

Army Vector-borne Disease Report

2 October 2012

Data are preliminary and subject to change

Click on maps to enlarge.

- **West Nile virus:** CDC reports 403 additional human cases; Army reports 2 new confirmed/probable cases (n=9) and no new deaths.
- **WNV mosquito pools:** PHCR-North and PHCR-South report 3 additional positive pools; PHCR-West reports no additional positive pools.
- **Lyme disease:** Four additional cases of confirmed Lyme disease were reported among Army beneficiaries since the previous report.
- **West Nile virus review:** Experience with St. Louis Encephalitis virus suggests WNV will continue to cause sporadic cases and outbreaks.

West Nile Virus (WNV)

United States

- Compared to last week, U.S. WNV case counts increased by 13% and deaths by 10%.
- CDC indicates the peak of the outbreak has passed, but expects case numbers to continue to increase as illness and death reports are lagging indicators.
- The number of neuroinvasive (i.e., meningitis or encephalitis) cases increased by 11% since last week; the proportion of cases that are neuroinvasive remains stable at roughly half (51%, n=1816).
- The number of states reporting human cases (n=42) remained stable.
- Eight states (TX, MS, SD, MI, CA, LA, OK, IL) have reported 70% of cases; Texas reported 38% of all cases.
- Texas continues to report the most cases (n=1355) and deaths (n=52); compared to the previous week, Texas total case counts increased by 11% (n=130) while deaths increased by 4% (n=2).



2012 WNV Human Cases[§]

| Population | Previous Week [¥] | Year to Date |
|---------------|----------------------------|--------------|
| United States | 403 | 3,545 |

Army Cases

Confirmed and Probable

| | | |
|-------------------------------|---|---|
| Army Active Duty [‡] | 2 | 5 |
| Army Beneficiaries | 0 | 4 |

2012 WNV Human Deaths

| | | |
|----------------------------|----|-----|
| United States | 13 | 147 |
| Army Retirees [†] | 0 | 1 |

Sources: CDC, AIPH DRSI, and official communication.

Note: Reporting location may differ from exposure location.

[§]Confirmed and probable neuroinvasive and nonneuroinvasive cases.

[¥]Absolute difference between last published report and this week's year to date number.

[‡]Includes recruits and cadets.

[†]Case died 17 Aug., reported 21 Aug.

Cases in Army Personnel

- No additional fatalities have been reported among Army beneficiaries since the 23 August report.
- Joint Base San Antonio-Fort Sam Houston (JBSA-FSH) reports 6 WNV (3 AD, 3 Beneficiaries) cases (including the previously reported fatality in a retiree); Fort Hood still reports 3 WNV cases (2 AD, 1 Retiree).
- Confirmatory labs on probable cases are pending; additional suspect WNV cases that have been reported previously are undergoing review and additional laboratory testing.

DoD Mosquito Surveillance from Army Laboratories

- PHCR-North reports 2 additional positive pools at Bolling AFB; PHCR-South reports 1 additional positive pool from JBSA-FSH; PHCR-West reports no additional positive pools.
- No new locations have reported positive pools.



Source: Official communication.

[¥]Absolute difference between last report and this week's year to date number.

| Positive Mosquito Pools | PHC Region | Previous Week [¥] | Year to Date | No. Positive Locations |
|-------------------------|------------|----------------------------|--------------|------------------------|
| | North | 2 | 59 | 6 |
| | South | 1 | 72 | 5 |
| | West | 0 | 7 | 4 |

Prevention and Control Activities

- Expect mosquitoes to remain active until the first hard or killing frost.
- Preventive Medicine personnel should continue to stress the importance of eliminating mosquito breeding sites (standing water) around homes and workplaces, and using personal protective measures (use only EPA-registered insect repellents, preferably those containing DEET).

Lyme Disease

- The majority, 62% (n=69), of reported confirmed Lyme disease cases in 2012 occurred in non-AD Army beneficiaries.
- From 1 January to 24 September 2012, PHCR-Europe reported 52% of Army Lyme disease cases.
- Though the spring/summer peak of the Lyme disease vector (*Ixodes scapularis*) has passed, adult ticks are active (bite) in winter.
- Of 304 *I. scapularis* adults submitted to the DoD Human Tick Test Program this year, 26% (n=79) tested positive for Lyme disease.

| 2012 Lyme Disease Cases | | |
|-------------------------------|----------------------------|--------------|
| Population | Previous Week [¥] | Year to Date |
| United States [§] | 664 | 18,342 |
| Confirmed Army Cases | | |
| Army Active Duty [‡] | 2 | 43 |
| Army Beneficiaries | 2 | 69 |
| Regional Case Distribution | | |
| PHCR-Europe | 3 | 58 |
| PHCR-North | 0 | 31 |
| PHCR-South | 1 | 13 |
| Other/Unknown | 0 | 10 |

Sources: CDC and AIPH DRSI.

Note: Reporting location may differ from exposure location.

[¥] Difference between last published report and this week's year to date number.

[§]Provisional cases, week ending 22 Sep.

