

Mosquitoes can vector serious human diseases including Eastern Equine Encephalitis and West Nile virus. Schools can reduce the risk of mosquito-borne illness by using Integrated Pest Management (IPM)—smart, sensible practices such as landscaping and maintenance to reduce mosquito habitat, scheduling outdoor events to avoid peak mosquito activity times, and educating parents and staff to promote personal protection through clothing choice and judicious use of repellents.

Health Risks

Mosquitoes can vector serious, sometimes deadly diseases including Eastern equine encephalitis (EEE), West Nile virus (WNV), Zika virus and more. School nurses can play a key role in preventing these illnesses by advocating for integrated pest management (IPM) policies and practices—sensible, evidence-based methods to reduce mosquito activity and prevent bites.



Promote Integrated Pest Management

Integrated Pest Management (IPM) is ‘best practices’ for managing pests to safeguard health and protect the environment. IPM includes prevention, regular pest monitoring and accurate identification, effective pest management, record-keeping, education and communication. Review your school’s pest management policies and practices. Are there components that could be strengthened? Advocate for continuous improvement.

Manage School Grounds

Mosquitoes breed in shallow water such as containers, tree holes and shallow ponds, but adult female mosquitoes can fly several miles in search of a blood meal. Manage school properties to eliminate breeding sites and discourage mosquito activity.

- Remove or cover water-collecting containers such as toys, plant pots and trays, empty bottles and cans. Mosquitoes can breed in something as small as a rain-water-filled bottle cap.

- Drill drain holes in playground tires and equipment.
- Keep gutters and downspouts clean and in good repair.
- Keep dumpsters and outdoor garbage cans clean, closed and well-maintained.
- Grade and fill school grounds where needed to promote water drainage and prevent puddling.
- Cut back or remove dense brush. Prune shrubs and trees to allow air movement. Keep lawns, meadows and swales mown.
- Flush bird baths weekly.

Monitor and Avoid Mosquitoes

- Follow and share announcements and guidance from public health authorities.
- Work with administrators to reschedule outdoor events when mosquito and disease activity is high. Avoid peak mosquito activity periods.
- Provide guidance for sound, evidence-based policies regarding the use of repellents on children before outdoor activities at school.
- Educate students, families and staff about importance of wearing protective clothing (light colored, long sleeves, long pants, socks), judicious use of repellents and staying indoors when mosquitoes are biting.





Western encephalitis mosquito, *Culex tarsalis*.
Photo: Joseph Berger, Bugwood.org

- Avoid areas where mosquitoes tend to concentrate such as tall grass and wooded areas.

Repellents

- Schools are encouraged to adopt a repellent-use policy. Schools may opt to require written parental consent to allow staff to assist younger students in applying repellents provided by parents.
- Children should not handle repellents. Trained staff or parents should apply repellents to child's exposed skin or the outside of clothing only, as directed on the product label. Never use repellents over cuts, wounds or irritated skin. Use just enough repellent to cover exposed skin or clothing. If biting insects do not respond to a thin film of repellent, apply a bit more.
- When using sprays, do not spray directly on face—spray on hands first and then apply to face. Avoid applying directly to children's hands. Wash hands after application to avoid accidental exposure to

eyes, or ingestion. Do not apply repellents to eyes or mouth, and apply sparingly around ears. Do not apply repellents under clothing. After returning indoors, wash children's treated skin with soap and water.

- The U.S. Centers for Disease Control recommends the use of EPA-registered repellents containing DEET, picaridin, oil of lemon eucalyptus (OLE or PMD) or IR3535. Oil of lemon eucalyptus should not be used on children younger than three years old. Repellents containing 50 percent or more of any active ingredient do not significantly increase protection. If a rash or other adverse reaction occurs, immediately wash the repellent off and contact the local poison control center.



Eastern House mosquito, *Culex pipiens*,
Photo: Susan Ellis, Bugwood.org

Mosquito Prevention and Response Action Chart

Annually review public health surveillance and communication procedures. Confirm that key personnel at your school will be notified and prompt action will be taken when mosquito-borne disease threats are reported in your area.



Review school's vector prevention and response plan with administrators, facilities director and other team members. Work with team and parents to develop policies regarding personal protective measures such as appropriate clothing, use of repellents, and staying indoors when mosquitoes are active. Educate parents and staff to support adherence. Educate everyone to recognize and eliminate mosquito sites on a continuing basis.



Has vector activity or disease alert been issued by public health authorities?

No

Continue normal education and prevention activities.

Yes

Follow school's response plan and guidance from public health authorities. Reschedule or cancel outdoor activities such as recess and sporting events if needed. Provide guidance to parents and staff about how to protect themselves and children from mosquito bites, prevent disease spread, and when to seek medical treatment. If a pesticide application is considered and/or scheduled, work with school team and public health authorities to make informed decisions and provide appropriate outreach and education to inform parents, staff and the community.