25-ID-04

Committee: Infectious Disease

Title: Update to Public Health Reporting and National Notification of Dengue and Severe Dengue

☒Check this box if this position statement is an update to an existing standardized surveillance case definition and include the most recent position statement number here: 14-ID-10.

Synopsis:

- This position statement updates the standardized surveillance case ascertainment and case definition criteria for dengue disease, referred to as dengue and/or severe dengue.
- Updates include:
  - Revisions to the laboratory criteria: confirmatory lab evidence now requires neutralizing antibodies among cases with only serologic evidence of infection to address difficulties in case classification with IgM results.
  - Removal of the sub-type of dengue-like illness from both case definition and nationally notifiable conditions list, which was found to be challenging to interpret due to insufficient information or less symptomatic/severe disease
  - Revised the suspect case classification to note the absence of laboratory testing.
  - Clarification of the qualifying criteria for severe dengue to support accurate classifications of dengue cases.

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I. Statement of the Problem

This position statement updates the standardized surveillance case definition for dengue disease, referred to hereafter as dengue and/or severe dengue. Dengue incidence continues to rise in dengue-endemic areas as well as among persons who live in non-endemic areas of the United States (U.S.) and have traveled to dengue endemic areas. National reporting of dengue cases has provided critical data to document trends of both travel-associated and locally acquired dengue; however, multiple jurisdictions have requested additional guidance for the classification of suspect dengue cases and interpretation of dengue diagnostic test results. To address these concerns, the modifications included within this position statement reflect advances in clinical understanding of, and laboratory testing for, dengue, which should improve dengue case reporting and notification in the U.S.

II. Background and Justification

Dengue is a potentially fatal acute febrile illness caused by infection with any of four dengue viruses (DENV-1, -2, -3 and -4). Dengue is a major public health problem worldwide [1], with an estimated 400 million DENV infections and 100 million clinically apparent dengue cases occurring annually [2]. Although approximately75% of individuals infected with a DENV are asymptomatic, approximately 5% of individuals who develop symptoms will progress to severe dengue, an illness characterized by plasma leakage, hypovolemic shock, hemorrhage, and potentially death [1]. DENV is primarily transmitted through the bite of infected *Aedes* species mosquito vectors (*Ae. aegypti* and *Ae. albopictus*); less common transmission routes include blood transfusion, organ transplantation, laboratory exposure, and perinatal infection [3].

The numbers of dengue and severe dengue cases are increasing globally, including within the Americas [4], increasing the risk for travel-associated and locally acquired cases in the U.S. In 2024, more than 13 million dengue cases were reported from countries in North, Central, and South America – more than double the previous record set in 2023 [5,6]. Accurate identification and reporting of dengue cases is critical to support appropriate care and clinical management, which can reduce mortality in patients with severe dengue from 13% to <1% and guide vector control activities to reduce the risk of additional mosquito-borne transmission [7].

In the U.S., six jurisdictions are classified as having frequent or continuous DENV transmission: the territories of American Samoa, Puerto Rico, and the U.S. Virgin Islands, and the freely associated states of the Federated States of Micronesia, Republic of Marshall Islands, and Republic of Palau [8]. Historically, dengue outbreaks occur in these areas approximately every three to five years; outbreaks occurred in Puerto Rico and the U.S. Virgin Islands during 2024 [9]. Dengue is also a risk for travelers to endemic areas, with a range of 200 - 3,700 (average, 957) cases among U.S. travelers reported to ArboNET annually from 2010–2024 [8]. Increasing DENV transmission and travel to endemic areas also increases the risk for locally acquired dengue cases in other areas of the U.S. with competent mosquito vectors [10]. During 2010–2024, locally acquired dengue cases were reported in multiple states, including Florida, Texas, Hawaii, Arizona, and California [8].

Since the case definition was last updated in 2015, arboviral epidemiology has changed in multiple ways. Zika virus caused a large outbreak across regions of the Americas (including Puerto Rico and the U.S. Virgin Islands), complicating the interpretation of serologic results due to high levels of flavivirus cross-reactivity [11–13]. Increasing DENV transmission globally and the lack of information about arbovirus circulation in many areas led to confusion in interpretation of the 2015 case definition, which relied on knowledge of circulating arboviruses – including endemic flaviviruses, such as West Nile virus and St. Louis Encephalitis virus – to classify IgM antibody results. This revised case definition updates and clarifies the case definition, given the increased circulation of DENV and other flaviviruses.

