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ARMY MEDICAL CENTER



# West Nile Virus Surveillance and Response Plan

**CRDAMC Department of Preventive Medicine**

# Agenda

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# West Nile Virus

Humans can contract West Nile virus from a mosquito bite. Infected mosquitoes get the virus from feeding on infected birds and mammals. The virus can cause serious illness or death.

There are no medications to treat, or vaccines to prevent, West Nile virus infection. People over 50 years old and those with compromised immune systems are at a higher risk of becoming seriously ill when infected with the virus. If people have symptoms that cause them concern, they should contact their healthcare provider.

The \*milder form of the illness is West Nile fever; symptoms include:

*fever*  
*headache*  
*muscle aches*  
*bone aches*  
*nausea*  
*drowsiness*

West Nile neuroinvasive disease symptoms:

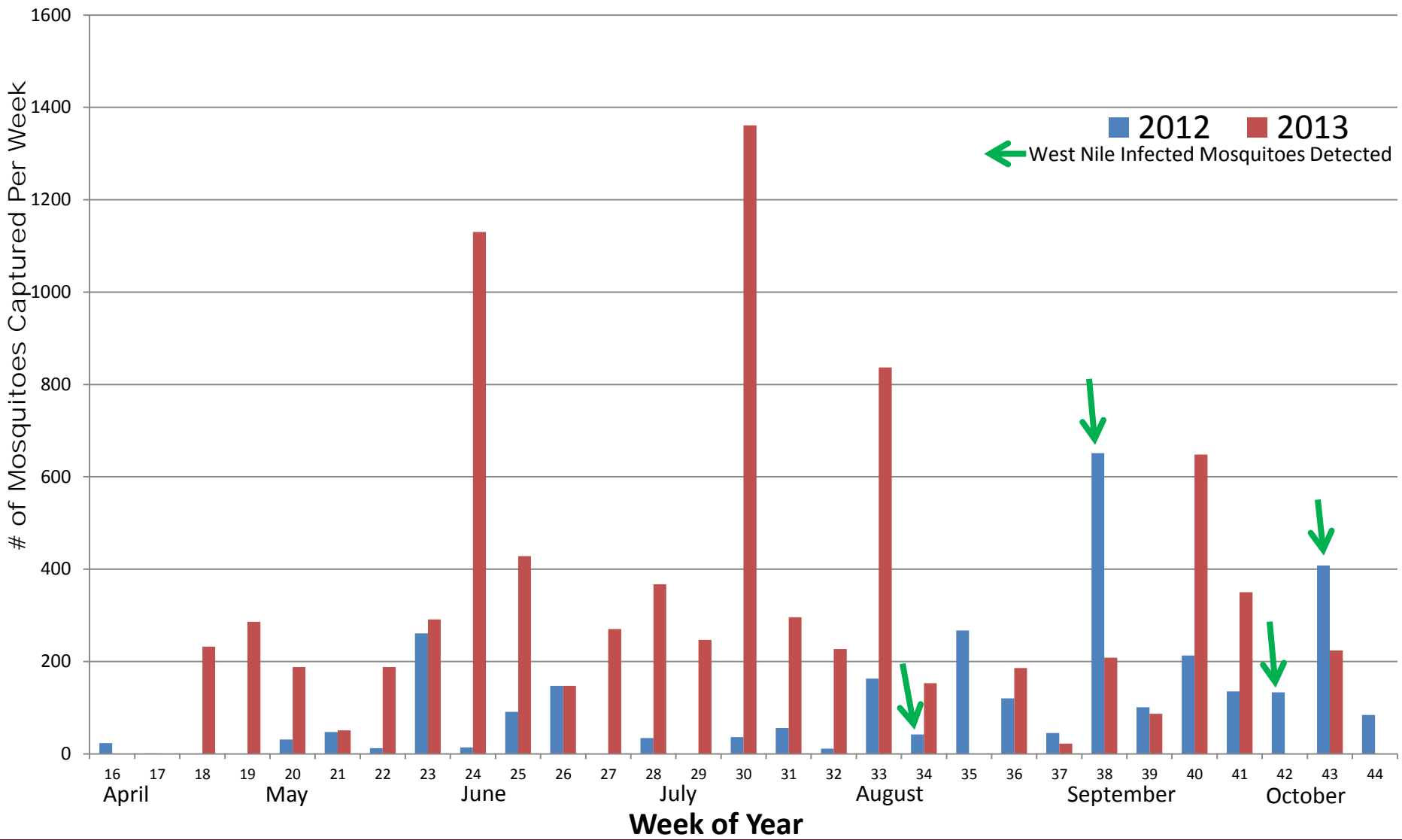
*stiff neck*  
*visual problems*  
*body tremors*  
*mental confusion*  
*memory loss*  
*seizures*

\*People with the milder form of illness typically recover on their own, although symptoms may last for several weeks. Up to 80% of people will have no symptoms and recover on their own.



