

# Cumulative Incidence of West Nile Virus Infection, Continental United States, 1999–2016

## Appendix

**Appendix Table 1.** Estimated West Nile virus seroprevalence, by state, sex, and age, continental United States, 1999–2016\*

| State          | Male population, age, y, no. seropositive |        |         |         |        | Female population, age, y, no. seropositive |        |        |         |        | Estimated total (95% CI)    |
|----------------|---|--------|---------|---------|--------|---|--------|--------|---------|--------|-----------------------------|
|                | <15                                       | 15–24  | 25–44   | 45–64   | ≥65    | <15   | 15–24  | 25–44  | 45–64   | ≥65    |                             |
| Alabama        | 4,201                                     | 1,440  | 6,069   | 11,703  | 2,244  | 4,201                                       | –      | 2,317  | 7,760   | 1,922  | 41,857 (34,958–50,876)      |
| Arizona        | 54,613                                    | 14,400 | 42,483  | 27,639  | 10,098 | 37,809                                      | 16,016 | 24,163 | 53,544  | 7,936  | 288,701 (247,336–344,338)   |
| Arkansas       | 16,804                                    | 6,480  | 6,783   | 10,956  | 2,703  | 12,603                                      | 4,928  | 7,613  | 12,804  | 2,170  | 83,844 (71,960–99,103)      |
| California     | 147,035                                   | 61,920 | 110,670 | 211,650 | 34,680 | 84,020                                      | 55,440 | 55,608 | 158,692 | 25,358 | 945,073 (796,377–1,135,877) |
| Colorado       | 46,211                                    | 25,920 | 54,621  | 58,266  | 11,475 | 42,010                                      | 43,120 | 48,326 | 72,168  | 9,548  | 411,665 (340,679–501,771)   |
| Connecticut    | 4,201                                     | 1,440  | 1,428   | 5,478   | 1,020  | –   | 1,232  | 2,317  | 3,880   | 1,116  | 22,112 (18,118–27,152)      |
| Delaware       | 4,201                                     | 720    | –       | 249     | 408    | –   | 2,464  | –      | 1,552   | 186    | 9,780 (8,439–11,518)        |
| DC             | –   | –      | 1,071   | 2,490   | 867    | 4,201                                       | –      | 1,655  | 3,104   | 496    | 13,884 (12,034–16,560)      |
| Florida        | 21,005                                    | 6,480  | 12,852  | 18,177  | 2,703  | 12,603                                      | –      | 6,951  | 14,744  | 1,674  | 97,189 (84,646–113,625)     |
| Georgia        | 21,005                                    | 5,760  | 6,069   | 14,691  | 2,295  | 4,201                                       | 2,464  | 4,303  | 7,760   | 2,356  | 70,904 (60,473–83,449)      |
| Idaho          | 33,608                                    | 4,320  | 6,069   | 9,711   | 1,836  | 12,603                                      | 3,696  | 7,613  | 13,192  | 1,674  | 94,322 (84,589–107,494)     |
| Illinois       | 54,613                                    | 23,760 | 42,483  | 59,511  | 15,555 | 37,809                                      | 34,496 | 41,706 | 101,268 | 15,500 | 426,701 (358,944–521,001)   |
| Indiana        | 21,005                                    | 8,640  | 9,996   | 16,434  | 3,876  | 21,005                                      | 8,624  | 12,578 | 24,444  | 3,782  | 130,384 (111,964–155,196)   |
| Iowa           | 12,603                                    | 10,080 | 10,353  | 11,205  | 2,499  | 16,804                                      | 4,928  | 6,289  | 10,476  | 1,984  | 87,221 (73,68–103,366)      |
| Kansas         | 33,608                                    | 2,880  | 10,710  | 15,438  | 3,672  | 8,402                                       | 11,088 | 7,613  | 14,356  | 2,480  | 110,247 (94,921–129,445)    |
| Kentucky       | 4,201                                     | –      | 2,856   | 2,988   | 2,040  | 4,201                                       | 1,232  | 5,296  | 3,492   | 1,116  | 27,422 (22,628–33,223)      |
| Louisiana      | 67,216                                    | 20,160 | 39,627  | 45,816  | 10,710 | 50,412                                      | 38,192 | 28,797 | 53,544  | 9,424  | 363,898 (308,216–433,888)   |
| Maine          | –   | –      | 357     | 249     | –      | –   | –      | –      | –       | –      | 606 (467–749)               |
| Maryland       | 4,201                                     | 4,320  | 4,284   | 10,956  | 2,805  | –   | 2,464  | 3,972  | 14,744  | 2,666  | 50,412 (41,364–63,318)      |
| Massachusetts  | 8,402                                     | 1,440  | 1,785   | 5,229   | 1,020  | –   | –      | 1,655  | 7,760   | 1,488  | 28,779 (25,162–34,421)      |
| Michigan       | 50,412                                    | 11,520 | 31,059  | 49,800  | 11,475 | 21,005                                      | 17,248 | 31,114 | 52,380  | 9,920  | 285,933 (239,959–345,932)   |
| Minnesota      | 21,005                                    | 4,320  | 12,852  | 12,201  | 3,723  | 8,402                                       | 9,856  | 6,289  | 11,640  | 1,488  | 91,776 (77,489–109,223)     |
| Mississippi    | 63,015                                    | 14,400 | 27,489  | 31,872  | 7,803  | 33,608                                      | 23,408 | 14,564 | 34,532  | 7,130  | 257,821 (221,077–303,858)   |
| Missouri       | 25,206                                    | 6,480  | 13,566  | 23,904  | 5,049  | 4,201                                       | 9,856  | 11,254 | 23,280  | 4,278  | 127,074 (106,130–154,224)   |
| Montana        | 12,603                                    | 2,880  | 4,641   | 6,972   | 1,683  | 8,402                                       | 2,464  | 5,958  | 12,416  | 1,178  | 59,197 (52,051–69,553)      |
| Nebraska       | 54,613                                    | 15,120 | 27,489  | 29,631  | 6,375  | 25,206                                      | 18,480 | 23,832 | 33,756  | 3,968  | 238,470 (203,623–282,255)   |
| Nevada         | 4,201                                     | 720    | 2,856   | 5,478   | 2,091  | 4,201                                       | 2,464  | 2,317  | 8,924   | 1,178  | 34,430 (29,494–41,707)      |
| New Hampshire  | –   | 720    | 714     | 249     | 51     | –   | –      | –      | –       | –      | 1,734 (1,273–2,198)         |
| New Jersey     | –   | 720    | 5,712   | 6,723   | 2,397  | –   | –      | 4,303  | 6,208   | 1,736  | 27,799 (21,554–35,782)      |
| New Mexico     | 25,206                                    | 5,040  | 8,211   | 14,442  | 3,978  | 16,804                                      | 11,088 | 7,944  | 14,356  | 2,294  | 109,363 (94,165–128,385)    |
| New York       | 25,206                                    | 5,760  | 15,708  | 28,635  | 9,231  | 8,402                                       | 7,392  | 9,930  | 28,712  | 6,634  | 145,610 (121,475–177,515)   |
| North Carolina | 4,201                                     | –      | 2,499   | 1,992   | 510    | 4,201                                       | 1,232  | 1,655  | 2,716   | 248    | 19,254 (17,012–22,224)      |

