisational structure that exists to respond to other types of accidents (for example, natural disasters, train crashes) should be used in the event of a chemical accident. From the health perspective, however, chemical accidents have several special features.

There may be a toxic zone that can only be entered by personnel wearing full protective clothing. In principle, medical teams and ambulance personnel never should enter such a zone. Individuals exposed to chemicals may constitute a risk for rescue personnel, who could become contaminated by the chemicals left on the exposed persons. Therefore, medical personnel must wear adequate protective clothing while taking care of victims not properly being decontaminated. Early decontamination should take place before those exposed are given definitive treatment. Deconatmination stations must be available both at accident site and at hospitals. In these revised recommendations, standards for protective clothing, mobile and fixed decontamination stations are given. In cooperation with a company, the Board has taken an active part in finding solutions for protective clothing and decontamination stations fulfilling the standards given.

Hospitals and the roads leading to them may be located in the toxic zone, so that access is blocked and new patients cannot be received for a considerable period of time. Therefore, plans should be drawn up for temporary treatment facilities in schools, sports centres, tents etc. It also must be possible to shut off the ventilation in hospitals.

For many chemicals, general knowledge of their properties and effects may not be complete. Therefore, effective systems should be identified and established for obtaining essential information on the chemical(s) of concern and providing this information to rescue workers, medical personnel, and other persons who need it. Poisons centres play an important role in providing such information (both beforehand and when an accident has occured).

Inventory activities need to be carried out to identify risks (fixed and mobile), and to identify resources available for taking care of exposed persons who suffer corrosive and thermal burns, those in need of ventilary support, and those in need of specific (antidote) treatment.

A number of exposed persons may need to be kept under observation for one or two days even though they do not have symptoms.

Key words: accidents; chemical accidents; chemicals, properties of; decontamination; hospitals; inventories; medical preparedness; poison centres; preparedness; protection; toxic zone

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Teaching and Training Methods

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Every major accident or disaster is unique and not like any other before. Despite of this fact, we are expected to manage accidents and disasters quickly and effectively, minimizing the loss of human lives and expenses.
How is it possible?
First—many things can be learned from a major accident/disaster. Therefore, it is important that every major accident/disaster is analyzed and evaluated very carefully, and the results be distributed nationally as well as internationally.
Second—Training and exercise are crucial, and should be performed both as minor exercises around a table, in classrooms, as alarm calls, and in the field in realistic surroundings. In all cases, the exercises should be carried out in cooperation with the partners who participate in the real situation (fire brigade, police, ambulance personnel).
Third—It is important that the persons who are supposed to handle a major accident/disaster have gained experience from their daily work with minor accidents. Although major accidents/disasters are different than minor ones, certain patterns are the same, and therefore, persons with experience and training will be better equipped to cope with the next disaster.

Key words: accidents; alarms; cooperation; disaster management; disasters; education; evaluation; exercises; experience; training

How You Can Reach Preparedness During Medical Curriculum

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We should start to answer the question of reaching sufficient emergency preparedness during medical studies by defining the quality of preparedness required, i.e., what must each qualified medical doctor master and be able to do in case of an emergency situation or accident. Also, it is important to take into consideration the official obligations in different public posts in health care. Knowing this goal, it is easier to define the direction to meet the goal during the medical curriculum and throughout the postgraduate life.

The contents of theoretical lectures should create a steady background for appropriate decision-making and actions in various acute situations. It is important for doctors to learn, understand, and be able to practice his/her specific role in this discipline as well as other services. It is a question of an ability to combine observations to a general view, and to divide this to a sequence of actions in an appropriate priority. The essential technical skills will require abundant manual training in realistic field situations. These skills will be usable only when they are connected to tactical training in a group of medical rescuers.

The contents of medical curriculum are a compromise in time allocation between different medical specialties and strong professors as limited representatives of their own views and fields. Each of these persons consider their specialty to be more important than emergency care or services. This way of thinking results in an obvious lack of time and resource allocation to attain the desired goal of preparedness, at least in most universities. Interviews of graduating medical students confirm this fact.

Interactive training is based on the accepted fact that many persons will learn much more by doing than by listening or reading. This is true especially in "field medicine". However, it is very difficult to organise a sufficient amount of practical field training to meet these needs. There is a need to include personally challenging experiences in breath-taking circumstances at sea, in the air, and in the wilds. These survival exercises are well-accepted by students, whenever they are organised. With computer-aided simulations, we also could offer enough task-oriented training necessary to create a tactical model. Actually, there should be demanding, multidimensional examinations in prehospital know-how that should demonstrate if the required tactical and technical preparedness actually is attained. As far as I know, these types of tests that demonstrate field competence are not carried out! How, then, can we answer the question posed in the title?

Key words: computer-assisted learning; curricula; emergency medical care; medical education; preparedness; testing