CHIKUNGUNYA

Information for vector control programs

Background

- Mosquito-borne viral disease characterized by acute onset of fever and severe joint pain
- Outbreaks have occurred in countries in Africa, Asia, Europe, and the Indian and Pacific Oceans
- In late 2013, first local transmission in the Americas was reported on islands in the Caribbean

Vectors

- *Aedes aegypti* and *Aedes albopictus* are the primary vectors
- Both mosquitoes can be identified by the white stripes on their black bodies and legs
- They are aggressive daytime biters, with crepuscular peak feeding activity
- These mosquito species are present in many regions of the United States (see distribution maps below), which creates the potential for emergence of chikungunya virus.

Aedes aegypti

- An important vector in urban areas.
- Closely associated with humans and their homes.
- Adult mosquitoes are commonly found indoors.
- Larval habitats are typically containers on the household premises.

Aedes albopictus

- More likely to play a larger role in transmission in the United States due to its wide distribution.
- Biting adults are found both indoors and outdoors, but are most commonly found outdoors.
- Larvae occur in peridomestic habitats as well as surrounding natural habitats.

Approximate distribution of *Aedes aegypti* in the United States*

Approximate distribution of *Aedes albopictus* in the United States*

*Maps were developed using currently available information. Mosquito populations may be detected in areas not shaded on this map, and may not be consistently found in all shaded areas.

Integrated vector management (IVM) for potential chikungunya virus vectors

During a chikungunya virus outbreak, aggressive vector management and personal protection activities that effectively reduce mosquito density and prevent mosquitoes from feeding on infected people are required to break the transmission cycle. Vector control efforts should target both species. Control procedures are generally similar for both.

Surveillance:

- Monitor the populations of potential vectors and risk of chikungunya virus circulation in your area.
- Implement larval surveillance programs to determine the number, type, and distribution of containers producing *Aedes aegypti* and *Aedes albopictus*.
- If not already developed, establish close lines of communication with local and state health department to share epidemiological and ecological data and obtain information about travel-related or locally-transmitted chikungunya virus disease cases in the area.

Source reduction:

- Reduce mosquito densities by removing larval habitats.
- Remove discarded, unused, and unmaintained containers through community involvement programs or by vector control personnel. Containers are ideal larval habitats.

Larval control:

- When source reduction is not feasible, apply biological or chemical larvicides to potential larval habitats.
- Use larvicides registered by EPA for application to containers.

Adult mosquito control:

- Generally only in outbreak situations.
- *Aedes aegypti* and *Aedes albopictus* are most active during the day and are not effectively controlled by standard night-time ultra-low volume (ULV) applications. Early morning or late evening ULV applications are recommended against these species.
- If case residences or areas of focal transmission can be rapidly identified, ULV or barrier applications to individual residences may be warranted to further reduce the likelihood of vectors feeding on infectious people.

Resistance monitoring:

- Evaluation of pesticide susceptibility in local populations of potential chikungunya virus vectors should be performed in advance to ensure that emergency control measures will be effective if needed.

Prevention of transmission

There is no vaccine or medication to prevent chikungunya virus infection or disease. Encourage the following measures to reduce the risk of human-vector contact:

- Use air conditioning or window/door screens
- Use mosquito repellents on exposed skin
- Wear long-sleeved shirts and long pants
- Wear permethrin-treated clothing
- Empty standing water from outdoor containers

People infected with chikungunya virus should be protected from further mosquito exposure during the first week of illness to reduce the risk of local transmission.

FOR MORE INFORMATION VISIT: http://www.cdc.gov/chikungunya/

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