

## LOCAL INVASIVE AEDES AND ARBOVIRUS SURVEILLANCE AND RESPONSE PLAN

### 1. Purpose

The purpose of this plan is to recommend procedures for handling the risk reduction and communications effort in preparation and response to a confirmed presence of invasive *Aedes* mosquitoes and existing and emerging arboviruses in Santa Cruz County. These mosquitoes are competent disease vectors and pestiferous urban container breeders that prefer biting humans, readily enter homes and vehicles, and are difficult to eradicate.

This plan may be updated as needed and is designed to be used by interagency staff familiar with the threat, and in conjunction with existing programs and plans including the California Department of Public Health's "[Guidance for Surveillance of and Response to Invasive \*Aedes\* Mosquitoes and Locally Acquired Exotic Mosquito-Borne Infections Transmitted by these Mosquitoes in California](#)" (Updated March 2016).

### 2. Planning Assumptions

- a. With the most recent discoveries in California of exotic *Aedes* species including *Aedes aegypti* (the yellow fever mosquito, 2013) and *Aedes albopictus* (Asian tiger mosquito, 2011), there is the potential for them to establish in Santa Cruz County. Once established, it is possible that they could acquire exotic viruses by biting infected travelers returning to California from areas where mosquito-borne viruses have become epidemic, as they are competent vectors of dengue fever, yellow fever, Zika and chikungunya viruses.
- b. The confirmed presence of these day-biting *Aedes* species in Santa Cruz County will result in significant media coverage, biting incidents and public concern.
- c. Information about invasive *Aedes* species and associated diseases is being disseminated throughout Santa Cruz County. During the initial period of increased attention, a unique opportunity exists to further educate the public about these container breeding mosquitoes. We will rely on the public to report sightings and reduce breeding habitat. In addition we are informing travelers to protect themselves against dengue fever, yellow fever, Zika virus and chikungunya where they are endemic.
- d. There are risks of inaccurate information and/or rumor supplanting facts.
- e. There are risks of some inappropriate use or types of pesticides and mosquito repellent—especially for children.
- f. Residents may confuse native black and white mosquitoes with invasive *Aedes*.

### 3. Key Messages

- ***Aedes aegypti* and *Aedes albopictus* are non-native mosquitoes** currently found in 12 California counties. **These mosquitoes are capable of transmitting several viruses, including [dengue](#), [yellow fever](#), [Zika](#), and [chikungunya](#).** These diseases can cause high fevers, extremely painful aches and joint pain, and be potentially fatal. Recently, Zika virus has been associated with an increase risk of microcephaly in newborns and Guillain-Barre syndrome. **Both *Aedes aegypti* and *Aedes albopictus* are well adapted to living among humans.** They are aggressive day biters, bite multiple hosts per blood meal, and lay their desiccation-tolerant eggs in various and cryptic containers (such as saucers under potted plants or old tires) commonly found around the household and public areas. Spread in California is predicted to be hindered by the prevalence of screening, air conditioning and indoor living relative to the more crowded, warmer climate of infested tropical areas and the U.S. Southeast. The cooler climate may inhibit overwintering and spread in our County, but periodic re-infestations may occur.
- **Dengue, yellow fever, Zika and chikungunya are not often transmitted from human to human directly—they require transmission via the bite of an *Aedes* mosquito vector. Sexual transmission of Zika virus is suspected and is being monitored. Rapid diagnosis and reporting of suspect cases and control of vector mosquitoes is important in limiting new cases.**
- **Currently, there is ongoing transmission of chikungunya, dengue, and Zika viruses in much of the tropics, including Mexico and Central and South America. To date, almost all U.S. cases have been associated with recent travel to endemic areas.** Although local transmission of these viruses has not been detected in California, chances of a local but limited disease outbreak could be possible in areas where *Aedes aegypti* or *Aedes albopictus* are established. The Santa Cruz County Health Services Agency (HSA) Communicable Disease Unit is tracking these viruses in our county.
- **Mosquito surveillance, prevention and control programs are in place in California, and in Santa Cruz County through Mosquito Abatement and Vector Control (MAVC), but controlling the spread of these mosquito species once they establish can only be achieved through inter-agency and public cooperation on an unprecedented scale.** (See Section 4 for Methods of Control). Traps to detect *Aedes aegypti* and *Aedes albopictus* are deployed throughout the county during warmer seasons. If these mosquitoes are detected, with the cooperation of other agencies, immediate door-to-door inspections and intensive public outreach will need to be initiated. Residents need to take responsibility for eliminating breeding sites around their household, as MAVC staff alone will not be able to inspect and treat all sources at the frequency necessary for controlling invasive *Aedes*.
- **There are some simple personal and environmental measures people can take to reduce the chance of harboring the invasive mosquitoes.** Residents can check that

yard drains and roof gutters are not holding water and containers in and outside the home such as plant saucers, old tires, or buckets are dumped periodically to prevent the accumulation of standing water. Residents can also alert MAVC if they experience mosquito bites during the day (indoors or outdoors) by a black and white mosquito. Lastly, individuals can use mosquito repellents that contain DEET or other effective ingredients such as oil of lemon eucalyptus, picaridin, or IR3535 especially when travelling to regions where these mosquitoes are active or where mosquito-borne viruses are endemic.

