# Tickborne Illness

Children's Mercy KANSAS CITY | Evidence Based Practice

Child presents with fever with or without rash **AND** without an obvious alternative diagnosis

**Obtain Detailed History and Check for Ticks**
- Description of recreational activities and recent travel may reveal potential tick exposure(s)
- Consider tickborne diseases by region and tick species
- If tick is found, promptly remove (*tick removal tips*), identify (*tick photo references*), and upload picture in medical record. *Parents can submit information online (web.uri.edu/tickencounter/tickspotters)*

**Asymptomatic Patients**
Post-tick bite antibiotic prophylaxis is not recommended. Patients bitten by a tick should be given anticipatory guidance and seek care for fever, rash, or other symptoms developing within two weeks of tick bite
***Exception***: *Prophylactic antibiotic may (under rare circumstances) be indicated for Lyme disease*

**Suspicion for Rocky Mountain Spotted Fever or Ehrlichiosis**
- Febrile illness with or without: rash (*link for details*), headache, muscle aches, hypotension, malaise, nausea, and vomiting

**AND**
- Possible tick exposure within past two weeks
  - Known tick exposure **-or-**
  - Environmental exposure (*outdoor activities, travel to endemic area, etc.*) **-or-**
  - Tick season (*April through October in the United States*)

Is there clinical suspicion for Rocky Mountain spotted fever (RMSF) or ehrlichiosis?
- No → Is there suspicion for acute Lyme disease or tularemia?
  - No → *Off Pathway.* Revisit differential diagnosis and manage accordingly
  - Yes → **Suspicion for Acute Lyme Disease** For testing and treatment recommendations
  - Yes → **Suspicion for Tularemia** For testing and treatment recommendations
- Yes

**Consider Differential Diagnosis**
May need to pursue evaluation and treatment for multiple diagnoses while diagnosis unclear

**Differential Diagnosis**
- Sepsis (*link to pathway*)
- Meningococcemia
- Food borne illness
- Acute gastroenteritis (*link to pathway*)
- Numerous viral illnesses

*This list is not all-inclusive. Consult Infectious Diseases (ID) with any questions*

**Obtain Labs**
- CBC with differential
- BMP
- Hepatic function panel
- Other labs may be indicated based on differential diagnosis

**Laboratory Findings**
- Thrombocytopenia
- Hyponatremia
- Elevated AST and ALT
- Hyperbilirubinemia (*severe disease*)
- Leukopenia

Is there still concern for RMSF or ehrlichiosis? (*Consult ID with any questions*)
- No → *Off Pathway.* Revisit differential diagnosis and manage accordingly.
- Yes

**Suspicion for Acute Lyme Disease**
- Travel to or reside in an endemic area **and** presence of erythema migrans rash
- If no travel to a high-incidence location for Lyme disease, but presence of rash, consider southern tick-associated rash illness (STARI)

**Suspicion for Tularemia**
- Lymphadenopathy or lymphadenitis unresponsive to usual antibiotics or with an accompanying ulcer
- Conjunctivitis with preauricular adenopathy
- Community acquired pneumonia unresponsive to antibiotics

**Testing for Rickettsial Disease**
- Obtain an RMSF IgG/IgM and Ehrlichia antibody panel as acute samples
- Ehrlichia PCR

*Results typically take 5-7 days (see Interpretation of Results when available)*

**Interpretation of Rickettsial Test Results**
- A negative Ehrlichia PCR does not exclude ehrlichiosis
- Negative acute serology also does not exclude RMSF or ehrlichiosis
- Definitive diagnosis is made with convalescent serology or positive PCR

**Empiric Treatment,** *begin without delay, do not wait for test results*
**Doxycycline is the drug of choice for all ages**
- < 45 kg: 2.2 mg/kg/dose orally, twice daily for 7 days
- ≥ 45 kg: 100 mg/dose orally, twice daily for 7 days

*Empiric treatment for other infectious processes may be indicated in addition to doxycycline*

**When Stable for Discharge**
- Follow-up with PCP within 3 days
- If no improvement within 48 - 72 hours, discuss with Infectious Diseases to reconsider alternative diagnosis
- Convalescent samples (*RMSF IgM/IgG and Ehrlichia antibody panel*) should be obtained 2 - 4 weeks after symptoms onset

*QR code for mobile view*

**Contact:** EvidenceBasedPractice @cmh.edu

**Link to:** synopsis and references

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