| State          | Male population, age, y, no. seropositive |                                  |                                  |                                      |                                  | Female population, age, y, no. seropositive |                                  |                                  |  |                                 | Estimated total (95% CI)            |
|----------------|---|----------------------------------|----------------------------------|--------------------------------------|----------------------------------|---|----------------------------------|----------------------------------|--|---------------------------------|-------------------------------------|
|                | <15                                       | 15–24                            | 25–44                            | 45–64                                | ≥65                              | <15   | 15–24                            | 25–44                            | 45–64                                  | ≥65                             |                                     |
| North Dakota   | 16,804                                    | 11,520                           | 12,138                           | 15,936                               | 4,029                            | 8,402                                       | 9,856                            | 8,937                            | 15,132                                 | 2,294                           | 105,048 (86,790–127,315)            |
| Ohio           | 25,206                                    | 5,760                            | 25,347                           | 25,896                               | 9,690                            | 33,608                                      | 13,552                           | 20,853                           | 27,936                                 | 7,750                           | 195,598 (163,128–235,855)           |
| Oklahoma       | 21,005                                    | 7,920                            | 11,781                           | 23,655                               | 6,069                            | 12,603                                      | 9,856                            | 9,599                            | 16,296                                 | 5,022                           | 123,806 (102,379–149,730)           |
| Oregon         | –   | 720                              | –                                | 1,743                                | 306                              | –   | 2,464                            | 1,324                            | 2,328                                  | 372                             | 9,257 (7,178–11,936)                |
| Pennsylvania   | 8,402                                     | 7,920                            | 6,426                            | 14,442                               | 3,876                            | 25,206                                      | 14,784                           | 9,599                            | 21,728                                 | 3,720                           | 116,103 (97,991–139,894)            |
| Rhode Island   | –   | 720                              | 357                              | 249                                  | 102                              | –   | –                                | –                                | 1,940                                  | 124                             | 3,492 (3,057–4,413)                 |
| South Carolina | –   | 720                              | 1,785                            | 2,490                                | 510                              | –   | 1,232                            | 662                              | 3,104                                  | 372                             | 10,875 (8,737–13,826)               |
| South Dakota   | 21,005                                    | 12,960                           | 26,775                           | 18,426                               | 4,590                            | 54,613                                      | 14,784                           | 17,874                           | 26,772                                 | 3,038                           | 200,837 (173,049–235,744)           |
| Tennessee      | 4,201                                     | 4,320                            | 6,426                            | 8,466                                | 2,703                            | 12,603                                      | 3,696                            | 3,641                            | 8,148                                  | 3,348                           | 57,552 (47,494–69,891)              |
| Texas          | 201,648                                   | 66,240                           | 110,313                          | 163,842                              | 35,241                           | 92,422                                      | 76,384                           | 79,440                           | 144,724                                | 25,978                          | 996,232 (839,980–1,191,226)         |
| Utah           | 16,804                                    | 3,600                            | 3,927                            | 8,466                                | 1,071                            | 12,603                                      | 9,856                            | 5,627                            | 5,044                                  | 992                             | 67,990 (58,388–78,948)              |
| Vermont        | –   | –                                | –                                | 498                                  | 51                               | –   | –                                | –                                | –                                      | –                               | 549 (439–660)                       |
| Virginia       | 12,603                                    | –                                | 3,213                            | 6,225                                | 1,836                            | –   | –                                | 1,655                            | 4,268                                  | 930                             | 30,730 (26,977–35,661)              |
| Washington     | 4,201                                     | 720                              | 2,142                            | 2,739                                | 714                              | –   | –                                | 662                              | 2,328                                  | 434                             | 13,940 (11,937–16,574)              |
| West Virginia  | –   | –                                | 357                              | 996                                  | 306                              | –   | –                                | –                                | 388                                    | 124                             | 2,171 (1,697–2,757)                 |
| Wisconsin      | 12,603                                    | 2,160                            | 4,641                            | 8,466                                | 1,785                            | 8,402                                       | 3,696                            | 1,986                            | 6,208                                  | 1,302                           | 51,249 (44,547–59,628)              |
| Wyoming        | 25,206                                    | 2,160                            | 3,927                            | 10,458                               | 1,377                            | 4,201                                       | 11,088                           | 6,289                            | 10,088                                 | 1,426                           | 76,220 (65,740–89,346)              |
| Total (95% CI) | 1,214,089<br>(–)                          | 395,280<br>(281,088–<br>506,178) | 742,917<br>(547,303–<br>946,855) | 1,063,728<br>(871,488–<br>1,255,968) | 241,128<br>(146,568–<br>340,416) | 751,979<br>(–)                              | 505,120<br>(335,380–<br>675,270) | 556,080<br>(391,440–<br>722,400) | 1,104,636<br>(1,127,412–<br>1,355,172) | 190,154<br>(55,206–<br>334,303) | 6,765,111 (5,721,953–<br>8,102,630) |

