

The Risk Assessment of Occupational and Environmental Hazards

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ABSTRACT

In this presentation the importance of risk assessment of occupational and environmental health hazards is illustrated by the results of a Dutch study on the health effects of a deployment in Bosnia-Herzegovina. In 1996 a group of military personnel that had been deployed on a compound near Lucavac reported health problems which they related to their deployment more than a year earlier. Their compound had been located on a former cokes factory and people thought their complaints were related to chemicals that had been present in the environment. A study was ordered and the people that had been in Lucavac, together with a control group that had been deployed elsewhere in Bosnia were given questionnaires. The available data on the occupational and environmental situation of the compound were extensively reviewed for the possibility of health risks from chemical or other origin. In the Lucavac group substantially more health problems were found than in the control group. The overall conclusion of the study was that there had been no substantial exposure to toxic factors that could account for the differences between the two groups. Perceived health threats that had not been addressed adequately in an early stage, may have been an important causal factor.

Since then much attention is paid to a thorough investigation of the areas before and during deployments. Three examples are given on different situations in which it has been important to assess possible hazards and to advise and communicate about them.

It is important to conduct a thorough assessment of environmental and occupational hazards before and during deployment, not only for the possible direct effects on health during the mission, but especially for the effects of the 'perceived health threats' afterwards. Perceived health threats during a mission can play an important role in the development of complaints after deployment and it is of the utmost importance to have a clear view on the reality of the risks and the communication about them to the personnel.

1.0 INTRODUCTION

Mr Chairman, ladies and gentlemen. It is an honour to have the opportunity to speak to you about the importance of seriously paying attention to the non-specific military hazards during extended deployments. The occupational and environmental hazards are not easily comparable with the typical military events that can be immediately life threatening, but they can become very important during and especially after deployment. In my presentation I will illustrate this by showing you some of the results of

IJzerman, C. (2005) The Risk Assessment of Occupational and Environmental Hazards. In *Strategies to Maintain Combat Readiness during Extended Deployments – A Human Systems Approach* (pp. 34-1 – 34-4). Meeting Proceedings RTO-MP-HFM-124, Paper 34. Neuilly-sur-Seine, France: RTO. Available from: <http://www.rto.nato.int/abstracts.asp>.

a study on military personal that has been deployed on a base in Lucavac during the mission of UNPROFOR in the Former Republic of Yugoslavia. After that I will give you three examples of effective risk assessment and communication during different missions and I will conclude my presentation with a brief discussion on the importance of these matters during and after deployment.

2.0 THE UNPROFOR HEALTH STUDY

In 1994 and 1995 Dutch troops were stationed on a compound in Lucavac during their mission in Bosnia-Herzegovina. The compound was located on the grounds of a former cokes factory. In 1996 some of the military personnel complained of a variety of health problems, mainly headaches, sleeping problems, and problems of the skin, the airways and the digestive tract. Many people related these problems to their stay in Lucavac and the exposure to smog, toxic chemicals, polluted drinking water and particles of soot on the factory grounds. The medical problems were not specifically presented to the military doctors. We heard about those from informal contacts the soldiers had. The Royal Army medical service did a quick scan with a short questionnaire on all 1200 people that had been there. This quick scan was answered by 80% of the people: 35 % of the respondents reported some form of complaints they related to their stay on the compound. Unfortunately the short questionnaire did not ask about the kind of problems nor their severity.

The military unions and some politicians started asking questions about this, so the Department of Defence - having learned from previous experiences with people that had been deployed in Cambodia - quickly ordered a study on the health effects of the deployment in Lucavac. This study was done with the help of a Dutch institute for health research. The main goals were to get information on the kind of the medical complaints and their severity and to look at the possible relations between the reported health problems and the occupational and environmental health hazards during the mission.

An extensive questionnaire on health problems and psychological stress symptoms was sent to 1204 people that had been in Lucavac for a considerable time. Besides that, a corresponding control group of 918 people, also military logistic personnel that had been stationed in other places in Bosnia were given this questionnaire. The response rate was about 60 % in both groups. The Lucavac group reported with 27 % twice as much prolonged health complaints than the control group with 13 %. Also the index group reported more than twice as much health problems in the category "more serious", 15% compared to 6 %. The amount of reported psychological problems did not differ that much in both groups: 18 compared to 13 %, with the same percentage of more serious problems suggesting the diagnoses of PTSD (about 4 %). In the Lucavac group much more people thought that their problems were related to exposures during their mission.

In general, the majority of all military personnel in the study reported a good health, although the perceived health had been a bit reduced after the mission. Although both groups in the study reported health problems, the Lucavac group reported these more often and had complaints of a more serious character. The Lucavac group also reported more perceived health threats as soot, chemicals, air pollution and polluted drinking water. The majority of the complaints were from the upper and lower respiratory tract, digestive tract, headaches, dizziness, memory- and concentration problems and a reduced well-being. Especially the airway problems were reported four times more frequent in the Lucavac group. Younger people in the lower ranks reported health problems more often, especially those who had been in transport units.

