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How Can the Clinical Laboratory Prepare Against Environmental Contamination and Bioterrorism?

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The bioterrorist events took place in the United States, but they had a worldwide impact. In Europe, security agencies are calling for concerted global action to strengthen the public health response to the threat of international biological, chemical, and radio-nuclear terrorism. Cooperation within the European Union (EU) proved essential and inevitable. In a border-free space in which produce, products, services, and people can circulate, it is essential that appropriate mechanisms and arrangements are put in place to ensure prompt notification and exchange of information in case of threats and attacks; action at the source to stem the spread of disease and environmental contamination; mutual assistance for diagnosis and management of cases; and laboratory and epidemiological investigations.

Aims and tasks include: (1) develop capacities; (2) educate and train laboratory technicians; (3) train lab techs to use polymerase chain reaction (PCR), chromatograms, etc.; (4) train lab techs in forensic microbiology; and (5) improve analytic techniques for toxins, etc.

Keywords: bioterrorism; clinical training; contamination; diagnosis; environment; European Union; information; laboratories; management; notification; techniques

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Mass Poisoning with Carbon Monoxide

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Professionals who respond to large-scale emergency situations often find themselves under a considerable amount of stress. The authors present a case report on mass poisoning with carbon monoxide in view of the EMD response and on-the-spot problem solving due to the (non-) existing disaster plan within the University Medical Centre in Ljubljana, Slovenia.

Keywords: carbon monoxide; crisis; disaster; emergencies, large-scale; plan; poisoning; professionals; response

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Benchmarking EMS Systems: A Contribution to a Comprehensive Public Health Monitoring System (A Working Report on the European Emergency Data Project)

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Due to different historical developments, there are various types of prehospital Emergency Medical Services (EMS)

across Europe. While some EMS systems are based on the provision of prehospital emergency care by paramedics and emergency medical technicians, others are organized around the central role of emergency physicians. There are systems that provide as much care as possible at the scene of emergency, whereas other systems aim at minimizing the on-scene and transport time. When it comes to comparing and benchmarking EMS systems in Europe, these differences become obvious and need to be carefully taken into account. Differences in outcomes cannot be explained only by medical performance, but also by system design. The analysis of resource utilization also cannot be assessed without considering the whole system.

A benchmarking study started in 1994 compared the clinical and economic performance of three European EMS systems (Birmingham, UK; Santander, Spain; and Bonn, Germany)—the first European Emergency Data (EED) project. The study design was developed against the background of the different systems, using standardized scores and measurements such as the ICD coding system, the Glasgow Coma Scale (GCS), the Mainz Emergency Evaluation Score (MEES), and other outcome scores.

Basically, the study revealed the best medical performance of the three EMS systems in Bonn, whereas the system in Birmingham was characterized by the best economic performance and optimized allocation of resources.

The results of the above study form the scientific basis for the ongoing European Emergency Data (EED) project, which is funded by the European Commission (grant agreement no.: SPC.2002299). The study comprises 12 European EMS systems and one associated partner system from the U.S. The main objective of the project is to define a common set of European EMS indicators for health monitoring, including indicators of health status of emergency patients on the one hand, and on resources, performance, and utilization of the EMS system on the other.

This presentation provides an overview of the development of the EED project, starting with a summary of the first EED project on benchmarking and concluding with a status quo of the current project. Preliminary results of this ongoing project contain a set of indicators for health monitoring based on EMS data that are available in each of the project partner's EMS systems.

Keywords: benchmarks; benefits; comparisons; data; effectiveness; efficacy; Emergency Medical Services (EMS); European Emergency Data system (EED); monitoring

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International Activity of the Council on Cooperation in the Field of Public Health of NIS Countries for Emergencies and Acts of Terrorism Prevention and Relief

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The Council on Cooperation in the field of public health of NIS countries is a profile working body of the NIS Executive Committee. During its regular sessions (twice each year), the Council considers the most urgent topics in

cooperative arrangements for prevention and relief during emergencies and acts of terrorism. Since 1994, the Council has included the coordinating group for disaster medicine problems of NIS countries. The chairman is Deputy Minister of Public Health of the Russian Federation. During each session, the Council considers four to five topics on disaster medicine. The Council ratified 11 interstate documents on disaster medicine training programs, vocabulary of terms, textbook, and methodical documents.

