

# Readers' Guide: Understanding *MMWR* Weekly Tables and Annual Reports about National Notifiable Diseases Surveillance System Data

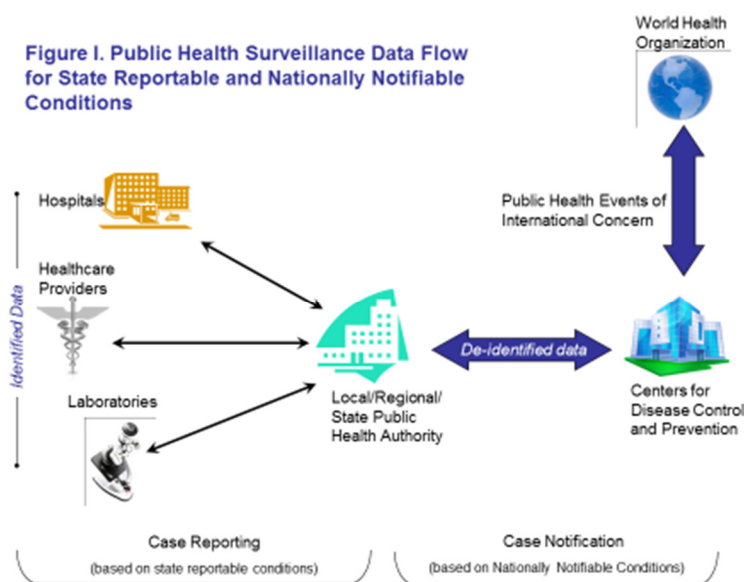
## Background Information

### Surveillance background:

The CDC National Notifiable Diseases Surveillance System (NNDSS) is the nation's public health surveillance system that enables all levels of public health (local, state, territorial, federal and international) to share information on diseases and conditions that the Council of State and Territorial Epidemiologists (CSTE), in consultation with CDC, has designated as nationally notifiable <http://wwwn.cdc.gov/nndss/default.aspx>. Public health professionals use the data from NNDSS to monitor, control, and prevent the occurrence and spread of disease. CDC administers NNDSS in collaboration with CSTE.

Initially, these nationally notifiable disease data are collected locally as a result of state, territorial, and local legislation and regulations that require health care providers, medical laboratories, and other entities to submit data on reportable conditions to state and local public health departments. The reportable conditions vary depending upon each jurisdiction's health priorities. The reporting jurisdictions, which include the 50 U.S. states, five U.S. territories, New York City and Washington DC, voluntarily submit case notifications for the nationally notifiable conditions to CDC. Figure I below shows the reporting flow for NNDSS data.

A list of current and historical notifiable conditions, along with their case definitions and classifications, is available at (<https://wwwn.cdc.gov/nndss/conditions/>). NNDSS uses national surveillance case definitions to help ensure that cases are identified, classified, and enumerated consistently across reporting jurisdictions for each nationally notifiable disease or condition. As new pathogens and conditions emerge and methods of disease detection and classification evolve, conditions are added to the nationally notifiable disease list, and definitions and classifications for conditions are changed. Conditions are deleted from the list when surveillance is not found to be useful at a national level.



### **Publication criteria:**

From NNDSS data, CDC prepares various summaries of infectious and noninfectious diseases and conditions and publishes them in the *Morbidity and Mortality Weekly Report (MMWR)* as weekly and cumulative counts, early release annual cumulative counts, and finalized annual data.

CDC uses the following criteria for publishing NNDSS data in *MMWR*:

- For a case notification of a nationally notifiable infectious disease to be published in *MMWR*, the reporting jurisdiction must have designated the nationally notifiable disease or condition reportable in their state or territory for the year corresponding to the data year of report to CDC (see the “Reporting Exceptions for Nationally Notifiable Diseases [NND]” spreadsheet under NNDSS Related Information on the following page: <http://www.cdc.gov/nndss/script/downloads.aspx>).
- CDC publishes case classifications (confirmed, probable, suspected) for each nationally notifiable infectious disease or condition based on the “Publication Criteria” column of the “Event (disease/condition) Code List” for the specified year (available at <https://www.cdc.gov/nndss/case-notification/related-documentation.html>). The NNDSS case definitions web site provides definitions of case classifications for each condition (see <http://www.cdc.gov/nndss/script/casedefDefault.aspx>).

### **Provisional and finalized data:**

CDC considers NNDSS data provisional and subject to change each week until the data are reconciled and verified with the state and territorial data providers to be the final official incidence counts for a given notifiable condition and year. Cumulative counts of cases presented each week can increase or decrease as additional information becomes available and counts are updated.

Within approximately six months after the end of the calendar year, CDC finalizes NNDSS data in collaboration with the state and territorial health department data providers and CDC program leads for each notifiable condition.

CDC publishes finalized counts by condition and reporting jurisdiction in the *MMWR* Early Release Table approximately two months after the state and territorial health departments finalize the data. The Early Release data are usually announced in the *MMWR* with the following heading: “Notice to Readers: Final [YYYY] Reports of Nationally Notifiable Infectious Diseases” (see the *MMWR* Notice to Readers for the 2014 data):

[http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6436a8.htm?s\\_cid=mm6436a8\\_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6436a8.htm?s_cid=mm6436a8_w) .

In addition, CDC publishes finalized data in the *MMWR Summary of Notifiable Infectious Diseases and Conditions--United States* (also referred to as the *Summary*) approximately one year after data are published in the Early Release Tables.

In any given year, for most conditions, cumulative provisional case counts and rates do not match finalized case counts and rates.

### **Limitations to data: completeness and timeliness of reporting to the jurisdictions and of notifications to CDC**

Notifiable disease reporting is incomplete for most conditions, and completeness and timing of reporting to the jurisdictions and submission of notifications to CDC vary by condition and location. Detection and reporting of health conditions to jurisdictions may be influenced by the severity of the illness; patient and public awareness of conditions; patient access to health care; the availability of diagnostic facilities;

interests, resources, and priorities of the clinicians, laboratories, hospitals and others that report to the jurisdictions; jurisdiction reporting requirements and resources; emerging pathogens and conditions, and priorities of state and local health departments. Reporting delays also occur due to outbreaks, competing priorities, and for various other reasons (e.g., technical problems, changes in staff schedules, vacation periods). Moreover, data may be batched reported during outbreaks and at other times, including at the end-of-year when surveillance staff are finalizing the data for a given year.