III. Statement of the Desired Action(s) to be Taken

CSTE recommends the following actions:

1. Implement a standardized surveillance case definition for **dengue and severe dengue**.

   A. Utilize recommended reporting* sources for case ascertainment for **dengue and severe dengue**. Surveillance for **dengue and severe dengue** should use the recommended sources of data to the extent of coverage presented in Section V.

   B. Utilize standardized criteria for case ascertainment for **dengue and severe dengue** presented in Section VI and Table VI in Technical Supplement.

   C. Utilize standardized criteria for case classification for **dengue and severe dengue** presented in Section VII and Table VII in Technical Supplement.

2. Utilize standardized criteria for case ascertainment and classification (based on Sections VI and VII and Technical Supplement) for **dengue and severe dengue** and **update dengue and severe dengue** on the *Nationally Notifiable Condition List* using the following notification** timeframe, and **remove** dengue-like illness from the *Nationally Notifiable Conditions List*:
   - ☐ Immediately notifiable, extremely urgent (within 4 hours)
   - ☐ Immediately notifiable, urgent (within 24 hours)
   - ☒ Routinely notifiable (dengue and severe dengue)
   - ☒ No longer notifiable (dengue-like illness)

3. CSTE recommends that all States and Territories enact laws (statute or rule/regulation as appropriate) to make this disease or condition reportable in their jurisdiction. Jurisdictions (e.g., States and Territories) conducting surveillance (according to these methods) should submit case notifications to CDC.

4. CSTE recommends that all jurisdictions (e.g., States, Localities, or Territories) with legal authority should conduct public health surveillance and use the case classifications included in this standardized surveillance position statement.

5. Expectations for Message Mapping Guide (MMG) development for a newly notifiable condition: the National Notifiable Diseases Surveillance System (NNDSS) is transitioning to HL7-based messages for case notifications; the specifications for these messages are presented in MMGs. When CSTE recommends a new condition be made nationally notifiable, CDC must obtain Office of Management and Budget Paperwork Reduction Act (OMB PRA) approval prior to accepting case notifications for the new condition. Under anticipated timelines, notification using the Generic V2 MMG would support transmission of the basic demographic and epidemiologic information common to all cases and could begin with the new MMWR year following the CSTE annual conference. Input from CDC programs and CSTE would prioritize development of a disease-specific MMG for the new condition among other conditions waiting for MMGs.

6. CDC should publish data on dengue and severe dengue as appropriate (see Section IX).
   CSTE recommends the following case statuses be included in the CDC Print Criteria:
   - ☒Confirmed
   - ☒Probable
   - ☐Suspect
   - ☐Unknown

** Reporting: process of a healthcare provider, laboratory, or other entity submitting a report (case information) of a condition under public health surveillance to local, state, or territorial public health.*

*** Notification: process of a local or state public health authority submitting a report (case information) of a condition on the* Nationally Notifiable Conditions List *to CDC.*

IV. Goals of Surveillance

Provide information on the temporal, geographic, and demographic characteristics of symptomatic dengue cases and indicators of morbidity (e.g., hospitalization and severe disease) and mortality associated with dengue virus to facilitate disease prevention and control.

V. Recommended Data Sources and Methods for Surveillance

Surveillance for dengue and severe dengue should use the following recommended sources of data and/or methodologies and the extent of coverage listed in Table V.

Table V. Recommended Sources of Data, Surveillance Methods, and Extent of Coverage for Ascertainment of Cases of Dengue and Severe Dengue.

Source of Data/Methodology for Case Ascertainment	Coverage	
	Population-Wide	Sentinel Sites
Clinician reporting	X	
Laboratory reporting	X	
Reporting by other entities, specify: hospitals and other healthcare facilities	X	
Death certificates	X	
Hospital discharge or outpatient records	X	
Data from electronic medical records	X	
Telephone or online survey		
School-based survey	X*	
Other, specify: N/A		

**Only in dengue endemic areas*

VI. Criteria for Case Ascertainment

Case ascertainment is the process through which public health identifies potential cases of a disease or condition using data reported or provided to public health by healthcare, laboratories, and other reporting entities. This public health reporting is triggered by the case ascertainment criteria (a single criterion or a combination of criteria) included in this position statement, and each initial report sent to public health should include common data elements and disease-specific data elements. Case ascertainment criteria are not intended to be used for clinical diagnosis purposes.