\*Case estimates were calculated by using ArboNET data for number of WNNND cases by state and WNNND:infection ratios reported in previous studies. For persons ≥16 years of age, the age- and sex-stratified WNNND:infection estimates and 95% CIs from Carson et al. (1) were used. For persons <16 years of age, the WNNND:infection ratio of 1:4,200 (1 case reported for every 4,200 undetected cases) calculated by Mandalakas et al. (2) was used; 95% CIs were not reported in this study and were not calculated for this age group in this study. All 95% CIs calculated can be found in Appendix Table 2. WNNND, West Nile neuroinvasive disease.

**Appendix Table 2.** Estimated 95% CIs of West Nile virus seroprevalence, by state, sex, and age, continental United States, 1999–2016\*

| State          | Male population, age, y, 95% CI of seroprevalence |                |                 |               | Female population, age, y, 95% CI of seroprevalence |                |                 |              | Total             |
|----------------|---|----------------|-----------------|---------------|---|----------------|-----------------|--------------|-------------------|
|                | 15–24   | 25–44          | 45–64           | ≥65           | 15–24   | 25–44          | 45–64           | ≥65          |                   |
| Alabama        | 1,024–1,844                                       | 4,471–7,735    | 9,588–13,818    | 1,364–3,168   | –   | 1,631–3,010    | 7,920–9,520     | 558–3,379    | 34,958–50,876     |
| Arizona        | 10,240–18,440                                     | 31,297–54,145  | 22,644–32,634   | 6,138–14,256  | 10,634–21,411                                       | 17,009–31,390  | 54,648–65,688   | 2,304–13,952 | 247,336–344,338   |
| Arkansas       | 4,608–8,298                                       | 4,997–8,645    | 8,976–12,936    | 1,643–3,816   | 3,272–6,588   | 5,359–9,890    | 13,068–15,708   | 630–3,815    | 71,960–99,103     |
| California     | 44,032–79,292                                     | 81,530–141,050 | 173,400–249,900 | 21,080–48,960 | 36,810–74,115                                       | 39,144–72,240  | 161,964–194,684 | 7,362–4,4581 | 796,377–1,135,877 |
| Colorado       | 18,432–33,192                                     | 40,239–69,615  | 47,736–68,796   | 6,975–16,200  | 28,630–57,645                                       | 34,018–62,780  | 73,656–88,536   | 2,772–16,786 | 340,679–501,771   |
| Connecticut    | 1,024–1,844                                       | 1,052–1,820    | 4,488–6,468     | 620–1,440     | 818–1,647   | 1,631–3,010    | 3,960–4,760     | 324–1,962    | 18,118–27,152     |
| Delaware       | 512–922   | –              | 204–294         | 248–576       | 1,636–3,294   | –              | 1,584–1,904     | 54–327       | 8,439–11,518      |
| DC             | –   | 789–1,365      | 2,040–2,940     | 527–1,224     | –   | 1,165–2,150    | 3,168–3,808     | 144–872      | 12,034–16,560     |
| Florida        | 4,608–8,298                                       | 9,468–16,380   | 14,892–21,462   | 1,643–3,816   | –   | 4,893–9,030    | 15,048–18,088   | 486–2,943    | 84,646–113,625    |
| Georgia        | 4,096–7,376                                       | 4,471–7,735    | 12,036–17,346   | 1,395–3,240   | 1,636–3,294   | 3,029–5,590    | 7,920–9,520     | 684–4,142    | 60,473–83,449     |
| Idaho          | 3,072–5,532                                       | 4,471–7,735    | 7,956–11,466    | 1,116–2,592   | 2,454–4,941   | 5,359–9,890    | 13,464–16,184   | 486–2,943    | 84,589–107,494    |
| Illinois       | 16,896–30,426                                     | 31,297–54,145  | 48,756–70,266   | 9,455–21,960  | 22,904–46,116                                       | 29,358–54,180  | 103,356–124,236 | 4,500–27,250 | 358,944–521,001   |
| Indiana        | 6,144–11,064                                      | 7,364–12,740   | 13,464–19,404   | 2,356–5,472   | 5,726–11,529  | 8,854–16,340   | 24,948–29,988   | 1,098–6,649  | 111,964–155,196   |
| Iowa           | 7,168–12,908                                      | 7,627–13,195   | 9,180–13,230    | 1,519–3,528   | 3,272–6,588   | 4,427–8,170    | 10,692–12,852   | 576–3,488    | 73,868–103,366    |
| Kansas         | 2,048–3,688                                       | 7,890–13,650   | 12,648–18,228   | 2,232–5,184   | 7,362–14,823  | 5,359–9,890    | 14,652–17,612   | 720–4,360    | 94,921–129,445    |
| Kentucky       | –   | 2,104–3,640    | 2,448–3,528     | 1,240–2,880   | 818–1,647   | 3,728–6,880    | 3,564–4,284     | 324–1,962    | 22,628–33,223     |
| Louisiana      | 14,336–25,816                                     | 29,193–50,505  | 37,536–54,096   | 6,510–15,120  | 25,358–51,057                                       | 20,271–37,410  | 54,648–65,688   | 2,736–16,568 | 308,216–433,888   |
| Maine          | –   | 263–455        | 204–294         | –             | –   | –              | –               | –            | 467–749           |
