

CADTH RAPID RESPONSE REPORT: REFERENCE LIST

Interventions for the Treatment or Management of Lyme Disease: Clinical Effectiveness and Guidelines

Service Line: Rapid Response Service
Version: 1.0
Publication Date: July 16, 2019
Report Length: 7 Pages

Authors: Diksha Kumar, Kelly Farrah

Cite As: *Interventions for the Treatment or Management of Lyme Disease: Clinical Effectiveness and Guidelines*. Ottawa: CADTH; 2019 Jul. (CADTH rapid response report: reference list).

Disclaimer: The information in this document is intended to help Canadian health care decision-makers, health care professionals, health systems leaders, and policy-makers make well-informed decisions and thereby improve the quality of health care services. While patients and others may access this document, the document is made available for informational purposes only and no representations or warranties are made with respect to its fitness for any particular purpose. The information in this document should not be used as a substitute for professional medical advice or as a substitute for the application of clinical judgment in respect of the care of a particular patient or other professional judgment in any decision-making process. The Canadian Agency for Drugs and Technologies in Health (CADTH) does not endorse any information, drugs, therapies, treatments, products, processes, or services.

While care has been taken to ensure that the information prepared by CADTH in this document is accurate, complete, and up-to-date as at the applicable date the material was first published by CADTH, CADTH does not make any guarantees to that effect. CADTH does not guarantee and is not responsible for the quality, currency, propriety, accuracy, or reasonableness of any statements, information, or conclusions contained in any third-party materials used in preparing this document. The views and opinions of third parties published in this document do not necessarily state or reflect those of CADTH.

CADTH is not responsible for any errors, omissions, injury, loss, or damage arising from or relating to the use (or misuse) of any information, statements, or conclusions contained in or implied by the contents of this document or any of the source materials.

This document may contain links to third-party websites. CADTH does not have control over the content of such sites. Use of third-party sites is governed by the third-party website owners' own terms and conditions set out for such sites. CADTH does not make any guarantee with respect to any information contained on such third-party sites and CADTH is not responsible for any injury, loss, or damage suffered as a result of using such third-party sites. CADTH has no responsibility for the collection, use, and disclosure of personal information by third-party sites.

Subject to the aforementioned limitations, the views expressed herein do not necessarily reflect the views of Health Canada, Canada's provincial or territorial governments, other CADTH funders, or any third-party supplier of information.

This document is prepared and intended for use in the context of the Canadian health care system. The use of this document outside of Canada is done so at the user's own risk.

This disclaimer and any questions or matters of any nature arising from or relating to the content or use (or misuse) of this document will be governed by and interpreted in accordance with the laws of the Province of Ontario and the laws of Canada applicable therein, and all proceedings shall be subject to the exclusive jurisdiction of the courts of the Province of Ontario, Canada.

The copyright and other intellectual property rights in this document are owned by CADTH and its licensors. These rights are protected by the Canadian *Copyright Act* and other national and international laws and agreements. Users are permitted to make copies of this document for non-commercial purposes only, provided it is not modified when reproduced and appropriate credit is given to CADTH and its licensors.

About CADTH: CADTH is an independent, not-for-profit organization responsible for providing Canada's health care decision-makers with objective evidence to help make informed decisions about the optimal use of drugs, medical devices, diagnostics, and procedures in our health care system.

Funding: CADTH receives funding from Canada's federal, provincial, and territorial governments, with the exception of Quebec.

Questions or requests for information about this report can be directed to requests@cadth.ca

Research Questions

1. What is the clinical effectiveness of interventions for the treatment or management of individuals with Lyme Disease?
2. What are the evidence-based guidelines for the treatment or management of individuals with Lyme Disease?

Key Findings

Six systematic reviews (two with meta-analysis) and two evidence-based guidelines were identified regarding the treatment or management of individuals with Lyme Disease.

Methods

A limited literature search was conducted by an information specialist on key resources including PubMed, the Cochrane Library, the University of York Centre for Reviews and Dissemination (CRD) databases, the websites of Canadian and major international health technology agencies, as well as a focused Internet search. The search strategy was comprised of both controlled vocabulary, such as the National Library of Medicine’s MeSH (Medical Subject Headings), and keywords. The main search concepts were Lyme disease and treatment. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses and guidelines. The search was also limited to English language documents. No date limits were used in the search. The search was conducted July 12, 2019. Internet links were provided, where available.

Selection Criteria

One reviewer screened citations and selected studies based on the inclusion criteria presented in Table 1.

Table 1: Selection Criteria

Population	Any individual that has been diagnosed with Lyme disease
Intervention	Any intervention used to treat or manage individuals with Lyme disease
Comparator	Q1: Any other intervention used to treat or manage individuals with Lyme disease Q2: No comparator

Outcomes	Q1: Clinical effectiveness, safety Q2: Evidence-based guidelines
Study Designs	Health technology assessments, systematic reviews, meta-analyses, evidence-based guidelines

Results

Rapid Response reports are organized so that the higher quality evidence is presented first. Therefore, health technology assessment reports, systematic reviews, and meta-analyses are presented first. These are followed by evidence-based guidelines. Due to the volume of relevant literature that was identified from the search results, inclusion in this report was limited to studies published after 2014.

Six systematic reviews (two with meta-analysis) and two evidence-based guidelines were identified regarding the treatment or management of individuals with Lyme Disease. No relevant health technology assessments were identified.

