



Commonwealth Primary Care

# Mosquitos, Ticks & Other Insect Bites



# Contents

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- [Mosquitos, Ticks and Other Insect Bites – General Information](#)
- [Mosquito-Borne Illnesses](#)
- [Tick-Borne Illnesses](#)
- [Bee Stings](#)
- [Spider Bites](#)

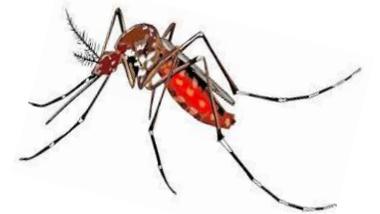


# Mosquito, Ticks and Other Insect Bites

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## General Information about these insects:

- Can be the **carrier for many types of viruses and bacteria**
- Cause illnesses such as **West Nile, Zika, Lyme and Rocky Mountain Spotted Fever**
- **All of these have been reported in Virginia**
- There are currently **no vaccines** to prevent these insect-borne illnesses



# Mosquito, Ticks and Other Insect Bites

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- **If bitten by an infected insect, most people have no signs or symptoms of illness.**
- A few people will develop symptoms, and some can be severe.
- **If symptoms occur after an insect bite, see your provider to determine most effective treatment.**
- **People with certain medical conditions**, such as cancer, diabetes, hypertension, kidney disease, and compromised immune systems **are at greater risk if bitten by insects carrying viruses.**
- Symptoms can be more severe for people at risk and, therefore, they should seek medical treatment soon after onset.
- If you plan travel to foreign countries, be aware of insect-borne illnesses.
- Centers for Disease Control (CDC) has a map for various outbreaks at <https://wwwnc.cdc.gov/travel>



# Prevention from Mosquitos, Ticks & Insect Bites

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To reduce your risk of illness from mosquito, tick and insects you should:

- **Use insect repellent containing DEET**
- **Wear long-sleeved shirts and long pants** when doing outside work
- **Eliminate standing water** around your home by overturning or covering containers where water collects
- **Use mosquito dunks** in ponds or large fountains to prevent mosquitos from breeding
- **Use permethrin-treated clothing and gear**, or treat your gear and clothing with permethrin before departure

**Specific for tick prevention:**

- Stay out of tall grass, brush, or heavily wooded areas
- Walk in the center of hiking trails

**For more information on insect bites in Virginia:**

<http://www.vdh.virginia.gov/environmental-epidemiology/bugs-human-health/?tab=1>





# Mosquito- borne Illnesses

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# Mosquito-Borne Illnesses

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- **West Nile (WNV), Zika, and La Crosse (LACV) encephalitis** are viruses that can be carried by mosquitos.
- **Most people bitten by an infected mosquito carrying WNV or Zika will not become ill or have any symptoms.**
- Few cases will develop mild symptoms such as fever or body aches.
- **Zika virus can be dangerous to pregnant women** since this virus can pass to the fetus and cause certain birth defects such as microcephaly.
- Once infected, a person with Zika is usually protected from future infections.
- Cases of LACV encephalitis have been reported in upper Midwestern, mid-Atlantic and southeastern states.
- Like WNV and Zika, **many cases by an infected mosquito carrying LACV show no symptoms**, however, some cases develop severe symptoms of encephalitis.



# Common Symptoms of WNV, Zika & LACV:

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- Fever
- Headache
- Body aches
- Joint pain
- Vomiting
- Diarrhea
- Rash
- Fatigue
- Weakness
- Encephalitis or meningitis in severe cases



# Treatment of Mosquito-Borne Illnesses

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- **No vaccine or antiviral treatments exist** for West Nile, Zika or La Crosse virus.
- **Pain relievers, such as Ibuprofen (Advil) or Acetaminophen (Tylenol),** can be used to reduce fever, headache and body aches.
- **For persistent vomiting and/or diarrhea, it may be necessary to get urgent care for intravenous fluids.**
- **Symptoms that progress and become more severe, or cause fatigue and weakness should be reported to your healthcare provider for diagnosis and treatment.**