| Maryland       | 3,072–5,532                                       | 3,156–5,460    | 8,976–12,936    | 1,705–3,960   | 1,636–3,294   | 2,796–5,160    | 15,048–18,088   | 774–4,687    | 41,364–63,318     |
| Massachusetts  | 1,024–1,844                                       | 1,315–2,275    | 4,284–6,174     | 620–1,440     | –   | 1,165–2,150    | 7,920–9,520     | 432–2,616    | 25,162–34,421     |
| Michigan       | 8,192–14,752                                      | 22,881–39,585  | 40,800–58,800   | 6,975–16,200  | 11,452–23,058                                       | 21,902–40,420  | 53,460–64,260   | 2,880–17,440 | 239,959–345,932   |
| Minnesota      | 3,072–5,532                                       | 9,468–16,380   | 9,996–14,406    | 2,263–5,256   | 6,544–13,176  | 4,427–8,170    | 11,880–14,280   | 432–2,616    | 77,489–109,223    |
| Mississippi    | 10,240–18,440                                     | 20,251–35,035  | 26,112–37,632   | 4,743–11,016  | 15,542–31,293                                       | 10,252–18,920  | 35,244–42,364   | 2,070–12,535 | 221,077–303,858   |
| Missouri       | 4,608–8,298                                       | 9,994–17,290   | 19,584–28,224   | 3,069–7,128   | 6,544–13,176  | 7,922–14,620   | 23,760–28,560   | 1,242–7,521  | 106,130–154,224   |
| Montana        | 2,048–3,688                                       | 3,419–5,915    | 5,712–8,232     | 1,023–2,376   | 1,636–3,294   | 4,194–7,740    | 12,672–15,232   | 342–2,071    | 52,051–69,553     |
| Nebraska       | 10,752–19,362                                     | 20,251–35,035  | 24,276–34,986   | 3,875–9,000   | 12,270–24,705                                       | 16,776–30,960  | 34,452–41,412   | 1,152–6,976  | 203,623–282,255   |
| Nevada         | 512–922   | 2,104–3,640    | 4,488–6,468     | 1,271–2,952   | 1,636–3,294   | 1,631–3,010    | 9,108–10,948    | 342–2,071    | 29,494–41,707     |
| New Hampshire  | 512–922   | 526–910        | 204–294         | 31–72         | –   | –              | –               | –            | 1,273–2,198       |
| New Jersey     | 512–922   | 4,208–7,280    | 5,508–7,938     | 1,457–3,384   | –   | 3,029–5,590    | 6,336–7,616     | 504–3,052    | 21,554–35,782     |
| New Mexico     | 3,584–6,454                                       | 6,049–10,465   | 11,832–17,052   | 2,418–5,616   | 7,362–14,823  | 5,592–10,320   | 14,652–17,612   | 666–4,033    | 94,165–128,385    |
| New York       | 4,096–7,376                                       | 11,572–20,020  | 23,460–33,810   | 5,611–13,032  | 4,908–9,882   | 6,990–12,900   | 29,304–35,224   | 1,926–11,663 | 121,475–177,515   |
| North Carolina | –   | 1,841–3,185    | 1,632–2,352     | 310–720       | 818–1,647   | 1,165–2,150    | 2,772–3,332     | 72–436       | 17,012–22,224     |
| North Dakota   | 8,192–14,752                                      | 8,942–15,470   | 13,056–18,816   | 2,449–5,688   | 6,544–13,176  | 6,291–11,610   | 15,444–18,564   | 666–4,033    | 86,790–127,315    |
| Ohio           | 4,096–7,376                                       | 18,673–32,305  | 21,216–30,576   | 5,890–13,680  | 8,998–18,117  | 14,679–27,090  | 28,512–34,272   | 2,250–13,625 | 163,128–235,855   |
| Oklahoma       | 56,32–10,142                                      | 8,679–15,015   | 19,380–27,930   | 3,689–8,568   | 6,544–13,176  | 6,757–12,470   | 16,632–19,992   | 1,458–8,829  | 102,379–149,730   |
| Oregon         | 512–922   | –              | 1,428–2,058     | 186–432       | 1,636–3,294   | 932–1,720      | 2,376–2,856     | 108–654      | 7,178–11,936      |
| Pennsylvania   | 5,632–10,142                                      | 4,734–8,190    | 11,832–17,052   | 2,356–5,472   | 9,816–19,764  | 6,757–12,470   | 22,176–26,656   | 1,080–6,540  | 97,991–139,894    |
| Rhode Island   | 512–922   | 263–455        | 204–294         | 62–144        | –   | –              | 1,980–2,380     | 36–218       | 3,057–4,413       |
| South Carolina | 512–922   | 1,315–2,275    | 2,040–2,940     | 310–720       | 818–1,647   | 466–860        | 3,168–3,808     | 108–654      | 8,737–13,826      |
| South Dakota   | 9,216–16,596                                      | 19,725–34,125  | 15,096–21,756   | 2,790–6,480   | 9,816–19,764  | 12,582–23,220  | 27,324–32,844   | 882–5,341    | 173,049–235,744   |
| Tennessee      | 3,072–5,532                                       | 4,734–8,190    | 6,936–9,996     | 1,643–3,816   | 2,454–4,941   | 2,563–4,730    | 8,316–9,996     | 972–5,886    | 47,494–69,891     |
| Texas          | 47,104–84,824                                     | 81,267–140,595 | 134,232–193,452 | 21,421–49,752 | 50,716–102,114                                      | 55,920–103,200 | 147,708–177,548 | 7,542–45,671 | 839,980–1,191,226 |
| Utah           | 2,560–4,610                                       | 2,893–5,005    | 6,936–9,996     | 651–1,512     | 6,544–13,176  | 3,961–7,310    | 5,148–6,188     | 288–1,744    | 58,388–78,948     |