A. Narrative: A description of suggested criteria for case ascertainment of a specific condition and recommended reporting procedures.

Recommended reporting for dengue cases should be ongoing and routine. The frequency of reporting should follow the jurisdictional reporting schedules.

Report the following to public health authorities:

- Any person meeting the clinical criteria and at least one criterion in the epidemiologic linkage criteria for reporting sections below (A1 and A3).
- Any person meeting at least one laboratory criterion for reporting below (A2).
- Any person meeting the vital records criterion for reporting below (A4).
- Any person meeting the healthcare record criterion for reporting below (A5).

A1. Clinical Criteria for Reporting*

- Fever or chills as reported by the patient or healthcare provider, **OR**
- Thrombocytopenia not explained by an alternative etiology.

** Clinical criteria must be paired with epidemiologic linkage criteria to trigger a report to public health.*

A2. Laboratory Criteria for Reporting

- Detection of dengue virus (e.g., growth in cell culture), viral antigen (e.g., NS1 antigen capture ELISA, immunohistochemistry), or viral RNA (e.g., PCR) in a serum, plasma, blood, cerebral spinal fluid (CSF), or tissue specimen, **OR**
- Detection of anti-DENV IgM or neutralizing antibodies in a serum or CSF specimen.

A3. Epidemiologic Linkage Criteria for Reporting**

- Resided in or traveled to an area with a risk[1] of DENV transmission before the onset of symptoms, **OR**
- Association in time and place before onset of symptoms (e.g., household member, family member, classmate, coworker, or neighbor) with a confirmed or probable dengue case, **OR**
- Laboratory exposure to DENV before onset of symptoms, **OR**
- Receipt of blood, blood products, organ transplant, or other tissue transplant before symptom onset from a person who has either been diagnosed with DENV infection or returned from traveling to an area with risk of DENV transmission before donation.

*** Epidemiologic linkage criteria must be paired with clinical criteria to trigger a report to public health.*

A4. Vital Records Criteria for Reporting

- A person whose death certificate lists dengue, DENV infection or disease, or an equivalent term as an underlying cause of death or a significant condition contributing to death.

A5. Healthcare Record Criteria for Reporting

- A person whose healthcare record contains a diagnosis of dengue, DENV infection or disease, or an equivalent term.

B. Disease-Specific Data Elements to be Included in the Initial Report

Disease-specific data elements should be included in addition to the common data elements that are to be reported for all initial individual case reports (see CSTE Position Statement 09-SI-01 "Common Core Data Elements for Case Reporting and Laboratory Result Reporting" https://cdn.ymaws.com/www.cste.org/resource/resmgr/PS/09-SI-01.pdf). Public health authorities do not expect that an initial report will contain all the information necessary for case investigation and case classification.

The following information is needed to identify instances of autochthonous transmission (i.e., locally acquired cases) versus dengue cases resulting from importation from another country (i.e., travel-associated dengue cases).

- Travel history in last 2 weeks, including all countries visited
- Other exposure history (e.g., blood transfusion, organ transplant, perinatal, and laboratory)
- Hospitalization status
- Fatality

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[1] *Visit https://www.cdc.gov/dengue/areas-with-risk/index.html for geographic areas with known current or previous risk of DENV; for areas where cases have not been previously identified, consult with CDC for assistance on risk determination.*

VII. Case Definition for Case Classification

This case definition for case classification is intended solely for public health surveillance purposes and does not recommend criteria for clinical diagnosis purposes. Once a public health agency has ascertained data on potential cases of a disease or condition from reporting entities, the public health agency assigns case statuses based on the case classifications included within this position statement.

