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ARTHROPOD-BORNE HEMORRHAGIC FEVER

For Dengue fever, see “Dengue fever” case definition

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.

Clinical Description

Arthropod-borne hemorrhagic fevers are a diverse group of viral illnesses. The viral hemorrhagic fevers are transmitted by an arthropod vector such as a tick or mosquito. Clinical signs and symptoms may include high fever, decreased white blood cell count, altered mental status, local hemorrhage, and low blood pressure. Severe cases may result in shock due to severe vascular instability and decreased vascular integrity.¹

Case Definition and Incidence Rules

For surveillance purposes, a case of arthropod-borne hemorrhagic fever is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of arthropod-borne hemorrhagic fever (see ICD9 code list below) in any diagnostic position; or
- *Two outpatient medical encounters*, occurring within 60 days of each other, with any of the defining diagnoses of arthropod-borne hemorrhagic fever (see ICD9 code list below) in any diagnostic position; two encounters with the same ICD9 code for a specific virus type are not required to define a case; or
- One record of a reportable medical event of a confirmed case of arthropod-borne hemorrhagic fever.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event or the first inpatient or outpatient medical encounter that includes a defining diagnosis of arthropod-borne hemorrhagic fever.
- An individual is considered an incident case only *once per 365 days*.

Exclusions:

- None

¹ “Viral Hemorrhagic Fevers.” Centers for Disease Control and Prevention, Special Pathogens Branch. <http://www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/vhf.htm>. Accessed: October 21, 2011.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM Codes
Arthropod-borne hemorrhagic fever	065.0 (Crimean hemorrhagic fever) 065.1 (Omsk hemorrhagic fever) 065.2 (Kyasanur Forest disease) 065.3 (other tick-borne hemorrhagic fever) 065.4 (mosquito-borne hemorrhagic fever) 065.8 (other specified arthropod-borne hemorrhagic fever) 065.9 (arthropod-borne hemorrhagic fever, unspecified)

Development and Revisions

This case definition was developed by AFHSC staff for the Annual Vector Borne Reports, which provide information on cases of vector-borne illnesses during the last 10 years, including detail by Service for active component, Reserve/Guard, and other beneficiaries. The case definition for arthropod-borne hemorrhagic fever was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Code Set Determination and Rationale

- Arthropod-borne hemorrhagic serotypes are not delineated in the ICD9 codes so this granularity of detail cannot be conveyed using the existing administrative data source.
- The following conditions are not included in this code set for arthropod-borne hemorrhagic fevers: Chikungunya fever (ICD9 code: 066.3), Yellow fever (ICD9 code: 060), and Dengue (ICD9 code: 061). See specific condition for case definition and code see.

Case Definition and Incidence Rule Rationale

- To capture possible cases of arthropod-borne hemorrhagic fever, an interval of 60 days between outpatient encounters is used to increase specificity. Individuals presenting with clinical symptoms would likely have a follow-up visit within 60 days of their initial visit; however, to allow time to elapse for laboratory confirmation, the interval of 60 days was chosen.

Reports

AFHSC reports on arthropod-borne hemorrhagic fever in the following reports:

- Annually: “Annual Arthropod-Borne Hemorrhagic Fever Report” released in April of each year, published on the AFHSC website.²
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

² <http://www.afhsc.mil/reports>



Review

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

Comments

Tri-Service Reportable Events: Arthropod-borne hemorrhagic fevers are reportable medical events in the Tri-Service Reportable Events surveillance system; reported under the category of “hemorrhagic fever.”



COCCIDIOIDOMYCOSIS

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 military, coccidioidomycosis is an occupational hazard for those stationed or training in endemic areas and can lead to a significant loss of workdays for those affected.

Clinical Description

Coccidioidomycosis is a respiratory infection caused by *Coccidioides immitis* (*C. immitis*), a naturally occurring fungus found in soil and endemic to the southwestern United States. The infection is mostly asymptomatic; however, in some, the disease manifests as a lower respiratory infection with influenza-like symptoms. Disseminated disease is rare. Because of the infection's non-specific presentation and delayed onset of symptoms, the correct diagnosis and needed treatment may be delayed.¹

Case Definition and Incidence Rules

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

- *One inpatient medical encounter* with any of the defining diagnoses of coccidioidomycosis (see ICD9 code list below) in the *primary* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 14 days* of each other, with any of the defining diagnoses of coccidioidomycosis (see ICD9 code list below) in the *primary* diagnostic position.
- One record of a reportable medical event of coccidioidomycosis.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event, inpatient medical encounter, or outpatient medical encounter (prioritized in that order) that includes a diagnosis of coccidioidomycosis.
- An individual is considered an incident case only *once per lifetime*.

Exclusions:

- None

¹ Armed Forces Health Surveillance Center (AFHSC). Surveillance Snapshot: Coccidioidomycosis diagnoses by location, active component, 2000-2009. *Medical Surveillance Monthly Report (MSMR)*. 2010 Dec; 17(12):13.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Coccidioidomycosis	114.0 (primary coccidioidomycosis - pulmonary) 114.1 (primary extrapulmonary coccidioidomycosis) 114.2 (coccidioidal meningitis) 114.3 (other forms of progressive coccidioidomycosis) 114.4 (chronic pulmonary coccidioidomycosis) 114.5 (pulmonary coccidioidomycosis, unspecified) 114.9 (coccidioidomycosis, unspecified)	NA

Development and Revisions

The case definition for coccidioidomycosis was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC requests. The case definition was developed by Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR “snapshot” article for the December 2010 edition.

Case Definition and Incidence Rule Rationale

- The symptoms of coccidioidomycosis are non-specific and health care providers may include the condition in the differential diagnosis for an individual prior to making a definitive diagnosis. As such, the case definition requires two outpatient visits to confirm a true case. The diagnosis is also limited to the primary diagnostic position in order to improve the specificity of the case definition.

Code Set Determination and Rationale

- The ICD9 codes 114.x were included to use all possible descriptions and sequelae unique to coccidioidomycosis.

Reports

AFHSC reports on coccidioidomycosis in the following reports:

- 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), through December 2011; includes only reportable medical events.
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.



Review

Feb 2011	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
Dec 2010	Case definition developed and reviewed by AFHSC MSMR staff.

Comments

None



DENGUE FEVER

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.

Clinical Description

Dengue fever is a mosquito-borne illness caused by one of four dengue viruses. Although most commonly transmitted by the *Aedes aegypti* mosquito in the Western hemisphere, there has been evidence of transmission by *Aedes albopictus*¹. Dengue is clinically characterized by sudden onset of fever, severe headache, myalgias and arthralgias, leucopenia, thrombocytopenia and hemorrhagic manifestations. Dengue occasionally produces shock and hemorrhage, which may lead to death.²

Case Definition and Incidence Rules

For surveillance purposes, a case of Dengue fever is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of Dengue fever (see ICD9 code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 60 days of each other*, with any of the defining diagnoses of Dengue fever (see ICD9 code list below) in *any* diagnostic position; or
- One record of a reportable medical event of a confirmed case of Dengue fever.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event, inpatient or outpatient medical encounter that includes a defining diagnosis of Dengue fever.
- An individual is considered an incident case only *once per 365 days*.

Exclusions:

- None

¹ "Dengue: Frequently Asked Questions." Centers for Disease Control and Prevention. <http://www.cdc.gov/Dengue/faqFacts/index.html>. Accessed on: Oct 21, 2011.

² "Dengue: Fact Sheet." Centers for Disease Control and Prevention. <http://www.cdc.gov/Dengue/faqFacts/fact.html>. Accessed on: Oct 21, 2011



Codes

The following ICD9 code is included in the case definition:

Condition	ICD-9-CM Codes
Dengue fever	061 (Dengue fever)

Development and Revisions

This case definition was developed by AFHSC staff for the Annual Vector Borne Reports, which provide information on cases of vector-borne illnesses during the last 10 years, including detail by Service for active component, Reserve/Guard, and other beneficiaries. The case definition for Dengue fever was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Code Set Determination and Rationale

- Dengue hemorrhagic fever (ICD9 code: 065.4) is not included in the case definition because it is a non-specific code for mosquito-borne hemorrhagic fever and may refer to cases of hemorrhagic fevers caused by other pathogens.
- Dengue virus serotypes are not delineated in the ICD9 codes so this granularity of detail cannot be conveyed using the existing administrative data source.