#### 4. Methods of Surveillance and Control

- Traps to detect *Aedes aegypti* and *Aedes albopictus* adult mosquitoes (autocidal gravid ovitrap - AGO Traps, Biogents Sentinel Adult Trap - BG) and eggs (ovitrap) are deployed by MAVC throughout the county during the warmer seasons. These traps are stationed in a locations suspected to be good breeding habitat for invasive *Aedes* throughout the county, and BGs are checked every 3 days, ovitrap every 7 days, and AGOs every two weeks.
- Residents will be encouraged to call our district if they experience day-time biting black and white mosquitoes. Any report from the public of mosquitoes that match this description, will be followed up with an inspection and deployment of additional surveillance traps around the reported location.
- If an invasive *Aedes* mosquito is detected by surveillance methods, MAVC is to notify HSA and the California Department of Public Health (CDPH) immediately. MAVC will publish press releases as outlined in the [State response plan](#).
- If an invasive *Aedes* mosquito is detected and/or if MAVC is notified by HSA of a human case of dengue, Zika, chikungunya, or other emerging viruses, MAVC will deploy additional AGOs, BG traps and ovitrap within a ¼ - ½ mile (potential flight range of the mosquito) buffer of the detection.
- Door-to-door inspections will also occur if *Aedes aegypti* or *Aedes albopictus* is detected within the county. Yards will be inspected, any *Aedes* larvae, eggs, or adults treated or destroyed, containers may be decontaminated to remove eggs or removed for disposal, and residents will be told what they can do to prevent breeding sources in their yard and home. If residents are not home, MAVC will leave door-hangers with educational information about invasive *Aedes* and follow up with a request for another inspection in the near future.
- Pyrethroid pesticides and targeted, limited low-volume fogging may be used if invasive *Aedes* adults are detected in residential yards and open, non-residential areas such as nurseries or cemeteries.
- Pools of collected invasive *Aedes* will be sent for arboviral testing to the UC Davis Center for Vectorborne Diseases.
- Overall, once established, successful management of *Aedes aegypti* and *Aedes albopictus* can only be achieved through awareness and cooperation of the public and other public-serving agencies. Outreach should come from all cooperating agencies and be targeted towards residents' responsible use of water in yards and containers to avoid providing breeding habitat for mosquitoes, and personal protection from bites.

## 5. Agency Roles and Responsibilities

### All Agencies and Jurisdictions

- Review suggested roles and determine necessary resources
- Evaluate staffing levels and review staff availability
- Evaluate staff training and informational materials
- Designate one primary point of contact for the media
- Coordinate release of information to the media
- Reprioritize work activities to address potential critical needs

### County of Santa Cruz Administrative Office/Public Information

- Serve as lead and coordinator for the Risk Communication effort

### County of Santa Cruz Health Services Agency (HSA)

- Develop public outreach disease information, including translations
- Be prepared to increase medical reporting activities
- Communicate with state and federal health agencies  
Alert MAVC of the geographic location of cases of Dengue, Chikungunya, Zika, or Yellow Fever as soon as they are considered “Suspect” by case definition
- Communicate with medical and health care providers so they are aware of the diseases invasive *Aedes* can vector, and globally, what countries are experiencing outbreaks
- Appoint key spokespersons by specialty

### County of Santa Cruz Public Health Officer (HSA)

- Serve as lead spokespersons for public health and medical issues
- Disseminate guidance to clinicians
- Develop content for posting on county website

### County of Santa Cruz Information Services/GIS

- Provide mapping and case tracking support to Health Services. Support MAVC in mapping impacted areas

### County of Santa Cruz Public Health Division Communicable Disease Unit (HSA)

- Receive reports from medical providers
- Provide case information to Health Officer
- Respond to public and media inquiries regarding disease-related concerns, consulting with and referring to the Health Officer as needed. Refer general media inquiries to the County PIO

### County of Santa Cruz Public Health Laboratory (HSA)

- Facilitate testing of specimens submitted by health care providers
- Be prepared to support field operations if possible
- Provide patient information and relevant technical information to Health Officer
- Refer media inquiries to the County PIO, as needed

County of Santa Cruz Environmental Health Division (HSA)

- Be prepared to accept and process reports from the public regarding suspect situations where mosquitoes may be breeding (water containers, outdoor clutter, water features, drainage systems, cryptic breeding sources, etc.)
- Help MAVC with surveillance efforts and enforcement of environmental mosquito breeding source reduction measures
- Be prepared to respond to media inquiries or develop content related to these issues

Santa Cruz County Office of Emergency Services (OES)

- Coordinate communications with local, state, and federal emergency management agencies
- Appoint key spokesperson
- Manage EOC, if activated. Refer to CDPH [Operational Plan for Emergency Response to Mosquito-Borne Disease Outbreaks](#).

