
Selected Topics: Sports Medicine

NORDIC VENUE MEDICAL SERVICES DURING THE 2002 WINTER OLYMPICS

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□ **Abstract**—This article represents a retrospective analysis of medical care provided to spectators, athletes, officials, and workforce at the cross country skiing and biathlon venue, Soldier Hollow, during the 2002 Winter Olympic Games. A retrospective chart review was performed of the primary diagnosis category assigned to each patient on medical encounter forms completed at the time medical care was provided in the athlete or spectator medical clinics. Descriptive statistics were used to characterize data from the primary diagnosis categories for groups of patients. There were 590 total medical encounters among athlete and spectator medical services over 19 operational days with 227,847 total visitors (includes spectators, athletes, and workforce). The incidence of medical encounters was 26 per 10,000 visitors. There were 215 medical encounters that were evaluated and treated by a physician in the athlete (69 cases) or spectator (146 cases) medical clinics. The most common diagnoses were related to respiratory infection or respiratory disease. There were 177 patients discharged without follow-up and 26 referred to a medical facility off venue. Six patients were transported to a hospital by ground ambulance. In conclusion, the injuries and illnesses evaluated and treated were consistent with prior studies on medical care at Olympic Games. Although some patients required ground ambulance transport off venue due to injury or illness, there were no critical injuries or illnesses that resulted in death. The level of services available to both athletes and spectators was more than adequate for the injuries and illnesses encountered. © 2006 Elsevier Inc. © 2006 Elsevier Inc.

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INTRODUCTION

Soldier Hollow was the cross country skiing and biathlon venue during the 2002 Winter Olympics held in Salt Lake City, Utah. Medical care at Soldier Hollow during the Olympics was organized and provided under the supervision of Medical Services of the Salt Lake Olympic Organizing Committee (SLOC). We are not aware of any previous reports that focus exclusively on medical care provided to spectators and athletes at an Olympic cross country skiing or biathlon venue. Information on planning for medical services and providing medical care for a Nordic venue for the Winter Olympic Games might be of interest to future event organizers of international competitions.

The purpose of this article is to retrospectively analyze the medical care provided to spectators, athletes, officials, and workforce at Soldier Hollow during the 2002 Winter Olympics. We also present the organization of medical services provided at Soldier Hollow during the 2002 Winter Olympic Games and assess whether the level of care available was appropriate for the injuries and illnesses encountered.

Table 1. Soldier Hollow Venue 2002 Olympics, Medical Clinic Visit Summary for the Period of Full Medical Services February 6–24, 2002

	Visitors on venue*	Athlete medical clinic	Spectator medical clinic (acute)	Spectator medical (non-acute)	Mobile medical patrol	Total medical encounters
Daily average \pm SD	11,992 \pm 5,319	3.4 \pm 2.2	7.7 \pm 4.0	17.7 \pm 13.2	11.6 \pm 12.9	31.1 \pm 18.5
Total from 19 days of venue operation	227,847	64	146	195	185	590

* The total number of visitors includes all spectators, athletes, and staff except for security and media personnel on venue between February 6 and 24, 2002.

METHODS

Setting

Soldier Hollow is located 50 miles from Salt Lake City, Utah, at an elevation of 1670 to 1800 meters with a competition venue area that covered approximately 3 square miles. Soldier Hollow hosted 25 competitions from February 9 to 24, 2002. Medical care was provided in a limited capacity on venue from January 29 to February 5, 2002, with only the athlete medical clinic open. From February 6 to 24, 2002, full medical coverage was provided on venue with an athlete medical clinic, a spectator medical clinic, emergency medical services (EMS), and ski patrol. On average, 11,990 persons were on the venue each day of the 19 operational days where medical coverage was provided over the entire venue area for spectators, athletes, officials, and workforce (Table 1).

The Soldier Hollow Medical System

The medical leadership at Soldier Hollow was composed of a Venue Medical Officer (VMO), a Deputy Venue Medical Officer (DVMO), and a Venue Medical Supervisor (VMS). The VMO and DVMO were physicians who were responsible for planning and operating all aspects of medical care provided at the venue. The VMS was a nurse manager who assisted the VMO and DVMO in developing medical protocols, and recruiting, training, and scheduling medical staff. All medical staff volunteers underwent training that included a general orientation as SLOC volunteers and a specific orientation as medical volunteers at the Soldier Hollow venue. The medical staff also worked during the World Cup events the year before the Olympic Games, which helped orient them to the venue and their responsibilities.

Medical care was separated into four different categories including spectator medical care, ski patrol, athlete medical care, and on-site emergency medical services (EMS). All members of the medical system,

whether stationary or mobile, were in constant communication via two-way radios on a channel restricted to medical services. The non-medical event staff used radio communication to report a medical incident to the Venue Communication Center (VCC), whose personnel would then contact the VMO or DVMO by radio on the medical channel and notify them of the location. The VMO or DVMO would then dispatch the closest appropriate team by radio to respond to the scene, and would decide on appropriate disposition for the patient after evaluation at the scene. If the medical emergency were a possible cardiac arrest, then the closest team with an automatic external defibrillator (AED) would also respond (spectator medical, athlete medical, start/finish area ski patrol station, or one of the several ski patrol stations that had AEDs).

Spectator Medical Care

Spectator medical care included an on-site clinic and mobile medical teams. A nurse stationed in a tent just outside the medical clinic provided over-the-counter medications and first aid supplies for minor ailments. Patients requiring further treatment or a higher level of care were referred inside to the spectator medical clinic, which was staffed by a physician or physician's assistant and a nurse. Spectator medical also had a mobile division comprised of four teams of two people. Each team had an emergency medical technician (EMT) paired with a physician or nurse. Each member of the mobile team carried a fanny-pack with basic life support first-responder supplies (pocket resuscitation mask, gloves, bandages, tape, band aids, splint, analgesics, hand warmers, throat lozenges, and sunscreen).

The spectator medical clinic was based in a single-wide trailer with heat, electricity, phone lines, and water. The clinic was advanced cardiac life support (ACLS) capable and had a patient monitoring unit with a 3-lead electrocardiogram and defibrillation capabilities, digital pulse oximetry, and non-invasive blood pressure. A separate AED was also available for use in the clinic or to

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