| State         | Male population, age, y, 95% CI of seroprevalence |                     |                       |                     | Female population, age, y, 95% CI of seroprevalence |                     |                         |                    | Total             |
|---------------|---|---------------------|-----------------------|---------------------|---|---------------------|-------------------------|--------------------|-------------------|
|               | 15-24   | 25-44               | 45-64                 | ≥65                 | 15-24   | 25-44               | 45-64                   | ≥65                |                   |
| Vermont       | -   | -                   | 408-588               | 31-72               | -   | -                   | -                       | -                  | 439-660           |
| Virginia      | -   | 2,367-4,095         | 5,100-7,350           | 1,116-2,592         | -   | 1,165-2,150         | 4,356-5,236             | 270-1,635          | 26,977-35,661     |
| Washington    | 512-922   | 1,578-2,730         | 2,244-3,234           | 434-1,008           | -   | 466-860             | 2,376-2,856             | 126-763            | 11,937-16,574     |
| West Virginia | -   | 263-455             | 816-1,176             | 186-432             | -   | -                   | 396-476                 | 36-218             | 1,697-2,757       |
| Wisconsin     | 1,536-2,766                                       | 3,419-5,915         | 6,936-9,996           | 1,085-2,520         | 2,454-4,941   | 1,398-2,580         | 6,336-7,616             | 378-2,289          | 44,547-59,628     |
| Wyoming       | 1,536-2,766                                       | 2,893-5,005         | 8,568-12,348          | 837-1,944           | 7,362-14,823  | 4,427-8,170         | 10,296-12,376           | 414-2,507          | 65,740-89,346     |
| Total         | 281,088-<br>506,178                               | 547,303-<br>946,855 | 871,488-<br>1,255,968 | 146,568-<br>340,416 | 335,380-<br>675,270                                 | 391,440-<br>722,400 | 1,127,412-<br>1,355,172 | 55,206-<br>334,303 | 572,195-8,102,630 |

\*Calculated by using age- and sex-stratified WNND:infection estimates and 95% CIs from Carson et al. (1). WNND, West Nile neuroinvasive disease.

**Appendix Table 3.** National and state cumulative incidence estimates of reported WNV infection, continental United States, 1999–2016\*