CDC has not adjusted provisional data for variations in reporting procedures across different states or for delays in reporting. Because of variations among the jurisdictions in assigning event dates for different conditions ([https://www.cdc.gov/nndss/document/MMWR\\_Week\\_overview.pdf](https://www.cdc.gov/nndss/document/MMWR_Week_overview.pdf)), and because of variations in timing of submission of notifications to CDC, the successive current weekly totals cannot be added to compute the cumulative count in a year, for a specified condition. Some cases reported for a current week are not included in the data set until after the report has been generated for the week and some cases that are counted for a given week are subsequently deleted from the cumulative total because the reporting jurisdiction subsequently found that the cases did not meet criteria for notification and publication.

Case counts and rates may also vary over time (e.g. from year to year) based on changes in public and provider awareness; changes in laboratory and diagnostic techniques; and changes in the definition of conditions.

These limitations to the data should be considered when comparing counts and rates across conditions and when comparing counts and rates for any condition by person, place, or time. It should not be assumed that differences reflect only variation in the true incidence of the conditions.

### **Types of data sets for provisional counts:**

There are two types of provisional data sets used to produce the *MMWR* weekly report. One data set is used to produce *MMWR* Figure I. Figure I provides the output of the historical limits aberration detection algorithm run at the national level for selected nationally notifiable diseases and conditions and is based upon a snap shot of the provisional data that comes in each week and remains uncorrected over time. The other data set is used to produce the provisional case counts listed in the *MMWR* for NNDSS Tables I, II, and IV. This provisional data set is updated weekly with corrections, additions, deletions, and edits made to the data by reporting jurisdictions each week. Changes in case counts are only reflected in the cumulative case count column(s) of the tables (e.g., if changes occur after the weekly table is published in the *MMWR*, the cumulative total column(s) for the following week would reflect the changes. The weekly case count for the published table would not be updated).

To create the finalized NNDSS data set used in the annual *Summary*, CDC carefully reconciles the finalized updates to the provisional data submitted to CDC with reporting jurisdictions until each state or territorial epidemiologist confirms that their data are final.

### **The following example illustrates how the provisional data set for *MMWR* Figure I is constructed versus how the provisional data set for the *MMWR* weekly tables are prepared:**

Week 1: data were reported for 10 cases in Week 1.

Week 2: data were reported for 12 cases in Week 2 and 2 cases were deleted for Week 1.

Week 3: data were reported for 4 cases in Week 3, 2 new cases for Week 2, and 4 new cases for Week 1.

Week 4: data were reported for 2 cases in Week 4, 1 new case for Week 3, and 1 new case for Week 1.

See table below:

	<i>MMWR</i> Week 1	<i>MMWR</i> Week 2	<i>MMWR</i> Week 3	<i>MMWR</i> Week 4
Submitted Week 1	<b>10</b>			
Submitted Week 2	-2	<b>12</b>		
Submitted Week 3	4	2	<b>4</b>	
Submitted Week 4	1	0	1	<b>2</b>

**Provisional weekly data sets used for *MMWR* Figure I** (hereafter referred to as the Figure I data set) are the original number of cases submitted during each given week.

Current case count for each selected condition is the total number of provisional cases reported during the current 4 week period. In the above example, the total case count for week 4 is 28 (10+12+4+2).

**Provisional data for *MMWR* NNDSS Tables 1, 2 and 4** (hereafter referred to as the **Provisional Table data set**) are the cumulative number of cases submitted for each *MMWR* week thus far.

Current case count for each week

- Cases in *MMWR* week 1 -- 10 cases
- Cases in *MMWR* week 2 -- 12 cases
- Cases in *MMWR* week 3 -- 4 cases
- Cases in *MMWR* week 4 -- 2 cases

Cumulative case count for each week

- Total cases submitted by the end of *MMWR* week 1 – 10 cases
- Total cases submitted by the end of *MMWR* week 2 – 20 cases (10-2+12)
- Total cases submitted by the end of *MMWR* week 3 -- 30 cases (10-2+12+4+2+4)
- Total cases submitted by the end of *MMWR* week 4 – 34 cases (10-2+12+4+2+4+1+0+1+2)

**Data accessibility:**

NNDSS data are accessible in various machine-readable formats at <http://data.cdc.gov> and <http://wonder.cdc.gov/mmwr/mmwr morb.asp>.

# **MMWR Weekly Report**

## **Table I**

**MMWR Table I Title:** Provisional cases of selected infrequently reported notifiable diseases (<1,000 cases reported during the preceding year)--United States.

**Description:** This table contains data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions for which <1,000 cases were reported to CDC during the preceding year. The table contains data from 50 states, New York City, and Washington DC in aggregate form by disease and are published weekly. Cases reported from the U.S. territories are not included in Table I. The table includes provisional case counts that meet the publication criteria. A select number of infrequently reported notifiable diseases have been moved from Table I to Table II to help facilitate reconciliation of cases between CDC and the reporting jurisdictions. Counts for infrequently reported conditions are reported in Table I as described below, rather than in Table II, because, for most weeks for most of these conditions, the number of case notifications to CDC is zero.

The total number of cases reported for the previous years and the cumulative (year-to-date) incidence data from the previous year are presented in Table I as a crude method to identify aberrations or discrepancies in reported disease data, whether because of disease incidence or reporting artifact.

**Data set used:** provisional data set

Disease	Current week	Cum 2016	5-year weekly average <sup>‡</sup>	Total cases reported for previous years					States reporting cases during current week (No.)
				2015	2014	2013	2012	2011	
Anthrax	–	–	–	–	–	–	–	1	
Arboviral diseases <sup>§,¶</sup> :									
Chikungunya virus <sup>††</sup>	–	57	9	896	NN	NN	NN	NN	
Eastern equine encephalitis virus	–	1	0	6	8	8	15	4	
Jamestown Canyon virus <sup>§§</sup>	–	–	0	11	11	22	2	3	
La Crosse virus <sup>§§</sup>	–	2	2	55	80	85	78	130	
Powassan virus	–	2	0	7	8	12	7	16	

### **Contents of Table I:**

- **Week** – The week identified in this table refers to the variable “MMWR week” which represents the week of the epidemiologic year (MMWR year) for which the NNDSS disease report is assigned by the local, county, or state health department, for the purposes of MMWR disease incidence reporting or publishing. Jurisdictions assign a case to an MMWR week for a variety of different purposes and the epidemiologic meaning of the MMWR week varies by jurisdiction and by condition. Refer to the MMWR fact sheet for more information about how MMWR weeks are defined ([http://wwwn.cdc.gov/nndss/document/MMWR\\_Week\\_overview.pdf](http://wwwn.cdc.gov/nndss/document/MMWR_Week_overview.pdf)). MMWR week calendars can be found at the bottom of the follow page under MMWR Week Calendars <http://wwwn.cdc.gov/nndss/script/downloads.aspx>