[‡]Includes recruits and cadets.

West Nile Virus Review

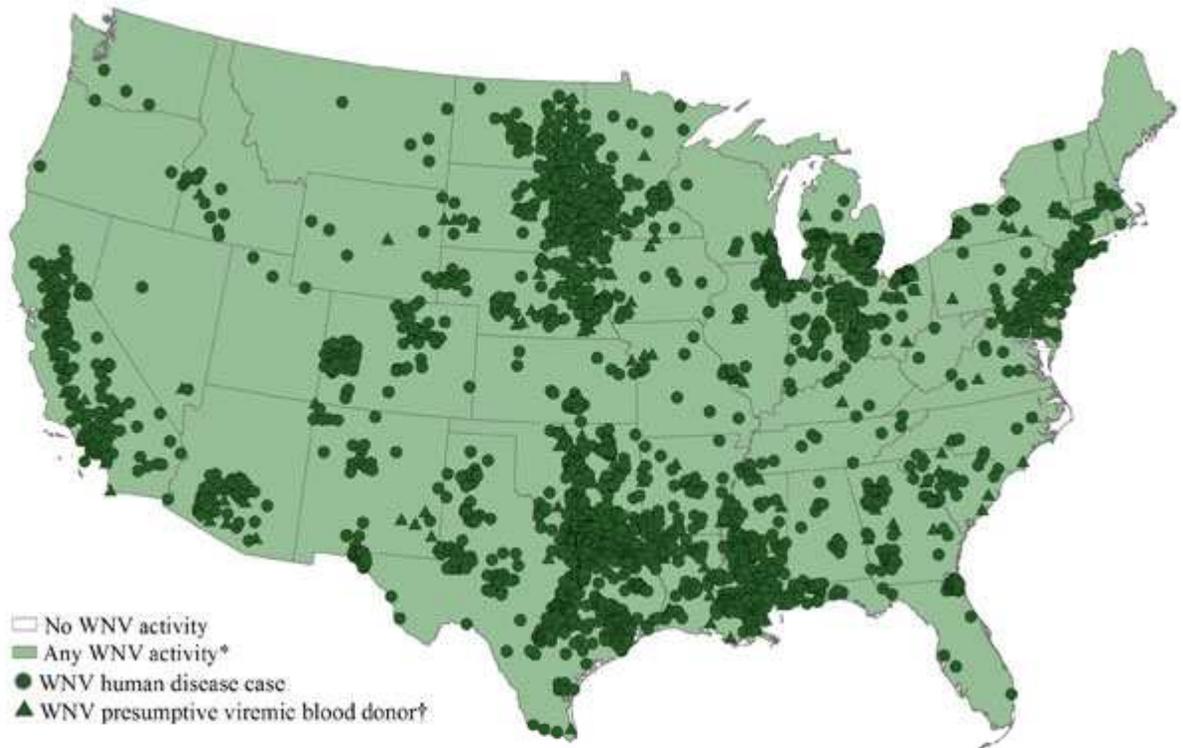
- In the latest issue of the *NEJM*, Petersen and Fischer discuss the history of WNV in the U.S., as well as challenges relating to treatment therapies and human vaccine trials.
- From 2004-2011, sporadic cases in most states and small outbreaks each summer resulted in fluctuating but decreasing incidence.
- When increased WNV activity is detected via ArboNET, prevention and control largely rest on community-wide applications of insecticides and public awareness about personal protection measures (i.e., repellents).
- Unfortunately, no treatment is available for WNV, in part because of the practical difficulty of demonstrating efficacy.
- Sporadic incidence and geographically dispersed cases necessitate hundreds of clinical trial sites to achieve a sufficient sample size.
- As a result, all randomized clinical trials attempted to date have failed to enroll sufficient numbers of patients; no active trials are known.
- Similar problems exist with the development of human WNV vaccines.
- Despite 4 licensed equine WNV vaccines and several successful phase 1 and 2 human trials, no phase 3 human trials have been attempted.
- The U.S.'s 80-year experience with St. Louis encephalitis virus suggests that WNV will cause sporadic cases and unpredictable outbreaks big and small for decades to come.

Resources: CDC WNV • CDC Tickborne Diseases • Human Tick Test Program • USAPPHC WNV Fact Sheet • Army Vector-borne Disease Reports • USAPPHC

Key: CDC-Centers for Disease Control and Prevention; DRSI-Disease Reporting System Internet; Mosquito pool-1 to 50 mosquitoes; AD-Active Duty

Contact us at: [USAPPHC Disease Epidemiology](#) or 410-417-2377

West Nile virus (WNV) activity reported to ArboNET, by state, United States, 2012 (as of September 25, 2012)



Footnote: The map displays white areas that represent no WNV activity reported, light green areas that represent any WNV activity* , dark green circles that represent disease cases, and dark green triangles that represent presumptive viremic blood donors.

•Includes WNV human disease cases, presumptive viremic blood donors, veterinary disease cases and infections in mosquitoes, birds, and sentinel animals.