| State          | Region    | 2010 Census      | ArboNET data |                        |                                  |                                   |   | Estimated total infections† | Estimated seroprevalence (95% CI), % |
|----------------|-----------|------------------|--------------|------------------------|----------------------------------|-----------------------------------|---|-----------------------------|--------------------------------------|
|                |           | state population | WNND cases   | Nonneuroinvasive cases | Presumptive viremic blood donors | Total no. recorded WNV infections | Cumulative attack rate per 100,000 population |                             |                                      |
| Alabama        | Southeast | 4,779,736        | 183          | 83                     | 21                               | 287                               | 6   | 41,857                      | 0.9 (0.7–1.1)                        |
| Arizona        | Southwest | 6,392,017        | 963          | 551                    | 214                              | 1,728                             | 27  | 288,701                     | 4.5 (3.9–5.4)                        |
| Arkansas       | Southeast | 2,915,918        | 235          | 76                     | 12                               | 323                               | 11  | 83,844                      | 2.9 (2.5–3.4)                        |
| California     | West      | 37,253,956       | 3,390        | 2,446                  | 668                              | 6,504                             | 17  | 945,073                     | 2.5 (2.1–3.0)                        |
| Colorado       | West      | 5,029,196        | 1,249        | 3,834                  | 202                              | 5,285                             | 105   | 411,665                     | 8.2 (6.8–10.0)                       |
| Connecticut    | Northeast | 3,574,097        | 86           | 43                     | 10                               | 139                               | 4   | 22,112                      | 0.6 (0.5–0.8)                        |
| Delaware       | Northeast | 897,934          | 20           | 21                     | 5                                | 46                                | 5   | 9,780                       | 1.1 (0.9–1.3)                        |
| Florida        | Southeast | 18,801,310       | 271          | 90                     | 26                               | 387                               | 2   | 97,189                      | 0.5 (0.5–0.6)                        |
| Georgia        | Southeast | 9,687,653        | 213          | 169                    | 60                               | 442                               | 5   | 70,904                      | 0.7 (0.6–0.9)                        |
| Idaho          | West      | 1,567,582        | 201          | 266                    | 61                               | 528                               | 34  | 94,322                      | 6.0 (5.4–6.9)                        |
| Illinois       | Midwest   | 12,830,632       | 1,481        | 868                    | 94                               | 2,443                             | 19  | 426,701                     | 3.3 (2.8–4.1)                        |
| Indiana        | Midwest   | 6,483,802        | 378          | 228                    | 65                               | 671                               | 10  | 130,384                     | 2.0 (1.7–2.4)                        |
| Iowa           | Midwest   | 3,046,355        | 242          | 243                    | 72                               | 557                               | 18  | 87,221                      | 2.9 (2.4–3.4)                        |
| Kansas         | Midwest   | 2,853,118        | 305          | 272                    | 343                              | 920                               | 32  | 110,247                     | 3.9 (3.3–4.5)                        |
| Kentucky       | Southeast | 4,339,367        | 111          | 50                     | 36                               | 197                               | 5   | 27,422                      | 0.6 (0.5–0.8)                        |
| Louisiana      | Southeast | 4,533,372        | 1,009        | 586                    | 161                              | 1,756                             | 39  | 363,898                     | 8.0 (6.8–9.6)                        |
| Maine          | Northeast | 1,328,361        | 2            | 0                      | 0                                | 2                                 | 0   | 606                         | 0 (0–0.1)                            |
| Maryland       | Northeast | 5,773,552        | 219          | 76                     | 46                               | 341                               | 6   | 50,412                      | 0.9 (0.7–1.1)                        |
| Massachusetts  | Northeast | 6,547,629        | 109          | 35                     | 11                               | 155                               | 2   | 28,779                      | 0.4 (0.4–0.5)                        |
| Michigan       | Midwest   | 9,883,640        | 990          | 162                    | 68                               | 1,220                             | 12  | 285,933                     | 2.9 (2.4–3.5)                        |
| Minnesota      | Midwest   | 5,303,925        | 290          | 393                    | 132                              | 815                               | 15  | 91,776                      | 1.7 (1.5–2.1)                        |