- **Current Week** – For a case to be published in the *MMWR* weekly report under current week, it must have been reported to CDC during that week (current week) and assigned by the jurisdiction to that *MMWR* week. Cases assigned by the jurisdiction to that *MMWR* week but reported later are published in the *MMWR* weekly report in the cumulative total column for that year, but are not published in any current week column. As a result, the sum of the number of cases published each week under current week does not equal the cumulative sum of cases for that year published each week.
- **Cum (for the current year)** – The Cumulative (Cum) count column for the current year presents the cumulative year-to-date provisional counts for the specified condition. This count includes cases reported to CDC during the current week and assigned to that *MMWR* week and cases reported during the current week and assigned to earlier *MMWR* weeks of the current year. The cumulative case count also reflects cases deleted from the cumulative total because the reporting jurisdiction’s case investigations found that the cases did not meet criteria for reporting and publication. As a result, the successive current weekly totals cannot be added to compute the cumulative count in a year, for a specified condition.
- **5-year weekly average** – The 5-year weekly average is calculated by summing, for the 5 proceeding years, the provisional incidence counts for the current week, the two weeks preceding the current week, and the two weeks following the current week. For example, if the current week is week #36 of year 2006, the 5-year weekly average would be computed by adding the case count for the weeks #34, 35, 36, 37 and 38 for the years 2005, 2004, 2003, 2002, and 2001. The total sum of cases is then divided by 25 weeks. The 25-week time interval is used to help account for seasonal variations in disease incidence over time.

A visual presentation of how the 5-year weekly average is computed is below:

<i>MMWR</i> Year	<i>MMWR</i> Week Number				
	34	35	36	37	38
2006			(current week)		
2005	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>
2004	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>	X <sub>9</sub>	X <sub>10</sub>
2003	X <sub>11</sub>	X <sub>12</sub>	X <sub>13</sub>	X <sub>14</sub>	X <sub>15</sub>
2002	X <sub>16</sub>	X <sub>17</sub>	X <sub>18</sub>	X <sub>19</sub>	X <sub>20</sub>
2001	X <sub>21</sub>	X <sub>22</sub>	X <sub>23</sub>	X <sub>24</sub>	X <sub>25</sub>
5-year weekly average for current week =	Sum of the incidence counts X <sub>1</sub> through X <sub>25</sub> , divided by 25				

Source: <https://wwwn.cdc.gov/nndss/document/5yearweeklyaverage.pdf>

- **Total cases reported for previous years** – This column refers to the final case count totals by condition for the full year which are displayed for the past 5 years for each condition.
- **States reporting cases during current week (No.)** -- This column lists the reporting jurisdictions that reported cases for the specified disease or condition and the corresponding number of cases reported for the current *MMWR* week of report. Reporting jurisdictions in this column are referred to by postal abbreviations.

**Abbreviations and symbols used in table:**

- **NA** – Nationally notifiable, but the data are not available
- **NN** – Not nationally notifiable
- **N** – Not reportable (The reporting jurisdiction did not add the condition to the list of reportable conditions in the specified jurisdiction. For data to appear in this table, the nationally notifiable condition had to be reportable in the reporting jurisdiction.).
- **NP** – Nationally notifiable but not published
- **---** – No reported cases. NNDSS does not receive reports of zero cases and thus cannot distinguish whether no cases occurred or no cases are reported. .

**Figure I**

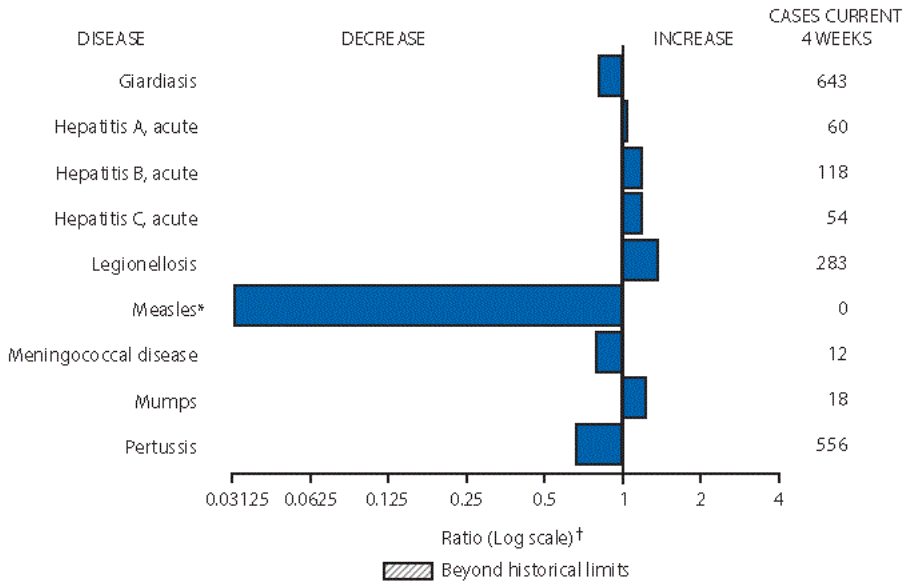
***MMWR* Figure I Title:** Selected notifiable disease reports, United States, comparison of provisional 4-week totals with historical data.

**Data set used:** Weekly data set for Figure 1

**Description:** Conditions to be included in this graphic are agreed upon by the CDC programs and selected for inclusion by statisticians working on the methods. Cases reported from the U.S. territories are not included in Figure I. Figure I, current/past experiences graph is most appropriate for diseases that do not exhibit frequent changes in trend or level and that occur often enough so that a few case notifications during a current week would not indicate an aberration.



**FIGURE I. Selected notifiable disease reports, United States, comparison of provisional 4-week totals October 10, 2015, with historical data**



\* No measles cases were reported for the current 4-week period yielding a ratio for week 40 of zero (0).

† Ratio of current 4-week total to mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years). The point where the hatched area begins is based on the mean and two standard deviations of these 4-week totals.

