

Tick Borne Infections



Clinical Description:

Ehrlichiosis is an infection caused by one of several bacteria transmitted by ticks. In Indiana the most common bacterium associated with disease is *Ehrlichia chaffeensis*, which is transmitted by *Amblyomma americanum*, the “lone-star tick.” Other disease causing *Ehrlichias* may be transmitted by *Ixodes scapularis*, the “black-legged tick.” Symptoms vary from mild or in-apparent infection to severe forms that may be fatal. Patients typically present with fever, headache, myalgia, depression and anorexia. Symptoms usually develop within 1 - 2 weeks of tick exposure.

Lyme disease is an infection caused by the bacterium *Borrelia burgdorferi* transmitted by the bite of a tiny tick, *Ixodes scapularis*, commonly known as the “black-legged tick.” Lyme disease usually begins with a characteristic rash, a red papule that expands to a larger (> 5cm) reddened area, typically with partial central clearing (erythema migrans or “bull’s-eye” rash). The rash may appear 2 to 31 days after the tick bite. If not treated promptly, additional symptoms may develop, such as fever, headache, pain in the joints or muscles, mild neck stiffness, or swollen lymph nodes. If left untreated, Lyme disease can lead to serious health problems.

Rocky Mountain Spotted Fever (RMSF) is an infection caused by the bacterium *Rickettsia rickettsii* that is transmitted to humans by the bite of an infected tick, *Dermacentor variabilis*, or the “American dog tick”. Symptoms include a sudden onset of moderate to high fever, 2 - 14 days after tick attachment that ordinarily persists for 2 - 3 weeks. Significant malaise, deep muscle pain, severe headaches, chills, and conjunctival infections are typical in cases. A rash may appear 2 - 5 days after the fever begins, although some people may not experience the rash at all. The rash is not itchy and appears on the wrists, forearms, and ankles and then spreads to include the trunk; the palms and soles may also be affected. RMSF is a serious illness that can be fatal in the first eight days if not treated correctly and promptly.

Incubation Period:

The incubation period for ehrlichiosis is 7 - 14 days. For Lyme disease, the incubation period ranges from 2 - 31 days, typically 7 - 10 days. For RMSF, the incubation period ranges from 2 - 14 days.

Mode of Transmission:

These tick-borne infections are only transmitted through bites from infected ticks. A tick must be attached for several hours before it can transmit disease. Prompt removal of attached ticks can prevent transmission.

Period of Communicability:

Tick borne diseases are not transmitted person-to-person.

Exclusion/Reporting:

For information on laws and rules regarding tick borne diseases see the ISDH Communicable Disease Reporting Rule (410 IAC 1-2.3 Sec. 64, 80 and 94) at [http://www.in.gov/isdh/files/comm_dis_rule\(1\).pdf](http://www.in.gov/isdh/files/comm_dis_rule(1).pdf). There are no specific control measures for schools found in Indiana communicable disease laws or rules for tick-borne diseases. All cases of ehrlichiosis, Lyme disease, and RMSF should be reported to the local health department where student resides and the ISDH.

Prevention/Care:

- If a tick is found on a student, remove it immediately. To remove a tick, use tweezers to firmly grasp the body close to the skin and pull it straight out. If tweezers are not available, the fingers may be used as long as they are covered with a tissue, foil, or wax paper to prevent direct contact with fluids from the tick. Do not twist or jerk the tick because the mouthparts may be left behind in the skin. Wash the area and your hands after the tick has been removed.
- Contact caregivers of the child about the tick bite. They should be instructed to seek medical evaluation if the student develops a febrile illness or rash over the next 3 to 4 weeks.

Outbreaks:

According to the ISDH Communicable Disease Reporting Rule (410 IAC 1-2.3) the definition of an outbreak means cases of disease occurring in a community, region, or particular population at a rate in excess of that which is normally expected. The local health department should be notified of suspected and/or documented cases of tick-borne infections if the number of cases is in excess of what is normally experienced in your school or occur with a common connection (same class, sports team, etc.). For additional information and recommendations regarding the preparation for, and the management of an outbreak situation in a school setting, see Appendix A, "Managing an Infectious Disease Outbreak In a School Setting." All cases of Ehrlichiosis, Lyme disease, and Rocky Mountain Spotted Fever should be reported to the local health department where the student resides.

Other Resources:

Centers for Disease Control and Prevention (CDC):

<http://www.cdc.gov/ehrlichiosis>

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

<http://www.cdc.gov/rmsf>

Indiana State Department of Health Quick Facts Page (found on disease/condition page):

<http://bit.ly/12JLfD>