A. Narrative: A description of criteria to determine how public health should classify a case of dengue.

A1. Clinical Criteria

In the absence of a more likely alternative diagnosis:

- Clinical evidence of dengue includes fever or chills as reported by the patient or healthcare provider* **AND** the presence of one or more of the following manifestations:
  - Nausea or vomiting, which may be persistent (e.g., ≥3 episodes in 1 hour or ≥4 episodes in 6 hours)
  - Rash
  - Headache
  - Retro-orbital pain
  - Arthralgia (joint pain)
  - Myalgia (muscle aches)
  - Positive tourniquet test
  - Leukopenia (e.g., a total white blood cell count of <5,000/mm^3)
  - Thrombocytopenia (e.g., platelet count <150,000/mm^3)
  - Abdominal pain or tenderness
  - Extravascular fluid accumulation (e.g., pleural or pericardial effusion, ascites) without respiratory distress
  - Mucosal bleeding** (e.g., gums, nose [epistaxis], vagina [menorrhagia], kidney [macroscopic hematuria] or mild GI bleeding)
  - Liver enlargement >2 centimeters
  - Increasing hematocrit (>20% in 2 measurements taken 6 hours apart).

  ** The vast majority of dengue cases are characterized by fever or chills. If fever or chills are not present, careful consideration of patient's clinical course, exposure history, and environmental risk are recommended.*
  *** If bleeding is severe (see below), consider severe dengue.*

- Severe dengue is characterized by any one or more of the following scenarios:
  - Severe plasma leakage characterized by one or more of the following:
    - Shock, **OR**
    - Extravascular fluid accumulation (e.g., pleural or pericardial effusion, ascites) AND respiratory distress
  - Severe bleeding defined as one or more of the following:
    - Bleeding (most commonly gastrointestinal, e.g., hematemesis, melena) that results in hemodynamic instability or blood transfusion (except platelets), **OR**
    - Bleeding that results in permanent disability (e.g., CNS bleed or intraocular bleed), **OR**
    - Bleeding classified as severe by a clinical provider
  - Severe organ involvement defined as one or more of the following:
    - Elevated liver transaminases: aspartate aminotransferase (AST) or alanine aminotransferase (ALT) ≥1,000 units per liter (U/L), **OR**
    - Impaired level of consciousness or diagnosis of encephalitis, encephalopathy, or meningitis, **OR**
    - Heart or other organ involvement including myocarditis, cholecystitis, and pancreatitis.

A2. Laboratory Criteria***

Confirmatory Laboratory Evidence:

- Detection of dengue virus (e.g., growth in cell culture), viral antigen (e.g., NS1 antigen-capture ELISA, immunohistochemistry), or viral RNA (e.g., PCR) in a serum, plasma, blood, cerebral spinal fluid (CSF), other body fluid, or tissue specimen,
  OR
- Detection of anti-DENV IgM antibodies in a serum or CSF specimen **AND**
  - Detectable DENV-specific neutralizing antibody titers by plaque reduction neutralization (PRNT)[2], **AND**
  - Negative neutralizing antibody titers against other flaviviruses endemic to the region where exposure occurred.

Presumptive Laboratory Evidence:

- Detection of anti-DENV IgM antibodies in a serum specimen,[3]
  OR
- Demonstration of a ≥4-fold rise in DENV-specific neutralizing antibody titers in paired serum samples optimally collected ≥2 weeks apart with a ≥4-fold higher end point titer as compared to other flaviviruses tested.[4]

**** Note: The categorical labels used here to stratify laboratory evidence are intended to support the standardization of case classifications for public health surveillance. The categorical labels should not be used to interpret the utility or validity of any laboratory test methodology.*

A3. Epidemiologic Linkage Criteria

- Resided in or traveled to an area with a risk[5] of DENV transmission in the 14 days before the onset of symptoms; **OR**
- Association in time and place before onset of symptoms (e.g., household member, family member, classmate, coworker, or neighbor) with a confirmed or probable dengue case; **OR**
- Laboratory exposure to DENV within 14 days of onset of symptoms; **OR**
- Receipt of blood, blood products, organ transplant, or other tissue transplant within 30 days of symptom onset from a person who has either been diagnosed with DENV infection or returned from traveling to an area with risk[5] of DENV transmission in the 14 days before donation.