Methods taken directly from:

**Stroup DF, Wharton M, Kafadar K, and Dean, AG. Evaluation of a method for detecting aberrations in public health surveillance data. American Journal of Epidemiology, Vol 137 (3), 373-380, 1993. <http://aje.oxfordjournals.org/content/137/3/373.full.pdf+html>**

Current case count for each selected condition is the total number of provisional cases reported during the current 4 week period for the 50 states, excluding U.S. territories. To increase the historical sample size and to account for any seasonal effect, the baseline is the average number of cases for the preceding 4-week period, the corresponding 4-week period, and the following 4-week period, for the previous 5 years. This yields 15 correlated observations, referred to as the historical observations or baseline (see graph below).

The choice of 4 weeks as the "current period" is based on evidence of weekly fluctuation in disease reporting that is usually due to irregular reporting rather than to disease incidence. The use of a 5-year history achieves the objective of applying the same model for all conditions depicted, which is particularly helpful because some health events were made notifiable only recently. In addition, modeling of reported influenza incidence has shown that more accurate forecasts are based on more recent data.

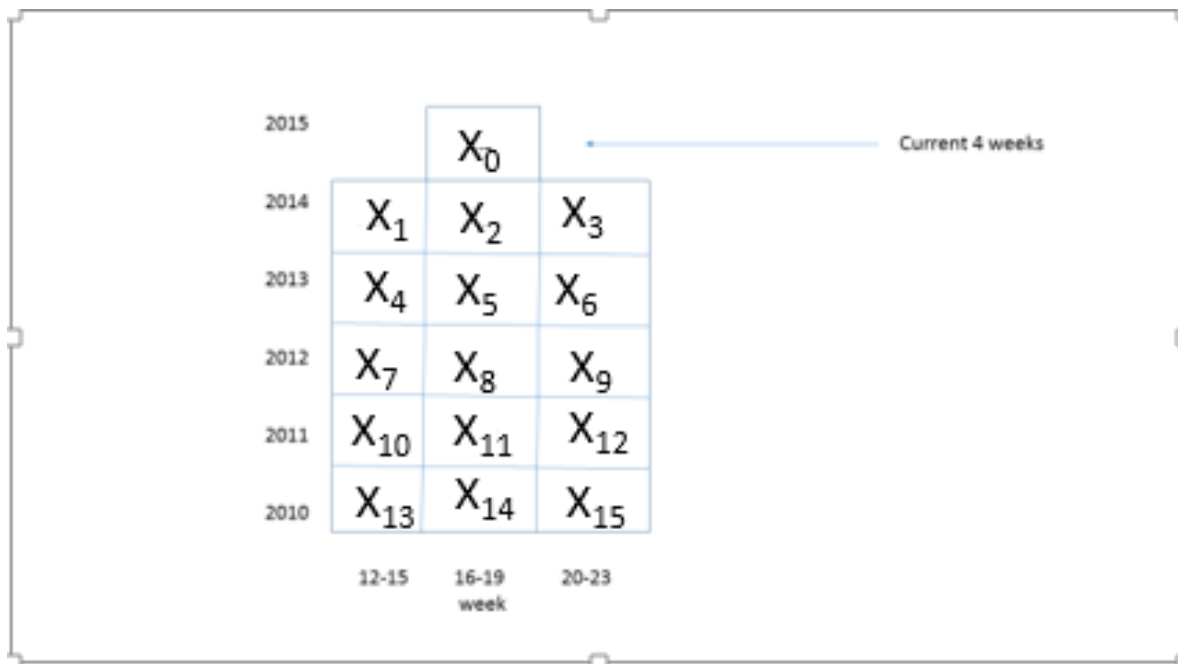
This graphical method was initially introduced by the CDC to display national notifiable disease data in the *MMWR* in April 1990. The method (also known as Figure I in the Weekly *MMWR* report) was developed to detect unusual patterns for selected infectious diseases included in the NNDSS. To support early identification of disease morbidity trends, this method plots unusually high or low numbers of reported cases in the bar graph for each disease by comparing the number of reported cases in the current 4-week period for a given health event with historical data on the same condition from the preceding 5 years.



**Interpretation of the graphic:**

Let  $X_0$  be the number of cases of a given disease reported to CDC in the 4-week period ending with the current week. This method compares the current values with a baseline report consisting of 15 previous totals for the preceding 4-week period, the corresponding 4-week period and the following 4-week period for the previous 5 years, denoted  $X_1, X_2, \dots, X_{15}$ . The method assumes that  $X_1, X_2, \dots, X_{15}$ , and  $X_0$  are independent random variables with the same distribution function. A two-sided confidence interval for the “expected” number of cases for a 4-week period for a given disease is calculated and is used, along with the “observed” current value  $X_0$ , to conclude whether the disease process is “out of range” for the current month. This method assumes that the reported data are normally distributed for each disease and each time period.

The historical limits of the ratio of current reports to the historical mean ( $X_0 / \mu_h$ ) are calculated as 1 plus or minus 2 times the standard deviation divided by the mean ( $1 \pm 2 * (\sigma_h / \mu_h)$ ).  $X_0$  is the current 4-week total,  $\mu_h$  represents the mean of 15 4-week totals (from previous, comparable, and subsequent 4-week periods for the past 5 years), and  $\sigma_h$  represents the standard deviation of historical baseline data.



The number of cases in the current month are presented in the right hand column in the *MMWR* Figure I to facilitate interpretation of instability caused by small numbers. The ratio is plotted on a log scale so that no change from past patterns (a ratio of 1:1) produces a bar of zero length (i.e., centered at 1 on the log scale). A horizontal bar to the right represents increased incidence for the current 4-week total incidence and a bar to the left of the vertical line (where log ratio equals 1) represents decreased incidence. The hatched area in any bar represents unusually high or low reported incidence where the current 4-week count is greater (right-sided) or less than (left-sided) two standard deviations from the mean of the historical observations.

## Table II

**MMWR Table II Title:** Provisional cases of selected notifiable diseases ( $\geq 1,000$  cases reported during the preceding year), and selected low frequency diseases, United States.

**Description:** This table contains provisional data on incident (new) cases of nationally notifiable infectious diseases and conditions for which  $\geq 1,000$  cases were reported in the previous year as well as a few selected low frequency diseases. The data are reported by the 50 states, New York City, Washington DC, and five U.S. territories in aggregate form and are published weekly. These data represent provisional case counts reported to NNDSS that meet the publication criteria. The counts presented for the U.S. and for each region do not include notifications from the U.S. territories. Territory totals are listed separately at the bottom of the table. All notifiable conditions are listed in either Table I or Table II.