Case Definition and Incidence Rule Rationale

- To capture possible cases of Dengue fever, an interval of 60 days between outpatient encounters is used to increase specificity. Individuals presenting with clinical symptoms would likely have a follow-up visit within 60 days of their initial visit; however, to allow time to elapse for laboratory confirmation, the interval of 60 days was chosen.

Reports

AFHSC reports on Dengue fever in the following reports:

- Annually: “Annual Dengue Fever Report” released in April of each year; published on the AFHSC website.³
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

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

Comments

Tri-Service Reportable Events: Dengue Fever is a reportable medical event in the Tri-Service Reportable Events surveillance system.

³ <http://www.afhsc.mil/reports>



HEPATITIS A

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. Epidemics of hepatitis A threaten wartime operations, particularly in highly endemic areas and during unstable (e.g., rapidly changing) field conditions.¹ In response, in 1995 the Department of Defense mandated screening and hepatitis A immunization of immunologically naïve individuals entering the military and for service members assigned or deployed to geographic areas of high endemicity.²

Clinical Description

Hepatitis A virus (HAV) causes inflammatory liver disease (hepatitis) in affected individuals. The virus is spread through fecal-oral transmission, often through contaminated food, drink, or objects handled by infected persons. HAV infections range from an asymptomatic or mild illness to a severe illness that lasts for months. HAV infections do not cause chronic hepatitis. Recovery from HAV infection is associated with lifelong immunity against a repeat infection.³

Case Definition and Incidence Rules

For surveillance purposes, a case of hepatitis A is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of hepatitis A (see ICD9 code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 14 days* of each other, with any of the defining diagnoses of hepatitis A (see ICD9 code list below) in *any* diagnostic position; or
- One record of a reportable medical event of a confirmed case of hepatitis A.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event report, inpatient encounter or outpatient medical encounter that includes a defining diagnosis of hepatitis A
- An individual is considered an incident case only *once per lifetime*.

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¹ Hoke CE, Binn LN, Egan JE, DeFraites RF. Hepatitis A in the US Army: epidemiology and vaccine development. *Vaccine*. 1992; 10(1):S75-S79.

² Armed Forces Epidemiological Board. Memorandum for the Assistant Secretary of Defense (Health Affairs) and the Surgeons General of the Army, Navy, and Air Force, subject: Recommendations regarding the use of the newly licensed hepatitis A vaccine in military personnel. Department of Defense, Falls Church, Virginia, 28 February 1995.

³ Armed Forces Health Surveillance Center. Viral Hepatitis A, Active Component, U.S. Armed Forces, 2000-2010. *Medical Surveillance Monthly Report (MSMR)*; 2011 August; Vol 18(8): 2-4.



Case Definition and Incidence Rules (cont.)

Exclusions:

- Medical encounters with evidence of hepatitis A immunization within one week before or after the case-defining encounter. The following vaccine administered (CVX) codes are used to identify instances of hepatitis A immunization : 031, 052, 083, 084, 085, 104.
- Cases in which the affected individual had a hepatitis A medical encounter prior to the surveillance period.

Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM Codes	CPT Codes
Hepatitis A	070.0 (viral hepatitis A with hepatic coma) 070.1 (viral hepatitis A without mention of hepatic coma – infectious hepatitis)	NA

Development and Revisions

This case definition for hepatitis A was developed in August 2011 by the Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR article on hepatitis A.³ The case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- Case finding for this definition prioritizes reportable medical events over inpatient medical encounters over outpatient medical encounters.
- To capture possible cases of hepatitis A *not* reported through the Tri-Service Reportable Events (TRE) reporting system, an interval of 14 days between outpatient visits is used to increase specificity. Individuals who are acutely ill at the time of presentation would likely have a follow-up visit within 2 weeks of the initial visit to monitor clinical and laboratory indicators of disease. Further, a 14 day interval is used to prevent the confounding of “true case” outpatient medical encounters with possibly miscoded immunization visits for the combined hepatitis A and hepatitis B vaccine (Twinrix), which has a vaccine schedule of 0,1 and 6 months.

Reports

AFHSC reports on hepatitis A in the following reports:

- Annual MSMR article: Sentinel reportable events summary report; published in January
- 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 Month Report (MSMR), through December 2010; includes only reportable medical events.



- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

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

Comments

None



HEPATITIS B

Includes Acute and Chronic Infection

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of acute hepatitis B and chronic hepatitis B. Hepatitis B degrades the health and military operational capabilities of those affected and demands significant health care resources for its clinical management.¹ In the U.S. military, potential applicants are considered medically ineligible for service if they have current acute or chronic hepatitis, hepatitis carrier state, clinically apparent hepatitis within the preceding six months, persistent symptoms of hepatitis, or evidence of liver function impairment.² New service members are screened for immunity to hepatitis B virus on the basis of serological evidence of immunity or documentation of previous receipt of hepatitis B vaccine. The vaccine is given to those without evidence of immunity.

Clinical Description

Hepatitis B virus (HBV) causes an inflammatory liver disease (hepatitis B) in affected individuals. The virus is spread by percutaneous or mucous membrane exposure to infected blood or body fluids. Risk factors include high-risk sexual activity, illegal injection drug use, and birth to an infected mother. Most adults who become infected with HBV develop acute hepatitis B and then recover completely. A small proportion of those infected with HBV become chronically infected with the virus; of these individuals, most are asymptomatic. A relatively small proportion of those who are chronically infected develop chronic active hepatitis with persistent liver inflammation, tissue damage, and dysfunction. Chronic infection increases the risk of hepatocellular carcinoma.³

Case Definition and Incidence Rules

Applicable independently to cases of acute hepatitis B and to cases of chronic hepatitis B

For surveillance purposes, a case of *acute* or *chronic* hepatitis B is defined as:

- *One inpatient medical encounter* with a defining diagnosis of acute or chronic hepatitis B (see ICD code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 90 days* of each other, with a defining diagnosis of acute or chronic hepatitis B (see ICD code list below) in *any* diagnostic position; or
- One record of a reportable medical event of a confirmed case of hepatitis B (acute cases only).

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¹ Armed Forces Health Surveillance Center. Viral Hepatitis B, Active Component, U.S. Armed Forces, 2000-2010. *Medical Surveillance Monthly Report (MSMR)*; 2011 August; Vol 18(8): 5-9.

² Memorandum for the Assistant Secretaries of the Army, Navy and Air Force, Chairman, Joint Chiefs of Staff, and Executive Director, TRICARE Management Activity. Vaccination of new recruits against hepatitis B. Washington, DC: The Assistant Secretary of Defense, 29 April 2002.

³ Kuper H, Ye W, Broome U, et al. The risk of liver and bile duct cancer in patients with chronic viral hepatitis, alcoholism, or cirrhosis. *Hepatology*. 2001; 34:714-718.



Hepatitis B (Chronic)	070.22 (chronic viral hepatitis B with hepatic coma, without mention of hepatitis delta) 070.23 (chronic viral hepatitis B with hepatic coma, with hepatitis delta) 070.32 (chronic viral hepatitis B without mention of hepatic coma, without mention of hepatitis delta) 070.33 (chronic viral hepatitis B without mention of hepatic coma, with hepatitis delta) V02.61 (hepatitis B carrier)	
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Development and Revisions

This case definition for hepatitis B was developed in August 2011 by the Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR article on hepatitis B.¹ The case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- The 90 day interval between the two outpatient visits is used to increase the sensitivity of the case definition because acute hepatitis B can take 1 to 3 months to resolve and repeat encounters are likely to occur within this time period. Further, the time interval permits medical evaluations to distinguish prolonged courses of acute hepatitis B from chronic hepatitis B.

Reports

AFHSC reports on hepatitis B in the following reports:

- Annual MSMR article: Sentinel reportable events summary report; published in January; includes only reportable medical events.
- 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 Month Report (MSMR), through December 2010; includes only reportable medical events.

