

ZIKA VIRUS

Includes Confirmed Cases Only

Background

This case definition was developed by the Armed Forces Health Surveillance Branch (AFHSB) for the purpose of epidemiological surveillance Zika virus infections in military-associated populations.

Clinical Description

Zika virus (ZIKV) is a *Flavivirus* of the *Flaviviridae* family related to dengue, yellow fever, and West Nile virus. Primary transmission of the virus to humans occurs through the bite of an infected *Aedes* mosquito. Secondary transmission via sexual contact and transmission via other bodily fluids has also been confirmed. Approximately one in five individuals infected with Zika will develop symptoms, including fever, skin rash, conjunctivitis, muscle and joint pain, malaise and headache.¹ Symptom onset is typically within a few days and the illness lasts between 2-7 days. Lifetime immunity is believed to be conferred after infection. Zika virus has been associated with Guillain-Barré syndrome in a small number of symptomatic individuals. Causal evidence also supports a link between infection during pregnancy and microcephaly in fetuses and neonates.²

Case Definition and Incidence Rules

For surveillance purposes, a case of Zika virus infection is defined as:

After October 2016

- One record of a reportable medical event (RME) of a *confirmed* Zika virus infection. (see *Case Definition and Incidence Rule Rationale* below for criteria for a confirmed case)
- One report of a DoD laboratory confirmed case of Zika virus; confirmation criteria per the 2017 *Armed Forces Reportable Medical Events (RME) Guidelines and Case Definitions*.
- See *Case Definition and Incidence Rule Rationale* below for confirmed case criteria.

Prior to October 2016

- One record of a reportable medical event (RME) of any other condition (see Code Set Determination and Rationale) with Zika virus noted in the comment field as *confirmed*.

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¹ World Health Organization. Zika Virus: Fact Sheet Updated 6 September 2016. <http://who.int/mediacentre/factsheets/zika/en/>. Accessed on 1 December 2016.

² Armed Forces Health Surveillance Branch. Zika Virus Infections in Military Health System Beneficiaries Since the Introduction of the Virus in the Western Hemisphere, 1 January 2016 Through 30 November 2016. *Medical Surveillance Monthly Report (MSMR)*. 2016 Dec; Vol 23(12): 7-11.



Case Definition and Incidence Rules *(continued)*

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first record of a reportable medical event that includes a diagnosis of Zika virus infection.
- An individual is considered an incident case only *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
Zika virus	<i>After October 2016</i> A92.5 (Zika virus disease)	066.3 (other mosquito-borne fever) - <i>with Zika listed in the comment field of the RME report.</i>
	<i>Prior to October 2016</i> A92.8 (other specified mosquito-borne viral fevers) - <i>with Zika listed in the comment field of the RME report.</i>	

Development and Revisions

- In October of 2016 the case definition was updated to include ICD10 codes.
- This case definition was developed in December 2016 by AFHSB staff for use in a MSMR article on Zika virus infection.¹ The case definition was developed based on reviews of the ICD9 and ICD10 codes, the scientific literature, and previous AFHSB analyses. The case definition has been revised since then because of the creation of a specific ICD10 code for Zika virus infection in late 2016 and the incorporation of Zika virus infection into the *Armed Forces Reportable Medical Events (RME) Guidelines and Case Definitions* in 2017.

Case Definition and Incidence Rule Rationale

- Per the 2017 *Armed Forces Reportable Medical Events (RME) Guidelines and Case Definitions*, a confirmed case of Zika is defined as any of the following:
 - Zika virus identified by culture from any acceptable clinical specimen; or



- Zika virus positive antigen from any acceptable clinical specimen; or
- Zika virus nucleic acid (RNA) detected (example: PCR, sequencing, NAAT) from any acceptable clinical specimen; or
- Zika virus positive IgM antibody from serum or CSF with a positive PRNT titer against Zika **AND** a negative PRNT titer against Dengue (or other flavivirus endemic to the region where exposure occurred).

Code Set Determination and Rationale

- In October 2016 a new ICD10 code for Zika virus (A92.5) was added to ICD-10-CM code manual.
- Prior to October 2016, Zika cases were identified using the following codes and comments recorded in the RME report:
 - ICD9 code 066.3 (other mosquito-borne fever) *with* Zika listed in the comment field of the RME report.
 - ICD10 code A92.8 (other specified mosquito-borne viral fevers) *with* Zika listed in the comment field of the RME report.
 - “Other Unusual Condition Not Listed” *with* Zika listed in the comment field of the RME report.

Reports

AFHSB reports on Zika virus infection in the following reports:

- Previously monthly: AFHSB Reportable Events Monthly Report. Available on the Defense Health Agency (DHA) website at: <https://health.mil/Military-Health-Topics/Health-Readiness/Armed-Forces-Health-Surveillance-Branch/Reports-and-Publications>. Since the decline in incidence, reports will be issued only as needed.

Review

Dec 2017	Case definition reviewed and adopted by Surveillance Methods and Standards (SMS) working group.
Dec 2016	Case definition developed and reviewed by AFHSB staff.

Comments

Probable cases are not included in the case definition documented here. Per *RME Guidelines and Case Definitions* a probable case is defined by the following:

Exposure is defined as one or more of the following:

- Resides in or recent travel to an area with known Zika virus transmission, or
- Sexual contact with a confirmed or probable case within the infection transmission risk window of Zika infection, or
- Sexual contact with a person with recent travel to an area with known Zika virus transmission, or
- Receipt of blood or blood products within 30 days of symptom onset, or



- Organ or tissue transplant recipient within 30 days of symptom onset or
- Association in time and place with a confirmed or probable case, or
- Likely vector exposure in an area

Probable Case

A case with **ALL** of the following:

- Meets the exposure criteria* as described above, and
- Zika virus positive IgM antibody from serum or CSF with any of the following:
 - Dengue virus negative IgM antibody and no Zika virus PRNT test performed, or
 - Positive PRNT titer against Zika and Dengue (or other flavivirus endemic to the region where exposure occurred)