| Mississippi    | Southeast | 2,967,297        | 700          | 519                    | 84                               | 1,303                             | 44  | 257,821                     | 8.7 (7.5–10.2)                       |
| Missouri       | Midwest   | 5,988,927        | 429          | 90                     | 56                               | 575                               | 10  | 127,074                     | 2.1 (1.8–2.6)                        |
| Montana        | West      | 989,415          | 158          | 380                    | 20                               | 558                               | 56  | 59,197                      | 6.0 (5.3–7.0)                        |
| Nebraska       | Midwest   | 1,826,341        | 639          | 2,795                  | 477                              | 3,911                             | 214   | 238,470                     | 13.1 (11.1–15.5)                     |
| Nevada         | West      | 2,700,551        | 138          | 77                     | 49                               | 264                               | 10  | 34,430                      | 1.3 (1.1–1.5)                        |
| New Hampshire  | Northeast | 1,316,470        | 5            | 1                      | 0                                | 6                                 | 0   | 1,734                       | 0.1 (0.1–0.2)                        |
| New Jersey     | Northeast | 8,791,894        | 159          | 74                     | 21                               | 254                               | 3   | 27,799                      | 0.3 (0.2–0.4)                        |
| New Mexico     | Southwest | 2,059,179        | 289          | 278                    | 55                               | 622                               | 30  | 109,363                     | 5.3 (4.6–6.2)                        |
| New York       | Northeast | 19,378,102       | 595          | 205                    | 67                               | 867                               | 4   | 145,610                     | 0.8 (0.6–0.9)                        |
| North Carolina | Southeast | 9,535,483        | 48           | 15                     | 6                                | 69                                | 1   | 19,254                      | 0.2 (0.2–0.2)                        |
| North Dakota   | Midwest   | 672,591          | 334          | 1,184                  | 121                              | 1,639                             | 244   | 105,048                     | 15.6 (12.9–18.9)                     |
| Ohio           | Midwest   | 11,536,504       | 670          | 262                    | 80                               | 1,012                             | 9   | 195,598                     | 1.7 (1.4–2.0)                        |
| Oklahoma       | Southwest | 3,751,351        | 447          | 281                    | 155                              | 883                               | 24  | 123,806                     | 3.3 (2.7–4.0)                        |
| Oregon         | West      | 381,074          | 35           | 74                     | 11                               | 120                               | 31  | 9,257                       | 2.4 (1.9–3.1)                        |
| Pennsylvania   | Northeast | 12,702,379       | 342          | 197                    | 24                               | 563                               | 4   | 116,103                     | 0.9 (0.8–1.1)                        |
| Rhode Island   | Northeast | 1,052,567        | 14           | 2                      | 0                                | 16                                | 2   | 3,492                       | 0.3 (0.3–0.4)                        |
| South Carolina | Southeast | 4,625,364        | 49           | 24                     | 22                               | 95                                | 2   | 10,875                      | 0.2 (0.2–0.3)                        |
| South Dakota   | Midwest   | 814,180          | 494          | 1,790                  | 186                              | 2,470                             | 303   | 200,837                     | 24.7 (21.3–29.0)                     |
| Tennessee      | Southeast | 6,346,105        | 207          | 71                     | 12                               | 290                               | 5   | 57,552                      | 0.9 (0.7–1.1)                        |
| Texas          | Southwest | 25,145,561       | 3,171        | 1,980                  | 521                              | 5,672                             | 23  | 996,232                     | 4.0 (3.3–4.7)                        |
| Utah           | West      | 3,763,885        | 140          | 118                    | 44                               | 302                               | 8   | 67,990                      | 1.8 (1.6–2.1)                        |
| Vermont        | Northeast | 625,741          | 5            | 8                      | 1                                | 14                                | 2   | 549                         | 0.1 (0.1–0.1)                        |
| Virginia       | Southeast | 8,001,024        | 110          | 48                     | 29                               | 187                               | 2   | 30,730                      | 0.4 (0.3–0.4)                        |
| Washington     | West      | 6,724,540        | 56           | 43                     | 26                               | 125                               | 2   | 13,940                      | 0.2 (0.2–0.2)                        |
| West Virginia  | Southeast | 1,852,994        | 14           | 13                     | 4                                | 31                                | 2   | 2,171                       | 0.1 (0.1–0.1)                        |

