

Integrated Mosquito and Vector  
Management Program Plan

APPENDIX

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WEST NILE VIRUS RESPONSE  
PROTOCOL



# West Nile Virus

## Response Protocol

# 2016



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**San Mateo County  
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Control District**  
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## No Ongoing West Nile Virus Activity

1. Laboratory staff conducts routine mosquito population surveillance to identify areas with large mosquito populations and target mosquito control efforts using New Jersey light traps, CO<sub>2</sub> traps,.
2. Laboratory staff maintains three sentinel chicken flocks distributed throughout the county and tests blood samples from each chicken every two weeks from April through October as established by the California Department of Public Health (CDPH). Samples are tested for antibodies to St. Louis Encephalitis virus (SLEV), Western Equine Encephalitis virus (WEEV), and West Nile virus (WNV) using an Enzyme-Linked Immunoassay (EIA) test.
3. Laboratory staff collects bird carcasses submitted through the California Department of Public Health West Nile Virus Hotline and tests for West Nile virus. Testing is conducted on Corvids, including the American crow, common raven and scrub jay. Birds are sampled by oral swabs using Dacron-tipped disposable swabs. Other eligible bird species are sampled by bilateral intraocular cocktail and samples tested in-house for the presence of WNV with reverse transcriptase polymerase chain reaction (RT-PCR).
4. Laboratory staff collects squirrel carcasses reported through the California Department of Public Health West Nile Virus Hotline and submits them to California Animal Health and Food Safety (CAHFS) for qRT-PCR testing.
5. Operations staff conducts preventative mosquito control using EPA-registered products and methods based on data from enhanced surveillance activities that provide reliable information on presence, relative abundance, and distribution of mosquitoes within the urban environment, including:
  - a. Physical control: disposing of and dumping containers, drilling holes in anything that holds water with resident approval and increasing water flow to any potential breeding habitat
  - b. Hand larviciding: applying larvicides to any standing water or potential breeding site, including surface films, Bti, Bs, Spinosad, and methoprene
  - c. Helicopter larviciding: applying larvicides to standing water using a helicopter
  - d. Catch basin treatment: storm water catch basins are treated regularly during the summer months with BVA oil or other larvicides
  - e. Applying adulticides to any property that has an excessive amount of *Culex* mosquitoes found during routine inspections
6. Public Health Education and Outreach Officer conducts ongoing mosquito prevention, West Nile virus, and personal protection outreach
  - a. Mosquito prevention material provided to cities for distribution
  - b. District public website page
  - c. Social media messaging promoting awareness of West Nile virus risk, including prevention and personal protection

- d. Mosquito prevention materials distributed at public events
- e. presentations and other outreach efforts

### West Nile Virus Detected in Bird or Squirrel

1. Laboratory staff identifies or receives report of West Nile virus in bird or squirrel specimen
2. Laboratory Director enters West Nile virus detection into the CalSurv database
3. Internal Notification
  - a. Laboratory Director notifies District Manager and department managers of West Nile virus detection
  - b. Department managers notify their staff
  - c. District Manager notifies trustee of affected city
4. External Notification
  - a. District Assistant Manager notifies City Manager or alternate contact of affected city
  - b. Public Health Education and Outreach Officer updates table of WNV-positive birds on District website
5. Laboratory Director uses MapVision software to designate a heightened surveillance area consisting of a 0.5-mile radius around the point of each WNV-positive bird or squirrel specimen
6. Operational staff ensures all known mosquito sources surrounding the positive bird are up to date on inspections and treatments. After this analysis, the assistant manager or operations supervisor will determine if additional work needs to be performed.
7. Laboratory staff initiates heightened adult mosquito surveillance within the this heightened surveillance area
  - a. 20 CO<sub>2</sub> traps are placed throughout the surveillance area for one night
8. Laboratory staff counts and identifies the adult mosquitoes collected and conducts West Nile virus testing

