

US EPA ARCHIVE DOCUMENT

Protecting Students from Mosquitoes and the Zika Virus at Schools

Questions & Answers

Protecting Students from Mosquitoes and the Zika Virus at Schools, one of a series of [school Integrated Pest Management \(IPM\) webinars](#) hosted by EPA's Center of Expertise for School IPM, was presented on September 20, 2016. Included here is information on the presenters and responses to participants' questions.

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Presenters

- CDR Joseph Laco, US Public Health Service Environmental Health Scientist, CDC National Center for Environmental Health
- Michael Merchant, Ph.D., Urban Entomologist, Texas A&M Research and Extension Center
- Dan Lisenko, Grounds and Maintenance Manager, Manatee County (Florida) School District

Questions and Answers

These questions were posed by webinar participants. The questions and responses may have been refined following the webinar for clarification or to include additional resources.

- 1. How can I get a copy of the presentation?** You can request a PDF of the presentation by sending an email to school.ipm@epa.gov using the subject "Zika Webinar Presentation." Once posted, a link to the recorded webinar will be available [on our website](#).
- 2. Do you have parent education pamphlets available in English, Spanish, Vietnamese, and Mandarin?**
(CDR Laco) [CDC's Zika website](#) provides information, including media for parents, in English and Spanish.
(Dr. Merchant) Texas A&M AgriLife Extension has two publications in Spanish - [What Texans Need to Know About Zika](#) and [Mosquitoes and the Diseases They Transmit](#).
- 3. Where can we find the most updated information?**
(CDR Laco) [CDC's Zika website](#) is updated at least weekly with arbovirus information and resources.

Repellents

- 4. Considering outdoor gym periods and after school sports, have school districts altered their policies on mosquito repellent application? And who applies the repellent?**
(Mr. Lisenko) In some elementary schools, teachers apply the repellent on the children before they go outside. Our district does not yet have a protocol for repellents. We have recommended that the football players use a repellent when they go outside. We are just now trying to get parents and teachers to understand the importance of protection from mosquitoes and to start bringing in repellents.

5. Are Florida school systems allowing students to bring repellents to school or are the schools supplying repellent?

(Mr. Lisenko) While my district is not supplying repellents, I believe there are some that are supplying repellents. In my district, students may bring in their own repellent.

6. Are there repellents that can be safely used on children between 6 months and 2 years of age?

(CDR Laco) I would strongly advise you to look at the label on all repellents. The label instructions have been approved by EPA in accordance with their human health safety standards. I would not recommend any repellent be used for children under 2 months of age.

7. Are the repellents used on clothing odorless?

(Dr. Merchant) Permethrin should only be applied to clothing and allowed to dry before wearing the treated clothing. It lasts for multiple washings, and should be odorless once applied and dried. Other repellents can be applied to clothing, but will not remain active after washing. Picaridin and IR-3535 are both odorless once applied.

8. Can you recommend a permethrin product for pretreating clothing?

(Dr. Merchant) Any permethrin product labeled for use on clothing should be effective. Brands include Sawyer®, Ben's® Clothing and Gear, Repel® Permanone, and others.

9. Once you have the virus how long would you be contagious? Are the school systems on here allowing students to bring repellent to school or after school activities? Are the schools supplying?

(CDR Laco) That will vary from person to person based on your own status of health, and whether or not you are immune-compromised. Typically it is going to be 7 to 10 days. Maybe up to two weeks for some individuals.

10. What recommendations do you have, aside from protective clothing, for pregnant women wanting to protect themselves against mosquito bites? Are repellents safe for pregnant women?

(Dr. Merchant) All repellents go through extensive safety testing to ensure that risks to humans are minimal. This applies to pregnant women, unless there is a warning on the label. Risks to humans from mosquitoes, however, are well known and documented.

11. Is it recommended and safe to pre-treat children's clothing?

(Dr. Merchant) As in the above answer, all EPA registered repellents have been thoroughly tested and should pose minimal risks to children unless otherwise indicated on the label. The label should be your guide in determining proper and safe application to children's clothing or skin.

12. Can you apply insect repellents to pets?

EPA cautions people not to use any product on pets or other animals unless the label clearly states it is for animals.