Review

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

Comments

None



HEPATITIS C

Includes Acute and Chronic Infection

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of acute and chronic hepatitis C. Hepatitis C degrades the health and military operational capabilities of those affected and demands significant health care resources for its clinical management. Also, the potential presence of hepatitis C in the blood of volunteer donors increases the risks associated with emergency battlefield blood transfusions.¹ In the U.S. military, potential applicants are considered medically ineligible for service if they have current acute or chronic hepatitis, hepatitis carrier state, clinically apparent hepatitis within the preceding six months, persistent symptoms of hepatitis, or evidence of liver function impairment.² Because applicants to military service are not screened for HCV, HCV infected individuals may be able to enter service if they have no signs or symptoms of liver disease, or if they are unaware of, or do not report their infection statuses.

Clinical Description

Hepatitis C virus (HCV) causes acute and chronic inflammation of the liver in affected individuals. The virus is spread by percutaneous or mucous membrane exposure to infected blood or body fluids. Risk factors include illegal injection drug use, poor infection control practices (e.g., needlestick injuries), high-risk sexual activity, and birth to an infected mother. Most acute HCV infections have no or mild clinical effects; however, most HCV infections (75-85%) persist in the liver of the infected individual. Persistent HCV infections, overtime, may manifest as clinically significant liver disease. Chronic hepatitis C increases the risks of life threatening liver diseases such as cirrhosis and hepatocellular carcinoma, particularly when exacerbated by alcohol use. There is no vaccine available to prevent HCV infection.^{3 4}

Case Definition and Incidence Rules

Applicable independently to cases of acute hepatitis C and to cases of chronic hepatitis C

For surveillance purposes, a case of *acute* or *chronic* hepatitis C is defined as:

- *One inpatient medical encounter* with a defining diagnosis of acute or chronic hepatitis C (see ICD9 code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 90 days* of each other, with a defining diagnosis of acute or chronic hepatitis C (see ICD9 code list below) in *any* diagnostic position; or

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¹ Armed Forces Health Surveillance Center. Viral Hepatitis C, Active Component, U.S. Armed Forces, 2000-2010. *Medical Surveillance Monthly Report (MSMR)*; 2011 August; Vol 18(8): 10-14.

² Office of the Secretary of Defense. Department of Defense Instruction 6130.03:Medical Standards for Appointment, Enlistment, or Induction in the Military Services, April 28, 2010. <http://www.dtic.mil/whs/directives/corres/pdf/613003p.pdf>. Accessed: August 11, 2011.

³ Centers for Disease Control and Prevention. Surveillance for acute viral hepatitis-United States, 2007. *MMWR*. 2009 May 22;58 (No.SS-3).

⁴ Alter MJ, Margolis HS, Krawczynski K, et al. The natural history of community-acquired hepatitis C in the United States. *N Engl J Med*. 1992;327:1899-1905.



Case Definition and Incidence Rules (cont.)

- One record of a reportable medical event of a confirmed case of hepatitis C (acute cases only).
- Individuals who have met the case definition of an *acute case* may be considered a subsequent *chronic case* after a single inpatient or outpatient diagnosis of chronic hepatitis C.
- For individuals with diagnoses of both acute and chronic hepatitis C recorded on the same day, all encounters on that day are considered chronic hepatitis C, (i.e., related).

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event report, inpatient encounter or outpatient medical encounter that includes a defining diagnosis of acute or chronic hepatitis C.
- An individual is considered an incident case only *once per lifetime* for acute hepatitis C and *once per lifetime* for chronic hepatitis C.

Exclusions:

- Cases in which the affected individual had a hepatitis C medical encounter prior to the surveillance period.
- Any diagnosis of *acute* hepatitis C recorded *after* a diagnosis of chronic hepatitis C.

Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM Codes	CPT Codes
Hepatitis C (Acute)	070.41 (acute viral hepatitis C with hepatic coma) 070.51 (acute viral hepatitis C without mention of hepatic coma)	NA
Hepatitis C (Chronic)	070.44 (chronic viral hepatitis C with hepatic coma) 070.54 (chronic viral hepatitis C without mention of hepatic coma) 070.70 (unspecified viral hepatitis C without hepatic coma) 070.71 (unspecified viral hepatitis C with hepatic coma) V02.62 (hepatitis C carrier)	



Development and Revisions

This case definition for hepatitis C was developed in August 2011 by the Medical Surveillance Monthly Report (MSMR) staff for use in a MSMR article on hepatitis C.¹ The case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- The 90 day interval between the two outpatient visits is used to increase the sensitivity of the case definition because acute hepatitis C can take 1 to 3 months to resolve and repeat encounters are likely to occur within this time period. Further, the time interval permits medical evaluations to distinguish prolonged courses of acute hepatitis C from chronic hepatitis C.

Reports

AFHSC reports on hepatitis C in the following reports:

- Annual MSMR article: Sentinel reportable events summary report; published in January; includes only reportable medical events.
- 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 Month Report (MSMR), through December 2010; includes only reportable medical events.

Review

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

Comments

None



HERPES ZOSTER

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.

Clinical Description

Herpes zoster, commonly known as “shingles”, results from reactivation of latent varicella-zoster virus in the dorsal root ganglia.¹ Cases of herpes zoster typically present as localized, unilateral vesicular eruptions along nerve pathways with severe pain and numbness in the distribution of the affected nerves.^{2,3} The location of the herpes zoster skin eruption is dependent upon the specific nerve in which the reactivation occurs. There is no curative treatment for herpes zoster; however, prompt antiviral administration may shorten the length of the illness and prevent complications.⁴ A vaccine for shingles⁵ was licensed in 2006. It is recommended for use in people 60 years of age and older to prevent shingles.

Case Definition and Incidence Rules

For surveillance purposes, a case of herpes zoster is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of herpes zoster (see ICD9 code list below) in *any* diagnostic position; or
- *One outpatient medical encounter* with any of the defining diagnoses of herpes zoster (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 inpatient or outpatient medical encounter that includes a defining diagnosis of herpes zoster.
- An individual is considered an incident case only once per lifetime.

Exclusions:

- None

¹ Gnann Jr JW, Whitley RJ. Clinical practice. Herpes zoster. *N Engl J Med.* 2002; 347: 340-346.

² Dworkin RH, Nagasako EM, Johnson RW, et al. Acute pain in herpes zoster: the famciclovir database project. *Pain.* 2001; 94: 113-119.

³ Chidiac C, Bruxelle J, Daures JP, et al. Characteristics of patients with herpes zoster on presentation to practitioners in France. *Clin Infect Dis.* 2001; 33:62-69.

⁴ Tyring S, Barbarash RA, Nahlik JE, et al. Famciclovir for the treatment of acute herpes zoster: effects on acute disease and postherpetic neuralgia: a randomized-double-blind, placebo controlled trial. *Ann Intern Med.* 1995; 123: 89-96.

⁵ “Shingles Vaccination: What You Need to Know.” Centers for Disease Control and Prevention. <http://www.cdc.gov/vaccines/vpd-vac/shingles/vacc-need-know.htm>. Accessed: 7 Sept 2011.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM Codes	CPT Codes
Herpes zoster	053.0 (herpes zoster with meningitis) 053.10 (herpes zoster with unspecified nervous system complication) 053.11 (geniculate herpes zoster – herpetic geniculate ganglionitis) 053.14 (herpes zoster myelitis) 053.19 (herpes zoster with other nervous system complications – other) 053.20-29 (herpes zoster with ophthalmic complications) 053.71-79 (herpes zoster with other specified complications) 053.8 (herpes zoster with unspecified complication) 053.9 (herpes zoster without mention of complication – herpes zoster not otherwise specified)	NA

Development and Revisions

- In September of 2011 the original case definition was revised by the Surveillance Methods and Standards Working group and the exclusions used in the July 2011 MSMR article were removed.
- The original case definition was developed by AFHSC staff in August 2009 for a conference presentation and adapted in July of 2011 for a MSMR article on herpes zoster.⁶ This case definition excluded individuals with known risk factors for herpes zoster (i.e., immune deficiency associated with neoplasms, HIV infection, and organ transplantation). The purpose of these exclusions was to focus the analyses on cases of zoster occurring in service members *without* such known risk factors.⁷

Case Definition and Incidence Rule Rationale

- A lifetime incidence rule is used in this case definition. However, recent studies show that herpes zoster can have a recurrence rate of about 6% in healthy individuals and can have a higher recurrence rate in immunocompromised individuals.⁸

⁶ Armed Forces Health Surveillance Center. Herpes Zoster, Active Component, U.S. Armed Forces, 2000-2010. *Medical Surveillance Monthly Report (MSMR)*; 2011 Jul; Vol 18(7): 16-18.