## West Nile Virus Detected in Adult Mosquitoes

1. Laboratory staff identifies West Nile virus in mosquitoes collected during heightened surveillance
2. Laboratory Director enters West Nile virus detection into the CalSurv database
3. Internal Notification begins
  - a. Laboratory Director notifies District Manager of West Nile virus detection
  - b. District Manager notifies department managers
  - c. Department managers notify their staff
  - d. District Manager notifies all members of Board of Trustees
4. External Notification
  - a. District Assistant Manager notifies City Manager or alternate contact of affected city or cities
5. Using MapVision, Assistant Manager and/or Laboratory Director designates a treatment area consisting of a 0.5 mile radius around the site of any WNV-positive mosquitoes
6. Laboratory staff place 20 CO<sub>2</sub> traps within and outside treatment area to collect pre-treatment control sample of mosquitoes
7. Public Health Education and Outreach Officer creates interactive map of treatment area ([see Creating a Google MyMap for instructions](#))
8. Public Health Education and Outreach Officer conducts public notification
  - a. Public Health Education and Outreach Officer drafts media release
  - b. Public Health Education and Outreach Officer uploads the media release to the District website
  - c. Public Health Education and Outreach Officer updates the Adult Mosquito Control Treatment Updates page on the District website
  - d. Public Health Education and Outreach Officer updates the District website's front page carousel with adult mosquito control treatment content
  - e. Public Health Education and Outreach Officer sends the release to staff, media, legislators, and other contacts.
  - f. Public Health Education and Outreach Officer sends release via MailChimp email blast to media releases subscribers
  - g. Public Health Education and Outreach Officer posts on Nextdoor.com in all neighborhoods of affected city
  - h. Public Health Education and Outreach Officer posts on Facebook and Twitter via Hootsuite
  - i. Information on mosquito prevention, West Nile virus, and personal protection against mosquito bites is provided to affected city or cities for distribution
9. Office Administrator changes phone message to reflect adult mosquito control treatment announcement
10. Laboratory staff place sentinel adult mosquito cages in and outside treatment area 2 hours prior to treatment; each cage consists of 25 lab-reared *Cx. Pipiens* female mosquitoes approximately 6-8 days in age.
11. Operations staff conducts truck-mounted ultra-low-volume (ULV) adult mosquito control treatment within treatment area as soon as operationally feasible, weather permitting.
12. Laboratory staff place 20 EVS traps in and outside treatment area to collect mosquitoes and assess treatment effectiveness. These mosquitoes are pooled and tested for WNV by RT-PCR. The percentage reduction in adult mosquito is calculated as well as the change in prevalence of infection in the mosquitoes.



13. Public Health Education and Outreach Officer conducts public notification of post-treatment results
  - a. Public Health Education and Outreach Officer drafts media release
  - b. Public Health Education and Outreach Officer uploads the media release to the District website
  - c. Public Health Education and Outreach Officer updates the Adult Mosquito Control Treatment Updates page on the District website
  - d. Public Health Education and Outreach Officer sends the release to staff, media, legislators, and other contacts.
  - e. Public Health Education and Outreach Officer sends release via MailChimp email blast to media releases subscribers
  - f. Public Health Education and Outreach Officer posts on Nextdoor.com in all neighborhoods of affected city
  - g. Public Health Education and Outreach Officer posts on Facebook and Twitter via Hootsuite
14. District Assistant Manager notifies City Manager or alternate contact of affected city or cities of post-treatment results
15. If additional mosquito samples positive for West Nile virus are detected, process repeats.
16. In addition to adult mosquito control, operations staff conducts heightened preventative larval mosquito control around elevated Co2 trap results using EPA-registered products and methods based on data from enhanced surveillance activities that provide reliable information on presence, relative abundance, and distribution within the urban environment, including:
  - a. Physical control: disposing of and dumping containers, drilling holes in anything that holds water with resident approval and increasing water flow to any potential breeding habitat
  - b. Hand larviciding: applying larvicides to any standing water or potential breeding site, including surface films, Bti, Bs, Spinosad, and methoprene
  - c. Helicopter larviciding: applying larvicides to standing water using a helicopter
  - d. Catch basin treatment: storm water catch basins are treated regularly during the summer months with BVA oil or larvicides

