INSOMNIA

Includes Primary and Secondary Insomnia

Background

This case definition was developed by the Armed Forces Health Surveillance Branch (AFHSB) for the purpose of epidemiological surveillance of a condition important to military-associated populations. Individuals with insomnia have been shown to be at increased risk for both work-related and motor vehicle accidents.[1] In the military setting, the consequences of work-related accidents can be magnified given the nature and demands of military operations; for example, fatigue is cited as the primary cause of military aviation mishaps.[2]

Clinical Description

Insomnia is the inability to obtain an adequate amount or quality of sleep and the condition is the most common sleep disorder in adults in the United States. Symptoms include difficulty initiating sleep, early awakening, and non-restorative or poor quality sleep. Insomnia can occur as a "primary" condition or as a "secondary" condition meaning the cause is attributable to, or may coexist with, a specific medical, psychiatric or environmental condition. The diagnosis is more common in women and older adults and is often associated with occupational and environmental risk factors (e.g., military personnel on rotating shifts, night shift work, stress, and frequent moves, including deployment). [3,4]

Case Definition and Incidence Rules

For surveillance purposes, a case of insomnia is defined as:

- *One hospitalization* with any of the defining diagnoses of insomnia (see ICD9 and ICD10 code lists below) in *any* diagnostic position; or
- *Two outpatient medical encounters, within 90 days* of each other, with any of the defining diagnoses of insomnia (see ICD9 and ICD10 code lists 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 insomnia.

(continued on next page)

[1] National Institutes of Health. NIH State of the Science Conference Statement on Manifestations and Management of Chronic Insomnia in Adults. *Sleep*. 2005; 28:1049-1057.
[2] Naval Safety Center. Fatigue: The Importance of Proper Rest. Approach: *The Navy & Marine Corps Aviation Safety Magazine*. 2007; 52(5):3-32.
[3] Braunwald, E., Fauci, A., Longo, D. et al. 2008. *Harrison's Principles of Internal Medicine.* 17th ed. United States: McGraw-Hill Professional.
[4] Armed Forces Health Surveillance Center. Insomnia, Active Component, U.S. Armed Forces, January 2000-December 2009. *Medical Surveillance Monthly Report (MSMR)*; 2010 May; Vol 17(5): 8-11.

Case Definition and Incidence Rules *(continued)*

- An individual may be considered an incident case only *once per year*.

Exclusions:

- None

Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Insomnia	*F51.0 (insomnia not due to a substance or known physiological condition)*	--
	- F51.01 (primary insomnia)	307.42 (persistent disorder of initiating or maintaining sleep)
	- F51.02 (adjustment insomnia)	307.41 (transient disorder of initiating or maintaining sleep)
	- F51.03 (paradoxical insomnia)	307.42 (above)
	- F51.04 (psychophysiologic insomnia)	327.02 (insomnia due to mental disorder)
	- F51.05 (insomnia due to other mental disorder)	
	- F51.09 (other insomnia not due to a substance or known physiological condition)	307.41 (above)
	G47.0 (insomnia)	--
	- G47.00 (insomnia, unspecified)	780.52 (insomnia unspecified)
	- G47.01 (insomnia due to a medical condition)	327.00 (organic insomnia, unspecified)
		327.01 (insomnia due to medical condition classified elsewhere)
	- G47.09 (other insomnia)	327.09 (other organic insomnias)

Development and Revisions

- In November of 2015 the case definition was updated to include ICD10 codes.
- The case definition for insomnia was developed based on reviews of the ICD9 and ICD10 codes, the scientific literature, and previous AFHSC analyses. The case definition was developed by the AFHSC MSMR staff for a May 2010 MSMR article on insomnia.

Case Definition and Incidence Rule Rationale

- The 2010 *MSMR*[4] article, for which this case definition was developed, stated "This analysis did not seek to capture transient, limited or acute episodes of insomnia; rather, it was designed to detect more persistent, chronic cases." In turn, cases that were diagnosed in the outpatient setting required at least two insomnia-related visits *within a 90-day period*. The requirement for two visits may have represented an attempt to differentiate individuals who had only one visit and who therefore might be assumed to have mild, easily treated, or transient insomnia from individuals whose second visit within the 90-day period may have indicated more severe or persistent insomnia. The ICD9 codes used in the case definition included both "persistent" and "transient" disorders of initiating or maintaining sleep but the designers of the case definition may have felt that second visits indicated not only a confirmation of the diagnosis (increased specificity) but also of severity and duration. Unfortunately, the ICD10 codes do not use either of the terms "persistent" or "transient" so the requirement for multiple visits may be appropriate in an attempt to avoid including cases of transient insomnia.

  The DSM-V defines insomnia as "episodic" if symptoms are present for a period of one month to within 3 months, or "persistent" if symptoms last longer than 3 months.[5] Accordingly, investigators may wish to increase the interval for the two outpatient visits to increase the specificity of the case definition to more accurately capture cases of chronic insomnia. However, recurrent insomnia is defined as two or more episodes within a year. Using ICD codes from administrative health care records may not permit distinguishing recurrent insomnia from persistent insomnia or from repeated episodes of transient insomnia. On the other hand, the requirement of two outpatient visits within 90 days may be sufficient to capture more chronic cases of insomnia. According to the National Sleep Foundation, "there is no definitive test for insomnia." Providers use a variety of tools to diagnose and measure insomnia symptoms that may or may not include the length of time symptoms are present. Investigators should consider the above factors in designing the case definition for a study of insomnia using administrative health care records.

- This case definition does not distinguish primary and secondary insomnia. The decision to analyze primary and secondary insomnias together was informed by a National Institutes of Health consensus panel which concluded that insomnia that co-occurs with other conditions should be considered comorbid insomnia rather than secondary insomnia.[6] The distinction is important because the cause-effect relationships between insomnia and most co-occurring conditions have not been definitively established.[7]

Code Set Determination and Rationale

- The code set was selected after a review of the scientific literature and of the relevant codes in the International Classification of Diseases, 9th Revision.

Reports

None

[5] *The Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; *DSM–5*; American Psychiatric Association, 2013)

[6] National Institutes of Health; NIH State of the Science Conference Statement on Manifestations and Management of Chronic Insomnia in Adults. *Sleep*. 2005; 28:1049-1057.

[7] Sarsour K, Morin CM, Foley K, Kalsekar A, Walsh JK. Association of insomnia severity and comorbid medical and psychiatric disorders in a health plan-based sample: Insomnia severity and comorbidities. *Sleep Med*. 11(1):69-74.

Review

Nov 2015	Case definition reviewed and updated by the AFHSB Surveillance Methods and Standards (SMS) working group.
Mar 2012	Case definition reviewed and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
May 2010	Case definition developed and reviewed by the AFHSC MSMR staff.

Comments

None