

**Zika v1**  
**Definition Factsheet & Technical Brief**

**Authors:** Andzelika Rzucidlo, MPH<sup>1,2</sup>, Dylan Johns, MS<sup>1,3</sup>, Anna Frick, MPH<sup>4</sup>, Sara Chronister, MPH<sup>5</sup>, Katharina L. van Santen, MSPH<sup>1,3</sup>

<sup>1</sup> CDC Office of Public Health Data, Surveillance, and Technology (OPHDST), Immediate Office of the Director (IOD), Integrated Monitoring Branch

<sup>2</sup> InductiveHealth

<sup>3</sup> ICF

<sup>4</sup> Alaska Division of Public Health

<sup>5</sup> Washington State Department of Health

**Point of contact:**

nssp@cdc.gov

**Definition Purpose:** Created by the CDC National Syndromic Surveillance Program (NSSP) for use with ED data as part of the rapid reportables project, which seeks to create queries for all National Notifiable Diseases defined by the National Notifiable Diseases Surveillance System (NNDSS). This query is intended to be a version 1 and may be further improved upon by the NSSP community of practice in the future. This query is intended to be narrow and capture visits with specific terms to support greater monitoring and actionable public health data. More complex and/or broader queries may exist that more broadly capture symptoms or travel-based terms.

**New or Revised Definition:** New Definition

**Date Added to ESSENCE:** July 2024

**Definition Description:** Designed to capture emergency department visits associated with congenital Zika virus disease and non-congenital Zika virus disease.

The use of chief complaint free text and discharge diagnoses to identify visits of Zika virus disease may capture instances where patients present with symptoms or concerns related to Zika virus but may lack sufficient clinical criteria (evidence) or epidemiological linkage for formal diagnosis as a case under the National Notifiable Diseases Surveillance System (NNDSS) case definition for Zika virus disease. Visits for congenital and non-congenital Zika virus disease were combined into one definition as multiple similarities in clinical criteria and epidemiologic linkage may be difficult to distinguish between in the Chief Complaint Discharge Diagnosis (CCDD) parsed field alone.

Please note: the NNDSS definition of Zika virus disease requires clinical criteria, epidemiological linkage, and laboratory evidence of recent ZIKV or flavivirus infection. This is not to be confused with the NNDSS definition of Zika virus infection, which only requires sufficient laboratory evidence of recent ZIKV or flavivirus infection (and epidemiological linkage depending on the test performed).

**Use-Cases for Definition:**

- Case-finding
- Trend monitoring
- Early outbreak detection

**Justification:** No query definition exists for Zika virus infections. CDC wants to use syndromic data to monitor trends.

**Data Source During Development:** Emergency Department Visits. Chief Complaint Query Validation dataset (CCQV) in ESSENCE.

#### Development Methods:

1. The CDC team used the NNDSS case definition of Zika virus disease to identify diagnostic codes (International Classification of Diseases, 9th & 10th Revisions (ICD-9-CM, ICD-10-CM), SNOMED Clinical Terms (CT)) and chief complaint free text for syndrome development.
2. The codes and free text were then categorized as inclusion or exclusion terms. These terms were formatted for querying in ESSENCE.
3. Text analysis was conducted on the initial query to find additional inclusion or exclusion terms.
4. The query was cross-checked internally by NSSP and by CDC subject matter experts as needed.

Validation Methods: This definition is part of the collection of definitions created by CDC NSSP for the rapid reportables project. The rapid reportables project is led by the CDC NSSP team to create definitions for all nationally reportable diseases. These definitions focus on chief complaint text and diagnostic codes of the disease or its causative agents with no mention of symptoms. Select members of the Community of Practice were then asked to review line-level results for their jurisdictions and provide feedback to ensure the intended results of the definitions were met.

#### Definition Fields and Structure:

The CCDD parsed field is used to query the discharge diagnosis codes and chief complaint free text.

- Inclusion based on Zika Virus Disease-related chief complaint free text terms:
  - The visit is included if it contains:
    1. Chief complaints related to Zika virus disease – (“zica”, “zika”, “zyca”, “zyka”, “zici”, “ziki”, “zyci”, “zyki”, “zeeca”, “zeeka”) **OR**
    2. Chief complaints related to Congenital Zika – (“congenital zica”, “congenital zika”, “congenital zyca”, “congenital zyka”, “congenital zici”, “congenital ziki”, “congenital zyci”, “congenital zyki”) **OR**
- Exclusion based on the chief complaint free-text terms related to Zika virus disease above:
  - Chief complaint related to the cold remedy Zicam – (“zicam”) **OR**
- Inclusion based on ICD-10 discharge diagnosis codes related to Zika virus:
  - The visit is included if it contains:
    1. A discharge diagnosis code of Zika virus disease (A92.5) **OR**
    2. A discharge diagnosis code of Contact with and (suspected) exposure to Zika virus (Z20.821) **OR**
    3. A discharge diagnosis code of Congenital Zika virus disease (P35.4) **OR**
- Inclusion based on SNOMED CT discharge diagnosis codes related to Zika virus:
  - The visit is included if it contains:
    1. A discharge diagnosis code of Zika virus (50471002) **OR**
    2. A discharge diagnosis code of Zika virus disease (3928002) **OR**
    3. A discharge diagnosis code of Exposure to Zika virus (16468541000119105) **OR**
    4. A discharge diagnosis code of Congenital infection caused by Zika virus (762725007) **ANDNOT**
- All of the above must exclude:
  - SNOMED CT code related to History of Zika virus infection (16468501000119108)

Detailed Definition Components

**Table 1.** Inclusion terms related to congenital and non-congenital Zika virus disease.

Variable Type	Terms	Description
<b>Inclusions</b>		
Discharge Diagnosis: ICD-10-CM	A92.5	Zika virus disease
	Z20.821	Contact with and (suspected) exposure to Zika virus
	P35.4	Congenital Zika virus disease
Discharge Diagnosis: SNOMED concepts	50471002	Zika virus
	3928002	Zika virus disease
	16468541000119105	Exposure to Zika virus
	762725007	Congenital infection caused by Zika virus
Chief Complaint Terms	zica	
	zika	
	zyca	
	zyka	
	zici	
	ziki	
	zyci	
	zyki	
	zeeca	
	zeeka	
	congenital zica	
	congenital zika	
	congenital zyca	
	congenital zyka	
	congenital zici	
	congenital ziki	
congenital zyci		
congenital zyki		
<b>Exclusions</b>		
Chief Complaint Terms – free- text exclusions of zica, zika, zyca, zyka, zici, ziki, zyci, zyki	zicam	
Discharge Diagnosis: SNOMED concepts	16468501000119108	History of Zika virus infection

**Table 2.** ESSENCE syntax

```
(,!z[iy][ck][ai]!,ANDNOT,^zicam^,OR,^ zee[ck]a^,or,^congenital
z[iy][ck][ai]^,or,^;A925^,or,^;Z20821^,or,^;P354^,or,^;50471002;^,or,^;3928002;^,or,^;164685410001191
05;^,or,^;762725007;^),andnot,^;16468501000119108;^
```