⁷ Shingles (Herpes Zoster) Clinical Overview. Centers for Disease Control and Prevention. <http://www.cdc.gov/shingles/hcp/clinical-overview.html>. Accessed: 7 Sept 2011.

⁸ Yawn BP, Wollan PC, Kurland MJ, et al. Herpes Zoster Recurrences More Frequent than Previously Reported. *Mayo Clin Proc.* 2011; 86(2): 88-93.



Code Set Determination and Rationale

- The codes 053.12 (postherpetic trigeminal neuralgia) and 053.13 (posherpetic polyneuropathy) were excluded from the list of ICD9 codes because they represent diagnoses of sequelae of herpes zoster rather than codes for an acute case of herpes zoster.

Reports

None

Review

Sep 2011	Case definition revised and adopted by the AFHSC Surveillance Methods and Standards (SMS) working group.
Jul 2011	Case definition adapted reviewed and adapted by the AFHSC MSMR staff.
Aug 2009	Case definition developed by AFHSC staff for conference presentation.

Comments

None



INFLUENZA

Background

Case-reporting for influenza is unique to the US military. The Armed Forces Health Surveillance Center Tri-Service Reportable Medical Events (RME) Guidelines and Case Definitions (2009) define a reportable case of influenza as one that has been laboratory confirmed using one of several methods. The RME requirement to report only *confirmed* cases of influenza is independent of other DoD guidelines for laboratory-based influenza surveillance. Therefore, it is likely that only a small portion of all influenza cases are actually reported.

For the purposes of surveillance of potentially severe outcomes from influenza infectious, the Assistant Secretary of Defense for Health Affairs, Force Health Protection and Readiness, has additionally directed the reporting of all hospital cases of ILI and pneumonia potentially caused by influenza *prior* to laboratory confirmation. Whether or not the case was ultimately laboratory confirmed or not must be updated by the reporting site.¹

Clinical Description

"Influenza is an acute respiratory illness caused by infection with influenza viruses. The illness affects the upper and/or lower respiratory tract and is often accompanied by systemic signs and symptoms such as fever, headache, myalgia, and weakness. Outbreaks of illness of variable extent and severity occur nearly every winter. Such outbreaks result in significant morbidity in the general population and in increased mortality rates among certain high-risk patients, mainly as a result of pulmonary complications.²

Case Definition and Incidence Rules

For surveillance purposes, a case of *influenza* is defined as:

- One record of a reportable medical event of influenza.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of onset documented in the case report.
- An individual is considered an incident only *once per influenza season*.

Exclusions:

- None

¹ Assistant Secretary of Defense – Force Health Protection and Readiness: *Memorandum: Enhanced Influenza Surveillance*, Washington, DC; October 11, 2009.

² Braunwald, E., Fauci, A., Longo, D. et al. 2008. *Harrison's Principles of Internal Medicine*. 17th ed. United States: McGraw-Hill Professional.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Influenza	487.xx (influenza) 487.0 (influenza with pneumonia) 487.1 (influenza with other respiratory manifestations) 487.8 (influenza with other manifestations)	NA

Development and Revisions

2009	Update of Tri-Service Reportable Medical Events guidelines: additional acceptable laboratory methods that may be used for influenza confirmation added.
1998	Clinical surveillance case definition for influenza developed for the Tri-Service Reportable Medical Events sentinel surveillance and reporting system. ³

Code Set Determination and Rationale

- ICD9 code 488.xx (influenza due to certain identified avian influenza virus) is currently not included in the code set for influenza.

Reports

AFHSC reports on “influenza” in the following reports:

- 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), through December 2011; includes only reportable medical events.

Review

Dec 2010	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
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Comments

None

³ Armed Forces Health Surveillance Center. Tri-Service Reportable Events: Guidelines and Case Definitions. June 2009. Found at: <http://afhsc.army.mil/reportableEvents>



INFLUENZA LIKE ILLNESS (ILI)

Includes Influenza

Background

In the summer of 2007, in recognition of a lack of DoD-wide influenza surveillance data, the Army Medical Surveillance Activity, now the Armed Forces Health Surveillance Center (AFHSC), developed this case definition.

Clinical Description

Influenza-like Illness (ILI) is a category of nonspecific respiratory illness defined by the presence of a fever (temperature of 100°F [37.8°C] or greater) and a cough or a sore throat in the absence of a known cause other than influenza. Synonyms include Acute Respiratory Infection (ARI). Any clinical diagnosis of influenza is considered a diagnosis of ILI, not of influenza, until confirmed by laboratory testing (*Centers for Disease Control and Prevention*).

Case Definition and Incidence Rules

For surveillance purposes, a case of *influenza-like illness* is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of “influenza-like illness” (see ICD9 code list below) in *any* diagnostic position; or
- *One outpatient medical encounter* with any of the defining diagnoses of “influenza-like illness” (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* inpatient or outpatient medical encounter that includes a defining diagnosis of influenza-like illness.
- An individual can be an incident case only *once per week*.

Exclusions:

- None



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Influenza-like Illness	079.99 (unspecified viral infection) 382.9 (unspecified otitis media) 460.xx (acute nasopharyngitis) 461.9 (acute sinusitis, unspecified) 465.8 (acute upper respiratory infections, other multiple sites) 465.9 (acute upper respiratory infections, unspecified sites) 466.0 (acute bronchitis) 486 (pneumonia, organism unspecified) 487.xx (influenza) - 487.0 (influenza with pneumonia) - 487.1 (influenza with other respiratory manifestations) - 487.8 (influenza with other manifestations) 488.xx (influenza due to certain identified avian or novel influenza virus) 490 (bronchitis, not specified as acute or chronic) 780.6x (fever and other physiologic disturbances of temperature regulation) 786.2 (cough)	NA

Development and Revisions

This case definition was developed in July 2007 by the Special Studies Lead and the Chief of the Army Medical Surveillance Activity.

Code Set Determination and Rationale

- ICD9 code 488.xx (Influenza due to certain identified influenza viruses) was added to the case definition in November 2009 to identify cases caused by other influenza strains, such as the avian influenza (H5N1) (488.0x) or novel pandemic (H1N1) (488.1x) strains.



- Codes were initially selected based on a publication in the Emerging Infectious Diseases Journal that determined which ICD9 codes had the highest correlation with culture-confirmed influenza cases in the DoD.¹

Reports

AFHSC reports on influenza-like illness in the following reports:

- Weekly: Armed Forces Health Surveillance Center, Military Health System (MHS) Influenza Surveillance Report, Weekly Report of Activity
- Weekly: DoD Weekly Influenza Surveillance Summary
- Annually: Armed Forces Health Surveillance Center, Military Health System (MHS) Report, 2009-2010 Influenza Season, Final Report (*most recent*)

Review

Dec 2010	Case definition reviewed and adopted by AFHSC Surveillance Methods and Standards (SMS) working group.
Jan 2008	Case definition and report reviewed and approved by the Director of the AFHSC.
Jul 2007	Case definition developed and reviewed by the Special Studies Lead and the Chief of the Army Medical Surveillance Activity

Comments

ILI Surveillance through ESSENCE: The Armed Forces Health Surveillance Center produces a weekly report: ILI as detected in ESSENCE (Electronic Surveillance System for the Early Notification of Community-based Epidemics). The external ESSENCE system, hosted by TMA, has a slightly different case definition for ILI. It does not include ICD9 codes 465.8, 487.xx, or 488.xx.

¹ Marsden-Haug N, Foster VB, Gould PL, Elbert E, Wang H, Pavlin JA. Code-based syndromic surveillance for influenzalike illness by International Classification of Diseases, Ninth Revision. *Emerg Infect Dis* 2007. 13(2):207-16.



LEISHMANIASIS

Background

This case definition was developed by AFHSC for the purpose of epidemiological surveillance of a condition important to military-associated populations.

Clinical Description

Leishmaniasis is typically a zoonosis with a variety of mammalian reservoir hosts, including canines and rodents. The vectors are female phlebotomine sand flies. Leishmaniasis is endemic in the Americas from northern Argentina to southern Texas, southern Europe, Asia, the Middle East, and Africa, but not in Australia or Oceania.

