

RHABDOMYOLYSIS, EXERTIONAL

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of a condition important to military-associated populations. In U.S. military members, rhabdomyolysis is a significant threat during physical exertion, particularly to those under heat stress.

Clinical Description

Rhabdomyolysis is the breakdown of striated muscle cells with release into the bloodstream of their potentially toxic contents.¹ In high enough concentrations, the contents of skeletal muscle cells can cause organ and systemic dysfunction, including disseminated intravascular coagulation (DIC), disturbances of fluid, electrolyte, and acid-base balances, compartment syndrome, and renal failure. In the United States, case fatality with rhabdomyolysis is less than 5% and depends on the nature of the precipitating cause, the severity and clinical effects of comorbid conditions, and the prior state of health of affected individuals.²

Case Definition and Incidence Rules

For surveillance purposes, a case of exertional rhabdomyolysis is defined as:

- *One hospitalization or outpatient medical encounter* with any of the defining diagnoses of rhabdomyolysis and/or myoglobinuria (see ICD9 code list below) in *any* diagnostic position PLUS at least one of the diagnoses associated with “dehydration or the effects of heat or exertion” (see ICD9 code list below) in *any* diagnostic position.

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 rhabdomyolysis.
- An individual is considered an incident case only *once per calendar year*.

Exclusions:

- Cases of rhabdomyolysis secondary to traumatic injuries, intoxications, or adverse drug reactions; specifically, medical encounters with ICD9 codes 800 – 999 (injury, poisoning, toxic effects, except ICD9 codes 992.0 - 992.9, 994.3 - 994.5 and 840 - 888 sprains and strains of joints and adjacent muscles) in *any* diagnostic position.

¹ Armed Forces Health Surveillance Center. Update: Exertional Rhabdomyolysis, Active Component, U.S. Armed Forces 2010. *Medical Surveillance Monthly Report (MSMR)*. 2011 March; Vol 18(3): 9-11.

² Armed Forces Health Surveillance Center. Update: Exertional Rhabdomyolysis among U.S. Military Members, 2004-2007. *Medical Surveillance Monthly Report (MSMR)*. 2008 March; Vol 15(2): 8-11.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Exertional Rhabdomyolysis	728.88 (rhabdomyolysis) 791.3 (myoglobinuria)	NA
Dehydration; effects of heat or exertion	276.5 (volume depletion ; dehydration; hypovolemia) 992.0 – 992.9 (effects of heat and light) 994.3 (effects of thirst; deprivation of water) 994.4 (exhaustion due to exposure) 994.5 (exhaustion due to excessive exertion)	

Development and Revisions

- This case definition was developed for the AFHSC Medical Surveillance Monthly Report (MSMR) article referenced above. AFHSC surveillance of this condition dates back to 1998.¹

Case Definition and Incidence Rule Rationale

- Surveillance for rhabdomyolysis is intended to detect those cases which are potentially preventable through well-known measures to safeguard healthy service members who are training or carrying out their duties under conditions associated with high ambient temperature, strenuous exertion, and inadequate hydration. Cases of rhabdomyolysis due to trauma, intoxications, or adverse drug reactions are less common among service members and are less susceptible to prevention through organized procedures and practices. Thus, such causes of rhabdomyolysis are excluded.
- The diagnosis of rhabdomyolysis by itself does not indicate the cause. In an attempt to distinguish cases that are exertional and/or heat-related from those with other precipitating causes, the case definition specifies that ICD9 codes 728.88 or 791.3 must be accompanied by one of the codes associated with dehydration, heat, or exertion.

Code Set Determination and Rationale

- The diagnostic code specific for “rhabdomyolysis”, i.e., 728.88, was added to the ICD-9-CM in 2004. Therefore, it is difficult to document the occurrence of cases prior to that time

Reports

AFHSC reports on rhabdomyolysis in the following reports:

- Annual MSMR article; published in March.

Review

Jul 2011	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
Mar 2011	Case definition developed and reviewed by the AFHSC MSMR staff.



Comments

None