# Prevention of Mosquito-Borne Illnesses



- **Use insect repellents** with Environmental Protection Agency approved ingredients known to be safe and effective for adults, such as DEET
- **Eliminate standing water around your home** by overturning or covering containers where water collects
- **Use mosquito dunks** in ponds or large fountains to prevent breeding
- **Use permethrin-treated clothing and gear,**
- **Wear long sleeves and long pants** when working outdoors
- **Wear head cover, gloves and shoes** if working in areas with dense mosquitoes or breeding grounds





# Tick-borne Illnesses

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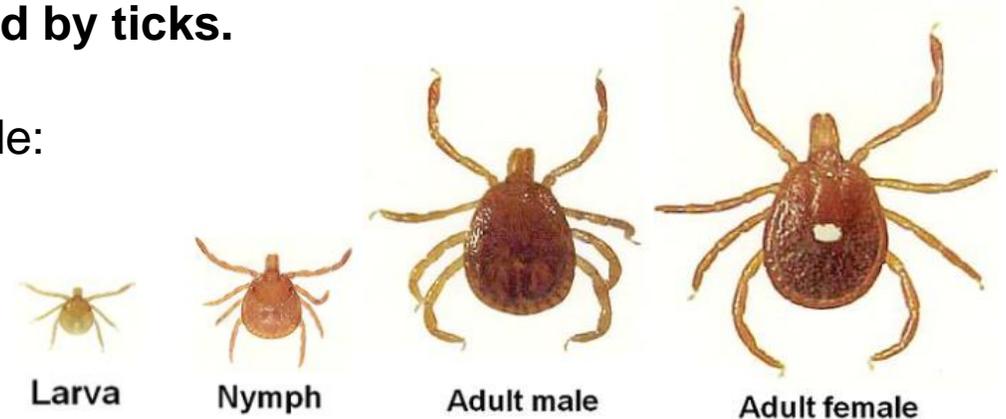
# Tick-borne Illnesses

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- **Diseases spread by ticks are among the most common travel-related illnesses.**
- Contact your doctor if you feel seriously ill, especially if you have a fever.
- Tell your doctor about your travel history, including what countries you visited and what you did there.
- Be sure to mention if you remember seeing or being bitten by a tick.
- Keep in mind that symptoms can appear after you return home or while abroad.
- **No vaccine is available to prevent diseases spread by ticks.**

**Common symptoms** of diseases spread by Ticks include:

- Fever/chills
- Headache
- Fatigue
- Muscle or joint pain
- Rash



# Tick Bite Prevention

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- **Dress appropriately:** wear light-colored clothing, wear long pants and sleeves, tuck in shirts, tuck pants into socks, and wear closed-toe shoes.
- **Use insect repellents** on the skin that contain at least 20% DEET. (“Natural” products, such as citronella, are not effective.)
- **Use permethrin-treated clothing and gear**, or treat your gear and clothing with permethrin before departure.
- **Stay out of tall grass, brush, or heavily wooded areas;** walk in the center of hiking trails.
- **Brush off clothing** before entering your home.
- **Inspect your skin** carefully for ticks.



# Tick Removal

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- Pull upward, with steady even pressure, until the tick releases to avoid breaking the mouthparts of the tick or rupturing the tick's body.
- After tick removal, clean the skin and bite area with rubbing alcohol or soap and warm water.
- Save the tick in a bag or container with rubbing alcohol for identification in case an illness develops in the days after tick attachment.
- Never crush a tick with your fingers.

<http://www.vdh.virginia.gov/blog/2018/12/05/new-and-invasive-tick-species-in-virginia/>



# Rocky Mountain Spotted Fever (RMSF)

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RMSF is a bacterial disease spread through the bite of an infected tick (*Rickettsia rickettsia*).