Organisms of the genus *Leishmania* cause two major forms of disease:

1. Cutaneous and Mucosal/Mucocutaneous: Appearance of one or more lesions on uncovered parts of the body. The face, neck, arms and legs are the most common sites. A nodule appears at the site of inoculation, enlarges, and becomes an indolent ulcer. The sore remains in this stage for a variable time before healing, and leaves a depressed scar. Certain strains can disseminate and cause nasopharyngeal mucosal lesions in some individuals, leading to disfigurement.
2. Visceral: A chronic systemic illness with persistent irregular fever, hepatosplenomegaly, lymphadenopathy, pancytopenia and weight loss as its main symptoms. (*Tri-Service Reportable Medical Events Guidelines, 2009*)

Case Definition and Incidence Rules

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

- *One inpatient or outpatient medical encounter* with any of the defining diagnoses of leishmaniasis in *any* diagnostic position (see ICD9 code list below); or
- One record of a reportable medical event of leishmaniasis.
- *If analysis requires “deployment-associated” incident case counts*, the initial defining encounter must have occurred while the individual was deployed to, or within 30 days of returning from, a theater of operations of interest and the deployment must have been for 30 days or longer (see *Development and Revisions* section below).

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first inpatient or outpatient medical encounter that includes a diagnosis of leishmaniasis.
- Each individual is considered an incident case *once per lifetime*.

Exclusions:

- None



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Leishmaniasis	085.0 (Visceral) 085.1 (Cutaneous, urban) 085.2 (Cutaneous, Asian desert) 085.3 (Cutaneous, Ethiopian) 085.4 (Cutaneous, American) 085.5 (Mucocutaneous (American)) 085.9 (Leishmaniasis, unspecified)	NA

Development and Revisions

The case definition was originally developed by the Medical Surveillance Monthly Report (MSMR) staff for the MSMR article referenced below, with surveillance of the condition dating back to January 2003.¹

Deployment-Associated Incident Cases of Leishmaniasis

If an analysis requires “deployment-associated” incident case counts, AFHSC includes the restriction described above under *Case Definition and Incidence Rules*.

As of November 2010, AFHSC includes the following operations as associated with deployment in their TBI analyses: Enduring Freedom (OEF), Iraqi Freedom (OIF), and New Dawn (OND).

The specification of “within 30-days of returning” represents the best judgment of a reasonable time frame to allow for post-deployment screening to prompt medical evaluations that result in the diagnosis of leishmaniasis. When estimating “deployment-associated” incident cases, it should be noted that a causal association for leishmaniasis due to an event that occurred during a deployment or direct combat cannot be determined using data available to AFHSC.

Reports

AFHSC reports on leishmaniasis in the following reports:

- Monthly: Armed Forces Health Surveillance Center. *Deployment-related conditions of special surveillance interest, U.S. Armed Forces, by month and service*. Medical Surveillance Monthly Report (MSMR).
- 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), through December 2011; includes only reportable medical events.
- Monthly: Listing of leishmaniasis cases to the infectious disease service at Walter Reed Army Medical Center; includes only reportable medical events.

¹ Armed Forces Health Surveillance Center. Leishmaniasis Among U.S. Armed Forces, January 2003-November 2004. *Medical Surveillance Monthly Report (MSMR)*. 2004 Nov/Dec; Vol 10(6): 2-4.



- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

July 2010	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
Nov 2004	Case definition developed and reviewed by AFHSC MSMR staff.

Comments

None



LYME DISEASE

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.

Clinical Description

Lyme disease is a zoonotic tick-borne disease that is caused by infection with a spirochetal bacterium of the genus *Borrelia*. Clinical manifestations include dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The most significant clinical marker for the disease is erythema migrans, the initial skin lesion that occurs in 60-80% of patients. The disease has a worldwide distribution and is endemic in many temperate regions of the northern hemisphere. In the United States, it is hyperendemic along the mid- and northeastern Atlantic seaboard and in nonurban areas of Wisconsin.¹

Case Definition and Incidence Rules

For surveillance purposes, a case of Lyme disease is defined as:

- *One inpatient medical encounter* with the defining diagnosis of Lyme disease (see ICD9 code list below) in *any* diagnostic position; or
- *Two or more outpatient medical encounters*, occurring no more than 60 days apart, with the defining diagnosis of Lyme disease (see ICD9 code list below) in *any* diagnostic position.
- One record of a reportable medical event of Lyme disease.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first inpatient or outpatient medical encounter, or record of reportable medical event, that includes a diagnosis of Lyme disease.
- An individual is considered an incident case only *once per lifetime*.

Exclusions:

- None

¹ Armed Forces Health Surveillance Center. Lyme disease among U.S. military members, Active and Reserve Component, 2001-2008. *Medical Surveillance Monthly Report (MSMR)*. 2009 Jul; Vol 16(7): 2-4.



Codes

The following ICD9 code is included in the case definition:

Condition	ICD-9-CM Codes	CPT Codes
Lyme Disease	088.81 (other specified arthropod-borne disease – Lyme disease)	NA

Development and Revisions

- In December of 2010, the case definition was modified to increase sensitivity of the case definition for an annual AFHSC Lyme disease report for the Armed Forces Pest Management Board (AFPMB). Changes included the following:
 - Expanded the ICD9 location to “any diagnostic position” for both inpatient and outpatient encounters.
 - Changed the case definition for outpatient encounters, “to “*Two or more* medical encounters, occurring *no more than 60 days apart*, in any diagnostic position.”
- The original case definition for Lyme disease was developed in July of 2009 for the MSMR article referenced above.¹ The original case definition for inpatient encounters limited the ICD9 location to diagnostic “positions 1 through 3” and for outpatient encounters used “*Three or more* encounters, occurring *at least 7 days apart*, in the *primary* diagnostic position”.

Case Definition and Incidence Rule Rationale

- Although an individual may become infected with Lyme disease more than once, a lifetime incidence rule is used because it is difficult to distinguish a new case from a recurrent case with persistent sequelae using administrative records.

Reports

AFHSC reports on Lyme disease in the following reports:

- Annually: Annual Lyme Disease Report for the AFPMB released in April of each year.
- Monthly: Armed Forces Health Surveillance Center *Sentinel reportable events among service members and beneficiaries at U.S. Army, Navy, Air Force medical facilities*. Medical Surveillance Monthly Report (MSMR), through December 2011; includes only reportable medical events.
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

Apr 2011	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
Jan 2011	Case definition developed and reviewed by AFHSC staff.

Comments

None



MALARIA

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) for the purpose of epidemiological surveillance of malaria, and is used for an annual AFHSC Medical Surveillance Monthly Report (MSMR) article on malaria. Malaria is recognized as a disease of military operational significance. U.S. service members are at risk of malaria when they are permanently assigned to endemic areas, when they participate in operations in endemic areas, and when they visit malarious areas during personal travel.¹

Clinical Description

Malaria is a disease caused by protozoan parasites of the genus *Plasmodium*. The most serious forms of the disease are caused by *Plasmodium falciparum* and *Plasmodium vivax*, but other related species (*Plasmodium ovale*, *Plasmodium malariae*, and *Plasmodium knowlesi*) also infect humans. Malaria parasites are transmitted by female *Anopheles* mosquitoes. The parasites multiply within red blood cells, causing symptoms that include fever, anemia, chills, flu-like illness, and in severe cases, coma and death.²

Case Definition and Incidence Rules

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

1. One record of a reportable medical event of malaria; or
2. *One inpatient medical encounter* with any of the defining diagnoses of malaria (see ICD9 code list below) in the *primary* diagnostic position; or
3. *One inpatient medical encounter* due to a specific *Plasmodium* species diagnosis (ICD9 codes: 084.0-084.3) in a *non-primary* diagnostic position; or
4. *One inpatient medical encounter* with any of the defining diagnoses of malaria (see ICD9 code list below) in *diagnostic positions 2 through 4*; AND
 - Any diagnoses of signs, symptoms, or other clinical abnormalities consistent with malaria (see ICD9 code list below)³ in *any* diagnostic position antecedent to malaria; or
5. *One inpatient medical encounter* with any of the defining diagnoses of malaria (see ICD9 code list below), in *diagnostic positions 2 through 5*; AND
 - At least 2 signs, symptoms, or other clinical abnormalities consistent with malaria in *any* other diagnostic position; or

(continued on next page)

¹ Armed Forces Health Surveillance Center. Update: Malaria, U.S. Armed Forces, 2010. *Medical Surveillance Monthly Report (MSMR)*. 2011 Jan; Vol 18(1): 2-6.