The cumulative (year-to-date) incidence data from the previous year are presented in Table II as a crude method to identify aberrations or discrepancies in reported disease data, whether because of disease incidence or reporting artifact.

**Data set used:** provisional data set

**TABLE II. Provisional cases of selected notifiable diseases ( $\geq 1,000$  cases reported during the preceding year), and selected\* low frequency diseases, United States, weeks ending November 14, 2015, and November 8, 2014 (45th week)<sup>†</sup> ([Export data](#))**

Reporting area	<i>Babesiosis</i>					<i>Campylobacteriosis</i>				
	Current week	Previous 52 weeks		Cum 2015	Cum 2014	Current week	Previous 52 weeks		Cum 2015	Cum 2014
		Med	Max				Med	Max		
<b>United States</b>	5	15	148	1,567	1,631	383	830	1,331	38,450	N
<b>New England</b>	2	5	88	823	955	2	49	111	2,492	N
Connecticut	—	1	38	263	209	—	13	34	647	N
Maine	—	0	6	45	38	—	4	8	173	N
Massachusetts	—	2	47	347	521	—	27	46	1,180	N
New Hampshire	—	0	5	35	37	—	5	12	196	N
Rhode Island	1	1	23	125	147	—	1	21	148	N
Vermont	1	0	3	8	3	2	3	10	148	N

### Contents of table:

- **Reporting area** – This column represents the U.S. Department of Health and Human Services Regions (HHS) and the jurisdictions (50 U.S. states, five U.S. territories, New York City and Washington DC) that submit case notifications to NNDSS.
- **Week** -- The week identified in this table refers to the variable “MMWR week” which represents the week of the epidemiologic year (MMWR year) for which the NNDSS disease report is assigned by the local, county, or state health department, for the purposes of MMWR disease incidence reporting or publishing. Jurisdictions assign a case to an MMWR week for a variety of different purposes and the epidemiologic meaning of the MMWR week varies by jurisdiction and by condition. Refer to the MMWR fact sheet for more information about how MMWR weeks are

defined ([http://wwwn.cdc.gov/nndss/document/MMWR\\_Week\\_overview.pdf](http://wwwn.cdc.gov/nndss/document/MMWR_Week_overview.pdf)). *MMWR* week calendars can be found at the bottom of the follow page under *MMWR* Week Calendars <http://wwwn.cdc.gov/nndss/script/downloads.aspx>.

- **Current Week** – For a case to be published in the *MMWR* weekly under current week, it must have been reported to CDC during that week and assigned by the jurisdiction to that *MMWR* week. Cases assigned by the jurisdiction to that *MMWR* week but reported later are published in the *MMWR* weekly report in the cumulative total column for that year, but are not published in any current week column. As a result, the sum of the number of cases published each week under current week does not equal the cumulative sum of cases for that year published each week.
- **Previous 52 weeks**-- The median (med) and the maximum (max) number of cases reported to CDC during the previous 52 *MMWR* weeks are displayed in this column. This enables the reader to compare the current week case count and the cumulative year-to-date case count totals with the “Previous 52 weeks” column for monitoring purposes.
- **Cum (current year)**-- The cumulative current year count presents the cumulative year-to-date provisional counts for the specified disease or condition. This count includes cases reported to CDC during the current week and assigned to that *MMWR* week and cases reported during the current week and assigned to earlier *MMWR* weeks of the current year. The cumulative case count also reflects cases deleted from the cumulative total because the reporting jurisdiction’s case investigations found that the cases did not meet criteria for reporting and publication. As a result, the successive current weekly totals cannot be added to compute the cumulative count in a year, for a specified condition.
- **Cum (previous year)**-- The Cumulative previous year count presents the cumulative number of cases up to the same week last year for comparison purposes.

#### **Abbreviations and symbols used in table:**

- **NN** – Not nationally notifiable
- **N**-- Not reportable (The reporting jurisdiction did not add the condition to the list of reportable conditions in the specified jurisdiction. For data to appear in this table, the condition had to be reportable in the reporting jurisdiction for the specified nationally notifiable condition.).
- **NP**-- Nationally notifiable but not published
- --- -- No reported cases. NNDSS does not receive reports of zero cases and thus cannot distinguish whether no cases occurred or no cases are reported.

## **Table IV**

**MMWR Table IV Title:** Provisional cases of selected notifiable disease, United States.

**Description:** This table contains the total number of tuberculosis cases reported in the United States, by region and state. The data are reported by the 50 states, New York City, the District of Columbia, and the U.S. territories in aggregate form and are published quarterly. The counts presented for the United States and for each region's totals do not include notifications from the U.S. territories. Territory totals are listed separately at the bottom of the table.

**Data set used:** provisional data set

TABLE IV. Provisional cases of selected notifiable disease, United States, 3rd quarter ending October 3, 2015 (39th week) ( <a href="#">Export data</a> )					
Reporting area	Tuberculosis*				
	Current quarter	Previous 4 quarters		Cum 2015	Cum 2014
		Min	Max		
<b>United States</b>	1,615	1,615	2,862	5,803	6,731
<b>New England</b>	42	42	81	179	232
Connecticut	11	6	23	47	52
Maine	7	3	7	15	12
Massachusetts	11	11	58	79	147
New Hampshire	1	1	4	8	9
Rhode Island	10	2	13	25	12
Vermont	2	0	3	5	—

### **Contents of table:**

- **Reporting area** – This column represents the U.S. Department of Health and Human Services Regions and the jurisdictions (50 U.S. states, five U.S. territories, New York City, and Washington, DC) that submit case notifications to NNDSS.
- **MMWR Quarter** – This column represents the quarter of the epidemiologic year for which the NNDSS disease report is assigned by the local, county, or state health department for the purposes of *MMWR* disease incidence reporting or publishing. The *MMWR* Quarter is based on the *MMWR* week. For TB *MMWR* week represents the date CDC surveillance staff verified that the case met the criteria in the national surveillance case definition. *MMWR* week calendars can be found at the bottom of the follow page under *MMWR* Week Calendars: <http://wwwn.cdc.gov/nndss/script/downloads.aspx>

***The MMWR Quarter Schedule is shown below.***

1st QRT: *MMWR* Week 1 -- Week 13

2nd QRT: *MMWR* Week 14 -- Week 26

3rd QRT: *MMWR* Week 27 -- Week 39

4th QRT: *MMWR* Week 40 -- Week 52 (or 53, if applicable)

- **Current quarter** – This column represents the total number of provisional cases reported in the current *MMWR* quarter. *MMWR* quarter is based on *MMWR* week. If a case belonging in the

current quarter is reported in a subsequent quarter, the case will appear in the cumulative total for the year but not the current quarter column. As a result, the sum of the number of cases published each quarter under current quarter does not necessarily equal the cumulative sum of cases for that year published each quarter. The U.S. total for current quarter does not include the territories.

