

GENERAL ARTICLE

TUBERCULOSIS PREVENTIVE TREATMENT - PERSPECTIVES

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Abstract: Children in contact with sputum-positive adults with tuberculosis are often infected with *Mycobacterium tuberculosis*, and once infected, are at a higher risk of progression to active tuberculosis disease than adults. Preventive therapy for tuberculosis remains a key element in the armamentarium against TB elimination efforts. Such treatment has been expanded to include children with exposure to drug sensitive as well as drug resistant cases. This article discusses the preventive therapy currently recommended and the eligible children for such therapy.

Keywords: Preventive therapy, Tuberculosis, Drug resistance, Children.

Points to Remember

- *The risk of progression of tuberculosis infection to disease is higher in children, which can be effectively mitigated by appropriate TB preventive therapy.*
- *Testing for tuberculous infection is not mandated in all age groups who are exposed to infectious cases, to start preventive therapy.*
- *Shorter TB preventive therapy regimens are available in drug sensitive tuberculosis.*
- *Newer treatment regimens have been proposed for preventive therapy against drug-resistant tuberculosis.*

References

1. World Health Organization. Tuberculosis. From: <https://www.who.int/news-room/fact-sheets/detail/tuberculosis>. Accessed on December 12, 2024.
2. World Health Organization. The End TB Strategy (2014) Geneva. From: <https://www.who.int/tb/strategy/en/>. Accessed on December 12, 2024
3. Dodd PJ, Gardiner E, Coghlan R, Seddon JA. Burden of childhood tuberculosis in 22 high-burden countries: a mathematical modelling study. *Lancet Glob Health*. 2014; 2(8):e453-459. doi:10.1016/S2214-109X(14)70245-1.
4. Purty AJ. Detect-Treat-Prevent-Build: Strategy for TB Elimination in India by 2025. *Indian J Community Med*. 2018; 43(1):1-4.
5. World Health Organization. Latent tuberculosis infection Updated and consolidated guidelines for programmatic management. [Internet]. Geneva: World Health Organization; 2018. <https://apps.who.int/iris/bitstream/handle/10665/260233/9789241550239-eng.pdf>. Accessed on November 13th, 2024.
6. Guiding Principles to Reduce Tuberculosis Transmission in the WHO European Region, From: https://www.euro.who.int/__data/assets/pdf_file/0008/377954/ic-principles-eng.pdf. Accessed on November 30th, 2024.
7. Park SY, Han S, Kim YM, Kim J, Lee S, Yang J, et al. Risk of active tuberculosis development in contacts

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- exposed to infectious tuberculosis in congregate settings in Korea. *Sci Rep.* 2020; 10(1):1-10.
8. Central TB Division, MoHFW, Government of India. Guidelines for programmatic management of Tuberculosis preventive treatment in India. New Delhi, India. 2021. Available from www.tbcindia.gov.in. Accessed on 1st Dec 2024.
 9. Erkens CG, Slump E, Verhagen M, Schimmel H, Cobelens F, van den Hof S. Risk of developing tuberculosis disease among persons diagnosed with latent tuberculosis infection in the Netherlands. *Eur Respir J.* 2016; 48(5):1420-1428.
 10. Shah NS, Yuen CM, Heo M, Tolman AW, Becerra MC. Yield of contact investigations in households of patients with drug-resistant tuberculosis: systematic review and meta-analysis. *Clin Infect Dis.* 2014; 58 (3):381-391.
 11. National TB elimination programme and Indian academy of Pediatrics. TB management essentials. Based on childhood TB guidelines (2021). National TB elimination programme and Indian academy of Pediatrics. [online]. Available from <https://tbcindia.gov.in/showfile.php?lid=3668>. Accessed on November 23rd, 2024
 12. Lombardi G, Petrucci R, Corsini I, Bacchi Reggiani ML, Visciotti F, Bernardi F, et al. Quantitative analysis of gamma interferon release assay response in children with latent and active tuberculosis. *J Clin Microbiol.* 2018; 56(2): e01360-17. doi: 10.1128/JCM.01360-17.
 13. Gualano G, Mencarini P, Lauria FN, Palmieri F, Mfinanga S, Mwaba P, et al. Tuberculin skin test - Outdated or still useful for Latent TB infection screening? *Int J Infect Dis.* 2019;80: S20-22.
 14. Aggerbeck H, Ruhwald M, Hoff ST, Borregaard B, Hellstrom E, Malahleha M, et al. C-Tb skin test to diagnose Mycobacterium tuberculosis infection in children and HIV-infected adults: a phase 3 trial. *PloS one.* 2018; 13(9):e0204554. doi:10.1371/ journal. pone. 0204554.
 15. Nolt D, Starke JR. Committee on Infectious Diseases. Tuberculosis Infection in Children and Adolescents: Testing and Treatment. *Pediatrics.* 2021; 148(6): e2021054663. doi: 10.1542/peds.2021-054663.
 16. Marais BJ, Gie RP, Schaaf HS, Hesselning AC, Obihara CC, Starke JJ, et al. The natural history of childhood intra-thoracic tuberculosis: a critical review of literature from the pre-chemotherapy era. *Int J Tuberc Lung Dis.* 2004; 8(4):392-402.
 17. Horsburgh CR Jr. Priorities for the treatment of latent tuberculosis infection in the United States. *N Engl J Med.* 2004; 350(20):2060-2067.
 18. Houben RM, Dodd PJ. The global burden of latent tuberculosis infection: a re-estimation using mathematical modelling. *PLoS Med.* 2016;13: e1002152. doi:10.1371/ journal.pmed.1002152.
 19. Lancelli L, Vecchio AL, Chiappini E, Tadolini M, Cirillo D, Tortoli E, et al. How to manage children who have come into contact with patients affected by tuberculosis. *J Clin Tuberc Other Mycobact Dis.* 2015; 1:1-12.
 20. Hauck FR, Neese BH, Panchal AS, El-Amin W. Identification and management of latent tuberculosis infection. *Am Fam Physician.* 2009; 79(10):879-886.
 21. Menzies D, Al Jahdali H, Al Otaibi B. Recent developments in treatment of latent tuberculosis infection. *Indian J Med Res.* 2011; 133(3):257-266.