

## PROMOTING HEALTHY ENVIRONMENTS FOR CHILDREN

# Insect Repellents



### KEY POINTS

Bites from mosquitoes, biting flies, and other insects can be irritating to children, and, in some cases, can cause serious illness.

- Insect repellents can help reduce the incidence of diseases such as West Nile Virus, Lyme Disease, malaria, Zika, and others.
- When used properly, repellants can safely help protect children from insect bites and the diseases they may carry.
- Insect repellents work by keeping bugs away rather than killing them.

### CLINICAL GUIDANCE

- Insect repellents can reduce the incidence of harmful diseases spread by ticks, mosquitos, and other pests.
- They repel insects that bite but not insects that sting. Biting insects include mosquitoes, ticks, fleas, chiggers, and biting flies. Stinging insects include bees, hornets, and wasps.
- Products containing DEET are the most effective mosquito repellants currently available. DEET is also an effective repellent for a variety of other insect pests, including ticks. DEET should be used in areas where there is concern about illness from insect bites.
- The concentration of DEET in a product affects the amount of the time that the product repels insects. For example, 10% DEET provides protection for about 2 hours; 30% DEET protects for about 5 hours.
- When used on children, insect repellents should contain no more than 30% DEET.
- Reports of adverse effects associated with DEET are rare. If used appropriately, DEET does not present a health risk.
- Picaridin and other repellents are also deemed safe and effective by the [US Environmental Protection Agency](#).
- Where possible, reduce tick and mosquito habitats (eliminate standing water, prune overhanging branches, maintain reasonable lawn height, and remove debris).
- Prevent mosquitoes from entering indoor areas by using screens on windows and doors, and using air conditioning, if available.
- Products not proven effective against mosquitoes include wristbands soaked in chemical repellents and ultrasonic devices that give off sound waves designed to keep insects away.

Tips to share with families about applying insect repellents to children:

- Wearing long sleeves, long pants, socks, and closed shoes can reduce the need for insect repellent.
- Using mosquito netting over baby carriers and strollers can also reduce the need for insect repellent.

- Choose products in the form of sticks, lotions, or unpressurized sprays. Avoid products that combine repellents with sunscreen. If using a separate sunscreen product, apply sunscreen first and insect repellent second. Apply DEET only once a day.
- Read the label and follow all directions and precautions.
- Only apply insect repellents on the outside of clothing and on exposed skin. Do not apply under clothing.
- Use just enough repellent to cover clothing and exposed skin. Using more does not make the repellent more effective.
- Keep all products out of young children's reach.
- Help apply insect repellent on young children. Supervise older children when using these products.
- Never spray insect repellent directly onto a child's face. Instead, spray a little on your hands first and then rub it on the child's face.
- Do not apply to eyes, mouth, cuts, wounds, or irritated skin, and use sparingly around ears.
- Avoid applying repellent to children's hands; children sometimes put hands in their mouth and eyes.
- Weigh the risks of exposure to potentially serious illness spread by insects and the possible risk of absorbing chemicals into the body. Parents of newborns and premature infants should be especially cautious when deciding whether to apply DEET or other chemicals on their child's skin.
- Do not use products containing oil of lemon eucalyptus (OLE) or para-menthane-diol (PMD) on children under age 3 years.
- Apply spray repellents in open areas to avoid breathing them in.
- Wash children's skin with soap and water to remove any repellent when they return indoors and wash their clothing before it is worn again.
- Avoid repellent candles which may trigger breathing problems when fumes are inhaled.
- If you live in an area where ticks are present:
  - If children have been playing outdoors, their skin should be checked at the end of the day and any ticks safely removed.
  - The most effective repellent for ticks is permethrin. Permethrin should not be applied to skin but on clothing and gear.

If a child has a reaction to insect repellent, such as a rash, remind family members to:

- Stop using the product and wash the child's skin with soap and water.
- Contact Poison Help at <https://triage.webpoisoncontrol.org/-/exclusions> or 1-800-222-1222, or contact the child's doctor.
- Remind them to bring the repellent container when getting medical support.
- Call 911 if there is a serious reaction such as trouble breathing or a seizure.

### **ADDITIONAL INFORMATION**

Common "Natural" insect-repellent ingredients include citronella, geranium, peppermint, and soybean oil. These ingredients are deemed safe but have not been approved for effectiveness by the EPA. If there are concerns about a serious insect-borne illness such as Lyme disease in an area known to have ticks, or if traveling to a part of the world with a high prevalence of malaria, then DEET, picaridin, or another approved effective product should be used.

In recent decades, climate change has led to an increased prevalence of vector-borne diseases including malaria and Lyme disease. The prevalence of these diseases is expected to increase unless measures to mitigate the effects of climate change are successfully undertaken.

**FOR MORE INFORMATION**

The following resources offer additional regarding insect repellents:

- [\*Pediatric Environmental Health, 4<sup>th</sup> Edition\*](#) – AAP Policy Manual
- [Choosing an Insect Repellent for Your Child](#) – HealthyChildren.org
- [Find the Repellent that is Right for You](#) – US EPA
- [Using Insect Repellents Safely and Effectively](#) – US EPA