

interested in participating in the WADEM disaster management award process would be asked to submit an application that includes a self-evaluation package based on quality control criteria. In responding to these, each applicant would be expected to provide information on improvement processes and results. Information submitted would be kept confidential. Each organization would need to demonstrate that its approaches are effective and can be replicated or adopted by others. The criteria are designed not only to serve as a reliable basis for making awards, but also to permit an assessment of the organization's overall performance management system. All applicants would receive an appraisal of their organization's quality programs with recommendations for improvement where needed. A site visit of the best organizations (finalists) as decided by a panel of evaluators would select the winner.

<sup>1</sup>. *Prehospital and Disaster Medicine* 1996;11(2):16–24.

**Key Words:** award; disaster management; disaster relief; disaster response; quality assurance; quality control

### Syringe Or Bulb?

#### Three Oesophageal Detector Devices

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**Introduction:** The Oesophageal Detector Device (ODD) is a suction device (syringe or bulb) to be fitted to the endotracheal tube. Air is aspirated easily from the rigid trachea, but not from the collapsing oesophagus. Undetected oesophageal tubes are very rare (<1%) with both types of ODDs. Unconfirmed tracheal tubes occur in about 1% with syringe ODDs, but are more common with bulb ODDs. Proponents of the syringe argue using these lower failure rates. Proponents of the bulb argue using its simplicity and speed of use. No comparison of decision times for syringe vs. bulb has been published.

**Methods:** We compared a bulb-type ODD, the Ambu TubeCheck-Bulb (TCB) with two syringe-type ODDs, the Ambu TubeCheck-Syringe (TCS) and a self-made syringe type ODD (SMS). Fourteen EMT-Paramedics and 14 nurses, blinded to tube position, used each device once on a Ambu Intubation Trainer with a TubeCheck Training Kit. Time was recorded from the initial touch of the device to the decision of tube position. Each participant scored the handling of each device on a 6-point scale routinely used for school marks in Germany (1 = very good, 6 = insufficient). The decision-time of the other two devices was compared to that for the TCB using the rank order test for paired observations. Handling of the other two devices was compared to TCB using the sign test for paired observations. A *p*-value of <0.05 after Bonferroni-correction (\*4) was considered statistically significant.

**Results:** All decisions were correct. Mean  $\pm$ one SD decision-times were: TCB, 4.6  $\pm$ 1.7 seconds; TCS, 4.7  $\pm$ 1.6 seconds; and SMS 5.1  $\pm$ 1.3 seconds. The time difference between TCB and SMS was significant statisti-

cally (*p* <0.02). Mean  $\pm$ SD handling scores were: TCB, 1.7  $\pm$ 1.0; TCS, 2.4  $\pm$ 1.0; and for SMS, 2.7 $\pm$ 1.0. The handling difference between TCB and SMS was statistically significant (*p* <0.01).

**Conclusion:** The use of the TCB was quicker and easier than was use of the SMS. There was a trend to quicker and easier use of the TCB compared with the TCS. From a clinical point of view, however, differences in mean decision times of less than 1 second seem irrelevant. The same applies to the handling scores as the mean value for the scores for the SMS of 2.7 equals "satisfactory".

**Key Words:** ergonomics; esophageal detector device; oesophageal detector device; out-of-hospital; tracheal intubation

### Poisoning with Cholinesterase Inhibitors— A Possible Cause for a Disaster

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Poisoning with an insecticide still is one of the most often reported poisonings. Clinically, the most relevant are poisonings with cholinesterase-inhibitors (ChE-I), especially the carbamates and organic phosphates. Poisoning with ChE-I manifests by maximum stimulation of the vagus nerve with corresponding clinical symptoms, muscular symptoms, and irritation of the CNS.

The possibility that the environment of the affected person is contaminated as well as that of the EMS personnel, and of the primary unconcerned persons is an important consideration for handling of ChE-I poisoning by the emergency medical services. Depending on the type, ChE-I can be absorbed very easily through the intact skin or when inhaled. They can cause symptoms of poisoning even in low doses.

ChE-I are readily available as insecticides. If the acute-toxic potential is taken into consideration, such poisonings by suicide or accident can be expected; not rarely, especially in regions with a high consumption of insecticides such as the wine-growing countries along Rhine and Mosell.

Poisoning with ChE-I is to be considered always as an ongoing event. Even if only suspicious about a poisoning with ChE-I, clear steps which focus on avoiding the progression of the damage have to be taken by the EMS personnel first arriving on the scene. These steps to be taken are: 1) self-protection by wearing an anti-chemicals overall (if available) respectively suitable clothing, gloves, galoshes, and rubber cover; 2) airway-protection using common anti-ABC-masks (available e.g., at the German Police or the German Federal Armed Forces), which are effective against all customary insecticides with the normally used gas-filters; 3) wherever possible, transport of the persons afflicted into the open air; 4) removal of person not involved; 5) if needed, the fire department should be consulted (e.g., rescue from contaminated rooms); 6) external decontamination of the poisoned persons (soap, warm water), removal of contaminated clothing; 7) should the occasion arise, prophylaxis of toxic lung-edema, even if only suspected.

