Lyme Disease

Prevention/tick bite management, erythema migrans, neurologic, cardiac, and musculoskeletal Lyme disease, post-treatment symptoms, dermatologic manifestations, and coinfection screening.

2020 IDSA/AAN/ACR Clinical Practice Guideline
Prevention, Diagnosis, and Treatment of Lyme Disease
Lantos, Rumbaugh, Bockenstedt et al. · Clin Infect Dis 2021;72(1):e1-48

FORMAT *38 statements condensed from 28 PICO questions — GRADE-rated (strong/weak/good practice statement/no recommendation); grouped by clinical theme.*

1 Prevention & Tick Bite Management

#	STATEMENT
1	Implement personal protective measures (protective clothing, tick checks) in endemic areas to reduce exposure risk (good practice statement)
2	Use DEET, picaridin, IR3535, oil of lemon eucalyptus, PMD, 2-undecanone, or permethrin to prevent tick bites
3	Promptly remove attached ticks with fine-tipped tweezers close to the skin; do NOT use heat, petroleum, or noxious chemicals to coax detachment
4	Submit removed tick for species identification, but do NOT test the tick itself for B. burgdorferi — result doesn't reliably predict clinical infection
5	Do NOT test asymptomatic patients for B. burgdorferi exposure after an Ixodes bite
6	Prophylactic antibiotics only for high-risk bites (Ixodes vector + highly endemic area + attached ≥36 h) within 72 h of removal — not for equivocal/low-risk bites; otherwise wait-and-watch
7	High-risk bite prophylaxis: single dose oral doxycycline 200 mg (adult) or 4.4 mg/kg up to 200 mg (child) within 72 h, preferred over observation

2 Erythema Migrans & STARI

#	STATEMENT
8	Compatible EM lesion(s) in endemic area: diagnose clinically, not by lab testing
9	Atypical EM-suggestive lesions: acute-phase antibody testing (+ convalescent sample at 2–3 wk if initial negative), preferred over PCR/culture
10	Treat EM with oral doxycycline, amoxicillin, or cefuroxime axetil; azithromycin is preferred 2nd-line if others contraindicated
11	Duration: 10-d doxycycline or 14-d amoxicillin/cefuroxime rather than longer courses; azithromycin 5–10 d (7 d preferred in US)
12	STARI (lone star tick EM-like lesion): no recommendation for/against antibiotics; treat as Lyme if cannot distinguish in co-endemic areas

3 Neurologic Lyme Disease

#	STATEMENT
13	Suspected PNS/CNS neuroborreliosis: serum antibody testing preferred over PCR/culture of CSF or serum
14	If CSF testing performed: obtain simultaneous CSF + serum for CSF:serum antibody index (validated lab); against CSF serology alone or routine CSF/serum PCR/culture
15	Test for Lyme with meningitis, painful radiculoneuritis, mononeuropathy multiplex, acute cranial neuropathies (esp. VII/VIII), or spinal cord/brain inflammation + plausible tick exposure
16	Do NOT routinely test in typical ALS, relapsing-remitting MS, Parkinson disease, dementia/cognitive decline, or new-onset seizures
17	Against screening in other neurologic syndromes without supporting history, or for isolated nonspecific brain white matter changes
18	Against routine testing in psychiatric illness (adults) or developmental/behavioral/psychiatric disorders (children)
19	Parenchymal CNS/spinal cord involvement: IV antibiotics preferred over oral
20	Non-parenchymal PNS manifestations: IV ceftriaxone/cefotaxime/penicillin G or oral doxycycline × 14–21 d; route chosen by tolerability, not efficacy
21	Facial nerve palsy: no recommendation on adding corticosteroids to antibiotics; if no other Lyme evidence in patients ≥16 y, treat per standard facial palsy guideline (steroids within 72 h)

4 Cardiac Lyme Disease (Lyme Carditis)

#	STATEMENT
22	ECG only with signs/symptoms of carditis (dyspnea, edema, palpitations, lightheadedness, chest pain, syncope) — not universal screening
23	Hospitalize with continuous ECG monitoring for PR >300 ms, other arrhythmias, or myopericarditis
24	Symptomatic bradycardia unmanageable medically: temporary pacing preferred over permanent pacemaker
25	Outpatient carditis: oral antibiotics preferred over IV
26	Hospitalized carditis: start IV ceftriaxone → switch to oral once improving
27	Total antibiotic duration for carditis: 14–21 d; oral options doxycycline, amoxicillin, cefuroxime, or azithromycin
28	Test for Lyme in acute myocarditis/pericarditis of unknown cause in appropriate epidemiologic setting; against routine testing in chronic cardiomyopathy of unknown cause

5 Lyme Arthritis

#	STATEMENT
29	Diagnostic testing: serum antibody testing over PCR/culture of blood or synovial fluid/tissue
30	Seropositive + need definitive info: synovial fluid/tissue PCR preferred over Borrelia culture
31	Initial treatment: oral antibiotics for 28 days
32	Partial response (mild residual swelling): no recommendation for 2nd course vs. observation — exclude other causes, assess adherence/preference; repeat oral course reasonable if proliferation modest
33	No/minimal response (moderate–severe swelling): 2–4 wk IV ceftriaxone preferred over 2nd oral course
34	Postantibiotic (refractory) arthritis after 1 oral + 1 IV course: refer to rheumatology for DMARDs/biologics/intra-articular steroids/synovectomy — antibiotics >8 wk unlikely to add benefit

6 Post-Treatment, Dermatologic & Coinfection

#	STATEMENT
35	Persistent nonspecific symptoms (fatigue, pain, cognitive impairment) without objective reinfection/treatment failure: against additional antibiotics
36	Borrelial lymphocytoma: oral antibiotics for 14 days
37	Acrodermatitis chronica atrophicans: oral antibiotics for 21–28 days (longer than other manifestations)
38	Assess for A. phagocytophilum/B. microti coinfection in endemic areas with high-grade fever or characteristic lab abnormalities; fever >1 d despite doxycycline suggests possible B. microti coinfection

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