Acute Tick-Borne Disease Testing Algorithm MAYO CLINIC Mayo Medical Laboratories Clinical suspicion of tick-borne disease based on patient characteristics: Illness during tick season: fever, chills, headache, muscle aches, joint pain, neck pain, skin rash, Bell's palsy, heart rhythm disturbances, hypotension, jaundice, sepsis AND Known tick exposure OR Environmental exposure (outdoor activities, wildlife) Based on geographic exposure, consider the following tick-borne pathogens (choose all that are appropriate) At risk for Rocky Mountain Spotted Fever At risk for Lyme disease, ehrlichiosis, anaplasmosis, babesiosis, and Borrelia (states with the highest incidence include North miyamotoi disease (BMD) Carolina, Oklahoma, Arkansas, Tennessee Endemic areas for Lyme disease, anaplasmosis, babesiosis, and BMD Missouri, Arizona, and the tribal Southwest) include the Northeastern and Upper Midwestern United States, into Canada · Ehrlichiosis is most frequently reported from the Southeastern and South **Central United States** YES YES SFGP / Spotted Fever Group Antibody, IgG and IgM, Serum Classic erythema migrans (target lesion or bull's-eye rash) Consider empiric treatment while awaiting test results NEGATIVE POSITIVE NO YES Consider empiric treatment for ehrlichiosis/ anaplasmosis while awaiting test results Report as negative Treat as If short disease duration, appropriate submit follow-up specimen Perform LYME / Lyme Disease Serology, Serum (Enzyme- No laboratory testing for for repeat testing in 2-3 Linked Immunosorbent Assay) Lyme disease is needed weeks if clinically indicated For patients with exposure to ticks in Europe, consider Treat for Lyme disease ELYME / Lyme Disease European Antibody Screen, Serum Monitor for symptoms of If systemic symptoms are present (eg, fever, chills, sepsis) other tick-borne illness also perform TKPNL / Tick-Borne Panel, Molecular Detection, PCR, Blood<sup>1,2</sup> Consider collecting baseline serology (TICKS / Tick-Borne Disease Antibodies Panel, Serum) if patient presents with >7 days of symptoms **TKPNL** Results LYME or ELYME Results NEGATIVE POSITIVE NEGATIVE POSITIVE OR EQUIVOCAL Report as negative Treat as LYWB / Lyme Disease Antibody, Immunoblot, Report as negative If short disease duration, consider follow-up appropriate If short disease duration, submit Serum (performed automatically when LYME specimen for serologic tests in 2-3 weeks if follow-up specimen for repeat testing result is positive or equivocal) clinically indicated using: TICKS / Tick-Borne in 2-3 weeks if clinically indicated ELYMI / Lyme Disease European Immunoblot, Disease Antibodies Panel, Serum (includes Serum (performed automatically when ELYME Lyme disease serology) result is positive or equivocal Individual serologic tests: BABG / Babesia microti IgG Antibodies, Serum NEGATIVE POSITIVE ANAP / Anaplasma phagocytophilum (Human Granulocytic Ehrlichiosis) Antibody, Serum EHRCP / Ehrlichia Antibody Panel, Serum Report as negative Treat as appropriate If neurologic or joint symptoms, consider If short disease duration, submit follow-up specimen for repeat testing if clinically indicated PBORR / Lyme Disease Molecular Detection In immunocompromised patient, consider PBORR / PCR (for CSF, synovial fluid, or fresh tissue Lyme Disease, Molecular Detection, PCR (for CSF, samples) synovial fluid, or fresh tissue samples) OR

CLYME / Lyme Disease Serology, Spinal Fluid

<sup>1</sup>The TKPNL includes PCR tests for Babesia species, Anaplasma phagocytophilum, Ehrlichia species, and Borrelia miyamotoi.

AND/OR

Blood<sup>3</sup>

<sup>2</sup> In place of the PCR panel, PCR tests for the individual organisms and/or smear for Babesia species can be ordered based on the suspected organism(s).

PBORB / Lyme Disease, Molecular Detection, PCR,

<sup>3</sup> PCR testing of blood may be useful for detection of Borrelia mayonii (patients with exposure to ticks in Minnesota or Wisconsin).

OR

Clickable PDF