## Signs and symptoms:

- Fever
- Headache
- Rash
- Nausea
- Vomiting
- Stomach pain
- Muscle pain
- Lack of appetite

## RMSF Rash:

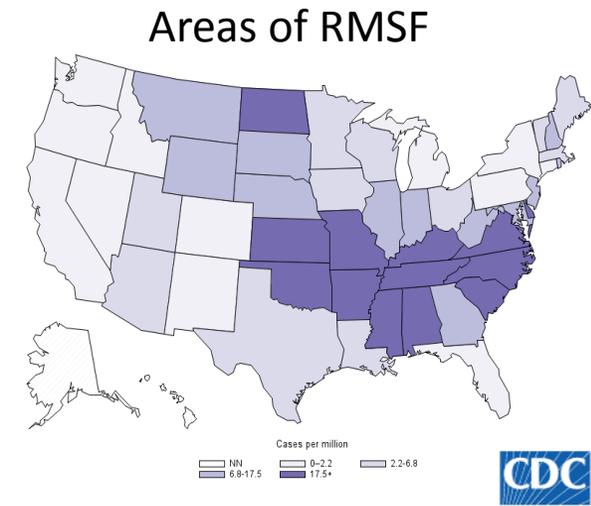
- Rash is a common sign in people who are sick with RMSF - usually develops 2-4 days after fever begins
- Some can have red splotches and some look like pinpoint dots
- While almost all patients with RMSF will develop a rash, it often does not appear early in illness, which can make RMSF difficult to diagnose.



# Rocky Mountain Spotted Fever (RMSF)

## Treatment

- RMSF can be deadly if not treated early with the right antibiotic (doxycycline often used).
- If you had a known tick bite and develop signs and symptoms, seek medical treatment soon. If you suspect a bite of some type, seek medical treatment to rule out possible insect-borne illness.
- RMSF does not result in chronic or persistent infections.
- Some patients who recover from severe RMSF may be left with permanent damage, including amputation of arms, legs, fingers, or toes (from damage to blood vessels in these areas); hearing loss; paralysis; or mental disability.
- For more information: <https://www.cdc.gov/rmsf/index.html>



<https://www.cdc.gov/rmsf/stats/index.html>

# Lyme Disease

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- Lyme disease is caused a bacterial infection from an infected **blacklegged ticks**.
- **Most people are infected by tiny immature tick nymphs during spring and summer which are less than 2 mm in size.**
- Adult ticks are bigger to see and usually more prevalent in the fall.
- **This tick-borne disease can be very serious.**
- **If left untreated, infection can spread to joints, the heart, and the nervous system, including facial paralysis, and arthritis.**
- Be aware of states where Lyme Disease has been reported. New England, mid-Atlantic, Great Lakes region and Northern California has the highest number of cases reported.
- A CDC map showing location is available at <https://www.cdc.gov/lyme/datasurveillance/index.html>



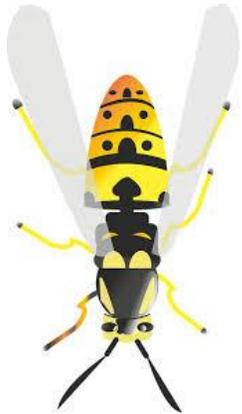
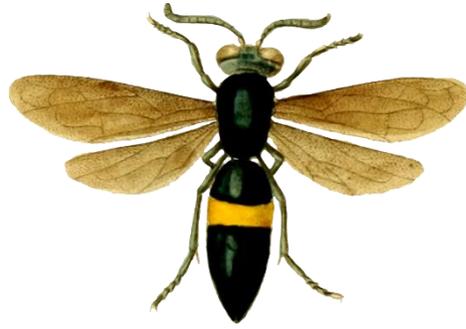


# Lyme Disease Prevention

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- Use Environmental Protection Agency (EPA)-registered insect repellents containing DEET, picaridin, IR3535, oil of lemon eucalyptus, para-menthane-diol, or 2-undecanone.
- Wear clothing treated with 0.5% permethrin. Re-treat clothing annually according to label instructions.
- Shower as soon as possible after spending time outdoors.
- Check for ticks daily. Ticks can hide under the armpits, behind the knees, in the hair, and in the groin.
- Tumble clothes in a dryer on high heat for 10 minutes to kill ticks on dry clothing after you come indoors.
- If the clothes are damp, dry them completely and then dry for 10 minutes on high heat.
- **For more information:** <https://www.cdc.gov/lyme/>