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[2] Dengue virus IgG and neutralizing antibodies can persist for many years following a symptomatic or asymptomatic infection. A high proportion of people living in dengue-endemic areas have experienced a previous dengue infection; the presence of neutralizing antibodies alone is only evidence of previous infection. In a single sample, PRNTs can help rule out other flaviviruses but cannot differentiate between recent and remote (unrelated to the current illness) infection from DENV among people with previous exposure.

[3] In the setting of an outbreak or known transmission of another flavivirus (e.g., Zika or WNV), obtaining negative IgM results for the other flaviviruses is recommended. If IgM antibodies from other flaviviruses are detected and neutralizing antibodies are unable to differentiate flaviviruses, consider reporting the case as 'Flavivirus disease, not otherwise specified.'

[4] During a second flavivirus infection, cross-reactive antibodies from the first infecting dengue virus serotype or flavivirus (the "original antigen") can predominate over the current infecting flavivirus. Neutralizing antibody results should be interpreted with caution when previous dengue infection is suspected or when titers are high against multiple dengue virus serotypes or flaviviruses.

[5] Visit https://www.cdc.gov/dengue/areas-with-risk/index.html for geographic areas with known current or previous risk of DENV; for areas where cases have not been previously identified, consult with CDC for assistance on risk determination.

A4. Case Classifications

Dengue:
Confirmed:

- Meets clinical criteria for dengue **AND** meets confirmatory laboratory evidence,
  OR
- Meets non-antibody based confirmatory laboratory evidence **AND** meets epidemiologic linkage criteria **AND**
  - Has clinical evidence of fever or chills only, **OR**
  - Has other clinical evidence compatible with dengue in the absence of fever or chills.

Probable:

- Meets clinical criteria for dengue **AND** meets presumptive laboratory evidence **AND** meets epidemiological linkage criteria.

Suspect:

- Meets clinical criteria for dengue **AND** meets epidemiological linkage criteria **AND** with no laboratory testing performed,
  OR
- Meets clinical criteria for dengue **AND** meets epidemiological linkage criteria **AND** has negative IgM results with no PCR/NS1 testing on a sample collected <5 days after illness onset.

Severe dengue:
Confirmed:

- Meets confirmed case definition for dengue **AND** meets clinical criteria for severe dengue.

Probable:

- Meets probable case definition for dengue **AND** meets clinical criteria for severe dengue.

Suspect:

- Meets suspect case definition for dengue **AND** meets clinical criteria for severe dengue.

B. Criteria to Distinguish a New Case of Dengue or Severe Dengue from Reports or Notifications which Should Not be Enumerated as a New Case for Surveillance

DENV infection results in long-lasting immunity to symptomatic dengue infection with that DENV-type. However, cross-protective (heterotypic) immunity against DENV infection is short-lived, with estimated durations of 1–3 years [14-15]. In DENV endemic areas where infection pressure is high, individuals have been shown to infrequently have sequential episodes of dengue with two different infecting serotypes. Additionally, detectable IgM anti-DENV can persist for approximately 90 days.

- A person with two clinical episodes of dengue occurring at least two weeks apart and shown to be due to different infecting serotypes confirmed by molecular diagnostic testing would be enumerated as two different cases,
  OR
- In the absence of molecular testing evidence showing infection due to different infecting serotypes, a person with two clinical episodes of dengue occurring more than 90 days apart would be enumerated as two different cases.

VIII. Period of Surveillance

Surveillance should be ongoing.

IX. Data Sharing/Release and Print Criteria

CSTE recommends the following case statuses* be included in the 'case' count released outside of the public health agency:

☒Confirmed
☒Probable
☐Suspect
☐Unknown

**Which case statuses are included in case counts constitute the "print criteria."*

Jurisdictions (e.g., States and Territories) conducting surveillance under this case definition can voluntarily submit de-identified case information to CDC, if requested and in a mutually agreed upon format.