- **Previous 4 quarters (Min)** -- To calculate the national Min, the data are first aggregated to the national level for each quarter, and then the minimum number of cases in a quarter is identified across the 4 quarters. Likewise, to calculate the Min for a region, the data are first aggregated across the states included in the region for each quarter, and then the minimum is identified across the 4 quarters. At the state level, the data are aggregated by quarter, and then the minimum is identified across the 4 quarters. Territories are not included in this calculation.
- **Previous 4 quarters (Max)** -- To calculate the national Max, the data are first aggregated to the national level for each quarter, and then the maximum number of cases in a quarter is identified across the 4 quarters. Likewise, to calculate the Max for a region, the data are first aggregated across the states included in the region for each quarter, and then the maximum is identified across the 4 quarters. At the state level, the data are aggregated by quarter, and then the maximum is identified across the 4 quarters. Territories are not included in this calculation.
- **Cum (for the current year)** — This column represents the cumulative year-to-date provisional counts for the specified condition. This column includes cases reported in the current quarter, but also cases not previously reported because some cases were reported after the quarter ending date. The cumulative case count column includes the outcome of adjustments made for provisional cases added or deleted, based upon the outcome of case investigations, which may not have been represented in the “Current quarter” column. Therefore, the successive current quarterly totals cannot be added to compute the cumulative count in a year, for a specified condition. The cumulative total does not include the territories.
- **Cum (for the previous year)** -- The Cumulative previous year count presents the cumulative number of cases up to the same quarter last year for comparison purposes.

#### **Abbreviations and symbols used in table:**

- --- -- No reported cases. NNDSS does not receive reports of zero cases and thus cannot distinguish whether no cases occurred or no cases are reported.

## **MMWR Early Release Report (MMWR)**

**Table 2**

**MMWR Table 2 Title:** Reported cases of notifiable diseases, by geographic division and area – United States and U.S. territories.

**Description:** This table contains finalized data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. The data are reported to CDC by the 50 states, New York City, Washington DC and the U.S. territories and are presented by Disease, Geographic Region (HHS Regions), and State or Territory. Cases reported from the U.S. territories are not included in the U.S. total case counts or in the HHS regional counts. Counts from the Territories are included separately at the bottom of the table. Total resident population (in thousands) is included in the table to allow the reader to calculate rates. Prior to 2014, the population estimates were taken from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates were taken from the current year. See the “Interpreting the Results” section to learn more about the census data used to calculate rates. Reasons that conditions may not appear in this table include the following: 1) Data for a specified condition were undergoing data quality review and assessment, or 2) the data could not be finalized before the Early Release tables were published (and in this situation, a condition would appear in the Summary but not in the Early Release table for the specified year).

**Data set used:** Final data set

TABLE 2. Reported cases of notifiable diseases,* by geographic division and area – United States, 2014										
Area	Total resident population (in thousands)	Arboviruses <sup>†</sup>								
		California serogroup <sup>§</sup>		Eastern equine encephalitis	Powassan		St. Louis encephalitis		West Nile	
		Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Nonneuro-invasive
<b>United States</b>	318,856	85	11	8	7	1	6	4	1,347	858
<b>New England</b>	14,681	2	—	4	4	—	—	—	8	4
Connecticut	3,597	—	—	—	—	—	—	—	3	3
Maine	1,330	—	—	1	—	—	—	—	—	—
Massachusetts	6,745	2	—	—	4	—	—	—	5	1
New Hampshire	1,327	—	—	3	—	—	—	—	—	—

# ***MMWR* Annual Report**

## **(also known as the annual “Summary”)**

### **Part 1**

#### **Table 1**

**MMWR Table 1 title.** Number of reported cases of notifiable diseases, by month (excluding U.S. territories) -- United States, YYYY

**Description:** This table contains finalized data on incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC during the preceding year as of a particular date. The data are reported by the 50 states, New York City, and Washington DC in aggregate form by Disease and *MMWR* month (computed from *MMWR* week) (including January--December, and unknown month). Cases reported from the U.S. territories are not included in Table I.

**Data set used:** Final

Disease	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Month not stated	Total
<b>Arboviral diseases<sup>†</sup></b>														
<b>California serogroup viruses</b>														
neuroinvasive	—	—	—	—	1	10	14	37	26	6	1	—	—	95
nonneuroinvasive	1	—	—	—	—	4	4	5	3	—	—	—	—	17
<b>Eastern equine encephalitis virus</b>														
neuroinvasive	2	—	1	—	—	1	—	2	—	2	—	—	—	8
<b>Powassan virus</b>														
neuroinvasive	—	—	—	—	3	1	2	2	1	2	1	—	—	12
nonneuroinvasive	—	—	—	—	—	1	—	1	—	—	1	—	—	3
<b>St. Louis encephalitis virus</b>														
neuroinvasive	—	—	—	—	—	—	—	—	—	1	—	—	—	1
<b>West Nile virus</b>														
neuroinvasive	1	—	2	1	2	16	131	440	523	139	11	1	—	1,267
nonneuroinvasive	1	—	1	2	3	22	150	496	448	71	6	2	—	1,202

#### **Table 2**

**MMWR Table 2 title.** Number of reported cases of notifiable diseases, by region and reporting area – United States and US territories

**Description:** This table contains finalized data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. The data are reported to CDC by the 50 states, New York City, Washington DC and the U.S. territories and are presented by Disease, Geographic Region (HHS Regions), and State or Territory. Cases reported from the U.S. territories are not included in the U.S. total case counts or in the HHS regional counts. Counts from the territories are included separately at the bottom of the table. Total resident population (in thousands) is included in the table to allow the reader to calculate rates. Prior to 2014, the population estimates were taken from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates were taken from the current year. See the “Interpreting the Results” section to learn more about the census data used to calculate rates.

