

Tickborne Diseases

Lyme Disease and Rocky Mountain Spotted Fever

FAST FACTS

April—October

High season for early localized and early disseminated Lyme disease

~50%

of Lyme disease cases occur during June and July

~50%

of RMSF cases do not report tick bite

WHEN TO REFER

If concerns for RMSF: Refer to the emergency department for immediate care. RMSF usually requires hospitalization and inpatient management.

If concerns for Lyme disease with signs of meningitis: Refer to the emergency department.

If concerns for persistent or worsening Lyme disease symptoms after treatment: Refer to the emergency department. These symptoms can include arthritis and carditis.

For urgent issues or to speak with a pediatric infectious diseases specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.

Due to various factors, the incidence of tickborne diseases, especially Lyme disease, is rising in the Midwest. This tool provides guidance for assessing and treating Lyme disease and Rocky Mountain Spotted Fever (RMSF). Early diagnosis and appropriate, timely treatment is essential.

ASSESSMENT

Perform standard health history and physical exam with probing questions about plausible geographic exposure to ticks. The diagnosis of Lyme disease and most other tickborne diseases relies primarily on recognition of a consistent clinical illness in people who have likely been exposed to ticks.

The following signs and symptoms of Lyme disease and RMSF are often non-specific and can mimic other illnesses.

- Chills
- Fatigue
- Fever
- Headache
- Muscle and joint aches
- Swollen lymph nodes

Additional signs and symptoms consistent with Lyme disease include:

- Arthritis
- Isolated facial palsy
- Single or multiple lesions consistent with erythema migrans (EM), the classic “bulls-eye” rash associated with Lyme disease

Additional signs and symptoms consistent with RMSF include:

- Lack of appetite
- Nausea
- Rash (common but may not appear in early stages of disease)
- Stomach pain
- Vomiting

HISTORY AND PHYSICAL EXAM RED FLAGS

- For Lyme disease, red flags include signs and symptoms of meningitis (e.g. altered mental status), arthritis, or carditis, which usually manifests as atrioventricular heart block.
- For RMSF, red flags include later signs and symptoms like petechial rash, multi-organ failure, septic shock, meningoencephalitis, necrosis of digits or limbs, severe thrombocytopenia, and hyponatremia.

MANAGEMENT

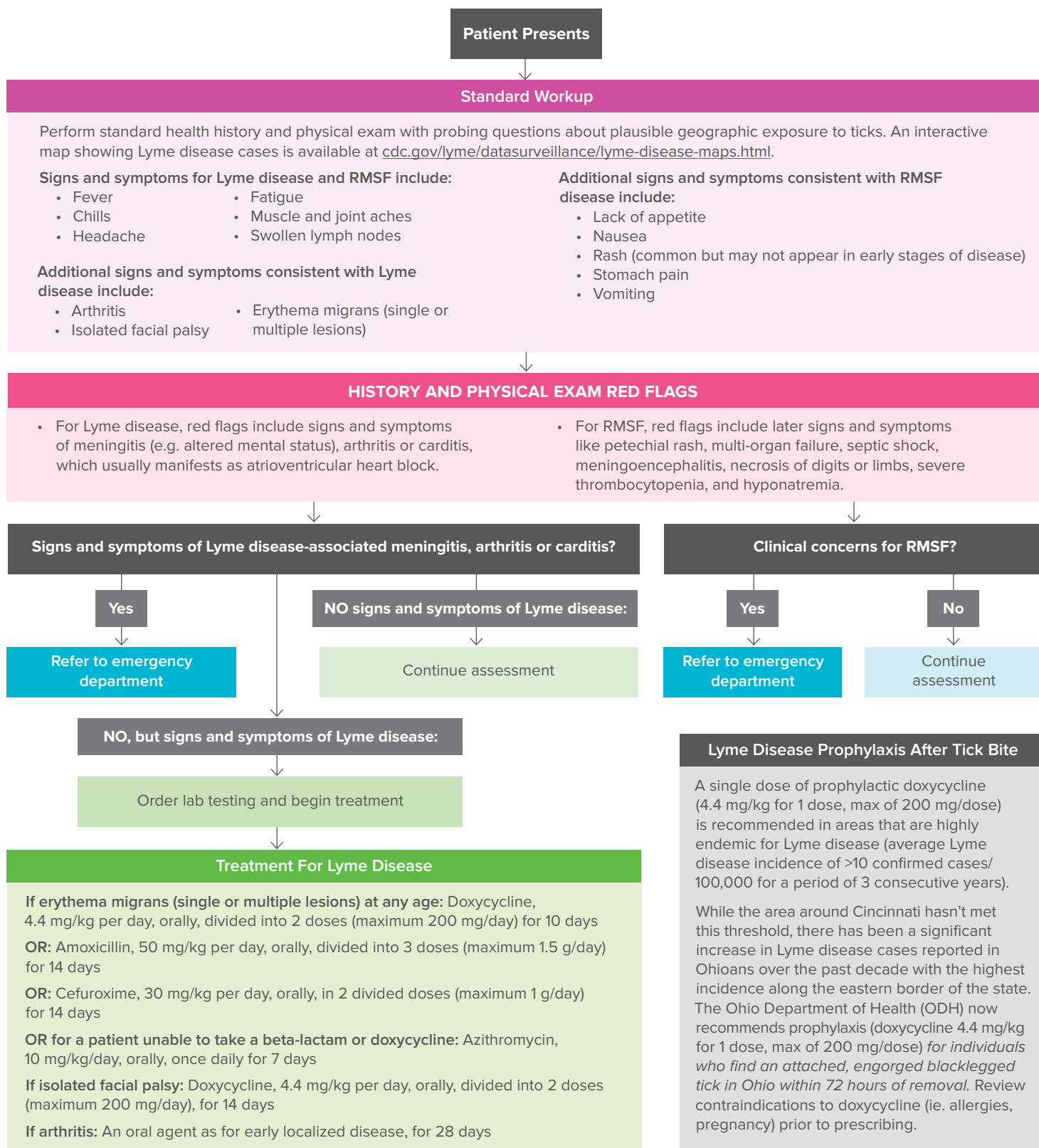
If concerns for Lyme disease and no signs of meningitis are present, order lab testing and begin treatment (see reverse side for guidance). Do not delay treatment while awaiting laboratory confirmation or because of lack of history of tick bite. As the sensitivity of serologic testing is low during early infection (<50% with a solitary EM lesion), treatment should be initiated without serologic testing. See referral guidance at left for other concerns.

Diagnosis of extracutaneous Lyme disease, including late-stage disease, requires a typical clinical illness, plausible geographic exposure, and a positive serologic test result. The standard testing method for Lyme disease is a two-tier serologic algorithm. Clinical labs may refer to this as Lyme ELISA, Lyme antibody screen, total Lyme antibody or Lyme IgG/IgM. If first-tier result is negative, no further testing is needed. If positive, a second-tier confirmatory test is required. This is either a western immunoblot or an EIA test cleared by the FDA. At Cincinnati Children's, our laboratory offers the FDA-approved two-tiered test called “Total Lyme with Reflex IgG & IgM.” This test automatically reflexes to the second-tier test (IgG & IgM) when total antibody is positive or equivocal, and it is offered on a 24/7 basis. For guidance refer to [cdc.gov/mmwr/volumes/68/wr/mm6832a4.htm?s_cid=mm6832a4_w](https://www.cdc.gov/mmwr/volumes/68/wr/mm6832a4.htm?s_cid=mm6832a4_w)

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

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