

COLD WEATHER INJURIES

Applies to Frostbite, Trench Foot (Immersion Foot), Hypothermia, and Other Specified and Unspecified Effects of Reduced Temperature

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of conditions important to military-associated populations. Prolonged or intense exposures to cold can significantly impact the health, well-being, and operational effectiveness of service members and their units. Because the U.S. military operations are conducted in diverse geographic and weather conditions, the U.S. military has developed extensive countermeasures against threats associated with training and operating in cold environments.¹

Clinical Description

Cold injuries include several abnormal and often serious physical conditions caused by exposure to cold temperatures. Injuries are often divided into two categories, those that occur without the freezing of body tissue, i.e., chilblains and trench foot, and those that occur with the freezing of body tissue, i.e., frostbite. In addition, hypothermia, or systemic cold injury, is a clinical condition in which the core body temperature decreases to 35°C (94°F) or lower with multiple end-organ effects. The severity of injury due to cold depends on the temperature, the rate of chilling, and the duration of exposure.

Case Definition and Incidence Rules

For surveillance purposes, a case of cold weather injury is defined as:

- *One hospitalization or outpatient medical encounter* with any of the defining diagnoses of cold weather injury (see ICD9 code list below) in the *primary* diagnostic position; or
- One record of a reportable medical event (RME) of a cold weather injury.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first hospitalization or outpatient medical encounter that includes a defining diagnosis of cold weather injury.
- An individual is considered an incident case only *once per “cold year”* (1 July thru 30 June), i.e., one cold weather injury of any type per individual per cold year.
- If data on a specific *type* of cold weather injury is required, an individual is considered an incident case once per type of injury per calendar year, i.e., one of each type of cold injury per individual per year.

Exclusions:

- None

¹ Armed Forces Health Surveillance Center. Cold Weather Injuries, U.S. Armed Forces, July 2005-June 2010. *Medical Surveillance Monthly Report (MSMR)*. 2010 October; Vol 17(10): 7-11.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Cold Weather Injuries	991.0 (frostbite of face)	NA
	991.1 (frostbite of hand)	
	991.2 (frostbite of foot)	
	991.3 (frostbite of other and unspecified sites)	
	991.4 (immersion foot or trench foot)	
	991.6 (hypothermia)	
	991.8 (other specified effects of reduced temperature)	
991.9 (other unspecified effects of reduced temperature)		

Development and Revisions

- This case definition originally developed in 2000 by the Army Medical Surveillance Activity (AMSA) MSMR staff for a MSMR article on cold weather injuries in active duty soldiers.²

Code Set Determination and Rationale

- In Sept/Oct of 2004 AFHSC ICD9 code 991.5 (chilblains) was deleted from the code set because the condition is common, infrequently "diagnosed" as an "illness or injury", usually mild in severity, and thought to have minimal medical, public health, or military impacts.
- Surveillance of cold weather injuries in the MSMR dates back to December of 2000. Prior to Sept/Oct of 2004 all codes related to cold weather injuries (999.1-991.9) were included in the ICD9 code set used for analysis.
- The Tri-Service Reportable Events system case definition for cold weather injuries does not include ICD9 codes 991.5 (chilblains), 991.8 (other specified effects of reduced temperature) or 991.9 (other unspecified effects of reduced temperature).

Reports

AFHSC reports on cold weather injuries in the following reports:

- Annual MSMR article; published in September or October.
- Monthly: Armed Forces Health Surveillance Center. *Sentinel reportable events among service members and beneficiaries at U.S. Army, Navy, and Air Force medical facilities*. Medical Surveillance Monthly Report (MSMR); includes only reportable medical events (does not include ICD9 codes 991.8-991.9).

² Army Medical Surveillance Activity (AMSA). Cold Weather Injuries, Active Duty Soldiers, 1997-2000. *Medical Surveillance Monthly Report (MSMR)*. 2000 December; Vol 6(10): 2-3.



Review

Feb 2011 Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.

Dec 2000 Case definition originally developed and reviewed by AMSA MSMR staff.

Comments

None