# Fort Hood Mosquito Activity

In 2012, Fort Hood captured 6 WNV+ mosquitoes. No mosquitoes tested WNV+ in 2013





# What is Fort Hood Doing?

- **CRDAMC's Department of Preventive Medicine, Environmental Health (EH) Service, with preventive medicine assets at 224 PM DET, conduct weekly mosquito surveillance from April-October on main post, West Fort Hood, North Fort Hood and BLORA**
- **Working together with the Directorate of Public Works (DPW), this program keeps Fort Hood residents informed of vector borne diseases in the area**
- **Monitoring is completed using the US Centers for Disease Control and Prevention's (CDC) light traps and gravid traps (shown on slide #6)**
- **Samples are shipped to the lab at US Army Public Health Command-South, at Joint Base San Antonio, for disease testing**
- **Control is focused on the detection of breeding sites and mechanical correction or application of non toxic larvicides**
- **A public notice will be published before area wide spraying occurs in housing or unit areas**

# Trap Types



## Gravid Trap

- Most effective in trapping the common WNV mosquito species
- Lures in egg bearing (gravid) females with basin of stagnant water
- Fan blows the mosquitoes up, trapping them in the net above



## Light Trap

- Can be utilized to trap mosquitoes and sand flies
- Lures in flying insects with a small light under the hood
- Can also be baited with CO<sub>2</sub> (dry ice) to mimic breathing
- Fan blows the mosquitoes down, trapping them in the net below



# West Nile Response Plan

**In order to mitigate risk of West Nile Virus Response Plan on Fort Hood, our plan is divided into five tiers**

*\*Area-wide fogging will not be considered until level 3 of this response plan*





# Level 0

Fort Hood will be in Level 0 status when we enter the mosquito surveillance season from April-October or if there are complaint calls outside that timeframe.



***Response:***

- Educate public on proper Personal Protective Equipment (PPE) and potential breeding sites
- Inspect and eliminate breeding sites, as encountered
- Larvicide (treat for immature [larvae] form of mosquitoes) standing water that cannot be eliminated





# Level 1

Fort Hood will be in Level 1 status when greater than 25 West Nile carrying capable females (*Culex* & *Aedes* sp.) are captured at one trap, in one night. *\*No positive WNV results necessary.*



## ***Response:***

- Inspect and eliminate breeding sites in immediately surrounding area
- Larvicide standing water that cannot be eliminated
- Continue these measures until less than 25 female mosquitoes are detected in any one trap during one night, for two continuous sampling weeks
- Initiate community outreach and public education programs focused on personal protection and residential source reduction



# Level 2

**Fort Hood will be in Level 2 status when one or more positive WNV mosquito pools are located at one trap site or upon confirmed, multiple dead bird sightings (particularly crows, blue jays, or robins)**



***Response:***

- Conduct intensified larval surveillance and eliminate breeding sites in surrounding area by adding more traps to area to localize positive results (better identify mosquito breeding sites)
- Conduct intensified larviciding of standing water and breeding source reduction in immediate and extended areas
- Notify installation authorities including medical, administrative, public affairs, and general public regarding the need for personal protection measures and collaborative breeding site reduction measures
- Notify regional, non-military health authorities to help them target their efforts in the vicinity
- Conduct intensified activities in location of positive results until no positive pools are detected for two continuous weeks of sampling



# Level 3



Fort Hood will be in Level 3 status when one or more positive WNV mosquito pools are located at multiple trap sites **or** a documented human illness is confirmed due to locally acquired WNV (on Fort Hood).

## **Response:**

As in Level 2 plus:

- Consider selective, targeted adulticide treatments of mosquito resting areas in immediate area of positive traps if breeding site reduction and larviciding efforts did not suffice
- \*Targeted treatments must include consideration of: time-of-year, extent of previous larval mosquito control activities, current level of mosquito activity, weather conditions, habitat, corresponding dead bird sightings, sensitive areas, among other factors.*
- Conduct intensified activities in or near the positive area until no positive pools are detected for two continuous weeks of sampling



# Level 4

Fort Hood will be in Level 4 status when one or more positive WNV mosquito pools are located at multiple trap sites **AND** a documented human illness is confirmed due to locally acquired WNV.