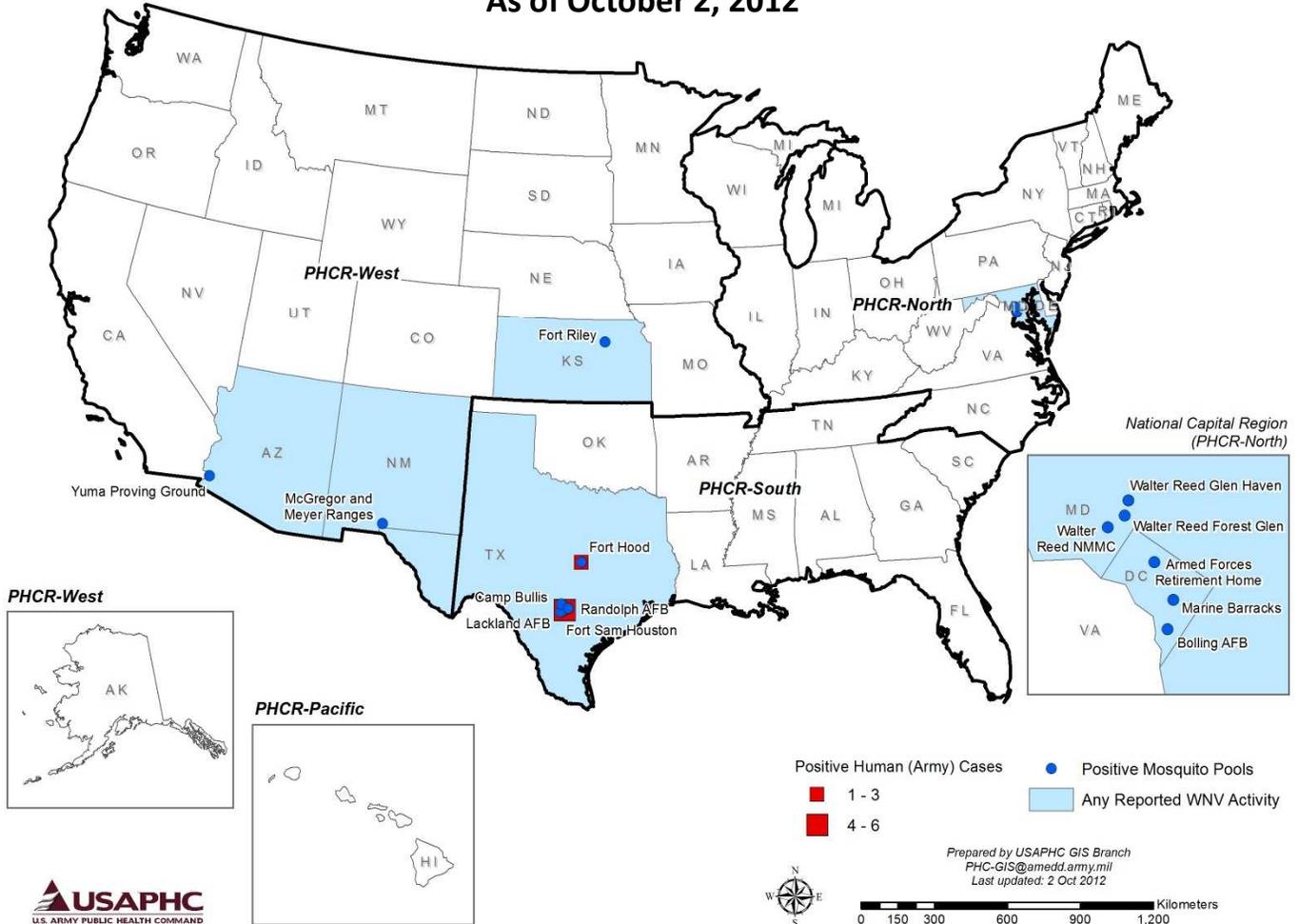
•† Presumptive viremic blood donors have a positive screening test which has not necessarily been confirmed.

Map shows the distribution of WNV activity* (shaded in light green), human infections (dark green circles), and presumptive viremic blood donors (dark green triangles) occurring during 2012 by state. If West Nile virus infection is reported from any area of a state, that entire state is shaded.

Source: <http://www.cdc.gov/ncidod/dvbid/westnile/Mapsactivity/surv&control12MapsAnybyState.htm>

West Nile Virus Activity, by State and Army Public Health Command Region (PHCR), United States, 2012

As of October 2, 2012



Footnote: The map displays white areas that indicate no reported West Nile virus (WNV) activity, light blue areas represent any reported WNV activity* within a state; dark blue circles represent WNV positive mosquito pools on military installations, and red squares represent the reporting location/installation of Army human cases (probable and/or confirmed). If West Nile virus infection is reported from any area of a state, that entire state is shaded light blue.

*Includes WNV Army human disease cases (probable and/or confirmed) and infections in mosquito pools on military installations.

Prepared by: US Army Public Health Command Geographic Information Systems Branch.