Additional references of potential interest are provided in the appendix.

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-analyses

1. Skarpeid PL, Hoyer S. Phenoxymethylpenicillin versus amoxicillin for infections in ambulatory care: a systematic review. *Antibiotics (Basel, Switzerland)*. 2018 Sep 4;7(3).
[PubMed: PM30181520](#)
2. Torbahn G, Hofmann H, Rucker G, et al. Efficacy and safety of antibiotic therapy in early cutaneous Lyme borreliosis: a network meta-analysis. *JAMA Dermatol*. 2018 Nov 1;154(11):1292-1303.
[PubMed: PM30285069](#)
3. Cadavid D, Auwaerter PG, Rumbaugh J, Gelderblom H. Antibiotics for the neurological complications of Lyme disease. *Cochrane Database Syst Rev*. 2016 Dec 8;12:CD006978.
[PubMed: PM27931077](#)
4. Dersch R, Hottenrott T, Schmidt S, et al. Efficacy and safety of pharmacological treatments for Lyme neuroborreliosis in children: a systematic review. *BMC Neurol*. 2016 Sep 29;16(1):189.
[PubMed: PM27686962](#)
5. Lyme disease. Recognising and treating erythema migrans. *Prescrire Int*. 2015 Oct;24(164):247-249.
[PubMed: PM26594731](#)

6. Dersch R, Freitag MH, Schmidt S, Sommer H, Rauer S, Meerpohl JJ. Efficacy and safety of pharmacological treatments for acute Lyme neuroborreliosis - a systematic review. *Eur J Neurol*. 2015 Sep;22(9):1249-1259.
[PubMed: PM26058321](#)

Guidelines and Recommendations

7. National Guideline Centre (UK). Lyme disease: diagnosis and management. (*NICE Guideline, No. 95*). London: National Institute for Health and Care Excellence; 2018.
[PubMed: PM31194312](#)
8. Rauer S, Kastenbauer S, Fingerle V, Hunfeld KP, Huppertz HI, Dersch R. Lyme Neuroborreliosis. *Dtsch Arztebl Int*. 2018 Nov 9;115(45):751-756.
[PubMed: PM30573008](#)

Appendix — Further Information

Guidelines and Recommendations

In Development

9. IDSA/AAN/ACR draft Lyme disease guidelines [draft for public comment]. 2019; <https://www.idsociety.org/practice-guideline/Lyme-Disease-Guideline-Public-Comments/>. Accessed 2019 Jul 16.

Methodology Not Specified

10. AMMI Canada position statement on the diagnosis and treatment of people with persistent symptoms that have been attributed to Lyme disease. Ottawa (ON): Association of Medical Microbiology and Infectious Disease Canada; 2019: <https://www.ammi.ca/Content/03.17.19%20AMMI%20Canada%20Position%20Statement%20%28EN%29.pdf>. Accessed 2019 Jul 16.
See: Sections 4 and 5
11. Figoni J, Chirouze C, Hansmann Y, et al. Lyme borreliosis and other tick-borne diseases. Guidelines from the French Scientific Societies (I): prevention, epidemiology, diagnosis. *Med Mal Infect*. 2019 May 13. [Epub ahead of print]
[PubMed: PM31097370](#)
12. Jaulhac B, Saunier A, Caumes E, et al. Lyme borreliosis and other tick-borne diseases. Guidelines from the French scientific societies (II). Biological diagnosis, treatment, persistent symptoms after documented or suspected Lyme borreliosis. *Med Mal Infect*. 2019 May 31. [Epub ahead of print]
[PubMed: PM31155367](#)
13. Nova Scotia Infectious Diseases Expert Group. Guidance for primary care and emergency medicine providers in the management of Lyme disease in Nova Scotia. Halifax (NS): Province of Nova Scotia; 2019: https://novascotia.ca/dhw/cdpc/documents/statement_for_managing_LD.pdf. Accessed 2019 Jul 16.
See: Treatment and Chemoprophylaxis of Lyme Disease, page 4
14. Prince Edward Island guidelines for the management and control of Lyme disease. Charlottetown (PEI): Department of Health and Wellness, Chief Public Health Office; 2019: https://www.princeedwardisland.ca/sites/default/files/publications/lyme_disease_guideline_final_mar19.pdf. Accessed 2019 Jul 16.
See: Treatment of a case, page 10
15. Alberta Health. Lyme disease. (*Public health disease management guidelines*). Edmonton (AB): Government of Alberta; 2018: <https://open.alberta.ca/dataset/58776f88-20b1-438f-8d5f-1b5ded1d83ce/resource/aaa7c3a7-2ae9-47da-b22c-9fadc6ff9282/download/guidelines-lyme-disease-2018-05.pdf>. Accessed 2019 Jul 16.

16. Health Quality Ontario. Management of tick bites and investigation of early localized Lyme disease. (*Clinical guidance document*). Toronto (ON): Queen's Printer for Ontario; 2018: <https://www.hqontario.ca/Portals/0/documents/evidence/qs-clinical-guidance-lyme-disease-en.pdf>. Accessed 2019 Jul 16.
17. Pancewicz SA, Garlicki AM, Moniuszko-Malinowska A, et al. Diagnosis and treatment of tick-borne diseases recommendations of the Polish Society of Epidemiology and Infectious Diseases. *Przegl Epidemiol*. 2015;69(2):309-316, 421-308. [PubMed: PM26233093](#)