# Bee Stings

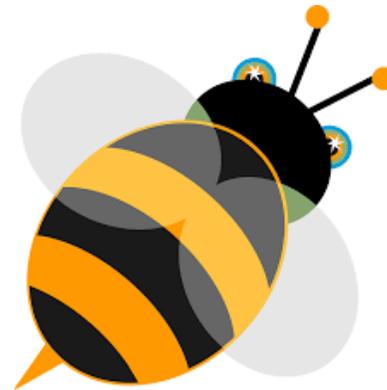
including Hornets, Wasps and  
Yellow Jackets



# Bee Sting Reactions

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- Bees, hornets, wasps and yellow jackets are hard to tell apart and all sting, usually painful and red.
- Most stings will have a local allergic response but anaphylaxis reaction causing difficulty breathing is a true emergency.
- Usually after stinging, the insect leaves it's venom sac behind so it is important to brush off the skin.
- **Symptoms - mild reaction:**
  - Red bumps
  - Itchiness
  - Mild swelling
- **Symptoms - [severe allergic reaction](#):**
  - Swelling in face or mouth
  - Trouble swallowing or speaking
  - Chest tightness, wheezing, or trouble breathing



# Bee Sting Treatment

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## **If there are no signs of a severe reaction:**

- If you are stung and you can see the insect's stinger, remove it as quickly as possible by scraping the skin horizontally with the edge of a credit card or your fingernail.
- Wash the area with soap and water.
- Apply ice wrapped in a towel or cloth or a cool wet cloth to the area to relieve pain and swelling.

## **If there are signs of a severe reaction:**

- If you have an injectable epinephrine (EpiPen), give it right away, then **call 911**.
- Tell them someone is having a life-threatening emergency.
- If someone is with you, have that person **call 911** while you give the epinephrine.
- If the person is conscious and you don't have epinephrine, give diphenhydramine (Benadryl or a store brand), then **call 911** as above.

## **Get medical care if:**

- The sting or bite is near or inside the mouth
- The site looks infected - has increasing redness, warmth, swelling, pain, or pus several hours or longer after the sting or bite



# Bee Sting Prevention

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## Prevention:

- Avoid walking barefoot while on grass
- Avoid playing in areas where insects nest or congregate
- Avoid drinking from soda cans left outside (these attract insects)

## For more information:

Bees, wasps and hornet stings: <https://www.cdc.gov/niosh/topics/insects/beeswasphornets.html>





# Spider Bites

including Black Willows, Brown Recluse and Yellow Sacs



# Spiders in Virginia

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- There are **more than 30 spider species in Virginia** according to Virginia Tech Extension Service (dated 2019).
- **Most spider species in Virginia are not aggressive or dangerous and will not bite unless tampered with.**
- If a spider should bite, it may inject very little venom if any into the bite.
- With any spider bite, **it is best to capture and bring the spider for proper identification**, even if it is smashed.
- **Black widow, Brown Recluse and Yellow Sac Spiders** - these few species of spiders found in Virginia have a harmful venom and if bitten often require medical attention. Black widow spiders are the ones of greatest medical concern in Virginia.



# Spider Bite Prevention

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- Wear long sleeves and gloves when moving firewood or other items that may harbor spiders, such as cardboard boxes, stored papers, or anything left undisturbed for a length of time.
- Long sleeves, pants and gloves are also a good idea when doing yard work.
- Shake out clothing, towels, or bedding before use.
- For spider bites: shake out clothing, towels, or bedding before use.
- Shake out your shoes or gloves before putting them on.
- When finished, brush off clothing and shoes.
- Spiders cannot bite through fabric, but they can bite if trapped or pressed against the skin.
- Repair screens and regularly vacuum entry points.



