

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Visual Examination Frequency for People Taking Ethambutol for Tuberculosis: Guidelines

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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.

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

Research Question

What are the evidence-based guidelines regarding the frequency of visual examination for people taking ethambutol as part of a tuberculosis treatment regimen?

Key Findings

Five evidence-based guidelines were identified regarding the frequency of visual examination for people taking ethambutol as part of a tuberculosis treatment regimen.

Methods

A limited literature search was conducted by an information specialist on key resources including Medline via Ovid, 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 ethambutol and visual impairment. Methodological filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, and guidelines. The search was also limited to English language documents published between Jan 1, 2010 and Jun 4, 2020. Internet links were provided, where available.

This report is a component of a larger CADTH Condition Level Review on TB. A condition level review is an assessment that incorporates all aspects of a condition, from prevention, detection, treatment, and management. For more information on CADTH's Condition Level Review of TB, please visit the project page (<https://www.cadth.ca/tuberculosis>).

Selection Criteria

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

Table 1: Selection Criteria

Population	People taking ethambutol as part of a tuberculosis treatment regimen
Intervention	Visual examination (e.g., visual field test, colour vision test, dilated fundus and optic nerve exam, visual acuity testing, etc.)
Comparator	Not applicable
Outcomes	Recommendations regarding frequency and duration of testing
Study Designs	Health technology assessments, systematic reviews, evidence-based guidelines

Results

Five evidence-based guidelines¹⁻⁵ were identified regarding the frequency of visual examination for people taking ethambutol as part of a tuberculosis treatment regimen. No relevant health technology assessments or systematic reviews of guidelines were identified.

References of potential interest that did not meet the inclusion criteria are provided in the appendix.

Overall Summary of Findings

Five evidence-based guidelines¹⁻⁵ were identified regarding the frequency of visual examination for people taking ethambutol as part of a tuberculosis treatment regimen. A summary of relevant recommendations is presented in Table 2.

Table 2: Summary of Relevant Recommendations

Summary of Recommendations
British HIV Association, 2019¹
<ul style="list-style-type: none"> Visual acuity and colour vision should be tested before starting ethambutol treatment (page 32).
American Thoracic Society/Centers for Disease Control and Prevention/Infection Diseases Society of America, 2016²
<ul style="list-style-type: none"> A baseline vision assessment should be conducted before starting ethambutol treatment (page 859). Colour discrimination tests and inquiries about visual disturbance should be conducted on a monthly basis in patients taking ethambutol (page 859).
Singapore Ministry of Health, 2016³
<ul style="list-style-type: none"> Visual acuity and colour vision should be tested in adult patients starting ethambutol treatment (page 4). Adult patients taking ethambutol must have their visual acuity and colour vision should be tested at each follow-up visit (page 7).
Public Health Agency of Canada, 2014⁴
<ul style="list-style-type: none"> Monthly assessments of visual acuity and red-green colour discrimination are recommended for patients taking ethambutol (page 19).
World Health Organization, 2014⁵
<ul style="list-style-type: none"> Visual screening is recommended if possible for pediatric patients taking ethambutol (page 72).

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Guidelines and Recommendations

1. British HIV Association. British HIV Association guidelines for the management of tuberculosis in adults living with HIV 2018 (2019 interim update); 2019. <https://www.bhiva.org/file/5c485f3dc7c17/BHIVA-TB-guidelines.pdf> Accessed 2020 Jun 15. See: 7.3 Investigations and monitoring, page 32

2. Nahid P, Dorman SE, Alipanah N, Barry PM, et al. Official American Thoracic Society/Centers for Disease Control and Prevention/Infectious Diseases Society of America Clinical Practice Guidelines: Treatment of Drug-Susceptible Tuberculosis. *Clin Infect Dis* 2016;63(7):853–67 <https://www.thoracic.org/statements/resources/tb-opi/treatment-of-drug-susceptible-tuberculosis.pdf> Accessed 2020 Jun 15.
See: Figure 2, page 859
3. Ministry of Health, Singapore. Prevention, Diagnosis and Management of Tuberculosis; 2016.
<https://www.moh.gov.sg/docs/librariesprovider4/guidelines/moh-tb-cpg-full-version-for-website.pdf> Accessed 2020 Jun 15.
See: Initiation of treatment, Recommendation #20, page 4; Monitoring of patients on tuberculosis treatment, Recommendation #39, page 7
4. Public Health Agency of Canada. Chapter 5: Canadian Tuberculosis Standards 7th Edition: 2014 – Treatment of Tuberculosis disease; 2014
<https://www.canada.ca/en/public-health/services/infectious-diseases/canadian-tuberculosis-standards-7th-edition/edition-17.html> Accessed 2020 Jun 15.
See: 4.6 Adverse Events, EMB, page 19
5. World Health Organization. Guidance for national tuberculosis programmes on the management of tuberculosis in children; 2014.
https://apps.who.int/iris/bitstream/handle/10665/112360/9789241548748_eng.pdf;jsessionid=83E9F94E594142AAA3DAE3B6E09CD6B8?sequence=1 Accessed 2020 Jun 15.
See: Table 10: Adverse effects associated with first and second-line drugs used in the treatment of children with MDR- and XDR-TB, Ethambutol, page 72

Appendix — Further Information

Clinical Practice Guidelines – Unclear Methodology

6. Yukon Government. MONITORING DURING TREATMENT FOR ACTIVE TB DISEASE AND LATENT TB INFECTION; 2019.
<http://www.hss.gov.yk.ca/pdf/tbmanual-appendix-g.pdf> Accessed 2020 Jun 15.
See: Table G-5: Summary of baseline testing – ongoing monitoring requirements for clients taking standard TB treatment, Snellen chart and Ishihara colour tests, page 6
7. BC Centre for Disease Control. Communicable Disease Control Manual Chapter 4: Tuberculosis Appendix E: Assessment of Visual Acuity and Colour Discrimination; 2018. <http://www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%20-%20TB/Appendix%20E.pdf> Accessed 2020 Jun 15.
8. Queensland Government. Treatment of tuberculosis in adults and children; July 2015. https://www.health.qld.gov.au/_data/assets/pdf_file/0029/444566/tb-guideline-treatment.pdf Accessed 2020 Jun 15.
See: Common drug side effects, Ethambutol, page 7
9. Whittington Health NHS. Tuberculosis Treatment and Chemoprophylaxis Guideline for Adult and Paediatric patients with active or latent disease; 2014. <https://www.whittington.nhs.uk/document.ashx?id=6072> Accessed 2020 Jun 15.
See: 1.3 Baseline monitoring, Visual acuity test, page 10

Additional References

10. The Leeds Teaching Hospitals. Ethambutol; 2020. <https://www.leedsth.nhs.uk/a-z-of-services/optometry/what-we-do/toxic-screening/ethambutol/> Accessed 2020 Jun 15.
11. Royal College of Ophthalmologists. RCOphth Statement on Ethambutol Toxicity; 2017. <https://www.rcophth.ac.uk/2017/10/rcophth-statement-on-ethambutol-toxicity/>
12. American Academy of Ophthalmology. Drug-Related Adverse Effects of Clinical Importance to the Ophthalmologist; 2014. http://www.eyedrugregistry.com/uploads/1/3/4/5/13455190/aaosyllabus_2014.pdf Accessed 2020 Jun 15.
See: Ethambutol, Management Guidelines, page 7
13. FDA drug label. Ethambutol Hydrochloride; 2013. https://www.accessdata.fda.gov/drugsatfda_docs/label/2013/016320s066lbl.pdf Accessed 2020 Jun 15.
See: Adverse reactions, page 4