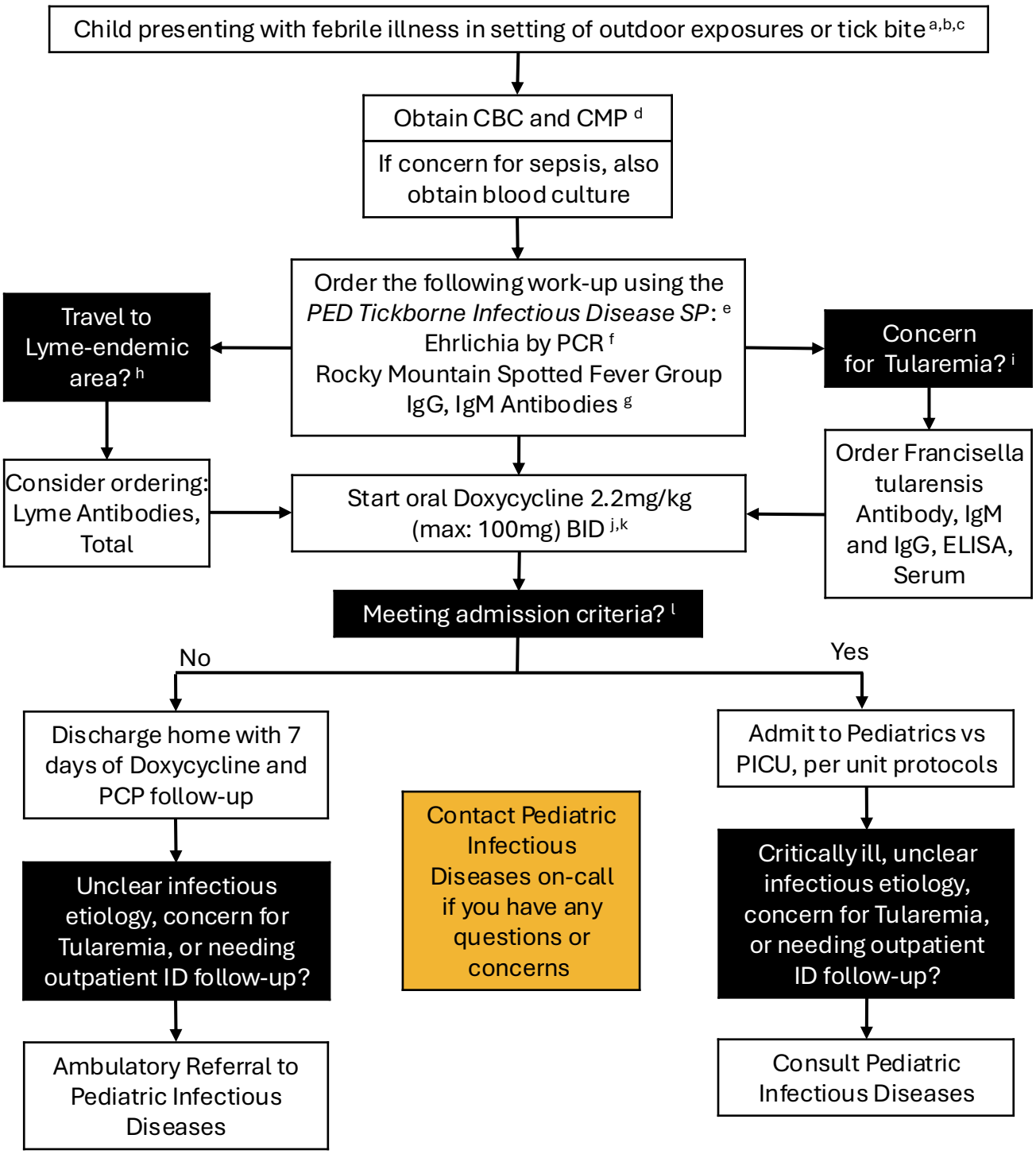
Pediatric Tick-borne Infection Management



Footnotes:

a. Missouri-endemic tick-borne infections include: Ehrlichiosis, Rocky Mountain Spotted Fever (RMSF) , Tularemia, and Southern tick-associated rash illness (STARI). See CDC handbook link in references for further learning.

b. Common symptoms include: fever, chills, malaise, fatigue, headache, myalgias, arthralgias, GI symptoms, lymphadenopathy, bullseye or maculopapular rash, edema, and neurologic changes.

c. Only 50–60% of patients recall a tick bite. Recent outdoor exposure and compatible clinical presentation should raise suspicion.

d. Common laboratory abnormalities include: leukopenia, thrombocytopenia, hyponatremia, and elevated transaminases.

e. In well-appearing outpatient or ED patients, tick-borne infections can often be diagnosed clinically and treated without laboratory evaluation. Do not delay treatment while awaiting serologies.

f. If not well-appearing, obtain diagnostic testing before starting doxycycline when possible, as Ehrlichia PCR may become negative after 1–2 doses of doxycycline.

g. Early RMSF serology may also be negative; if suspicion is high, treat and consider repeat serology in 1–2 weeks if confirmation is still desired.

h. Lyme disease is endemic to: Minnesota, Wisconsin, Northern Iowa / Illinois, Western Michigan, and the Northeastern US. Note: STARI, from bite of lone star tick in Missouri can cause an erythema migrans–like (bullseye) rash that can be mistaken for Lyme disease.

i. Most common presentations of Tularemia are glandular and ulceroglandular. If suspicion is high or serology is positive, consult pediatric infectious diseases.

j. Doxycycline is safe in all age groups and should be started promptly when suspicion is high. Counsel about photosensitivity, GI upset, and pill esophagitis; take with food and avoid dairy around dosing.

k. Oral doxycycline has high bioavailability and is preferred even in critically ill patients unless contraindicated.

l. Admit patients who meet pediatric SIRS/sepsis criteria, require respiratory, nutritional, hydration, or pressor support, cannot perform activities of daily living, or are at risk of acute decompensation.

References:

1. "Tickborne Diseases of the United States", Centers for Disease Control and Prevention, Sixth Edition, 2022.

2. Kimberlin DW, Banerjee R, BarnettED, Lynfield R, Sawyer MH. "Ehrlichia, Anaplasma, and Related Infections (Human Ehrlichiosis, Anaplasmosis, and Related Infections Attributable to Bacteria in the Family Anaplasmataceae)", "Tularemia", "Rocky Mountain Spotted Fever". *Red Book: 2024–2027 Report of the Committee on Infectious Diseases*, American Academy of Pediatrics, 2024. Pages 361-365, 727-730, 929-932.