

## POSTER PRESENTATIONS

*In alphabetical order by first author*

### Contamination Control Area (CCA): A New Concept for CCA Design and Nuclear, Biological and Chemical (NBC) Procedures for Ground Personnel and Air Crews

*Andersen R*

Norwegian Defense Construction Service (NDCS), Advisory Service Division, Protection and Security Branch, Oslo, Norway

**Introduction:** In October 1998, the Chief of Defense Norway (CHOD) established a Contamination Control Area (CCA) working group (WG) to determine a new design standard for CCA installations and to adjust user procedures. The existing design and procedures needed to be upgraded. The Norwegian Defense Construction Service (NDCS) was appointed to chair the CCA-WG. The members of the WG are nuclear, biological, and chemical (NBC) specialists, researchers, and medical doctors from various military establishments and from the Ullevaal University Hospital in Oslo.

After a N-, B- or C-attack on military installations, these weapons of mass destruction (WMD) can contaminate the personnel in an open area. To be able to decontaminate personnel or materials after an N-, B- or C-attack, a stationary or mobile CCA is required.

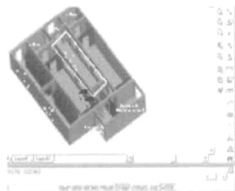
**Problem Areas:** The existing design criteria for CCA ventilation, construction, and NBC procedures must be improved. The removal of contaminated clothing in the CCA gives rise to secondary poisons and infectious aerosols. Today's ventilation of the CCA is based on depressurization through valves and defined physical boundaries. The ventilated air is not directed, and turbulence occurs. As a result, there is little or no control over how the ventilated air affects the secondary aerosols. During the removal of contaminated clothing, personnel risk being poisoned or infected by exposure to the skin, the mucous membrane and/or the respiratory system.

**Preliminary Results and Conclusion:** The CCA WG and cooperative partners have designed a new concept for CCAs and developed and tested the CCA procedures for aircrew and ground personnel. The design and procedures were tested in a container-based mock-up. The findings from this work have provided an excellent platform for the final design and construction of container-based mobile and fixed CCAs and for upgrading existing CCAs.

**E-mail:** roar.andersen@forsvarsbygg.no

**Keywords:** biological agents; chemical agents; contamination; contamination control; military; nuclear agents; procedures; weapons of mass destruction

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### Veterans from Peacekeeping: Evaluation of a Follow-Up Programme

*Andreassen AL, Thoresen S, Mehlum L*

The Norwegian Armed Forces Joint Medical Service,

Psychiatry Branch, Oslo, Norway

**Introduction:** Over the five-year period 1995–2000, personnel exposed to traumatic stress and prematurely repatriated personnel were targeted by a new support programme for peacekeeping veterans. These two groups previously had been identified as high-risk groups for the development of the Post-Traumatic Stress Disorder (PTSD). This study was conducted to evaluate the veteran's satisfaction with the follow-up programme, and to investigate the mental health of the veterans.

**Methods:** An anonymous questionnaire was mailed to all veterans included in the follow-up programme during 1995–2000. The questionnaire consisted of two parts: 1) A specially designed questionnaire aimed at measuring the veteran's satisfaction with different aspects of the follow-up programme, and 2) Health-related questionnaires including the: a) Service Stress Index (SSI); b) Post-Traumatic Stress Scale (PTSS-10); c) General Health Questionnaire (GHQ-28), d) Gotland Scale for Male Depression; and e) Alcohol Consumption Survey.

**Results:** The level of satisfaction with the follow-up programme generally was high among the traumatized veterans, but was significantly lower for the repatriated group. The repatriated group reported significantly more health problems (12.0% PTSD, 30.0% GHQ) than did the traumatized group (3.5% PTSD, 14.0% GHQ).

**Conclusion:** A relatively low frequency of PTSD was found in personnel who were exposed to traumatic stress. In addition, the high degree of satisfaction indicates that the follow-up programme may be an acceptable intervention for peacekeeping personnel exposed to traumatic stress. On the other hand, a relatively high frequency of health problems and a low degree of satisfaction was found in the repatriated group. This result may imply that the follow-up programme was not a sufficient intervention for repatriated personnel. Suggestions for changes of the follow-up programme will be discussed.

**Keywords:** follow-up; general health questionnaire; peacekeeping; post-traumatic stress disorder (PTSD); satisfaction; traumatic stress

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### Education in International Health Support — National and International Initiatives

*Darre E, Biehl A*

Danish Armed Forces Health Services and COMEDS Working Group on Medical Training

Since the Gulf War in 1991, the Danish Armed Forces Health Services increasingly has focused its tasks on international missions. The Danish government wants the Defence to be able to operate in both peace-supporting and humanitarian missions. An international Reaction Brigade equipped with a modern field hospital has been developed. The health personnel manning the medical service on the international missions consists of medical personnel from the military system and of doctors and nurses from civilian life who have a special contract with the Danish Defence. The new tasks for the Health Services demand additional training in order to prepare both the civilians and military personnel for the missions. Thus, a Diploma Course in International Health Support has been constructed.