13. Does wiping your skin with a dryer sheet and putting it in your pants pocket help to decrease mosquito bites?

(CDR Laco) No. CDC only recommends the use of EPA registered products as repellents. Their effectiveness is based on scientific data and peer reviewed studies.

14. Is there clothing that can prevent mosquitoes from biting through? And should repellent be used on both exposed skin and clothing?

(CDR Laco) The thinner the clothing, the easier it is for mosquitoes to bite through. I would recommend using a permethrin product that is labeled for pre-treating clothes to repel mosquitoes. Or just use a repellent on your skin, clothes and hair.

Larvicides

15. How much larvacide is required for an average storm drain?

(Dr. Merchant) That is going to depend on the label which is slightly different for each product. It is usually based on the square footage of the water to be treated.

16. Do you have to re-apply Bt to drains after a heavy rain?

(Dr. Merchant) Yes. That is one of the disadvantages of larvicides. They do not last a long time and certainly any kind of rain event that is going to dilute the Bt and wash it out. Rain is a double-edged sword. It helps with the West Nile virus, but for the Zika-carrying *Aedes* mosquitoes, rain will wash away the larvacide treatments that we put in the drains and allow them to start breeding again quickly. With the West Nile virus carrying mosquitoes, a good rain that will wash out the breeding site is just what the doctor ordered. *Culex* mosquitoes like dirty water (lots of organic material) that has been sitting awhile and has become stagnant.

17. How long does Altosid (methoprene) last?

(Dr. Merchant) Altosid (methoprene) has about a 30-day life span. It is comparable to the better Bt formulations that are slow release. Bt does not last as long as Altosid, but if it is in a good slow-release formulation, it can also extend for 30 days.

18. Our state Health Department will not allow use of larvicides in storm drains or other pools of water that may flow into streams, ocean, etc., citing the Federal Clean Water Act. Why can other states do it? Any suggestions for alternate ways of dealing with larvae in these areas of standing water?

(Dr. Merchant) Your state Health Department may have a policy of not allowing its own employees to apply larvicides to water, but health departments do not have authority to prevent citizens from using state and federally registered insecticides for uses that are allowed on the label.

19. Can mosquito eggs take up to 6 months to hatch? If so, how do we treat sites where the larvae may appear?

(Mr. Lisenko) Mosquito eggs can go dormant up to 10 to 15 years depending on environmental conditions. Once the larvae, appear I would use an insect growth regulator to control them.

Mosquito Biology

20. If *Aedes* sp. are low fliers will females still lay eggs in water in roof gutters on the 2nd or 3rd story?

(Dr. Merchant) I wouldn't put past an *Aedes* mosquito to go up that high. Pay attention to eliminating potential breeding sites on roof tops and gutters for both *Aedes* and *Culex* mosquitoes.

21. Is there a season for mosquitoes?

(Dr. Merchant) Most mosquitoes will be active when temperatures exceed 50-55 degrees F.

Zika Virus

22. Are there data focused on Zika infection by gender, race or age?

(CDR Laco) I do not know if that has been examined. However, the greatest risk from Zika is for women who are pregnant or will become pregnant. This disease can have very serious impacts on developing fetuses and young women. The risk of adverse health effects in children is relatively low.

23. Can microcephaly affect the fully developed fetus infected with Zika through the placenta?

(CDR Laco) Zika virus can have an effect on fetal brain development at any point during the pregnancy.

24. How does the original person get infected with the Zika virus?

(Dr. Merchant) In areas of active local transmission like we saw in the summer of 2016 in south Florida, epidemics get started when an infected traveler from an active Zika area arrives. If that person is bitten by an *Aedes* mosquito within 5-7 days of first infection, that mosquito can become infected and pass the virus to the next person it bites.

Mosquitos and Schools Questions

25. Are city officials responsible for monitoring mosquito breeding grounds in areas surrounding schools?

(Mr. Lisenko) If there is a mosquito problem adjacent but off our school property, we contact the county's mosquito control program.

26. Who should inspect for mosquitoes on and around school property?

(Mr. Lisenko) I train my pest control department and they do most of the inspections. The custodians are currently being trained so they can help with inspections. Because we have about 60 facilities, it is hard to do a complete inspection within a reasonable amount of time. When trained, the custodians and school plant managers will be able to assist.