## Confirmed Case of Locally-Acquired Human West Nile Virus

1. San Mateo County Health Department or California Department of Public Health notifies Laboratory Director of confirmed locally-acquired West Nile virus disease case
2. Internal Notification begins
  - a. Laboratory Director notifies District Manager and Department managers of West Nile virus detection
  - b. Department managers notify their staff
  - c. District Manager notifies all members of Board of Trustees
3. External Notification
  - a. District Assistant Manager notifies City Manager or alternate contact of affected city or cities
  - b. Laboratory Director notifies neighboring vector control agencies
4. District Assistant Manager and/or Laboratory Director uses MapVision software to designate a heightened surveillance area consisting of a 0.5-mile radius around the residence of the patient and any suspected exposure sites
5. Public Health Education and Outreach Officer creates interactive map of surveillance area(s) ([see Creating a Google MyMap for instructions](#))
6. Public Health Education and Outreach Officer conducts public notification
  - a. Public Health Education and Outreach Officer drafts media release
  - b. Public Health Education and Outreach Officer uploads the media release to the District website
  - c. Public Health Education and Outreach Officer updates the District website's front page carousel with West Nile virus alert content
  - d. Public Health Education and Outreach Officer sends the release to staff, media, legislators, and other contacts.
  - e. Public Health Education and Outreach Officer sends release via MailChimp email blast to media releases subscribers
  - f. Public Health Education and Outreach Officer posts on Facebook and Twitter via Hootsuite
  - g. Information on mosquito prevention, West Nile virus, and personal protection against mosquito bites is provided to affected city or cities for distribution
7. Laboratory staff initiates heightened adult mosquito surveillance within the surveillance areas
  - a. 20 CO<sub>2</sub> traps are placed throughout each surveillance area for one night
8. Laboratory staff conducts West Nile virus testing on adult mosquitoes collected during heightened surveillance
9. Laboratory Director enters any West Nile virus detections into CalSurv
10. Internal Notification of any West Nile virus detections begins
  - a. Laboratory Director notifies District Manager
  - b. District Manager notifies department managers
  - c. Department managers notify their staff
  - d. District Manager notifies all members of Board of Trustees
11. External Notification of any West Nile virus detections begins
  - a. Assistant Manager notifies City Manager or alternate contact of affected city or cities
12. Using MapVision, Assistant Manager and/or Laboratory Director designates a treatment area consisting of a 0.5 mile radius around the site of any WNV-positive mosquito detections

13. Laboratory staff place 20 CO2 traps within and outside treatment area to collect pre-treatment control sample
14. Public Health Education and Outreach Officer creates interactive map of treatment area ([see Creating a Google MyMap for instructions](#))
15. Public Health Education and Outreach Officer conducts public notification
  - a. Public Health Education and Outreach Officer drafts media release
  - b. Public Health Education and Outreach Officer uploads the media release to the District website
  - c. Public Health Education and Outreach Officer updates the Adult Mosquito Control Treatment Updates page on the District website
  - d. Public Health Education and Outreach Officer updates the District website's front page carousel with adult mosquito control treatment content
  - e. Public Health Education and Outreach Officer sends the release to staff, media, legislators, and other contacts.
  - f. Public Health Education and Outreach Officer sends release via MailChimp email blast to media releases subscribers
  - g. Public Health Education and Outreach Officer posts on Nextdoor.com in all neighborhoods of affected city
  - h. Public Health Education and Outreach Officer posts on Facebook and Twitter via Hootsuite
  - i. Information on mosquito prevention, West Nile virus, and personal protection against mosquito bites is provided to affected city or cities for distribution
16. Office Administrator changes phone message to reflect adult mosquito control treatment announcement
17. Laboratory staff place sentinel adult mosquito cages in and outside treatment area 2 hours prior to treatment; each cage consists of 25 lab-reared *Cx. Pipiens* female mosquitoes approximately 6-8 days in age.
18. Operations staff conducts truck-mounted ultra-low-volume (ULV) adult mosquito control treatment within treatment area as soon as operationally feasible, weather permitting.
19. Laboratory staff place 20 EVS traps in and outside treatment area to assess treatment effectiveness. These mosquitoes are pooled and tested for WNV by RT-PCR. The percentage reduction in adult mosquito is calculated.
20. Public Health Education and Outreach Officer conducts public notification of post-treatment results
  - a. Public Health Education and Outreach Officer drafts media release
  - b. Public Health Education and Outreach Officer uploads the media release to the District website
  - c. Public Health Education and Outreach Officer updates the Adult Mosquito Control Treatment Updates page on the District website
  - d. Public Health Education and Outreach Officer sends the release to staff, media, legislators, and other contacts.
  - e. Public Health Education and Outreach Officer sends release via MailChimp email blast to media releases subscribers
  - f. Public Health Education and Outreach Officer posts on Nextdoor.com in all neighborhoods of affected city
  - g. Public Health Education and Outreach Officer posts on Facebook and Twitter via Hootsuite

21. Assistant Manager notifies City Manager or alternate contact of affected city or cities of post-treatment results
22. If additional mosquito samples positive for West Nile virus are detected, process repeats.
23. In addition to adult mosquito control, operations staff conducts heightened preventative mosquito control using EPA-registered products and methods based on data from enhanced surveillance activities that provide reliable information on presence, relative abundance, and distribution within the urban environment, including:
  - a. Physical control: disposing of and dumping containers, drilling holes in anything that holds water with resident approval and increasing water flow to any potential breeding habitat
  - b. Hand larviciding: applying larvicides to any standing water or potential breeding site, including surface films, Bti, Bs, Spinosad, and methoprene
  - c. Helicopter larviciding: applying larvicides to standing water using a helicopter
  - d. Catch basin treatment: storm water catch basins are treated regularly during the summer months with BVA oil or larvicides