Santa Cruz County Agriculture Commissioner

- Appoint key spokesperson and alternate by specialty
- Direct the activities of MAVC division
- Address movement and import of potentially infested materials
- Address impacts on agricultural workers
- Oversee use of pesticides if needed, and provide spokesperson to address pesticide issues with media

Santa Cruz County Mosquito Abatement and Vector Control Division (MAVC)

- Appoint key spokesperson and alternate by specialty
- Address abatement issues
- Map impacted areas
- Conduct surveillance and control measures and maintain effective communication with HSA and CDPH-VBDS
- Obtain and employ specialized surveillance traps, spray equipment and mosquitoicides
- Submit collected *Aedes* samples for arbovirus disease testing

Hospitals and Local Physicians

- Consider appointing key spokesperson(s)
- Coordinate release of information with Health Officer and County PIO
- Maintain communications with EMS and EOC, if activated
- Physicians should be aware of the symptoms of dengue, chikungunya, yellow fever, and Zika virus, obtain information on recent travel from patients, and report potential cases to HSA Communicable Disease Unit if these diseases are suspected

Santa Cruz County Animal Services

- Assist with bite prevention training for inspectors conducting door-to-door and yard inspections

Santa Cruz County Parks and Open Space

- Appoint key spokesperson. Assist in mosquito source reduction efforts and litter removal

Santa Cruz County Public Works

- Assist by ensuring storm-water capture systems (including catch basins and culverts) drain adequately
- Reduce illegal garbage dumps that may trap water and sponsor clean-ups
- Lead waste tire elimination efforts and tire drive efforts

Cities

- City managers, Code Enforcement and PIO's receiving calls from residents could answer basic questions and refer to HSA and MAVC as appropriate
- Assist with public awareness, clean up drives, inspections, breeding source reduction and enforcement

**5. Plan Activation**

Upon detection of invasive *Aedes* or a laboratory confirmed presence of locally transmitted mosquito-borne disease in Santa Cruz County, a Technical Advisory Committee (TAC) will meet at the Emeline Ave. facility. The chair of the TAC will set the time and agenda. The TAC will review the response documents in light of actual circumstances and develop a consensus on implementing all or parts of this plan. TAC members will notify their respective clients and leadership.

**6. Potential Actions**

Conduct TAC meeting.

- Select actions to be accomplished
- Set media briefing date/time and location
- Confirm spokespersons

Inform Board of Supervisors

- Identify spokesperson
- Prepare report / presentation
- Request direction to inform cities

Issue Media Alert /Advisory.

- Provide brief status summary
- Invite media to briefing

Prepare key spokespersons.

- Review and rehearse key talking points.

Assemble Media Briefing Packets

- Overview of mosquito-borne viruses
- CDC/CDPH/HSA prevention and preparedness tips
- Frequently Asked Questions

- Issue and review press releases
- Research on mosquito-borne virus
- Analyze infestation and case tracking maps

Conduct Media Briefing (see “Media Briefings” section)

- Distribute media packets
- Provide general background
- Provide specifics on current situation
- Address rumors and inaccurate information

Issue Press Releases as necessary (see “Press Release” section)

- Pre-Detection – To increase public awareness to report any day-biting mosquitoes to mosquito and vector control district.
- Post-Detection – for confirmed presence of invasive *Aedes* or locally acquired mosquito-borne virus in humans in Santa Cruz County. Note: Before being confirmed by laboratory testing, the case is likely to be considered “probable” based on surveillance data, clinical history and preliminary lab testing. “Probable” but unconfirmed case(s) may also require a press release. Scenario will be reviewed, and any media actions may be coordinated with CDPH.

Submit Op-Ed article to local newspaper(s) and monitor or participate in social media.

Hold community meetings when possible.

Enhance Public Education Outreach Program

- Distribute literature
- Target specific geographic areas or populations
- Seek media articles, interviews
- Update county website and reference it
- Use social media to increase pre-detection awareness

## **7. Press Releases**

Press releases are designed to quickly convey basic facts to the media in a direct, concise manner. Press releases regarding invasive *Aedes* or mosquito-borne disease will be drafted using the Health Officer’s letterhead.

## **8. Media Briefings**

News Conferences and Media Briefings are designed to quickly communicate directly with the media. The emergency or announcement should be of sufficient interest to make individual interviews impractical. A news conference or media briefing is appropriate when the disaster has considerable community impact, involves numerous agencies, and when you want to ensure that all media hear the same thing at the same time.

### Key Concepts

- One designated lead Public Information Officer (PIO) serves as facilitator/mediator

- To provide specific information and/or answer questions
- Statements should be made by senior officials
- Generally involves more than one participant
- Lead official gives opening statement and responds to questions
- Delegate answers to appropriate representative
- Relatively informal

#### REFERENCES:

Guidance for Surveillance of and Response to Invasive *Aedes* Mosquitoes and Locally Acquired Exotic Mosquito-Borne Infections Transmitted by these Mosquitoes in California. February 2016. California Department of Public Health. <https://www.cdph.ca.gov/HealthInfo/discond/Documents/2016InvasiveAedesSurveillanceandResponseinCA.pdf>

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