## ***Response:***

As in level 3 plus:

- Enhance surveillance by trapping additional nights at positive locations
- Expand surveillance of breeding sites in inhabited areas
- Consider targeted adulticide treatments covering an expanded area from known positive traps
- Consult the regional non-military health authorities to determine if a coordinated adulticide treatment of surrounding area is feasible
- Conduct intensified activities in that area until no positive pools are detected for three continuous weeks of sampling

# Fogging

**The most effective means of prevention is the abatement of mosquito breeding areas and larvicidal applications, when appropriate.**

**Broad applications of pesticides by aerial spraying or fogging are not encouraged because it is neither the most beneficial (short duration) nor the most cost-effective way to control mosquito populations or mosquito-borne diseases. Fogging will only provide temporary relief from mosquitoes. New mosquitoes will quickly reinvade backyard or work environments from nearby untreated areas, often later that same evening.**

**Fogging can also harm beneficial insects like bees or natural predators of mosquitoes. There are also concerns about people with chemical sensitivities and lung problems.**





# What Can You Do?

**There are many ways you can protect your home, work environment and yourself from vector borne disease and viruses:**

**1. Apply insect repellent that contains DEET. 30% DEET for adults and 10% for children older than 2 months. Make sure you read and follow the manufacturer's directions for use. Spray clothing as well as exposed skin. Do not spray pets.**

*\*Note: It is military policy that the DoD Insect Repellent System and other personal protective measures (PPMs) be utilized by service personnel when they are in situations where insect exposure is likely.*

**2. Dress in long sleeves and long pants when you are outside.**

**3. Try to stay indoors at dusk and dawn, the times when mosquitoes are most active.**

**4. Eliminate all standing water in your yard and work area. Check old tires, flowerpots, abandoned swimming pools and rain gutters. Change water in pet bowls, birdbaths and children's pools once a week. Larvae can survive in water the size of a bottle cap!**

**5. Report multiple dead bird sightings (not just one) of blue jays, crows and robins**

# Dead Bird Sightings

The West Nile virus infects certain wild birds. The infected birds, especially crows, are known to get sick and die from the infection. Dead birds are NOT always the best indicator for WNV because other issues may be affecting them. If you have just one dead bird, you can discard by:

- Do not touch any dead bird with your bare hands
- Birds can carry ectoparasites such as mites and lice, so wear DEET when handling them
- Use gloves or an inverted plastic bag to place the bird carcass in a garbage bag and dispose of it with your routine trash
- Each bird should be placed in tied plastic bag, and then placed inside a second tied bag
- Wash hands thoroughly with soap and water after discarding the dead bird
- Know which birds to look for:



# Repellent

## What are the standard military insect repellent products available for use on exposed skin?

- Ultrathon (NSN 6840-01-284-3982), 33% controlled-release DEET lotion, one application protects for 12 hours.
- Ultra 30 Insect Repellent Lotion (NSN 6840-01-584-8393), contains 30% Lipo DEET, the formulation is not as greasy and one application protects for up to 12 hours.
- Cutter pump spray (NSN 6840-01-584-8598), contains 23% DEET, one application protects for up to 8 hours.
- Cutter Outdoorsman Insect Repellent Stick (NSN 6840-00-142-8965), contains 30% DEET, is a solid formulation, one application protects for up to 8 hours.
- Sunsect lotion (NSN 6840-01-288-2188), combines 20% DEET and 15 SPF sunscreen.
- Camouflage Face Paint (CFP) with 30% DEET (NSN 6840-01-493-7334).



**If using sunscreen & DEET separately,  
apply sunscreen 30 min prior DEET!**

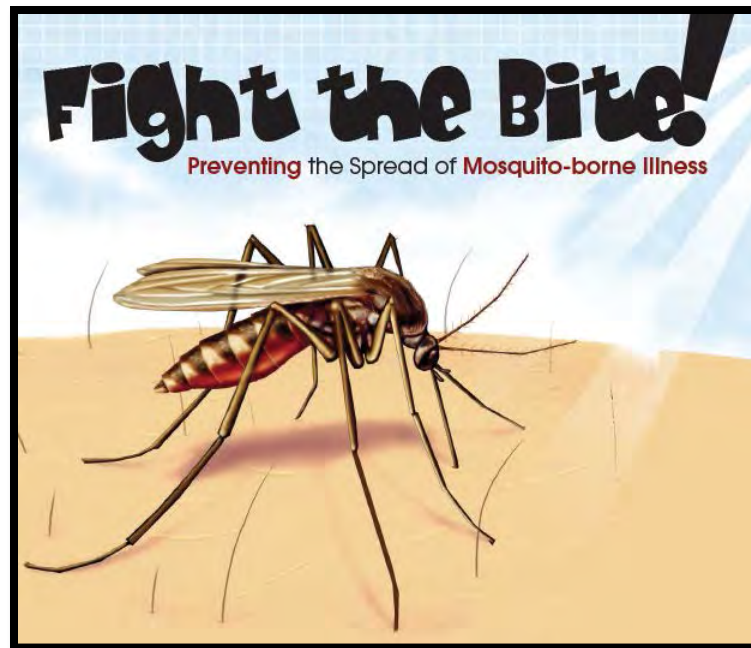


*NOTE: Do not apply repellent to the eyes or lips, or to sensitive or damaged skin*



# Summary

The reduction, elimination, or treatment of mosquito breeding areas is the best and most cost-effective technique for mosquito control. The most important things you and your community can do to reduce the risk of exposure to West Nile virus are to eliminate mosquito-breeding areas in your environment and limit your exposure to feeding mosquitoes.





# Contact Information

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