² Mandell, G. L., Bennett, J. E., Dolin, R. 2010. *Mandell, Douglas, and Bennett's Principles and Practice of Infectious Disease*. 7th ed. Philadelphia: Churchill Livingstone.



Signs, symptoms, or other clinical abnormalities consistent with malaria ³	276.2 (acidosis) 518.82 (other pulmonary insufficiency, not elsewhere classified) 584.9 (acute renal failure, unspecified) 723.1 (cervicalgia) 724.2 (lumbago) 780.0 (alteration of consciousness) 780.1 (hallucinations) 780.3 (convulsions) 780.6 (fever and other physiologic disturbances of temperature regulation) 780.7 (malaise and fatigue) 780.97 (altered mental status) 782.4 (jaundice, unspecified, not of newborn) 784.0 (headache) 786.09 (dyspnea and respiratory abnormalities - other) 786.2 (cough) 786.52 (painful respiration) 786.59 (chest pain - other) 787.0 (nausea and vomiting) 789.2 (splenomegaly) 790.4 (nonspecific elevation levels of transaminase or lactic acid dehydrogenase [LDH])	
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Development and Revisions

The case definition was developed by the AFHSC MSMR staff for the MSMR article referenced above.¹

In January 2011, the AFHSC staff revised the case definition for the annual malaria report by making several case identification additions to improve sensitivity. The original definition consisted of the first two case identification specifications described above under *Case Definition and Incidence Rules*. The revised definition added the last four sets of specifications described above.

Case Definition and Incidence Rule Rationale

- The case definition does not include outpatient encounters. An analysis of outpatient encounters with recorded diagnoses of malaria during 2002-2009 revealed the following: Approximately 93% of such outpatient encounters were associated with a subsequent report of malaria to the Reportable Medical Events System (RMES) within 30 days. When outpatient encounters are included, there also appears to be significant number of false positives.

³ Heymann, D. L. 2004. *Control of Communicable Diseases Manual*. 18th ed. Washington, DC: American Public Health Association.



Code Set Determination and Rationale

- In June 2011, ICD9 code 518.5 (pulmonary insufficiency following trauma and surgery) was removed from the code set following routine AFHSC review. Reviewers felt the specification of trauma and surgery was not relevant to malaria and that the 518.82 code for pulmonary insufficiency was better applicable.
- In June 2011, ICD9 code 790.6 (other abnormal blood chemistry) was removed from the code set following routine AFHSC review. This code applies to blood levels of cobalt, copper, iron, lead, lithium, magnesium, mineral, and zinc which are not related to malaria.
- In January 2011, ICD9 code 647.4 (malaria complicating pregnancy) was added to this definition after an analysis which found that during the past 9 years, every individual diagnosed with this code was also diagnosed with “malaria” during the same inpatient medical encounter. Therefore, it was decided that if the two codes appear in the same inpatient medical encounter, neither code is required to appear in the *primary* diagnostic position.
- ICD9 code 084.7 (therapeutically induced malaria) is *not* included in the code set.
- ICD9 codes 084.4 (other malaria), 084.5 (mixed malaria), 084.8 (Blackwater fever), and 084.9 (other pernicious complications of malaria) are included in this code set. They are currently not included in the case definition for malaria in the Tri-Service Reportable Events Guidelines and Case Definitions.

Reports

AFHSC reports on malaria in the following reports:

- Annual MSMR article; published in January.
- 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), through December 2011; includes only reportable medical events.
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.
- Monthly Malaria Case-Finding Report: Assists Services in identifying additional cases of malaria by leveraging AFHSC’s various data sources that may not be available to the individual Public Health hubs. This case finding report uses reportable medical events, inpatient and outpatient encounter data, TMDS (Theater Medical Data Store), and TRAC²ES (TRANSCOM Regulating Command and Control Evacuation System).

Review

June 2011	Case definition reviewed and revised by AFHSC MSMR staff .
Dec 2010	Case definition presented to the Surveillance Methods and Standards (SMS) working group; recommended review and update.
Jan 2010	Original case definition developed by AFHSC MSMR staff.

Comments

None



MOSQUITO-BORNE VIRAL ENCEPHALITIDES

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.

Clinical Description

The mosquito-borne viral encephalitides are viral diseases transmitted by the bite of an infected mosquito that carries the virus from various vertebrate hosts to humans. Within the United States the most common types of viruses are Eastern equine, Western equine, West Nile, St. Louis, and LaCross encephalitis. Outside the U.S. the most common types are Japanese Encephalitis (JE) and Venezuelan equine encephalitis (VEE). Most human infections are asymptomatic though the viruses are capable of causing nonspecific flu-like symptoms, (e.g., fever, headache, myalgias, malaise and prostration). A small proportion of infected individuals develop encephalitis with associated neurologic sequelae and potentially a fatal outcome.¹

Case Definition and Incidence Rules (cont.)

For surveillance purposes, a case of mosquito-borne viral encephalitis is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of mosquito-borne viral encephalitis (see ICD9 code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 60 days* of each other, with any of the defining diagnoses of mosquito-borne viral encephalitis (see ICD9 code list below) in *any* diagnostic position; two encounters with the same ICD9 code for a specific virus type are not required to define a case; or
- For Japanese encephalitis (JE) only, *five outpatient medical encounters*, occurring *within a 180 day period*, with a defining diagnosis of Japanese encephalitis (see ICD9 code list below) in *any* diagnostic position.
- One record of a reportable medical event of mosquito-borne viral encephalitis.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event, inpatient or outpatient medical encounter that includes a defining diagnosis of mosquito-borne viral encephalitis.
- An individual is considered an incident case only *once per lifetime*.

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¹ "Information on Arboviral Encephalitides." Centers for Disease Control and Prevention. <http://www.cdc.gov/ncidod/dvbid/arbtor/arbdet.htm>. Accessed: Oct 5, 2011



Case Definition and Incidence Rules (cont.)

Exclusions:

- For Japanese encephalitis, medical encounters with evidence of JE vaccination on the day of or the day prior to the JE diagnosis are excluded. The following codes are used to identify instances of JE vaccination:
 - Vaccine administered (CVX codes: 039, 134)
 - Adverse event (ICD9 codes: E949, E949.6, E949.9)
 - Vaccine poisoning (ICD9 codes: 979, 979.6, 979.9)
 - Need for prophylactic vaccination (ICD9 codes: V04, V04.8, V04.89, V05, V05.0, V05.1)

Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Mosquito-Borne Viral Encephalitis	062.0 (Japanese encephalitis) 062.1 (Western equine encephalitis) 062.2 (Eastern equine encephalitis) 062.3 (St. Louis encephalitis) 062.4 (Australian encephalitis) 062.5 (California virus encephalitis) 062.8 (other specified mosquito-borne viral encephalitis) 062.9 (mosquito-borne viral encephalitis, unspecified)	NA

Development and Revisions

This case definition was developed by AFHSC staff for the Annual Vector Borne Reports, which provide information on cases of vector-borne illnesses during the last 10 years, including detail by Service for active component, Reserve/Guard, and other beneficiaries. The case definition for mosquito-borne viral encephalitis was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- To capture possible cases of mosquito-borne viral encephalitis, an interval of 60 days between outpatient encounters is used to increase specificity. Individuals presenting with clinical symptoms would likely have a follow-up visit within 60 days of their initial visit; however, to allow time to elapse for laboratory confirmation, the interval of 60 days was chosen.



- *Japanese Encephalitis*: Due to miscoding associated with the administration of the JE vaccine, five outpatient visits, irrespective of data source, within a 180 day period, are required to be considered an incident case.

