

CADTH RAPID RESPONSE REPORT: SUMMARY OF ABSTRACTS

Screening for Latent Tuberculosis Infection in Post-Secondary Institutions: Clinical Utility, Cost- Effectiveness, and Guidelines

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Research Questions

1. What is the clinical utility of baseline testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis?
2. What is the cost-effectiveness of baseline testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis?
3. What are the evidence-based guidelines regarding the testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis?

Key Findings

No evidence was identified regarding the clinical utility or cost-effectiveness of baseline testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis. Furthermore, no evidence-based guidelines were identified regarding the testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis.

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 tuberculosis testing and students. No filters were applied to limit the retrieval by study type. The search was also limited to English language documents published between Jan 1, 2015 and May 27, 2020. 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	Students in post-secondary education programs with potential exposure to tuberculosis (e.g., nursing, physiotherapy)
Intervention	Testing for latent tuberculosis infection prior to admission in the program, or prior to starting the practical placement
Comparator	Q1-2: No testing for latent tuberculosis infection prior to admission in the program, or prior to starting the practical placement Q3: Not applicable
Outcomes	Q1: Clinical utility (e.g., latent tuberculosis infection, treatment for latent tuberculosis infection, prevention of active tuberculosis infection, quality of life, adverse events) Q2: Cost-effectiveness (cost per health benefit) Q3: Recommendations regarding screening for latent tuberculosis in students in post-secondary education programs with potential exposure to tuberculosis
Study Designs	Health technology assessments, systematic reviews, randomized controlled trials, non-randomized studies, economic evaluations, evidence-based guidelines

Results

No relevant clinical evidence, economic evaluations, or evidence-based guidelines were identified regarding baseline testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis.

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

Overall Summary of Findings

No relevant literature was identified regarding the clinical utility or cost-effectiveness of baseline testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis. Additionally, no evidence-based guidelines were identified regarding the testing for latent tuberculosis infection in students in programs with a risk of exposure to tuberculosis. Therefore, no summary can be provided.

References Summarized

Health Technology Assessments

No literature identified.

Systematic Reviews and Meta-Analyses

No literature identified.

Randomized Controlled Trials

No literature identified.

Non-Randomized Studies

No literature identified.

Economic Evaluations

No literature identified.

Guidelines and Recommendations

No literature identified.

Appendix — Further Information

Previous CADTH Report

1. Brett K, Dulong C, Severn M. Identification of Tuberculosis: A Review of the Guidelines. Ottawa: CADTH; 2020 February. (CADTH rapid response report: summary with critical appraisal). <https://www.cadth.ca/identification-tuberculosis-review-guidelines> Accessed 2020 Jun 9.

Non-Randomized Studies

Alternative Comparator

2. Verso MG, Serra N, Ciccarello A, Romanin B, Di Carlo P. Latent Tuberculosis Infection among Healthcare Students and Postgraduates in a Mediterranean Italian Area: What Correlation with Work Exposure? *Int J Environ Res Public Health*. 2019 12 24;17(1):24.
[PubMed: PM31878124](#)

No Comparator

3. Alsharif MH, Alsulami AA, Alsharif M, Albanna AS, Wali SO. Incidence of latent tuberculosis infection among health science students during clinical training. *Ann Thorac Med*. 2020 Jan-Mar;15(1):33-37.
[PubMed: PM32002045](#)
4. Kinikar A, Chandanwale A, Kadam D, et al. High risk for latent tuberculosis infection among medical residents and nursing students in India. *PLoS ONE*. 2019;14(7):e0219131.
[PubMed: PM31283794](#)
5. Nishimura T, Ota M, Mori M, et al. Risk of tuberculosis infection among health care workers and nursing students in Japan. *J Infect Chemother*. 2018 Nov;24(11):921-924.
[PubMed: PM30181031](#)
6. Lamberti M, Muoio MR, Westermann C, et al. Prevalence and associated risk factors of latent tuberculosis infection among undergraduate and postgraduate dental students: A retrospective study. *Arch Environ Occup Health*. 2017 Mar 04;72(2):99-105.
[PubMed: PM27018614](#)
7. Toujani S, Cherif J, Mjid M, Hedhli A, Ouahchy Y, Beji M. Evaluation of Tuberculin Skin Test Positivity and Early Tuberculin Conversion among Medical Intern Trainees in Tunisia. *Tanaffos*. 2017;16(2):149-156.
[PubMed: PM29308080](#)

8. Durando P, Alicino C, Orsi A, et al. Latent tuberculosis infection among a large cohort of medical students at a teaching hospital in Italy. *Biomed Res Int*. 2015;2015:746895. [PubMed: PM25705685](#)

Economic Evaluation — Mixed Population

9. Mullie GA, Schwartzman K, Zwerling A, N'Diaye DS. Revisiting annual screening for latent tuberculosis infection in healthcare workers: a cost-effectiveness analysis. *BMC medicine*. 2017;15(1):104. <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-017-0865-x> Accessed 2020 Jun 9.

Guidelines and Recommendations — Mixed Population

10. Tuberculosis Screening, Testing, and Treatment of U.S. Health Care Personnel: Recommendations from the National Tuberculosis Controllers Association and CDC, 2019. *MMWR Morb Mortal Wkly Rep*. 2019 May 17; 68(19): 439–443. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6522077/>
See: Updated Recommendations, Baseline (preplacement) screening and testing, page 440
11. European Centre for Disease Prevention and Control. Programmatic management of latent tuberculosis infection in the European Union. Stockholm: ECDC; 2018. <https://www.ecdc.europa.eu/sites/portal/files/documents/October-2018-Programmatic-management-LTBI-EU.pdf> Accessed 2020 Jun 9.
See: 4.1.4 Occupational groups, page 14
12. Tuberculosis. London: National Institute for Health and Care Excellence; Jan 2016. [NICE guideline; no. 33]. <https://www.nice.org.uk/guidance/ng33/chapter/Recommendations#latent-tb> Accessed 2020 Jun 9.
See: 1.1.4 Preventing infection in specific settings

Clinical Practice Guidelines — Unclear Methodology

13. Communicable Disease Control Manual Chapter 4: Tuberculosis TB Screening DST. Vancouver: BC Centre for Disease Control; 2019. <http://www.bccdc.ca/resource-gallery/Documents/Communicable-Disease-Manual/Chapter%204%20-%20TB/4.0b%20TB%20Screening%20DST.pdf> Accessed 2020 Jun 9.
See: Table 8: Routine TB Screening Guidelines for health care workers, employees, volunteers and students, page 14
14. Tuberculosis Surveillance Protocol for Ontario Hospitals. Toronto: Ontario Hospital Association; 2018. [https://www.oha.com/Documents/Tuberculosis%20Protocol%20\(June%202018\).pdf](https://www.oha.com/Documents/Tuberculosis%20Protocol%20(June%202018).pdf) Accessed 2020 Jun 9.
See: Preplacement, page 8

Additional Reference

15. Tuberculosis (TB) Postgraduate Medical Education. Hamilton: McMaster University; 2019. <https://fhs.mcmaster.ca/healthscreening/documents/PGMETBScreening.pdf> Accessed 2020 Jun 9.