Production of national data summaries and national data re-release for non-NNCs:

- Prior to release of national data summaries CDC should follow the CDC/ATSDR Policy on Releasing & Sharing Data, issued on April 16, 2003 and referenced in 11-SI-01 and custodians of such data should consult the CDC-CSTE Intergovernmental Data Release Guidelines Working Group report (www.cste2.org/webpdfs/drgwgreport.pdf) which contains data release guidelines and procedures for CDC programs re-releasing state, local, or territorial-provided data.
- CDC programs have a responsibility, in collaboration with states, localities, and territories, to ensure that CDC program-specific data re-release procedures meet the needs of those responsible for protecting data in the states and territories.
- CDC requests standard notification of probable and confirmed cases.
- Data flow will proceed from state and local health departments to CDC and WHO. Only fully de-identified case data will be released to the general public. Suspected case data will not be included in final case counts. Case report data will not be used or released until verification procedures are complete and all states have finalized their case counts.
- Data will be used to determine the burden of illness due to dengue, identify areas of risk and risk factors to U.S. travelers, target prevention efforts, and inform vaccination recommendations when vaccines become available. Electronic reports of dengue will be summarized in the MMWR.
- All data will preferably be entered by arboviral coordinators into ArboNET in real-time as cases are detected and subsequently revised as additional case information (e.g., diagnostic test results) are made available.
- All city, county, and state health departments will have access to data submitted to ArboNET to assess available data on the trends in dengue incidence locally and throughout the country.
- State-specific compiled data will be posted on the EpiX Forum on a monthly basis. Content of this report to the states and territories will be dependent on the current epidemiologic situation and identified needs of stakeholders. Additional methods of data dissemination, including CDC website posting, email notices, and maps highlighting where infection contracted, will be investigated.
- State-specific compiled data will be published in MMWR reports. All cases will be verified by the states before publication.

X. Revision History

Position Statement ID	Section of Document	Revision Description
25-ID-04	Section VI, A1, A2, A3	Updated clinical, laboratory, and epidemiologic criteria for reporting
25-ID-04	Section VI, A4 and A5	Added vital records and healthcare diagnosis criteria for reporting
25-ID-04	Section VI, B	Updated disease-specific elements required in the initial disease report
25-ID-04	Section VII, A1	Removed dengue-like illness as a clinical sub-type
25-ID-04	Section VII, A1	Added chills to clinical criteria
25-ID-04	Section VII, A1	Clarified language on dengue warning signs and severe dengue clinical manifestations

25-ID-04	Section VII, A2	Combined lab criteria for direct detection methods (i.e., cell culture, antigen testing, RT-PCR, immunohistochemistry) and added 'other body fluids' as a specimen source
25-ID-04	Section VII, A2	Removed seroconversion from confirmatory laboratory criteria
25-ID-04	Section VII, A2	Added criterion for IgM in combination with neutralizing antibodies to confirmatory laboratory criteria
25-ID-04	Section VII, A2	Removed embedded epidemiologic linkage criteria from confirmatory and presumptive laboratory criteria
25-ID-04	Section VII, A3	Updated epidemiologic linkage criteria
25-ID-04	Section VII, A4	Added confirmed case classification to support locally acquired case classification for a symptomatic individual with non-antibody based confirmatory laboratory evidence + epidemiologic linkage criteria (with or without fever/chills) Updated suspect case classification
14-ID-10	Section VII, A	Added criteria to distinguish a new case from a previous report
14-ID-10	Section VII, A	Updated clinical criteria for case definition and replaced clinical sub-types of dengue fever, dengue hemorrhagic fever, and dengue shock syndrome with new sub-types of dengue-like illness, dengue, and severe dengue for case classification.
14-ID-10	Section VII, B	Updated and expanded laboratory criteria.
N/A	09-ID-19	Added dengue infections to the Nationally Notifiable Conditions List and establishes a standardized surveillance case definition.

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Technical Supplement

Table VI. Table of criteria to determine whether a case should be reported to public health authorities.

