MULTIPLE SCLEROSIS

Includes Other Demyelinating Diseases of the Central Nervous System

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. Multiple sclerosis (MS) often manifests for the first time in the age range of most military members and MS-related disabilities can degrade the operational capabilities of affected service members.

Clinical Description

Multiple sclerosis is an autoimmune disease of the central nervous system. It is characterized by inflammation, demyelination, and axon degeneration resulting in impaired nerve conduction. The signs and symptoms vary and may include weakness, painful muscle spasms, bladder dysfunction, vision disturbances, impaired speech or swallowing, tremor, poor balance, difficulty with coordination, and cognitive impairment. The clinical course of MS varies from patient to patient; however, the usual course is characterized by recurrent clinical exacerbations. Exacerbations can produce new deficits, worsen persistent deficits, or resolve with complete recovery. In some cases, the disease progresses with worsening disabilities that can be life-threatening. [1]

Case Definition and Incidence Rules

For surveillance purposes, a case of multiple sclerosis is defined as:

- *One hospitalization* with a defining diagnosis of multiple sclerosis (see ICD9 and ICD10 code lists below) in *any* diagnostic position; or

- *Two outpatient medical encounters*, *at least 1 day apart*, with a defining diagnosis of multiple sclerosis (see ICD9 and ICD10 code lists below) in *any* diagnostic position; or

- *One hospitalization or one outpatient medical encounter* with any of the defining diagnoses of "other demyelinating diseases of the central nervous system" (see ICD9 and ICD10 code lists below) in *any* diagnostic position, followed by *one outpatient medical encounter* with a defining diagnosis of multiple sclerosis 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 diagnosis of multiple sclerosis or a case defining diagnoses of "other demyelinating diseases of the central nervous system".

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[1] Armed Forces Health Surveillance Center. Multiple Sclerosis, Active Component, U.S. Armed Forces, 2000-2009. *Medical Surveillance Monthly Report (MSMR).* 2011 January; 18(1): pp. 12-15.

Case Definition and Incidence Rules *(continued)*

- An individual can be considered an incident case *once per lifetime*.

Exclusions:

- None

Codes

The following ICD9 and ICD10 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Multiple sclerosis	G35 (multiple sclerosis)	340 (multiple sclerosis)
Other demyelinating diseases of the central nervous system	*G36 (other disseminated demyelination)*	--
	- G36.0 (neuromyelitis optica [Devic])	341.0 (neuromyelitis optica)
	- G36.1 (acute and subacute hemorrhagic leukoencephalitis [Hurst]	341.8 (below)
	- G36.8 (other specified acute disseminated demyelination]	
	- G36.9 (acute disseminated demyelination, unspecified]	341.9 (below)
	G37 (other demyelinating diseases of central nervous system)	*341 (other demyelinating diseases of the central nervous system)*
	- G37.0 (diffuse sclerosis of central nervous system)	341.1 (schilder's disease)
	- G37.1 (central demyelination of corpus callosum)	341.8 (below)
	- G37.2 (central pontine myelinolysis)	
	- G37.3 (acute transverse myelitis in demyelinating disease of central nervous system)	341.2 (acute transverse myelitis)
		- 341.20 (acute transverse myelitis not otherwise specified)
		- 341.21 (acute transverse myelitis in conditions not classified elsewhere)
		- 341.22 (idiopathic transverse myelitis)
	- G37.4 (subacute necrotizing myelitis of central nervous system)	341.8 (below)
	- G37.5 (concentric sclerosis [Balo] of central nervous system)	341.1 (above)

	- G37.8 (other demyelinating diseases of central nervous system)	341.8 (other demyelinating diseases of central nervous system)
	- G37.9 (demyelinating disease of central nervous system, unspecified)	341.9 (demyelinating disease of central nervous system, unspecified)

Development and Revisions

- In December of 2016 the case definition was updated to include ICD10 codes.

- This case definition was developed in January of 2011 by a preventive medicine resident doing a rotation at AFHSC for a *Medical Surveillance Monthly Report (MSMR)* on multiple sclerosis.[1] Neurology experts from the Uniformed Services University of the Health Sciences (USUHS) were consulted during the development of this definition. The definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- This surveillance case definition is designed to identify as many "true cases" of MS as possible while limiting the number of "false positive" cases.

Code Set Determination and Rationale

- The diagnosis of multiple sclerosis often requires two or more clinically distinct episodes of central nervous dysfunction with at least partial resolution between episodes. As such, the first medical encounter for a patient with symptoms of a demyelinating episode suggestive of MS may be characterized and recorded as a nonspecific or "other demyelinating disease of the central nervous system." For this reason, ICD9 codes 341.xx (other demyelinating diseases of the central nervous system) are used as first encounter criteria for case identification.

Reports

AFHSB reports on multiple sclerosis in the following reports:

- None

Review

Dec 2016   Case definition reviewed and updated by the AFHSB Surveillance Methods and Standards (SMS) working group.

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

Jan 2011   Case definition developed by a USUHS preventive medicine resident and reviewed by AFHSC MSMR staff.

Comments

Limitations of case definition and MS surveillance: Multiple sclerosis is a clinical diagnosis with no confirmatory laboratory or radiologic tests; as such, it can be difficult to diagnose. If many provisional or "rule-out" diagnoses were reported with MS-specific diagnosis codes, the actual incidence rate of MS in military members would be overestimated. Similarly, incidence could be underestimated if

active component members sought medical care from sources other than the military health system or purchased care providers; if clinical manifestations of MS were not identified as MS-related or not reported with MS-specific diagnosis codes; or if affected individuals terminated their military service before the case definition criteria were met.[1]