Reports

AFHSC reports on mosquito-borne viral encephalitides in the following reports:

- Annually: “Annual Mosquito-Borne Viral Encephalitides Report” released in April of each year; published on the AFHSC website.²
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

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

Comments

Tri-Service Reportable Events: The Mosquito-Borne Viral Encephalitides are reportable medical events in the Tri-Service Reportable Events surveillance system; reported under the category of “Arboviral encephalitis.”

² <http://www.afhsc.mil/reports?clear>



TUBERCULOSIS

Includes Pulmonary and Extrapulmonary Infection

Background

This case definition was developed by the Armed Forces Health Surveillance Center (AFHSC) and the Uniformed Services University of the Health Sciences (USUHS) for the purpose of conducting two special epidemiological studies on active tuberculosis in the U.S. military.^{1,2} Both studies examine rates of pulmonary and extrapulmonary tuberculosis.

The Armed Forces Health Surveillance Center uses a subset of the ICD9 codes in this case definition to report on cases of pulmonary tuberculosis reported through the Tri-Service Reportable Events surveillance system.

Clinical Description

Tuberculosis is a chronic bacterial infection caused by *Mycobacterium tuberculosis*, characterized pathologically by the formation of granulomas. The most common site of infection is the lung, but other organs may be involved. Specific symptoms of pulmonary tuberculosis include cough, chest pain and hemoptysis. Systemic symptoms also include fever, chills, night sweats, fatigue, and weight loss.³

Case Definition and Incidence Rules

For surveillance purposes, a case of tuberculosis is defined by:

- *One inpatient medical encounter* with any of the defining diagnoses of active tuberculosis (see ICD9 code list below) in the *primary* diagnostic position; or
- One record of a reportable medical event of pulmonary tuberculosis.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the reportable medical event or the first inpatient medical encounter that includes a diagnosis of tuberculosis.
- An individual is considered an incident case only *once per lifetime*.

Exclusions:

- None

¹ Mancuso, J D, Tobler, S K, Eick, A A, Olsen, C H. *An evaluation of the completeness and accuracy of active tuberculosis reporting in the United States military*. Int J Tuberc Lung Dis 2010; 14(10): 1-6

² Mancuso, J D, Tobler, S K, Eick, A A, Keep, L W. *Active tuberculosis and recent overseas deployment in the U.S. Military*. Am J Prev Med 2010; 39(2): 157-163

³ Braunwald, E., Fauci, A., Longo, D. et al. 2008. *Harrison's Principles of Internal Medicine*. 17th ed. United States: McGraw-Hill Professional.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Tuberculosis, <i>Pulmonary</i>	011.xx (pulmonary tuberculosis) 011.0 (tuberculosis of lung, infiltrative [0-6]) 011.1 (tuberculosis of lung, nodular [0-6]) 011.2 (tuberculosis of lung with cavitation [0-6]) 011.3 (tuberculosis of bronchus [0-6]) 011.4 (tuberculous fibrosis of lung [0-6]) 011.5 (tuberculous bronchiectasis [0-6]) 011.6 (tuberculous pneumonia, any form [0-6]) 011.7 (tuberculous pneumothorax [0-6]) 011.8 (other specified pulmonary tuberculosis) 011.9 (pulmonary tuberculosis, unspecified [0-6]) <i>Fifth-digit subclassification:</i> 0 site unspecified 1 bacteriological or histological examination not done 2 bacteriological or histological examination unknown (at present) 3 tubercle bacilli found (in sputum) by microscopy 4 tubercle bacilli not found (in sputum) by microscopy, but found by bacterial culture 5 tubercle bacilli not found by bacteriological examination, but tuberculosis confirmed histologically 6 tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals]	
Tuberculosis, <i>Extrapulmonary and Other</i>	010 (primary tuberculous infection) 012 (other respiratory tuberculosis) 013 (tuberculosis of meninges and central nervous system) 014 (tuberculosis of intestines, peritoneum, and mesenteric glands) 015 (tuberculosis of bones and joints) 016 (tuberculosis of genitourinary system) 017 (tuberculosis of other organs) 018 (miliary tuberculosis)	



Development and Revisions

2009	Update to Tri-Service Reportable Medical Events guidelines; acknowledged the addition of the Quantiferon Gold test (and other such blood tests) as a possible substitute for the tuberculin skin test in the evaluation of patients for possible exposure to, and infection with, <i>M. tuberculosis</i> .
2007	Case definition expanded by the AFHSC and USUHS for the purpose of conducting two special epidemiologic studies on active tuberculosis in the U.S. Military. Studies included extrapulmonary tuberculosis.
1998	Clinical surveillance case definition for pulmonary tuberculosis developed for the Tri-Service Reportable Medical Events sentinel surveillance and reporting system. ⁴

Case Definition and Incidence Rule Rationale

- The 2007 case definition was created to be more specific, rather than sensitive, for tuberculosis (TB) cases in order to remove potential miscodings of TB skin tests and rule-out diagnoses.
- The case definition for pulmonary tuberculosis for the Tri-Service Reportable Events surveillance system uses “One record of a reportable medical event of pulmonary tuberculosis” only. The definition does not include in-patient medical encounters.

Code Set Determination and Rationale

- During the development of the 2007 version of the case definition, it was recognized that ICD9 code 017.06 (tuberculosis of the skin and subcutaneous cellular tissue; tubercle bacilli not found by bacteriological or histological examination, but tuberculosis confirmed by other methods [inoculation of animals) was mistakenly being reported in the Army reportable medical events system. This coding error occurred from 1996-1999 at a single Army medical facility. Therefore, this ICD-9 code was excluded from the final case definition for the epidemiologic studies. However, for future tuberculosis studies, this code should be included in the case definition as long as additional misuses of the code are not identified.
- The ICD9 code set used for surveillance of pulmonary tuberculosis through the Tri-Service Reportable Events surveillance system uses ICD9 codes 011.xx (pulmonary tuberculosis) only.

Reports

AFHSC reports on *pulmonary* tuberculosis in the following reports:

- 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), through December 2011; includes only reportable medical events.
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

⁴ Armed Forces Health Surveillance Center. Tri-Service Reportable Events. Guidelines and Case Definitions. June 2009. Found at: <http://afhsc.army.mil/reportableEvents>



Review

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

Comments

None



WEST NILE FEVER

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.

Clinical Description

The virus that causes West Nile fever is most often spread to humans and other animals by the bite of an infected mosquito. Approximately 80% of infected individuals will have no clinical symptoms. The other 20% will have mild symptoms such as fever, headache, body aches, nausea, vomiting, swollen lymph glands, and skin rash on the chest, stomach and back. Symptoms can last for a few days up to several weeks. About 1/150 people develop severe illness, which may include symptoms of high fever, headache, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, vision loss, numbness, and paralysis. These severe symptoms can last up to several weeks; neurological effects may be permanent and can lead to death.¹

Case Definition and Incidence Rules

For surveillance purposes, a case of West Nile fever is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of West Nile fever (see ICD9 code list below) in *any* diagnostic position; or
- *Two outpatient medical encounters*, occurring *within 60 days* of each other, with any of the defining diagnoses of West Nile fever (see ICD9 code list below) in *any* diagnostic position; or
- One record of a reportable medical event of a confirmed case of West Nile fever.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event, inpatient, or outpatient medical encounter that includes a defining diagnosis of West Nile fever.
- An individual is considered an incident case only *once per lifetime*.

Exclusions:

- None

¹ "West Nile Virus: What You Need to Know." Centers for Disease Control and Prevention. http://www.cdc.gov/ncidod/dvbid/westnile/wnv_factsheet.htm. Accessed on: Oct 21, 2011.



Codes

The following ICD9 codes are included in the case definition:

Condition	ICD-9-CM Codes
West Nile fever	066.40 (West Nile fever, unspecified) 066.41 (West Nile fever with encephalitis) 066.42 (West Nile fever with other neurologic manifestation) 066.49 (West Nile fever with other complications)

Development and Revisions

The case definition was developed by AFHSC staff for the Annual Vector Borne Reports, which provide information on cases of vector-borne illnesses during the last 10 years, including detail by Service for active component, Reserve/Guard, and other beneficiaries. The case definition for West Nile fever was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- To capture possible cases of West Nile fever, an interval of 60 days between outpatient encounters is used to increase specificity. Individuals presenting with clinical symptoms would likely have a follow-up visit within 60 days of their initial visit; however, to allow time to elapse for laboratory confirmation, the interval of 60 days was chosen.