Criterion	Dengue	
Clinical Criteria for Reporting		
Fever or chills as reported by the patient or healthcare provider		O
Thrombocytopenia not explained by alternative etiology		O
Laboratory Criteria for Reporting		
Detection of dengue virus (e.g., growth in cell culture), viral antigen (e.g., NS1 antigen-capture ELISA, immunohistochemistry), or viral RNA (e.g., PCR) in serum, plasma, blood, cerebral spinal fluid (CSF), or tissue specimen	S	
Detection of anti-DENV IgM or neutralizing antibodies in a serum or CSF specimen	S	
Epidemiologic Linkage Criteria for Reporting		
Resided in or traveled to an area with a risk* of DENV transmission before the onset of symptoms		O
Association in time and place before onset of symptoms (e.g., household member, family member, classmate, coworker, or neighbor) with a confirmed or probable dengue case		O
Laboratory exposure to DENV before onset of symptoms		O
Receipt of blood, blood products, organ transplant, or other tissue transplant before symptom onset from a person who has either been diagnosed with DENV infection or returned from traveling to an area with risk of DENV transmission before donation		O
Vital Records Criteria for Reporting		
A person whose death certificate lists dengue, DENV infection or disease, or an equivalent term as an underlying cause of death or a significant condition contributing to death	S	
Healthcare Record Criteria for Reporting		
A person whose healthcare record contains a diagnosis of dengue, DENV infection or disease, or an equivalent term	S	

Notes:
S = This criterion alone is SUFFICIENT to report a case.
N = All "N" criteria in the same column are NECESSARY to report a case.
O = At least one of these "O" (ONE OR MORE) criteria in each category (categories=clinical, laboratory, epidemiologic linkage, vital records, etc.) in the same column—in conjunction with all "N" criteria in the same column—is required to report a case.
** Visit https://www.cdc.gov/dengue/areas-with-risk/index.html for geographic areas with known current or previous risk of DENV; for areas where cases have not been previously identified, consult with CDC for assistance on risk determination.*

[*intentionally left blank*]

Table VII.A. Classification Table: Criteria for defining a case of dengue.

Criterion	Dengue							Severe Dengue						
	Confirmed				Probable	Suspect		Confirmed				Probable	Suspect	
Clinical Evidence														
Absence of a more likely alternative diagnosis	N	N	N	N	N	N	N	N	N	N	N	N	N	N
Fever or chills as reported by patient or healthcare provider*	N	N	N		N	N	N	N	N	N		N	N	N
One or more of the following: • Nausea or vomiting which may be persistent (e.g., ≥3 episodes in 1 hr or ≥4 episodes in 6 hrs) • Rash • Headache • Retro-orbital pain • Arthralgia (joint pain) • Myalgia (muscle aches) • Positive tourniquet test • Leukopenia (e.g., a total white blood cell count of <5,000/mm^3) • Thrombocytopenia (e.g., platelet count <150,000/mm^3) • Abdominal pain or tenderness • Extravascular fluid accumulation (e.g., pleural or pericardial effusion, ascites) without respiratory distress • Mucosal bleeding** (e.g., gums, nose [epistaxis], vagina [menorrhagia], kidney [macroscopic hematuria] or mild GI bleeding) • Liver enlargement >2 cm • Increasing hematocrit (>20% in 2 measurements taken 6 hrs apart)	N	N		N	N	N	N	N	N		N	N	N	N
Severe plasma leakage characterized by one or more of the following: • shock; OR • extravascular fluid accumulation (e.g., pleural or pericardial effusion, ascites) AND respiratory distress								O	O	O	O	O	O	O
Severe bleeding defined as one or more of the following: • bleeding (most commonly gastrointestinal e.g., hematemesis, melena) that results in hemodynamic instability or blood transfusion (except platelets); OR • bleeding that results in permanent disability (e.g. CNS bleed or intraocular bleed); OR • bleeding classified as severe by a clinical provider								O	O	O	O	O	O	O
Severe organ involvement defined as one or more of the following: • elevated liver transaminases (aspartate aminotransferase [AST] or alanine aminotransferase [ALT] ≥ 1,000 units per liter [U/L]); OR • impaired level of consciousness or diagnosis of encephalitis, encephalopathy, or meningitis; OR • heart or other organ involvement including myocarditis, cholecystitis, and pancreatitis								O	O	O	O	O	O	O

