

New Zealand and has a population density of 14 per square kilometre compared to 21 for the rest of the North Island. Hospital resources are centralised in Whangarei with five smaller primary care hospitals distributed in the region. With a large and difficult terrain effective transport of the critically ill in the region relies heavily on the helicopter. The paramedics from the St. John's Ambulance Service and the nurses and doctors from the Intensive Care Unit at Whangarei Hospital work closely to provide efficient transit care of the critically ill.

Results: Over 3,000 patients have received this mobile ICU care in the last 10 years. The ICU at Whangarei acts as a one stop coordinating centre for Medivacs — transit care of the critically ill between hospitals. The ambulance control room acts as the coordinating centre for Casivacs — retrieval of trauma victims from the scene of trauma and from remote areas of accidents that happen during adventure pursuits. Over 80% of helicopter transfers have been for Medivac reasons — with patients receiving mobile intensive care from an ICU doctor and nurse on board. The remainder are Casivacs with paramedics providing prehospital management of serious trauma.

With over 3,000 patients in the last 10 years, an effective system of coordination between St. John's Ambulance and the Intensive Care Unit at Whangarei provides prompt and proficient critical care to victims of trauma and patients suffering from critical illness.

Conclusion: We believe this system is a model for regions with widespread geography. We will discuss the attributes of this coordinated helicopter service and highlight the lessons that may be of use to other non-urban areas in the world.

Keywords: coordination; critically ill; helicopter; intensive care; interfacility transfers; mobile intensive care; New Zealand; nurses; paramedics; physicians; scene responses; trauma

General Session XII

Environmental and Nuclear Disasters

Tuesday, 11 May, 10:30–12:00 hours

Chair: Peter Zelnicek, Norifumi Ninomiya

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Haze '97 – A New Type of Disaster

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In May 1997, reports were received from weather monitoring stations in SouthEast Asia of the spread of smoke and haze from forest fires occurring in Indonesia (Kalimantan and Sumatra). The smoke and haze spread across SouthEast Asia and eventually also involved the countries of Malaysia, Singapore, Thailand, Brunei, Philippines, and even up to Hong Kong. Peat fires also contributed the smoke and haze and the dry weather conditions brought on by the El Niño phenomenon. The haze reached extremely high levels in various parts

of the region, especially in Malaysia and Kalimantan. The effects of the haze were reflected in the following:

- 1) A markedly increased incidence of upper respiratory infections, sore eyes and exacerbation of asthma and chronic bronchitis in the region;
- 2) Poor visibility for many months until October 1997;
- 3) A drastic drop in tourist arrivals in the region;
- 4) Closures of airports and flight diversions in some countries; and
- 5) Occurrence of disasters such as ship collisions, air crashes due to poor visibility — these resulted in large numbers of deaths;

In addition, certain long-term effects such as chronic respiratory diseases and even drop in mental performance were postulated as a result of the haze. The main agent causing adverse medical effects was felt to be particulate matter below 10 microns size.

The economic loss to the affected countries was in terms of hundreds of millions of dollars.

Various interventions were attempted, such as fire fighting, satellite tracking of hot spots, litigation against persons causing such fires, cloud seeding efforts, use of various types of ventilators, and increased use of medications to treat adverse health effects of the haze. The event resulted in the countries of SouthEast Asia working together to jointly map out strategies to prevent and control future such incidents.

Long-term research also will be required to study the effects of chronic exposure to such particulate matter on the health of populations.

Keywords: accidents; air crashes; Asia, southeast; asthma; El Niño; fires; haze; respiratory diseases; ships; smoke

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Haze and the Body

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Introduction: Training in the SAF always has been considered a strenuous activity. We know that the body is subjected to many adverse environmental factors during physical exertion, and air pollution is one such important factor.

Aim: The aim of this study was to analyse the impact on the body after exposure to different levels of air pollution.

Method: This is a retrospective study based on the attendance at the Dieppe Medical Centre (DMC) from October 1997 to April 1998. Five hundred soldiers, age between 18 to 24 years from the 1st Battalion, Singapore Guards were used as the study cohort. The measure of pollution used is the Pollution Standard Index (PSI) that was recorded by the Singapore Meteorological Station. The PSI measures five common pollutants in the atmosphere during the past 24 hours.

All of the soldiers who turned up at the DMC were examined thoroughly by the Medical Officer and given a diagnosis. The diseases selected were: 1) Upper Respirato-