# Signs & Symptoms

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**General spider bite symptoms** for most people include:

- Stinging sensation pain
- Swelling
- Itching at the site

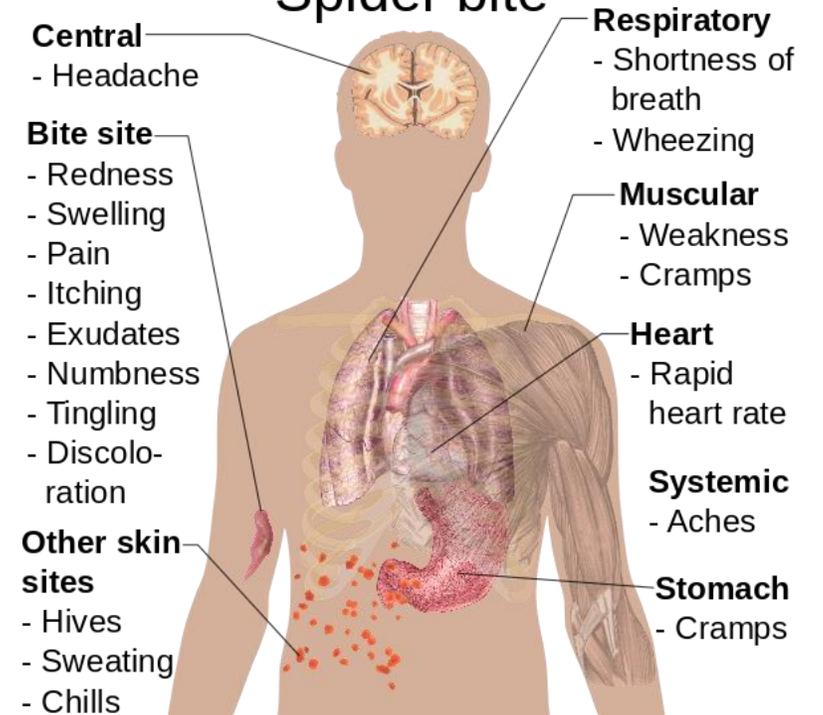


**Treatment:**

- Ice and pain reliever such as Tylenol (acetaminophen) or Advil (ibuprofen).
- Topical hydrocortisone

**Persons at risk:** there is always the possibility that spider venom from a normally harmless species can cause severe symptoms in very sensitive individuals, especially in the young, the old, or the immunocompromised. Medical assistance should be received as soon as possible.

## Severe Symptoms of Spider bite



# Black Widow Spiders

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- Black shiny body with red hourglass marking on their abdomen
- Typically found outdoors near the ground within rock walls, woodpiles, and in dark, sheltered places around buildings and outdoor structures
- May wander indoors but are not typically found inside houses

## Symptoms:

- First feels like a pinprick
- May develop swelling, redness, and intense pain several hours later
- Sweating, nausea, and abdominal cramps may follow and last for several days

## Treatment:

- Anti-venom for widow spider bites is available



# Brown Recluse Spiders

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- Commonly known as violin spiders or “fiddlebacks” because of a characteristic fiddle-shaped pattern on their head (not the abdomen)
- Often golden brown in color but range from tan to dark brown
- Commonly live in basements and garages of houses and often hide behind boards and boxes
- Do not make webs out in the open

## Symptoms:

- Seldom bites, but severity varies person to person - ranging from no harm to a severe reaction
- Initial bite may be painless followed by a systemic reaction within 24–36 hours including fever, chills, nausea, weakness, joint pain and restlessness.



# Yellow Sac Spiders

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- Small spider, usually less than ½ inch, have a light yellow, beige body or greenish tinge in their abdomen
- Has a darker midline stripe behind the head and partially into the abdomen
- May be found inside man-made structures on the wall or ceiling, or outdoors on foliage and in the grasses
- Often have a silken spun tube-like sac they retreat in and are usually nocturnal
- If disturbed, Yellow Sac spider bites are often mild and heal in a few weeks if the wound is kept clean and free of secondary infection.



# For More Information

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<http://www.vdh.virginia.gov/environmental-epidemiology/bugs-human-health/>

[https://www.pubs.ext.vt.edu/content/dam/pubs\\_ext\\_vt\\_edu/ENTO/ENTO-73/ENTO-73-pdf.pdf](https://www.pubs.ext.vt.edu/content/dam/pubs_ext_vt_edu/ENTO/ENTO-73/ENTO-73-pdf.pdf)

<https://www.cdc.gov/media/releases/2018/p0501-vs-vector-borne.html>

<https://www.cdc.gov/lyme>

<https://wwwnc.cdc.gov/travel>

<https://www.cdc.gov/niosh/topics/insects/beeswasphornets.html>