Criterion (continued)	Dengue							Severe Dengue						
	Confirmed				Probable	Suspect		Confirmed				Probable	Suspect	
Laboratory Evidence														
Detection of dengue virus (e.g., growth in cell culture), viral antigen (e.g., NS1 antigen-capture ELISA, immunohistochemistry), or viral RNA (e.g., PCR) in serum, plasma, blood, cerebral spinal fluid (CSF), other body fluid, or tissue specimen	N		N	N				N		N	N			
Detection of anti-DENV IgM antibodies in a serum or CSF specimen		N							N					
Detectable DENV-specific neutralizing antibody titers by plaque reduction neutralization (PRNT)[1]		N							N					
Negative neutralizing antibody titers against other flaviviruses endemic to the region where exposure occurred		N							N					
Detection of anti-DENV IgM antibodies in a serum specimen[2]					O							O		
Demonstration of a ≥4-fold rise in DENV-specific neutralizing antibody titers in paired serum samples optimally collected ≥2 weeks apart with a ≥4-fold higher end point titer as compared to other flaviviruses tested[3]					O							O		
No laboratory testing performed						N							N	
Negative IgM results							N							N
No PCR/NS1 testing on a sample collected <5 days after illness onset							N							N
Epidemiologic Linkage Evidence														
Resided in or traveled to an area with a risk[4] of DENV transmission in the 14 days before the onset of symptoms			O	O	O	O	O			O	O	O	O	O
Association in time and place before onset of symptoms (e.g., household member, family member, classmate, coworker, or neighbor) with a confirmed or probable dengue case			O	O	O	O	O			O	O	O	O	O
Laboratory exposure to DENV within 14 days of onset of symptoms			O	O	O	O	O			O	O	O	O	O
Receipt of blood, blood products, organ transplant, or other tissue transplant within 30 days of symptom onset from a person who has either been diagnosed with DENV infection or returned from traveling to an area with risk[4] of DENV transmission in the 14 days before donation			O	O	O	O	O			O	O	O	O	O

Notes: N = All "N" criteria in the same column are NECESSARY to classify a case.
O = At least one of these "O" (ONE OR MORE) criteria in each category (categories=clinical evidence, laboratory evidence, and epidemiologic evidence) in the same column—in conjunction with all "N" criteria in the same column—is required to classify a case.

** The vast majority of dengue cases are characterized by fever or chills. If fever or chills are not present, careful consideration of patient's clinical course, exposure history, and environmental risk are recommended.*

*** If bleeding is severe, consider as severe dengue*

[1] Dengue virus IgG and neutralizing antibodies can persist for many years following a symptomatic or asymptomatic infection. A high proportion of people living in dengue-endemic areas have experienced a previous dengue infection; the presence of neutralizing antibodies alone is only evidence of previous infection. In a single sample, PRNTs can help rule out other flaviviruses but cannot differentiate between recent and remote (unrelated to the current illness) infection from DENV among people with previous exposure.

[2] In the setting of an outbreak or known transmission of another flavivirus (e.g., Zika or WNV), obtaining negative IgM results for the other flaviviruses is recommended. If IgM antibodies from other flaviviruses are detected and neutralizing antibodies are unable to differentiate flaviviruses, consider reporting the case as 'Flavivirus disease, not otherwise specified.'

[3] During a second flavivirus infection, cross-reactive antibodies from the first infecting dengue virus serotype or flavivirus (the "original antigen") can predominate over the current infecting flavivirus. Neutralizing antibody results should be interpreted with caution when previous dengue infection is suspected or when titers are high against multiple dengue virus serotypes or flaviviruses.

[4] Visit https://www.cdc.gov/dengue/areas-with-risk/index.html for geographic areas with known current or previous risk of DENV; for areas where cases have not been previously identified, consult with CDC for assistance on risk determination.

Table VII.B. Classification Table: Criteria to distinguish a new case of dengue or severe dengue from reports or notifications which should not be enumerated as a new case for surveillance.

Criterion	Dengue			Severe Dengue		
	Confirmed	Probable	Suspect	Confirmed	Probable	Suspect
Criteria to distinguish a new case						
A person with two clinical episodes of dengue occurring at least two weeks apart and shown to be due to different infecting serotypes confirmed by molecular diagnostic testing should be enumerated as two different cases.	S			S		
In the absence of molecular testing evidence showing infection due to different infecting serotypes, a person with two clinical episodes of dengue occurring more than 90 days apart should be enumerated as two different cases.	S	S		S	S	

S = This criterion alone is SUFFICIENT to enumerate as a new case.