

OneBlood Strategy to Protect the Blood Supply from Mosquito-Borne (Arbovirus) Disease



Purpose

To provide an overview of OneBlood’s strategy to protect the blood supply from mosquito-borne (arbovirus) diseases

Overview

South Florida has experienced locally-acquired (autochthonous) cases of mosquito-borne viruses (arboviruses) transmitted by *Aedes* mosquitoes. These diseases cause mild to severe flu-like illness that on occasion can be serious enough to result in death. Infected travelers returning to the United States after spending time in countries where these viruses are prevalent have introduced the arboviruses. The viruses then spread from the travelers to local mosquitoes. The mosquitoes may subsequently infect humans when they bite them. Because there are no vaccines or licensed blood tests for these viruses, OneBlood has implemented the following strategy for protecting the blood supply from these diseases.

Background

In the summer of 2013, OneBlood and the Florida Department of Health (FDOH) collaborated effectively to address a number of locally-acquired cases of dengue, which were confined to the Rio/Jensen Beach area of Martin County, Florida. This containment effort focused on aggressive door-to-door mosquito control measures, public education, targeted additional donor questioning, administration of a questionnaire and blood testing of occupants of the Rio/Jensen Beach area. Additionally, to protect the blood supply, OneBlood ceased blood collection from donors known to live in, or have spent time in the Jensen/Rio Beach area of Martin County. After all of the results of the blood tests were in, there were 28 cases of locally-acquired dengue reported. There were no reports of transfusion-transmission of dengue. The outbreak, which started in August, was determined to be over by October and the collections moratorium was rescinded in November.

In the summer of 2014, reports of locally-acquired chikungunya began to appear in South Florida, representing the first cases ever reported in the continental United States. By September, there were nine locally-acquired cases of chikungunya reported. In addition, four cases of locally-acquired dengue had appeared in the South Florida county of Miami-Dade. The FDOH once again instituted aggressive mosquito control and public education in the affected areas.

OneBlood’s model for donor deferral in dengue and chikungunya outbreaks has been reviewed by the FDA and blood banking industry leaders, and has been featured in several industry newsletters.

In the winter of 2016, reports of travel-related Zika virus in the counties of Miami-Dade, Hillsborough, Lee and Santa Rosa triggered the Governor to declare a public health emergency in the affected counties. While Zika produces symptoms similar to chikungunya and dengue, there is also some evidence that Zika may be associated with Guillain-Barré syndrome that causes (usually transient) paralysis. The possibility that fetal exposure to the virus when a pregnant woman gets Zika may be related to fetal microcephaly is under investigation.

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Policy

The OneBlood donor deferral model for mosquito-borne disease consists of an escalating model for each level of threat and is applied to:

- chikungunya, dengue and Zika virus outbreaks
- any additional mosquito-borne virus outbreaks in OneBlood’s collection areas as directed by the Medical Director

Forms

This procedure uses the following form:

Form Title	Form Number
Chikungunya, Dengue and Zika Virus Donor Follow-Up Contact	Form-695

CHIKV and Dengue Triggers

The table below provides the level, viral case load and action when responding to CHIKV and dengue disease outbreaks:

Level	Viral Case Load	Actions/Precautions
Green	no arbovirus threat or the presence of travel-associated cases only	continue monitoring and follow AABB/FDA/CDC current recommendations
Yellow	travel-associated case(s) and one or more locally-acquired case(s) present within a county within a rolling 30 day period from symptom onset	<ul style="list-style-type: none"> • all Green level actions/precautions • provide additional donor information for all donors focused on travel in the 28 days prior to donation • defer travelers from high-risk areas for 28 days from the day they return to the continental U.S. • weekly update of list of countries requiring deferral from the CDC website
Orange	2 to 5 locally-acquired cases in a given zip code within a rolling 30 day period from symptom onset	<ul style="list-style-type: none"> • all Yellow level actions/precautions • activate scripted proactive donor call back system within the affected zip code prior to release of components using Form-695 <i>Chikungunya, Dengue and Zika Virus Donor Follow-Up Contact</i>
Red	6 or more locally-acquired cases in a given zip code within a rolling 30 day period from symptom onset	<ul style="list-style-type: none"> • cease platelet collections in the affected zip code • place 7 day hold on red cells from affected zip code prior to release (products can be manufactured but not labeled during the 7 day hold) • continue proactive scripted callbacks

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Zika Triggers

The table below provides status level and action when responding to Zika disease outbreaks:

Status Level	Actions/Precautions
Areas Without Active Transmission of Zika	<ul style="list-style-type: none"> • provide additional donor information for all donors • add donor eligibility question to reduce the risk of Zika transfusion-transmission • update of list of areas requiring deferral from the CDC website • continue monitoring and follow AABB/FDA/CDC current recommendations
Areas With Active Transmission of Zika	<ul style="list-style-type: none"> • update of list of areas requiring deferral from the CDC website • cease collections in areas with active transmission of Zika

Note: The list on the CDC website is reviewed a minimum of weekly and Guide-94 is updated when applicable

References

- AABB Association Bulletin #16-04
- American’s Blood Centers, Talking Points Zika Virus 1/2016
- Centers for Disease Control
- Leparc GF and Reik RA. A Strategy to Manage Risk of Dengue and Chikungunya Virus Disease in the Donor Population. Oral abstract presentation. AABB Annual meeting. October 25, 2015.

Document Detail

3/15/2016

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Document No.: Policy-42[2]

Title: OneBlood Strategy to Protect the Blood Supply from Mosquito-Borne (Arbovirus) Disease

Effective Date: 03/15/2016

Document Changes: include FDA guidance requirements to include additional questioning for areas without active transmission of Zika