

Zika virus

Key Facts

- ⦿ Zika virus is transmitted to humans by infected mosquitoes. It causes mild fever and rash. Other symptoms include muscle pain, joint pain, headache, pain behind the eyes and conjunctivitis.
- ⦿ Zika virus disease is usually mild, with symptoms lasting only a few days.
- ⦿ The disease has similar clinical signs to dengue, and may be misdiagnosed in areas where dengue is common.
- ⦿ There is no cure for Zika virus disease. Treatment is focused on relieving the symptoms.
- ⦿ Prevention and control relies on reducing the breeding of Aedes mosquitoes and minimizing contact between mosquito vectors and people by using barriers (such as repellents, insect screens), reducing water-filled habitats supporting mosquito larvae in and close to dwellings, and reducing the adult mosquito populations around at-risk communities.

Background

Zika virus is a mosquito-borne flavivirus closely related to dengue virus. It was first isolated from a rhesus monkey in Zika forest, Uganda in 1947, in mosquitoes (*Aedes africanus*) in the same forest

in 1948 and in humans in Nigeria in 1954. Zika virus is endemic in parts of Africa and Asia and was first identified in the South Pacific after an outbreak on Yap Island in the Federated States of Micronesia in 2007. (1)

Transmission

Zika virus is primarily transmitted to humans through bites from Aedes mosquitos, which often live around buildings in urban areas and are usually active during daylight hours (peak biting activity occurs in early mornings and late afternoons).

Some evidence suggests Zika virus can also be transmitted to humans through blood transfusion, perinatal transmission and sexual transmission. However, these modes are very rare.

The incubation period is typically between 2 and 7 days.

Signs and symptoms

Zika virus infection is characterized by low grade fever (less than 38.5°C) frequently accompanied by a maculopapular rash. Other common symptoms include muscle pain, joint pain with possible swelling (notably of the small joints of the hands and feet), headache, pain behind the eyes and conjunctivitis. As symptoms are often mild, infection may go unrecognized or be misdiagnosed as dengue.

A high rate of asymptomatic infection with Zika virus is expected, similar to other flaviviruses, such

as dengue virus and West Nile virus. Most people fully recover without severe complications, and hospitalization rates are low. To date, there have been no reported deaths associated with Zika virus.

Diagnosis

Several methods can be used for diagnosis, such as viral nucleic acid detection, virus isolation and serological testing. Nucleic acid detection by reverse transcriptase-polymerase chain reaction targeting the non-structural protein 5 genomic region is the primary means of diagnosis, while virus isolation is largely for research purposes. Saliva or urine samples collected during the first 3 to 5 days after symptom onset, or serum collected in the first 1 to 3 days, are suitable for detection of Zika virus by these methods. Serological tests, including immunofluorescence assays and enzyme-linked immunosorbent assays may indicate the presence of anti-Zika virus IgM and IgG antibodies. Caution should be taken with serological results as IgM cross reactivity with other flaviviruses has been reported in both primary infected patients and those with a probable history of prior flavivirus infection.

Treatment

There is no commercial vaccine or specific antiviral drug treatment for Zika virus infection. Treatment is directed primarily at relieving symptoms using anti-pyretics and analgesics.

Prevention and control

The proximity of mosquito vector breeding sites to human habitation is a significant risk factor for Zika virus infection. Prevention and control relies on reducing the breeding of mosquitoes through source reduction (removal and modification of breeding sites) and reducing contact between mosquitoes and people. This can be achieved by reducing the number of natural and artificial water-filled habitats that support mosquito larvae, reducing the adult mosquito populations around at-risk communities and by using barriers such as repellants, insect screens, closed doors and windows, and long clothing. Since the *Aedes* mosquitoes are day-biting mosquitoes, it is recommended that those who sleep during the daytime, particularly young children, the sick or elderly, should use insecticide-treated mosquito nets to provide protection. Mosquito coils or other insecticide vaporizers may also reduce the likelihood of being bitten.

During outbreaks, space spraying of insecticides may be carried out periodically to kill flying mosquitoes. Suitable insecticides (recommended by the WHO Pesticide Evaluation Scheme) may also be used as larvicides to treat relatively large water containers.

Basic precautions for protection from mosquito bites should be taken by people traveling to high risk areas. These include use of repellents, wearing light colored, long sleeved shirts and pants and ensuring rooms are fitted with screens to prevent mosquitoes from entering.

Discussion board messages—Participate in the discussion board once a week to let students know that you are there, being careful not to drive the conversation but rather to provide feedback and perhaps ask questions.



Email—Send individual students emails to compliment them and comment on their work.

VoiceThread—One of the options when using VoiceThread is to create a second icon for the instructor called “feedback,” which indicates the type of message contained in the recording. This can be an effective way to indicate to students at a glance the number of times the instructor has provided feedback.

Announcements—When you find relevant resources, provide a link in the announcements section of the course, saying something like, “Here’s something I found recently. This is what we talked about in the discussion.” This is a clear indication that the instructor is active in the course.

Polls and surveys—Feedback does not have to be one way. Adding polls and surveys (about the learning experience and/or the content) can add



a human element to the course. “I recommend checking in with students [with a poll or survey] once or twice a semester, asking them where they want to take the course. That makes it more personal,” Merrill says.

Take note of students’ interests and experiences—Use an icebreaker activity to gather student information that will be useful later in the course. What are your students’ work experiences? What knowledge do they have in their portfolios that you can tap into? One way to use this knowledge is to have students lead discussions on topics within their areas of expertise. “It makes it more personal and values their experience,” Merrill says.

diagnosis and treatment plan, and other students added to it and commented on it.

When designing an online course, it's also important to be aware of students' expectations based on their other media experiences. "Think about what television, media, and the Internet are doing right now to capture the attention of people. I think we have to tap into that kind of thing by adding things such as short videos and small chunks of information. . . . It's not entertainment, but I think the audience now feels like they have to have a certain amount of visual stuff going on. They're geared toward finding whatever information they need right now. It has to be searchable. You have to think about what's going to be eye-catching and not by just adding a little clip art.



"They're used to being able to click around a page and look at what they want to look at. So, maybe in the design process we don't necessarily create learning modules that force them through steps. Maybe they can make choices about what they

read and when, because adult learners need to be able to learn something that's important to them right now."



Videos can create presence. These can range from a simple five-minute welcome video to lecture capture. (If an instructor is camera-shy, Merrill recommends using an avatar along with an audio recording of the instructor's voice.)

Other videos can create a sense of presence as well, Merrill says. A message with a link to an appropriate YouTube or Khan Academy video can add presence without any need for you to create the videos yourself. Using narrated PowerPoint presentations is another relatively simple way to convey presence.

Feedback

Feedback is an essential way to convey presence. You can offer feedback in many different ways. Here are some that Merrill recommends: