

## HYPONATREMIA, 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 the summer of 1997, Army training centers reported eight hospitalizations of soldiers for hyponatremia secondary to excessive water consumption during military training in hot weather – one case was fatal, and several others required intensive medical care.<sup>1 2</sup>

### Clinical Description

Hyponatremia is defined as a low concentration of sodium in the blood (i.e., serum sodium concentration <135mEq/L); it can have serious and sometimes fatal clinical effects. In otherwise healthy, physically active adults (e.g., long distance runners, military recruits), hyponatremia is often associated with excessive water consumption during prolonged physical exertion (“exertional hyponatremia”), particularly during heat stress.<sup>3</sup>

### Case Definition and Incidence Rules

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

- *One hospitalization or outpatient medical encounter* with a defining diagnosis of hyposmolality and/or hyponatremia (see ICD9 code list below) in the *primary* diagnostic position AND no other illness or injury-specific diagnoses (ICD9 codes 001-999); or
- *One hospitalization or outpatient medical encounter* with a defining diagnosis of hyposmolality and/or hyponatremia in *any* diagnostic position PLUS at least one associated condition (see ICD9 code list below) in *diagnostic positions 1-3*.

#### 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 exertional hyponatremia.
- An individual is considered an incident case only *once per calendar year*.

*(continued on next page)*

<sup>1</sup> Army Medical Surveillance Activity. Hyponatremia associated with heat stress and excessive water consumption: Fort Benning, GA; Fort Leonard Wood, MO; Fort Jackson, SC June -August 1997. *Medical Surveillance Monthly Report (MSMR)*. 1997 Sep; 3(6): 2-3, 8.

<sup>2</sup> Army Medical Surveillance Activity. Hyponatremia associated with heat stress and excessive water consumption: Outbreak investigation and recommendations. *Medical Surveillance Monthly Report (MSMR)*. 1997 Sep; 3(6): 9-10.

<sup>3</sup> Armed Forces Health Surveillance Center. Update: Exertional Hyponatremia, Active Component, U.S. Armed Forces, 1999-2010. *Medical Surveillance Monthly Report (MSMR)*. March 2011 Vol 18(3): 12-15.



### Case Definition and Incidence Rules *(continued)*

#### *Exclusions:*

- Cases of hyponatremia that include any of the following complicating diagnoses in any diagnostic position: alcohol/illicit drug abuse; psychosis, depression, or other major mental disorders; endocrine (e.g. pituitary, adrenal) disorders; kidney diseases; intestinal infectious diseases; cancers; major traumatic injuries; or complications of medical care.

### Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Hyponatremia	276.1 (hyposmolality and/or hyponatremia)	NA
Conditions associated with hyponatremia	276.6 (fluid overload) 780.0 (alteration of consciousness) 780.39 (convulsions) 780.97 (altered mental status) 992.0 - 992.9 (effects of heat and light) 728.88 (rhabdomyolysis)	

### Development and Revisions

- This case definition was developed for the AFHSC Medical Surveillance Monthly Report (MSMR) article referenced above.<sup>3</sup> AFHSC surveillance on this condition dates back to 1997.<sup>1,2</sup>

#### *Case Definition and Incidence Rule Rationale*

- *Rationale for exclusions:* Surveillance for exertional hyponatremia 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 and strenuous exertion. Cases of hyponatremia due to alcohol/illicit drug abuse, mental disorders, endocrine disorders, kidney diseases, infectious diseases, cancers, major traumatic injuries, or complications of medical care are less susceptible to prevention through organized procedures and practices. Thus, such causes of hyponatremia are excluded.

### Reports

AFHSC reports on hyponatremia in the following reports:

- Annual MSMR article; published in March



**Review**

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

**Comments**

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None