**Data set used:** Final



Area	Total resident population (in thousands)	Arboviruses <sup>†</sup>							
		California serogroup <sup>§</sup>		Eastern equine encephalitis	Powassan		St. Louis encephalitis	West Nile	
		Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive	Neuro-invasive	Neuro-invasive	Nonneuro-invasive
<b>United States</b>	313,875	95	17	8	12	3	1	1,267	1,202
<b>New England</b>	14,564	3	—	2	3	—	—	11	5
Connecticut	3,592	—	—	1	—	—	—	1	3
Maine	1,329	—	—	—	1	—	—	—	—
Massachusetts	6,645	1	—	1	1	—	—	7	1
New Hampshire	1,322	1	—	—	1	—	—	1	—
Rhode Island	1,050	1	—	—	—	—	—	1	—
Vermont	626	—	—	—	—	—	—	1	1

**Table 3**

**MMWR Table 3 title.** Number of reported cases of notifiable diseases and rates per 100,000 population, by age group (excluding US territories) -- United States

**Description:** This table contains finalized data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. The table contains data from 50 states, New York City, and Washington DC in aggregate form by Disease and Age Group (<1 year, 1--4 years, 5--14 years, 15--24 years, 25--39 years, 40--64 years, 65+ years, and age not stated). Cases among persons aged <15 years are not shown for Chancroid, *Chlamydia trachomatis* infection, Gonorrhea, and Syphilis because some disease might not be caused by sexual transmission. Prior to 2014, the population estimates (per 100,000 population) used to calculate the rates were taken from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates are taken from the current year. Territories are not included in Table 3. See the “Interpreting the Results” section below to learn more about the census data used to calculate rates.

**Data set used:** Final

Disease	<1 yr		1–4 yrs		5–14 yrs		15–24 yrs		25–39 yrs		40–64 yrs		>65 yrs		Age not stated	Total
	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate	No.	Rate		
Arboviral diseases <sup>§</sup>																
California serogroup viruses																
neuroinvasive	2	(0.05)	18	(0.11)	51	(0.12)	6	(0.01)	6	(0.01)	10	(0.01)	2	(0.00)	—	<b>95</b>
nonneuroinvasive	1	(0.03)	1	(0.01)	3	(0.01)	—	(0.00)	2	(0.00)	9	(0.01)	1	(0.00)	—	<b>17</b>
Eastern equine encephalitis virus																
neuroinvasive	—	(0.00)	—	(0.00)	2	(0.00)	—	(0.00)	—	(0.00)	3	(0.00)	3	(0.01)	—	<b>8</b>
Powassan virus																
neuroinvasive	—	(0.00)	1	(0.01)	—	(0.00)	—	(0.00)	1	(0.00)	5	(0.00)	5	(0.01)	—	<b>12</b>
nonneuroinvasive	—	(0.00)	—	(0.00)	—	(0.00)	—	(0.00)	—	(0.00)	—	(0.00)	3	(0.01)	—	<b>3</b>
St. Louis encephalitis virus																
neuroinvasive	—	(0.00)	—	(0.00)	—	(0.00)	—	(0.00)	—	(0.00)	1	(0.00)	—	(0.00)	—	<b>1</b>
West Nile virus																
neuroinvasive	1	(0.03)	1	(0.01)	18	(0.04)	65	(0.15)	161	(0.26)	563	(0.54)	458	(1.06)	—	<b>1,267</b>
nonneuroinvasive	1	(0.03)	3	(0.02)	27	(0.07)	80	(0.18)	209	(0.34)	628	(0.60)	254	(0.59)	—	<b>1,202</b>

**Table 4**

**MMWR Table 4 title:** Number of reported cases of notifiable diseases and rates per 100,000 population, by sex (excluding U.S. territories) -- United States

**Description:** This table contains data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. The table contains data from 50 states, New York City, and Washington DC in aggregate form by Disease and Sex (male, female, and sex not stated). Prior to 2014, the population estimates (per 100,000 population) used to calculate the rates were from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates were from the current year. Cases reported from the U.S. territories are not included in Table 4. See the “Interpreting the Results” section below to learn more about the census data used to calculate rates.

**Data set used:** Final

Disease	Male		Female		Sex not stated	Total
	No.	Rate	No.	Rate		
Arboviral diseases <sup>§</sup>						
California serogroup viruses						
neuroinvasive	59	(0.04)	36	(0.02)	—	<b>95</b>
nonneuroinvasive	12	(0.01)	5	(0.00)	—	<b>17</b>
Eastern equine encephalitis virus						
neuroinvasive	6	(0.00)	2	(0.00)	—	<b>8</b>
Powassan virus						
neuroinvasive	9	(0.01)	3	(0.00)	—	<b>12</b>
nonneuroinvasive	2	(0.00)	1	(0.00)	—	<b>3</b>

**Table 5**

**MMWR Table 5 title.** Number of reported cases of notifiable diseases and rates per 100,000, by race (excluding U.S. territories) -- United States

**Description:** This table contains data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. Diseases or conditions with less than 25 incident (new) cases nationally are not included in this table. The table contains data from 50 states, New York City, and Washington DC in aggregate form by Disease and Race (American Indian or Alaska Native, Asian or Pacific Islander, Black, White, Other, Race not stated). Prior to 2014, the population estimates (per 100,000 population) used to calculate the rates were taken from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates were taken from the current year. Cases reported from the U.S. territories are not included in Table 5. See the “Interpreting the Results” section below to learn more about the census data used to calculate rates.

**Data set used:** Final

TABLE 5. Reported cases and incidence* of notifiable diseases, <sup>†</sup> by race — United States, 2013											
Disease	American Indian or Alaska Native		Asian or Pacific Islander		Black		White		Other	Race not stated	Total
	No.	Rate	No.	Rate	No.	Rate	No.	Rate			
Arboviral diseases <sup>§</sup>											
California serogroup viruses											
neuroinvasive	0	(0.00)	0	(0.00)	3	(0.01)	79	(0.03)	0	13	<b>95</b>
West Nile Virus											
neuroinvasive	23	(0.52)	12	(0.07)	69	(0.16)	889	(0.36)	28	246	<b>1,267</b>
nonneuroinvasive	16	(0.36)	5	(0.03)	15	(0.03)	859	(0.35)	19	288	<b>1,202</b>
Babesiosis, total <sup>¶</sup>	7	(0.29)	44	(0.34)	32	(0.14)	1,076	(0.74)	25	612	<b>1,796</b>
confirmed	4	(0.14)	41	(0.31)	28	(0.11)	892	(0.59)	24	493	<b>1,482</b>
probable	3	(0.11)	3	(0.02)	4	(0.02)	184	(0.12)	1	119	<b>314</b>
Botulism, total	1	(0.02)	8	(0.04)	11	(0.03)	97	(0.04)	1	34	<b>152</b>
infant	—	(—)	8	(3.40)	10	(1.47)	86	(2.92)	1	31	<b>136</b>
Brucellosis	2	(0.05)	4	(0.02)	5	(0.01)	59	(0.02)	10	19	<b>99</b>