If these rules are followed, the damage associated with poisoning with ChE-I most likely will remain limited.

**Key Words:** carbamates; organophosphates; poisoning

### Telecommunication in an Earthquake Disaster

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Telephone communication is one of the most popular ways for people to communicate with each other. In the earthquake disaster, the telephone still is very useful. However, in Japan, the telephone companies automatically restrict 95% of the public telephone lines in order to maintain the emergency lines in the area stricken by the quake. Approximately 30–40% of the telephone lines of hospitals are secured as the emergency lines. Just after an earthquake like the Hanshin-Awaji Great Earthquake Disaster, numerous calls attempted to gain access to the limited number of emergency lines. Consequently, the important lines became busy. On the other hand, the fax numbers are not well-known. It is comparatively easy to communicate with other facilities or hospitals by fax.

The Internet is a durable communicating network system against the disaster and is a useful global tool. And yet, it is too busy for the people living in the hard stricken area to use, especially to build up a home-page to let the people in other areas know the necessary information including the damages. This presentation will detail the problems of the telephone communication and the Internet.

**Key Words:** earthquake; Internet; telephone

### Session 2: Miscellaneous

Chairpersons:

Ch. Lexow (Norway)

A. Barelli (Italy)

### Application of Plasmapheresis in Emergency Treatment of Opiate Withdrawal Syndrome

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The application of plasmapheresis is reported as a powerful method of extracorporeal detoxification in the emergency treatment of the opiate withdrawal syndrome, a life-threatening condition. We studied this group of patients, aged from 18 to 32 years with average duration of disease  $4.9 \pm 1.7$  years. When narcotics were withdrawn, all of the patients exhibited a pronounced physical dependence withdrawal syndrome manifested by a progression of severe somatic-vegetative, algetic, and psycho-pathologic disturbances. Individual doses of narcotics ranged from 6.0 to 15.0 ml per day of a hand-made solution of papaverous straw distributed over 2–3 doses.

As a rule, the procedure of plasmapheresis was performed daily for 3 days. In a single session, 600–800 ml of plasma was extracted, followed by its substitution

with a colloidal or crystalloid solution. The major somatic-vegetative and algetic manifestations of withdrawal syndrome stopped on the third or fourth day after admission to the hospital.

It is vital to note the observed decrease in pharmacological resistance to psychotropic drugs and analgesics made possible by the plasmapheresis. The procedure corrected the main biochemical indices and reduced endogenous intoxication. The findings indicate that plasmapheresis is a powerful, pathogenically-substantiated and economically-beneficial method of emergency treatment to opiate addicts.

**Key Words:** addiction; aid plasmapheresis; emergency; opiate withdrawal syndrome

### Outbreak of Salmonellosis at a School

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An incident of food toxico-infection among the children of Krasnoufimsk school was reported to the controller's office of the Center of Disaster Medicine on 24 November 1994 at 10:25 hours. More than 100 people with the symptoms of this disease of different levels of severity were admitted to the local hospital.

A decision was made to send a group of specialists and drugs to the hospital to help in treating the affected patients. This group consisted of three anaesthesiologist-reanimatologists, an infection control specialist, and three nurses. A complex of medicines and medical technologies was prepared. They included: solutions for infusion, antibiotics, steroids, systems for infusion, machines for artificial lung ventilation, and disinfectants. At 14:25 hours, the specialist went by a helicopter "MI-8" to Krasnoufimsk. There, they determined the outbreak was a toxic infection caused by *Salmonella* due to a breach of cooking practices. There were 940 pupils at the school, about 40 teachers, and 60 members of personnel. There were 105 children, aged 7–15 years and five adults who were hospitalized and approximately 130 children were treated at home due to the infection.

A specialist from the Center categorized the sick people and identified 55 who required intravenous infusion of fluids. Intensive care rooms were organized for them. The Center specialists admitted 43 patients, 33 children, and 10 adults to the hospital. The most severely ill patients received intravenous infusion and medical therapy. They were kept under observation. Scientists of Ekaterinburg Medical Academy participated in the treatment of the most severely ill patients.

On 28 November 1994, due to the stabilization of the medical situation and absence of new cases of infection, the specialists returned to Ekaterinburg. Later, under the Center's control, all the patients recovered from Salmonellosis.

**Key Words:** contaminated food; infection; salmonellosis