



City Research Online

City St George's, University of London

Citation: Hayama, M., Green, N., Seneviratne, S., O'Donoghue, M., Drey, N. & Kon, O. M. (2017). Latent tuberculosis infection screening of adult close contacts in London: a cost-utility analysis. *Thorax*, 72(S3), A174. doi: 10.1136/thoraxjnl-2017-210983.311

This is the accepted version of the paper.

This version of the publication may differ from the final published version. To cite this item please consult the publisher's version.

Permanent repository link: <https://openaccess.city.ac.uk/id/eprint/19909/>

Link to published version: <https://doi.org/10.1136/thoraxjnl-2017-210983.311>

Copyright and Reuse: Copyright and Moral Rights remain with the author(s) and/or copyright holders. Copies of full items can be used for personal research or study, educational, or not-for-profit purposes without prior permission or charge, unless otherwise indicated, provided that the authors, title and full bibliographic details are credited, a hyperlink and/or URL is given for the original metadata page and the content is not changed in any way. For full details of reuse please refer to [City Research Online policy](#).

Title

Latent tuberculosis infection screening of adult close contacts in London: a cost-utility analysis.

Authors

Manabu Hayama^{1*}, Nathan Green¹, Suranjith Seneviratne², Marie O'Donoghue³, Nicholas Drey⁴, Onn Min Kon³

Affiliations

1 NIHR Health Protection Research Unit in Modelling Methodology and MRC Centre for Outbreak Analysis and Modelling, Imperial College London School of Public Health, London, UK

2 Clinical Immunology, Royal Free Hospital, London, UK

3 Chest and Allergy Department, St. Mary's Hospital, Imperial College NHS Trust, London, UK

4 School of Health Sciences, City, University of London, London, UK

Background

The National Institute for Health and Care Excellence (NICE) guidelines in 2016 recommend tuberculin skin test (TST) at a 5-mm induration size cut-off for latent tuberculosis infection (LTBI) screening of adult close contacts of active tuberculosis (TB) cases. An alternative would be to use an interferon-gamma release assay (IGRA) which has a higher specificity, such as the QuantiFERON-TB Gold in Tube (QFT-GIT) or T-SPOT.TB (T-SPOT). We aimed to evaluate the cost-effectiveness of the screening and treatment of LTBI in adult close contacts with various combinations of these tests in a representative London cohort.

Methods

Clinical data of adult close contacts of pulmonary TB cases who were recommended to receive TST and IGRA in a TB clinic in London between 2008 and 2010 were retrospectively reviewed. A Markov decision analytic model, using an NHS perspective and lifetime horizon, was used to compare costs and quality-adjusted life-years (QALYs) associated with 7 screening strategies followed by chemoprophylaxis: TST alone, IGRA (QFT-GIT or T-SPOT) alone, TST positive followed by IGRA, and TST negative followed by IGRA. Future costs and QALYs were discounted at 3.5% per year.

Results

381 asymptomatic close contacts aged 18 to 65 years were included in this study. The mean age was 35.2 years and the majority (75.3%) were BCG vaccinated. In the base-case analysis, QFT-GIT was the most cost-effective strategy with £6,876 per QALY gained, compared to TST positive followed by QFT-GIT strategy. QFT-GIT alone averted 1.8 TB cases per 1,000 contacts compared to TST positive followed by QFT-GIT.

Conclusion

Of the considered testing strategies, the QFT-GIT alone is preferable for LTBI screening in adult close contacts of pulmonary TB cases in London.