**Table 6**

**MMWR Table 6 title.** Number of reported cases of notifiable diseases and rates per 100,000 population, by ethnicity (excluding U.S. territories) -- United States

**Description:** This table contains data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC for the specified year as of a particular date. Diseases or conditions with less than 25 incident (new) cases nationally are not included in this table. The table contains data from 50 states, New York City, and Washington DC in aggregate form by Disease and Ethnicity (Hispanic, Non-Hispanic, Ethnicity not stated). Prior to 2014, the population estimates (per 100,000 population) used to calculate the rates were taken from the prior year (e.g., 2011 data used 2010 population estimates). Starting in 2014, the population estimates were taken from the current year. Cases reported from the U.S. territories are not included in Table 6. See the “Interpreting the Results” section below to learn more about the census data used to calculate rates.

**Data set used:** Final

Disease	Hispanic		Non-Hispanic		Ethnicity not stated	Total
	No.	Rate	No.	Rate		
Arboviral diseases <sup>§</sup>						
California serogroup viruses						
neuroinvasive	1	(0.00)	75	(0.03)	19	<b>95</b>
West Nile virus						
neuroinvasive	133	(0.25)	780	(0.30)	354	<b>1,267</b>
nonneuroinvasive	51	(0.10)	778	(0.30)	373	<b>1,202</b>
Babesiosis, total <sup>¶</sup>	96	(0.27)	831	(0.57)	869	<b>1,796</b>
confirmed	84	(0.23)	676	(0.43)	722	<b>1,482</b>
probable	12	(0.03)	155	(0.10)	147	<b>314</b>
Botulism, total	25	(0.05)	94	(0.04)	33	<b>152</b>

## Interpreting the tables

### Population estimates

The population estimates are from the National Center for Health Statistics (NCHS) postcensal estimates of resident population of the United States for July 1, 2013–July 1, 2014, by year, county, single-year of age (0–≥85 years), bridged race, Hispanic origin, and sex (Vintage 2014), prepared under a collaborative arrangement with the U.S. Census Bureau. Population estimates for states as of June 25, 2015 are available at [http://www.cdc.gov/nchs/nvss/bridged\\_race/data\\_documentation.htm](http://www.cdc.gov/nchs/nvss/bridged_race/data_documentation.htm). The population estimates for territories are 2014 estimates from the US Census Bureau and are located at <http://www.census.gov/population/international/data/idb/informationGateway.php>.

### Abbreviations and symbols used in tables

- **U** – Data not available.
- **N** – Not reportable (i.e., report of disease is not required in that jurisdiction).
- --- -- No reported cases. NNDSS does not receive reports of zero cases and thus cannot distinguish whether no cases occurred or no cases are reported.

## Part 2

### Graphs and Maps for Selected Notifiable Diseases in the United States

**General information:** Each year selected diseases are highlighted with charts and graphs including line and bar graphs (cases and incidence), pie charts, and, state and county level maps (case counts and incidence rates).

### Abbreviations and symbols

- **U** – Data not available.
- **N** – Not reportable (i.e., report of disease not required in that jurisdiction).
- **DC** – District of Columbia
- **NYC** – New York City
- **AS** – American Samoa
- **CNMI** – Commonwealth of Northern Mariana Islands
- **GU** – Guam
- **PR** – Puerto Rico
- **VI** – U.S. Virgin Islands

## Part 3

### Historical Summaries of Notifiable Diseases

#### **Table 7**

**MMWR Table 7 title:** Rate per 100,000 population of notifiable diseases (excluding U.S. territories), by year – United States

**Description:** This table contains data on a select subset of incident (new) cases of nationally notifiable infectious diseases and conditions reported to CDC during the last 11 years. The data are reported by the 50 states, New York City, and Washington DC by Disease and Year. Cases reported from the U.S. territories are not included in Table 7.

**Data set used:** Final

Disease	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
AIDS	15.36	15.28	14	12.9	12.5	13	†	†	†	†	†
Anthrax	—	—	—	0	0	0	0	0	0	0	0
Arboviral diseases <sup>§</sup>											
California serogroup virus disease											
neuroinvasive	—	—	0.02	0.02	0.02	0.02	0.02	0.02	0.04	0.02	0.03
nonneuroinvasive	†	†	0	0	0	0	0	0	0.01	0	0.01
Eastern equine encephalitis virus disease											
neuroinvasive	—	—	0	0	0	0	0	0	0	0	0
nonneuroinvasive	†	†	0	0	0	0	0	—	—	—	—
Powassan virus disease											
neuroinvasive	—	—	0	0	0	0	0	0	0	0	0
nonneuroinvasive	†	†	0	0	0	0	—	—	0	0	0

#### **Table 8**

**MMWR Table VIII title:** Number of deaths from selected nationally notifiable infectious diseases, United States

**Description:** These data are provided by the NCHS, National Vital Statistics System. They are also available on CDC WONDER as Compressed Mortality files (<http://wonder.cdc.gov/mortSQL.html>). The table contains number of deaths for the selected nationally notifiable infectious diseases and conditions for the previous 7 years. Underlying causes of death are classified according to International Classification of Disease (ICD) 10. Data are limited by the accuracy of the information regarding the underlying cause of death indicated on death certificates and reported to the National Vital Statistics System.

**Data set used:** Compressed Mortality Files

Cause of death	ICD-10 <sup>†</sup> cause of death code	No. of deaths						
		2005	2006	2007	2008	2009	2010	2011
Anthrax	A22	0	0	0	0	0	0	0
Babesiosis	B60.0	4	5	6	7	6	4	5
Botulism, foodborne	A05.1	5	3	6	4	3	0	0
Brucellosis	A23	2	2	1	0	1	0	1
Cholera (toxigenic <i>Vibrio cholerae</i> O1 or O139)	A00	0	0	1	0	1	0	0
Coccidioidomycosis	B38	76	110	99	72	87	92	88
Cryptosporidiosis	A07.2	2	2	2	3	2	4	4
Cyclosporiasis	A07.8	0	0	0	0	0	0	0
Dengue fever	A90	2	0	0	0	1	2	0
Dengue hemorrhagic fever	A91	0	0	0	0	0	1	0
Diphtheria	A36.0, A36.1, A36.2	0	0	0	0	0	0	0