

Executive Summary

Project Title: Re-examining the cost-effectiveness of annual latent TB infection retesting for reducing the risk of TB reactivation among HIV diagnosed patients in the HAART era in Hong Kong (MSS277R)

Aim and Objectives

HIV-infected individuals in Hong Kong have to receive annual repeat LTBI testing until positive test results or diagnosed with active TB. This study aims to analyze the cost-effectiveness of annual repeat LTBI testing strategy.

Project design

A mathematical model was developed and cost-effectiveness analysis was performed to compare between LTBI testing strategies in patients tested LTBI negative at baseline, 2017-2023.

Target population

HIV-infected individuals in HIV care in Hong Kong, after the exclusion of active TB before HIV diagnosis.

Main achievements

A total of 3130 patients' longitudinal data between 2002 and mid-2017 were included in analysis and model parameterization. From a cohort of patients with LTBI and diagnosed with HIV since 2002, the highest TB reactivation rate was among HIV-infected individuals who were non-local, without LTBI treatment, on HAART but with low CD4 level. The lowest reactivation rate was among those who have received LTBI treatment.

In basecase scenario, the total number of new TB cases would be 50 in 2017-2023. With full coverage of ART, LTBI testing and treatment and TB treatment, current annual repeat LTBI testing strategy could avert 41% of new TB cases, while new testing strategy of at most 3 subsequent LTBI tests could avert the same proportion of new TB cases. The other strategies (no subsequent test, biennial test and test by risk factors) would be 2%-7% lower. Taking cost into account, no subsequent test, test by risk factors and at most 3 tests would be more cost-effective LTBI testing strategies, which are cost saving and have more discounted quality-adjusted life year gained (QALYG) comparing with basecase scenario. However, they would not be cost-effective strategies if there is no expansion of LTBI testing coverage.

Conclusions: Baseline LTBI screening, especially before ART initiation, is important to reduce the risk of TB disease development, and the screening coverage should be expanded. Less intense subsequent LTBI testing strategy, the annual testing for at most 3 years for all patients, is recommended to maintain effectiveness and enhance cost-effectiveness.

項目名稱: 重新評估香港艾滋病病毒診斷患者潛在結核病感染年檢的成本效益 (MSS277R)

目的

香港愛滋病毒(HIV)感染者需每年定期接受潛伏性結核感染(LTBI)篩查，除非 LTBI 陽性篩查結果或患有結核病(TB)。本研究旨在分析定期接受每年 LTBI 篩查策略的成本效益。

項目設計

本研究建立數學模型和進行成本效益分析去比較現時每年定期篩查及較疏的隨訪篩查策略(取消隨訪篩查、兩年一次篩查、以風險因素、最多 3 次篩查)在 2017-2023 年的效果和成本效益。

目標群組

正在香港接受 HIV 服務的 HIV 感染者 (HIV 確診前已是結核病患者除外)

主要結果

本研究收集了 3130 香港 HIV 感染者 2002 年至 2017 年中的縱向臨床數據作分析和模型參數。從 HIV/LTBI 感染者隊列中，非本地居民、從未接受 LTBI 治療、而開始抗逆轉錄治療(ART)但 CD4 水平較低的 HIV 感染者群的 TB 再激活率是最高，已接受 LTBI 治療的 HIV 感染者群則最低。

模型基線場景估計 2017 - 2023 年新結核病例總數為 50。通過 ART、LTBI 檢測和治療以及結核病治療的全面覆蓋率，目前的定期每年 LTBI 篩查策略可以避免 41% 的新結核病例，而最多 3 次隨訪篩查策略可以達到相同的效果。其他較疏的篩查策略可以避免 34%-39% 的新結核病例。當考慮成本因素，較疏的篩查策略比基線場景節省更多成本及獲得更多的質量調整壽命年 (QALYG)。

結論

基線 LTBI 篩查，特別是 ART 開始前，是一個降低結核病再激活風險的重要因素，值得擴大覆蓋率。較疏的隨訪篩查策略混合高 LTBI 測試和治療覆蓋率的場景比每年定期隨訪篩查但略低的覆蓋率更有效，也更具成本效益。