The Diploma Course has been approved by The Danish National Health Board, has a duration of eight and one-half weeks, and consists of the following six modules:

1. Basic training for civilian health personnel
2. Basic traumatology

3. Advanced traumatology
4. International politics and medical ethics
5. Tropical medicine and epidemic diseases
6. Disaster management

Based on this Danish Diploma Course and further work in COMEDS Working Group on Medical Training (WG-MT), COMEDS Plenary has agreed on a proposal for a NATO-STANAG to establish "Training Requirements for International Health Support" in its member countries. The Working Group on Medical Training is completing this new task of preparing a STANAG proposal for Military Acute Trauma Care Training.

**Keywords:** Danish Armed Forces; civilians; COMEDS; epidemics; ethics; Gulf War; health services; management; peace-supporting; politics; STANAG; training; traumatology; tropical medicine

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### Health Exams Caused by the Suspicion of a Connection between Depleted Uranium and Leukemia

**Darre E**

Danish Armed Forces Health Services

**Introduction:** Early in January 2001, the media reported an increased frequency of leukemia among Italian soldiers who had served in the Balkans. It was claimed that the increased frequency was caused by exposure to depleted uranium (DU) coming from shells used in the areas. On 05 January, the Danish Armed Forces Health Services (DAFHS) established a 24-hour, physician-manned, telephone line. During the first three days, 120 people contacted the line. Two former deployed soldiers reported leukemia after having returned from the Balkans. On 09 January, the Danish Ministry of Defense decided to offer a free health examination and blood testing to all soldiers who had served in the Balkans or the Gulf since 1991.

**Material and Methods:** The offer was given to 14,868 formerly deployed soldiers. Other ministries decided on 10 January to provide a similar offer to their employees who had served in the same areas. The size of the civilian population is unknown. It was decided that the health examination should be carried out by general practitioners (GPs), and that the results and bill should be sent to the DAFHS. Thus, the material consisted of all of the reports sent from the GPs to the DAFHS.

**Results:** By 31 December 2001, 4,228 reports were received. Of these, 3,716 people (87.9%) were military and 512 came from other authorities. No further cases of leukemia were found. The number of reports received during the end of 2001 was very low, and the Danish government decided to close the arrangement by 01 April 2002.

**Conclusion:** Nearly one-third of the Danish soldiers who had been deployed passed the free health examination. At least from a psychological point of view, the health examination seemed appropriate.

**Keywords:** Balkans; Gulf War; leukemia; media; uranium

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### International Disaster Relief — How Can We Improve?

**Fjær RB**

HQ Defence Command, Medical Division, Oslo, Norway

**Introduction:** International humanitarian aid has a strong

position in Norwegian tradition. During the last decades, frequent humanitarian emergencies have occurred, with an increasing number of humanitarian organisations taking part in providing assistance. However, need assessments, medical intelligence, and co-ordination of the aid often are sparse, often resulting in the provision of ineffective and expensive assistance.

**Methods:** The eight ELEMENTS of Primary Health Care as advocated by WHO, are given indicators to estimate the level of healthcare services in a country, and can be used in the evaluation of the impact of the disaster. Healthcare is related to the climatic, geographic, political, and religious situation in the affected country. The method was tested after the earthquake in Gujarat, India in January 2001, and the volcano eruption in Goma, Zaire in January 2002.

**Results:** Evaluation of the situation in the countries as a whole revealed a complex situation and severe deficiencies in the health system that added to the severity of the acute disaster. Disaster relief to the disaster victims was delayed for various reasons: 1) Efficient co-ordination was lacking; 2) Insufficient and partly irrelevant relief were provided; or 3) the needs for relief were overestimated.

**Conclusion:** To optimise the effectiveness of limited resources, disaster preparedness, and the provision of feasible and necessary aid is of utmost importance. An assessed, rapid crisis intervention may be achieved by continual watching of the world's situation by a Main Rescue Central. A panel of experts could evaluate and co-ordinate the disaster response and make use of stored emergency material and emergency teams. A successful disaster response will depend on profound medical intelligence and socio-geographic mapping in advance, during, and after the event(s) that caused the disaster. More effective and feasible use of the equipment co-ordinated with the activities provided by the rest of the world, is necessary.

**Keywords:** aid, humanitarian; coordination; earthquake; intelligence; mapping; need assessment; preparedness; Norway; volcano, eruption of

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### Suicide after Service in UN Peacekeeping Missions — A Danish Pilot Study

**Hansen-Schwartz J,<sup>1</sup> Jessen G,<sup>2</sup> Andersen K,<sup>3</sup> Jørgensen HO<sup>1</sup>**

1. Defence Medical Training Centre, Denmark

2. The VHR Group, Odense, Denmark

3. Centre for Suicidological Research, Odense, Denmark

**Introduction:** Humiliation, direct combat, exposure to snipers, or seeing comrades wounded or killed may trigger immediate responses such as anger, fear, or guilt. However, reactions also may arise later as the post-traumatic stress disorder (PTSD), a condition associated with an increased risk of suicide.<sup>1</sup>

**Method:** Personnel assigned to international missions from 1995 to 1997 were compared to the Danish Register of Suicide. Suicide within one year of observation was considered relevant.

**Results:** A total of 3,859 Danish United Nations soldiers were included. One soldier died in a car accident two months after discharge, two soldiers committed suicide less than one month before deployment, and two soldiers committed suicide within one year of discharge. Both of these latter soldiers belonged to the same unit, a unit that suffered heavy artillery strike with a number of casualties and heavy material damage.

**Discussion:** In a matched background population, approximately 3 suicides were to be expected. Thus, there do not