Reports

AFHSC reports on West Nile fever in the following reports:

- Annually: “Annual West Nile Fever Report” released in April of each year; published on the AFHSC website.²
- Weekly: “DoD Communicable Disease Weekly Report” for the various Services’ public health centers; includes only reportable medical events.

Review

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

Comments

Tri-Service Reportable Events: West Nile fever is reportable medical event in the Tri-Service Reportable Events surveillance system. The condition became a reportable event in 2004.

² <http://www.afhsc.mil/reports>



PNEUMONIA AND INFLUENZA (P&I); WEEKLY

Case Definition for Weekly AFHSC MHS Influenza Surveillance Report

Background

In the summer of 2007, in recognition of a lack of DoD-wide influenza surveillance data, the Army Medical Surveillance Activity, now the Armed Forces Health Surveillance Center (AFHSC), developed this case definition for the Military Health System (MHS) influenza report. The purpose of this report is to track influenza activity among U.S. service members stationed throughout the world. The report is intended to be used as a timely and actionable surveillance report comparing week to week activity during the northern hemisphere's influenza season.

This case definition is intended to identify cases of pneumonia, influenza, or both, recognizing the variable presentation of primary influenza infection. Combining the two into the same case definition, "pneumonia and influenza" (P&I), permits surveillance for influenza and its most common complication (pneumonia) in monitoring the morbidity associated with seasonal influenza.

Clinical Description

Influenza is often associated with either viral or secondary bacterial pneumonia. Pneumonia is an acute infection of the lungs that involves the lower respiratory tract including the small bronchi and air sacs. Pneumonia and influenza are among the leading causes of hospitalizations of service members and, although less frequent than upper respiratory illnesses, are often more debilitating.¹

Case Definition and Incidence Rules

For surveillance purposes, a case of "pneumonia and influenza" is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of "pneumonia and influenza" (see ICD9 code list below) in *any* diagnostic position; or
- *One outpatient medical encounter* with any of the defining diagnoses of "pneumonia and influenza" (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 *inpatient or outpatient* medical encounter that includes a defining diagnosis of "pneumonia and influenza".
- An individual can be an incident case only *once per week*.

Exclusions:

- None

¹ Armed Forces Health Surveillance Center. Update: Pneumonia-Influenza and Severe Acute Respiratory Illnesses, Active Components, U.S. Armed Forces, January 1997-March 2009. *Medical Surveillance Monthly Report (MSMR)*. May 2009, Vol 16(5): 12-16.



Codes

The following ICD-9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Pneumonia and Influenza	480.xx (viral pneumonia) - 481. xx (pneumococcal pneumonia/ streptococcus pneumoniae pneumonia) - 482.xx (other bacterial pneumonia) - 483.xx (pneumonia due to other specified organism) - 484.xx (pneumonia in infectious diseases classified elsewhere) - 485.xx (bronchopneumonia, organism unspecified) - 486.xx (pneumonia, organism unspecified) - 487.xx (influenza) - 488.xx (influenza due to certain identified avian or novel influenza virus)	NA

Development and Revisions

- Nov 2009 488.xx (influenza due to certain identified influenza viruses) was added to the case definition to identify cases caused by other influenza strains, such as the avian influenza (H5N1) (488.0x) or novel pandemic (H1N1) (488.1x) strains.
- Jan 2008 Case definition and report reviewed and approved by the Director of the AFHSC.
- Jul 2007 Original case definition developed and reviewed by the Special Studies Lead and the Chief of the Army Medical Surveillance Activity.

Code Set Determination and Rationale

- Codes were selected based on ICD-9 code definitions of influenza and pneumonia.

Reports

Using the above case definition, AFHSC reports on “pneumonia and influenza” in the following reports:

- Weekly: Armed Forces Health Surveillance Center, Military Health System (MHS) Influenza Surveillance Report, Weekly Report of Activity
- Weekly: DoD Weekly Influenza Surveillance Summary
- Annually: Armed Forces Health Surveillance Center, Military Health System (MHS) Report, 2009-2010 Influenza Season, Final Report (*most recent*)



Review

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

Comments

None



PNEUMONIA AND INFLUENZA (P&I); HOSPITALIZED; ANNUAL

Case Definition for Annual MSMR Update on Pneumonia and Influenza

Background

The Army Medical Surveillance Activity, now the Armed Forces Health Surveillance Center (AFHSC), has conducted ongoing surveillance of acute respiratory illness, to include pneumonia and influenza, since October of 1999. This case definition, modified in June of 2008 to include “acute respiratory infection”, was developed for the purpose of ongoing epidemiologic surveillance of inpatient (“severe”) pneumonia and influenza. Both conditions are among the leading causes of hospitalizations and ambulatory visits of service members.¹ Combining the two into the same case definition, “pneumonia and influenza” (P&I), permits surveillance for influenza and its most common complication (pneumonia) in monitoring the morbidity associated with seasonal influenza.

Clinical Description

Influenza is often associated with either viral or secondary bacterial pneumonia. Pneumonia is an acute infection of the lungs that involves the lower respiratory tract including the small bronchi and air sacs.

Case Definition and Incidence Rules

For surveillance purposes, a hospitalized case of “pneumonia and influenza” is defined as:

- *One inpatient medical encounter* with any of the defining diagnoses of “pneumonia and influenza” (see ICD9 code list below) in the *first* diagnostic position; or
- *One inpatient medical encounter* with any of the defining diagnoses of “acute respiratory infection” (see ICD9 code list below) in the *first* diagnostic position, *plus* a secondary diagnosis, in diagnostic position 2 through 8, with any of the defining diagnoses of “pneumonia and influenza.”

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first inpatient medical encounter that includes a diagnosis of “pneumonia and influenza”.
- An individual is considered an incident case only *once per respiratory illness year* (1 July through 30 June of the following year).

Exclusions:

- None

¹ Armed Forces Health Surveillance Center. Update: Pneumonia-Influenza and Severe Acute Respiratory Illnesses, U.S. Armed Forces, January 1997-April 2008. *Medical Surveillance Monthly Report (MSMR)*. 2000 June; Vol 15(5): 2-6.



Codes

The following ICD-9 codes are included in the case definition:

Condition	ICD-9-CM codes	CPT Codes
Pneumonia and Influenza (P&I)	<ul style="list-style-type: none"> - 480.xx (viral pneumonia) - 481. xx (pneumococcal pneumonia/ streptococcus pneumoniae pneumonia) - 482.xx (other bacterial pneumonia) - 483.xx (pneumonia due to other specified organism) - 484.xx (pneumonia in infectious diseases classified elsewhere) - 485.xx (bronchopneumonia, organism unspecified) - 486.xx (pneumonia, organism unspecified) - 487.xx (influenza) - 488.xx (influenza due to certain identified avian or novel influenza virus)* 	NA
Acute Respiratory Infection (ARI)	<ul style="list-style-type: none"> - 460.xx (acute nasopharyngitis -common cold) - 461.x (acute sinusitis) - 462.x (acute pharyngitis) - 463.x (acute tonsillitis) - 464.x (acute laryngitis and tracheitis) - 465.x (acute upper respiratory infections of multiple or unspecified sites) - 466.x (acute bronchitis and bronchiolitis) 	

* ICD9 code 488.xx will be added to the 2011 edition of the MSMR report

Development and Revisions

The case definition was originally developed in June of 2008 by AFHSC Medical Monthly Surveillance Report (MSMR) staff for a MSMR article on acute respiratory illness, including “pneumonia and influenza.” The most recent article on this topic can be found in the May 2009 MSMR article *Update: Pneumonia-Influenza and Severe Acute Respiratory Illnesses, Active Components, U.S. Armed Forces, January 1997-March 2009.*

Code Set Determination and Rationale

- Codes were selected based on ICD9 code definitions of influenza and pneumonia.



Reports

Using the above case definition, AFHSC reports on hospitalized “pneumonia and influenza” in the following reports:

- Periodic MSMR update. Most recent can be found in the May 2009 MSMR article *Update: Pneumonia-Influenza and Severe Acute Respiratory Illnesses, Active Components, U.S. Armed Forces, January 1997-March 2009*.

Review

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

Comments

None