| State     | Region  | 2010 Census      | ArboNET data |                        |                                  |                                   | Estimated total infections† | Estimated seroprevalence (95% CI), % |   |
|-----------|---------|------------------|--------------|------------------------|----------------------------------|-----------------------------------|-----------------------------|--------------------------------------|---|
|           |         | state population | WNND cases   | Nonneuroinvasive cases | Presumptive viremic blood donors | Total no. recorded WNV infections |                             |                                      | Cumulative attack rate per 100,000 population |
| Wisconsin | Midwest | 5,686,986        | 150          | 87                     | 177                              | 414                               | 7                           | 51,249                               | 0.9 (0.8–1.0)                                 |
| Wyoming   | West    | 563,626          | 175          | 515                    | 31                               | 721                               | 128                         | 76,220                               | 13.5 (11.7–15.9)                              |
| Total     |         | 303,623,283      | 21,520       | 21,623                 | 4,586                            | 47,729                            | 16                          | 6,751,227                            | 2.2 (1.9–2.7)                                 |

\*WNND, West Nile neuroinvasive disease; WNV, West Nile virus.

†Estimated total from Appendix Table 1.

## References

1. Carson PJ, Borchardt SM, Custer B, Prince HE, Dunn-Williams J, Winkelman V, et al. Neuroinvasive disease and West Nile virus infection, North Dakota, USA, 1999–2008. *Emerg Infect Dis.* 2012;18:684–6. [PubMed http://dx.doi.org/10.3201/eid1804.111313](http://dx.doi.org/10.3201/eid1804.111313)
2. Mandalakas AM, Kippes C, Sedransk J, Kile JR, Garg A, McLeod J, et al. West Nile virus epidemic, northeast Ohio, 2002. *Emerg Infect Dis.* 2005;11:1774–7. [PubMed http://dx.doi.org/10.3201/eid1111.040933](http://dx.doi.org/10.3201/eid1111.040933)