During the period the Lucavac compound had been used by Dutch troops, data had been collected on the local environmental factors, the water and the air pollution in the area. Part of the study was an extensive review of the data from that period, combined with the data we received from the US army who had been stationed there in 1996. The conclusion was that there had not been any significant exposure to occupational or environmental factors that could account for the much higher percentage of complaints in

the Lucavac group compared with the control group. Local air pollution and wintersmog, caused by other factories and the stoves of the local population of Lucavac, may have been responsible for the higher rate of respiratory tract problems in the Lucavac group.

3.0 EXAMPLES OF RISK ASSESSMENTS IN MISSIONS

In the last ten years there have been a lot of deployments and exercises of Dutch troops in different areas. It has become general policy to send a specialist on hygiene and preventive medicine with the reconnaissance party before the deployment of the main force and to keep that kind of expertise in the area during deployment. Before and during a mission or a military exercise, compounds and exercise grounds are assessed for possible health hazards. Suspicious situations are reported and discussed with experts of the Health and Safety Service and, if possible and necessary, reviewed by experts in the mission area. A risk assessment is made and the leadership is advised on how to avoid or to minimise the risks in those situations. Public opinion, press and military unions are very keen on the possible - so called - non-specific military risks originating from occupational or environmental hazards. So, the decisions on these matters are made with great care and there is an extensive communication with the troops and the different - let me say - 'stake holders' on the results. I will briefly present three situations in which a good risk assessment and corresponding advice have been valuable.

3.1 Industrial risk Bugojno

In 2001 part of a Dutch SFOR battalion was stationed on a compound near Bugojno in Bosnia. During that period an inspection team found an inactive ammunition factory at about 3 kilometres from the compound. Because of the presence of a great amount of chemicals and chemical waste products that were poorly stored, the plant was considered to be a risk to the environment and probably also to the compound. Some military personnel worried on the possible risks and the battalion commander asked for advice. Experts of the Army Occupational Health and Safety Service were sent to examine the situation. They concluded that although there was a considerable risk in the direct environment of the plant, there was no substantial risk for the Dutch military base. The military personnel on the compound were informed about these results. Also the civilian authorities got this information, together with the advice for measures to be taken to protect the civilian population in the neighbourhood.

3.2 Risks of exposure to asbestos in an exercise area

In 2003 a big exercise was planned for the Dutch Air Manoeuvre Brigade. During preliminary small exercises the brigade specialists on hygiene and preventive medicine had found asbestos in a few buildings that would be used by the troops and on roads in the fields that were hardened with debris of bricks and other leftover material of demolished buildings. During the planning of the main exercise the military unions made a big statement on the possible risks for their members to be exposed to asbestos containing dusts, during their forthcoming stay in the area. Occupational hygiene and safety experts were sent to the area, collected data and made a risk assessment. The advice was to declare several buildings and roads "out of bounds" during the exercise. In some areas the ground personnel of the Air Force were advised to use dust masks when helicopters would come down under the so called 'brown conditions' (dry and dusty circumstances). Furthermore we advised to take a few experts into the field during the exercise to advise in case of unforeseen events and accidental exposures. Extensive risk communication was done to the personnel and the unions. If all this had not been done, there would have been a great risk that the exercise would have been cancelled due to pressure from the unions and mobilised public opinion.

3.3 Smoke of oil heated brick factories in Al Kidr

In late 2003 a Dutch battalion was deployed on different compounds in the south of Iraq. After some time personnel on the compound in Al Kidr complained of stench and air pollution, probably due to the smoke of eight oil heated brick factories in the village, at about 5 kilometres distance. Again experts were brought into the field. They collected data during a period of low activity of the factories. They found no significant risk of exposure to toxic concentrations of products of combustion and they advised to a follow up when the factories would be working at full capacity. Our safety experts made a strategy for the monitoring of a possible future exposure. With the help of the specialists for hygiene and preventive medicine that were present in the area the situation was controlled during the rest of the following rotations of the mission.

4.0 DISCUSSION

The reason for the UNPROFOR health study and its results show us the importance of occupational and environmental hazards on the health and well being of the military personnel deployed. The fact that no specific exposure could account for the big differences in self reported health problems between the Lucavac and the control group, gives evidence for the importance of perceived health threats on the development of health related problems after a mission.

Although these environmental, so called 'non specific' military risks often are not directly incapacitating, they may lead to the worrying of the soldiers and their families at home. These rumours are often followed by actions of the press, the unions and politicians and that may cause the leadership a lot of problems.

Many studies have already shown that deployments have an impact on the health and psychological well being of the military. Luckily the majority of the personnel that returned from missions has no problems, but about one fifth has some sort of health problems afterwards. Not all of these are severe, but some of them can be persistent for a long period of time. Occupational and environmental hazards in general do not account for these kinds of health problems. But if there is no good assessment of these hazards, you can not deal with the perceived risks the people often have. This can lead to fixation on the assumed causes of the complaints and to attributions that can have a negative influence on therapeutic interventions.

The three examples of risk assessment, communication and advice show you the way the Dutch armed forces deal with these matters currently. We know it will not prevent all health-related problems after the missions, but we think it is important to avoid or minimise the health-related risks and to have an open communication on these matters to our personnel.

Thank you for your attention and I will be happy to answer a few questions later on.