In 1996, during an international conference, Command-Staff Exercises (CSE) relative to disaster medicine problems following earthquakes were conducted. International CSE "Management of Emergency Medical Relief in a Military Conflict" is to be held in 2003 in Dushanbe, Tajikistan. The Council ratified an Activity Coordination Program for emergency prevention and health relief on the territories of NIS countries for 2001–2003, and the Plan of Cooperation and Mutual Assistance of Disaster Medicine Services of the NIS countries in emergencies. These documents envision the elaboration of a coordination doctrine of medical assistance for the injured during an emergency, including: (1) training of managerial bodies, institutions, and units for work during emergency conditions; (2) determination of the connection and the emergency notification order; (3) coordination of the force requirements and the Disaster Medicine Service resources needed for emergency health relief; (4) production of a sufficient supply of medical equipment; (5) information exchange, including the facts regarding the nature of the emergency, and the expected emergency health relief measures that will be required; (6) provision of the required manpower and supplies; (7) provision of medical staff, victims, and the population defense; and (8) organization and implementation of measures for maintaining the sanitary-epidemiological well-being.

Keywords: cooperation, international; coordination; disaster medicine; emergencies; exercises; NIS; prevention; public health; relief; supplies; terrorism; training

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Public Health Affairs and Prophylactic Treatment of Individuals Exposed to Biological Terrorism

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Almost any kind of micro-organisms can be expected in acts of biological terrorism. Some have been recognized for a long time and almost forgotten in the developed world, in which sanitation measures, good hygienic practices, and vaccination programs are practiced. Some of micro-organisms potentially used in biological terrorist attacks could be classified as a newly recognized micro-organisms, often called "emerging infectious diseases." In the course of a biological attack and afterwards, we should try to recognize the clinical presentation of disease as soon as possible, and conduct epidemiological investigations to identify the source of the infection and the mode of spread of the micro-organism(s). Laboratory confirmation of the clinical diagnosis will be obligatory, even though many times the

laboratory diagnoses should be done only at specially protected and equipped laboratory levels. At the start of biological attack, we can expect to encounter serious victims of the attack, especially before laboratory confirmation of diagnoses.

For some communicable diseases, the use of prophylactic treatment may be the best protective measure. The effect of protection may begin immediately after the start of treatment, which is a big advantage in comparison with the use of vaccines. By choosing the proper initial prophylactic drug and schedules, we can expect prevention of some cases, amelioration of symptoms, and the lower mortality rate of victims. The spectrum of drugs that can be used is broad and dependent upon recognized micro-organisms. Duration of treatment varies according to the defined scheme. Some prophylactic treatments could be accomplished using very old drugs, almost excluded from usual treatment nowadays; some of them are newly recognized. We can expect side effects after treatment with some these drugs, especially if the prophylactic scheme is prescribed to last a long time. Before prescription of drugs, we should ask patients about possible side effects—experiences in the course of previous treatments with the prescribed drug. We should choose the schedule carefully, and the drugs as well. They may be different for children and adults. In some cases, we can revise the treatment after receiving results of microbial susceptibilities of isolated/identified micro-organisms. In this paper, the schedules for prophylactic treatment for anthrax, tularemia, plague, cholera, brucellosis, and other communicable diseases will be discussed.

Keywords: drugs; laboratory; micro-organisms; prescriptions; prophylaxis; schedules; terrorism, biological
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Mustard Gas Exposure in Pediatric Patients (Long-Term Health Status of Mustard-Exposed Children 14 Years After Chemical Bombardment of Sardasht)

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Mustard agents are chemical weapons that act through alkylation of cellular components, causing acute symptoms that include severe blistering of tissue exposed to the vapor or liquid agent and a diverse range of chronic illnesses. During the eight-year war between Iran and Iraq, extensive employment of chemical munitions by Iraqi forces was documented, including attacks on both military and civilian targets. One of these incidents, an aerial bombardment of the Iranian border town of Sardasht in June 1987, is the focus of the present investigation. This is a report on the mustard-induced lesions among 20 female and 30 male victims who were under 10 years of age at the time of exposure. Physical examinations revealed that lesions of the lungs were most common (100%), followed by skin (98%) and eye (86%) lesions, with 0–8% classed as severe; 4–16% as moderate; and 82–84% as mild lesional coverage. It was also noted that,