

West Nile Virus v1

Definition Factsheet & Technical Brief

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Definition Purpose: Created by the CDC National Syndromic Surveillance Program (NSSP) for use with emergency department data to develop queries for all National Notifiable Diseases defined by the National Notifiable Diseases Surveillance System (NNDSS). Please note that while the disease queries are developed using the NNDSS case definition as the basis for identifying patient visits of interest, the queried patient visits themselves may or may not represent a case patient in NNDSS and further public health investigation will most often be required. 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. However, given the seasonal occurrence and clinical features for West Nile virus disease are similar to other arthropod-borne viral disease (e.g., eastern equine encephalitis, Jamestown Canyon virus disease, La Crosse virus disease, Powassan, and St. Louis encephalitis), other conditions will likely be captured using this definition either due to similar clinical features eliciting West Nile virus disease to be considered in the differential or because of cross-reactivity in diagnostic assays. More complex and/or broader queries may exist that more broadly capture symptoms, travel-based terms, or similar arboviral diseases.

New or Revised Definition: New Definition

Date Added to ESSENCE: April 2026

Definition Description: Designed to capture emergency department visits with a diagnostic code or textual indicator of possible West Nile virus infection.

Use-Cases for Definition:

Case-finding: Tertiary

Trend monitoring: Primary

Early outbreak detection: Secondary

Emergent Condition: Not Intended as Use Case

Justification: No query definition exists for West Nile virus infections. CDC wants to use emergency department data to monitor trends of visits with West Nile virus diagnoses.

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 Arboviral diseases, neuroinvasive and non-neuroinvasive to identify SNOMED Clinical Terms (CT)) and chief complaint free-text for

syndrome development, and West Nile specific diagnostic codes (International Classification of Diseases, 9th & 10th Revision (ICD-9-CM, ICD-10-CM),

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.

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 emergency department data line-level results for their jurisdictions and provide feedback to ensure the intended results of the definitions were met.

Definition Fields and Structure:

The Chief Complaint Discharge Diagnosis (CCDD) parsed field is used to query both the discharge diagnosis codes and chief complaint free text, and exclusions are incorporated as necessary.

- Inclusion based on West Nile virus chief complaint free text terms:
 - The visit is included if it contains:
 1. A chief complaint related to disease name – (“west nile” or “westnile” or “WNV”) **OR**
- Inclusion based on ICD-10 discharge diagnosis codes related to West Nile virus:
 - The visit is included if it contains:
 1. A discharge diagnosis code for West Nile virus – (A92.3) **OR**
- Inclusion based on ICD-9 discharge diagnosis codes related to West Nile virus:
 - The visit is included if it contains:
 1. A discharge diagnosis code for West Nile virus – (066.40 or 066.41 or 066.42 or 066.49) **OR**
- Inclusion based on SNOMED discharge diagnosis codes related to West Nile virus:
 - The visit is included if it contains:
 1. A discharge diagnosis code for West Nile virus – (392662004 or 763018002) **OR**
 2. A discharge diagnosis code for West Nile virus variants – (397420007) **OR**
 3. A discharge diagnosis code for West Nile virus organism – (57311007) **OR**
 4. A discharge diagnosis code for conditions caused by West Nile – (404233006 or 417093003 or 430397002) **ANDNOT**
- All of the above must exclude:
 - A chief complaint related to history of West Nile virus infection – (“history of west nile” or “history of westnile” or “history west nile” or “history westnile” or “history of WNV” or “history WNV”)

Detailed Definition Components

Table 1. Inclusion and exclusion terms.

Terms	Description
Inclusion	
International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)	
A92.3	West Nile virus infection
International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM)	
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
SNOMED Concepts	
57311007	West Nile virus (organism)
404233006	Meningitis caused by West Nile virus (disorder)
392662004	West Nile encephalitis (disorder)
417093003	Disease caused by West Nile virus (disorder)
430397002	Disorder of nervous system caused by West Nile virus (disorder)
397420007	West Nile fever without encephalitis (disorder)
Chief Complaint	
“west nile”	
“westnile”	
“WNV”	
Exclusion	
Chief Complaint	
“history of west nile”	
“history of westnile”	
“history west nile”	
“history westnile”	
“history of WNV”	
“history WNV”	

Table 2. *ESSENCE syntax for the CCDD parsed field*

(,^west nile^,OR,^westnile^,OR,!WNV!,OR,^;A923^,OR,^;0664[0-29];^,OR,^;57311007;^,OR,^;404233006;^,OR,^;392662004;^,OR,^;417093003;^,OR,^;430397002;^,OR,^;397420007;^),ANDNOT,(^history of west nile^,OR,^history of westnile^,OR,^history west nile^,OR,^history westnile^,OR,^history of WNV^,or,^history WNV^,)

Use the following URL and click Configuration Options to see the query setup:

[https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=4Jan2026&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=28Feb2026&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=no_detector&detector&CCDDParsedFreeText=\(,%5Ewest%20nile%5E,OR,%5Ewestnile%5E,OR,!WNV!,OR,%5E;A923%5E,OR,%5E;0664%5B0-29%5D;%5E,OR,%5E;57311007;%5E,OR,%5E;404233006;%5E,OR,%5E;392662004;%5E,OR,%5E;417093003;%5E,OR,%5E;430397002;%5E,OR,%5E;397420007;%5E.\),ANDNOT,\(,%5Ehistory%20of%20west%20nile%5E,OR,%5Ehistory%20of%20westnile%5E,OR,%5Ehistory%20west%20nile%5E,OR,%5Ehistory%20westnile%5E,OR,%5Ehistory%20of%20WNV%5E,or,%5Ehistory%20WNV%5E,\)%20&timeResolution=weekly](https://essence2.syndromicsurveillance.org/nssp_essence/servlet/TemporalTimeSeriesViewer?datasource=va_hosp&startDate=4Jan2026&medicalGroupingSystem=essencesyndromes&userId=5024&endDate=28Feb2026&percentParam=noPercent&agtTarget=TimeSeries&geographySystem=hospital&detector=no_detector&detector&CCDDParsedFreeText=(,%5Ewest%20nile%5E,OR,%5Ewestnile%5E,OR,!WNV!,OR,%5E;A923%5E,OR,%5E;0664%5B0-29%5D;%5E,OR,%5E;57311007;%5E,OR,%5E;404233006;%5E,OR,%5E;392662004;%5E,OR,%5E;417093003;%5E,OR,%5E;430397002;%5E,OR,%5E;397420007;%5E.),ANDNOT,(,%5Ehistory%20of%20west%20nile%5E,OR,%5Ehistory%20of%20westnile%5E,OR,%5Ehistory%20west%20nile%5E,OR,%5Ehistory%20westnile%5E,OR,%5Ehistory%20of%20WNV%5E,or,%5Ehistory%20WNV%5E,)%20&timeResolution=weekly)

Syntax Plain Language Description: The definition uses discharge diagnosis codes and free-text chief complaint terms. The definition requires that an emergency department visit contains a reference to the disease by its discharge diagnosis code (in at least one of the following: ICD-10-CM, ICD-9-CM, SNOMED diagnostic codes), or by the disease or pathogen name listed in the chief complaint text. Therefore, the West Nile virus syndromic surveillance definition includes ICD-10-CM, ICD-9-CM, and SNOMED diagnostic codes for West Nile virus, along with direct mentions of West Nile virus (“west nile”, “westnile”, “WNV”) in chief complaint text. To ensure only acute West Nile virus infections were captured, chief complaint text indicating a history of West Nile was excluded.