

Spotted Fever Illnesses in North Carolina

This fact sheet provides information about the occurrence of Rocky Mountain spotted fever (RMSF) and other tick-borne spotted fever type illnesses in North Carolina, the predominant kind of tick-borne illnesses in the state. Since current laboratory testing cannot distinguish between spotted fever sub-types, they are all reported to the CDC as “spotted fever group rickettsiae” or SFGR, for national disease surveillance purposes.

RMSF symptoms usually begin two to 14 days after the bite of an infected tick and can start with the sudden onset of fever and headache. Nine out of 10 infected people develop a rash during their illness, usually two to five days after the onset of fever. This is a serious illness that can be fatal without prompt diagnosis and treatment with antibiotics during the first days of illness. The current fatality rate is under 1 percent.

While spotted fever group rickettsiae can occur year-round in North Carolina, cases usually start to increase in April and May, peak in June and July, and start to decline in August and September. In 2012, there were 598 (probable and laboratory-confirmed) cases of RMSF reported from 78 counties across the state. For the five-year period 2008-2012, a cumulative total of 2,044 cases were reported from 93 counties.

In North Carolina, the **American dog tick**, *Dermacentor variabilis*, is known to transmit *Rickettsia rickettsii*,



Figure 1: Pictured from left to right, male and female American dog tick, compared to a dime and to 12-point newspaper type.

the bacteria that causes RMSF. Although the name may suggest that this tick prefers to bite dogs, it will readily feed on humans and other animals. This tick can be found state-wide, usually coming out as early as March and persisting through September. It is a fairly large tick and is relatively easy to spot when crawling on clothing or skin. The bite can be painless, so some people may not know they have been bitten. Since this tick moves slowly, it often hides in clothing or gear and may crawl out later to bite overnight or the next day. Be especially vigilant when returning from a camping or hiking trip, and check your gear and clothing carefully. This tick is more commonly found along the edges of second- or old-growth forests but can also be found in open fields and in ditches along road edges. Juvenile stages are not known to bite people.

Brown dog ticks (*Rhipicephalus sanguineus*) have been found to carry RMSF in other states, but not in North Carolina to date. However, the **lone star tick** (*Amblyomma americanum*) is being investigated as a possible carrier of RMSF in the state.

The **Gulf Coast tick**, *Amblyomma maculatum*, has been found infected with *Rickettsia parkeri* in North Carolina. Although very similar to RMSF, this illness is usually not as severe and has been associated with a characteristic scab or eschar at the site of the bite. Gulf Coast ticks prefer open-grasslands and prairie areas, and are not often found in wooded areas. This tick can be mistaken for the American dog tick, as they look very much alike. The mouthparts on this tick are much longer and the bite can be more painful.



Figure 2: Pictured from left to right, female and male Gulf Coast ticks, compared to a dime and to 12-point newspaper type.

Preventing tick bites is the best way to prevent RMSF. Wear long pants and long-sleeved shirts, tuck pant legs into socks and tuck shirt-tails into pants. Using tick repellents can add an additional layer of protection. Check your body carefully for ticks after being in tick habitats, both before and after showering.

For general information on RMSF and preventing tick-borne illnesses, including a factsheet, “Making Sense of Repellents,” see the N.C. DHHS Communicable Diseases website at <http://epi.publichealth.nc.gov/cd/diseases/rmsf.html>. For more detailed information, including diagnosis and treatment, see the CDC’s web site at www.cdc.gov/rmsf.

Photos by Marcée Tolliver, 2013.