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## Commentary

# The importance of systematic data collection, monitoring and evaluation of tuberculosis screening programmes of migrants arriving in low-incidence countries

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The report of the Lancet Migration and Health Commission surmises that with a billion people on the move, this subject is one of the defining issues of our time [1]. Human population movement has been temporarily altered by the COVID-19 pandemic. Travel and migration will return, with some adaptation to a post-pandemic world. The higher risk of infectious diseases such as tuberculosis (TB) in migrants from high TB burden countries to high-income settings is widely recognised [2]. In some settings, such as in Western European nations and in Australia, TB in the foreign born can exceed three-quarters of cases. Furthermore, TB is one of the diseases where morbidity and mortality is higher in migrants compared to the host population. Consequently, the TB screening of migrants is conditionally recommended by the World Health Organization (WHO); the recommendation was unchanged in the 2021 update [3]. The specific details of the combination of tools to use in such screening programmes remains a matter for debate. Any screening programme should include a monitoring and evaluation plan and results should inform programme managers to assess the performance of the TB screening components.

In *The Lancet Regional Health – Western Pacific*, James Trauer and colleagues analyse the data of the Australian migrant TB screening programme [4]. The study cohort included 2,381,217 applicants for permanent, provisional and humanitarian visas to Australia who completed their offshore or onshore immigration medical examination between July 1, 2014 and June 30, 2017. Physical examination and chest X-ray were the most prominent components of the assessment for TB. Around two-thirds (66.2%) of applications were

undertaken offshore and one third (33.7%) within Australia. Visa applicants were predominantly young adults from Asian countries. Analysis of the 1263 cases diagnosed by the screening programme, revealed several important findings. First, the overall prevalence was relatively low with 53.0 cases per 100,000 applicants (95% CI 50.2–56.1), i.e. 1887 persons needed to be screened to detect one case. The TB prevalence among visa applicants differed substantially by countries categorized according to WHO-estimated prevalence, and varied from 6.8 per 100,000 (95% CI 4.5–10.2) for migrants from countries with a TB prevalence of <40 per 100,000 to 198.4 (95% CI 180.7–217.7) for migrants from countries with a prevalence  $\geq 350$  per 100,000. Second, the prevalence was 8.0 (6.5–9.9) times higher in humanitarian visa applicants (183 per 100,000) compared to temporary visa applicants, and 25.7 (21.9–30.2) fold higher in people with past TB treatment (2141 per 100,000). Third, age-standardized TB prevalence in offshore applicants closely matched the WHO-estimated TB prevalence in the countries of origin.

The study of Trauer and colleagues presents to our knowledge the largest dataset on TB screening of migrants to a single country, and nicely illustrates the value of systematic data collection, monitoring and evaluation of screening. In Europe, four countries (Italy, the Netherlands, Sweden and United Kingdom) have recently set up a European database on TB and Latent TB Infection (LTBI) screening of migrants to provide greater statistical power and to contribute to migrant TB screening evidence. This database includes modules on eligible migrants for screening, screening data, linkage to care, treatment completion and reactivation (the latter only for LTBI diagnoses) [5].

The low TB prevalence among visa applicants found by Trauer and colleagues impacts the effectiveness and cost-effectiveness of the intervention. Their study provides suggestions to improve the

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E-mail address: [gerard.de.vries@rivm.nl](mailto:gerard.de.vries@rivm.nl) (G. de Vries).<https://doi.org/10.1016/j.lanwpc.2021.100154>2666-6065/© 2021 The Author(s). Published by Elsevier Ltd. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>)

effectiveness, e.g. by limiting screening to migrants from countries with a TB prevalence above a certain cut-off, as is practised in most European countries [6,7]. The observation that humanitarian applicants, such as refugees and asylum seekers, have a high risk for TB clearly indicates that these individuals need priority in a TB prevention and care programme. Their study is not reporting on linkage-to-care issues which may not be available for persons diagnosed with TB outside Australia, but could be more readily available for those diagnosed in Australia. It is important to report on all steps of the screening process, from eligibility of persons for screening to the treatment completion of people diagnosed with TB.

Trauer and colleagues also raise the importance of reactivation of overseas-acquired LTBI, and scaling up post-migration interventions to reduce the TB burden. The epidemiology in low-incidence countries indeed shows that a substantial number and proportion of migrants develop TB in the host country several months or years after migration [8,9]. In Australia, LTBI testing and treatment of migrants is currently limited to children aged two to ten years and to older migrants with a history of close contact with a TB patient, but could be extended to people from high TB burden countries to move towards TB elimination.

Trauer and colleagues conclude that support for TB control programmes overseas and preventive interventions are likely to have the greatest impact on the TB burden in high-income countries. We fully agree with them, that these investments will highly benefit the people in the countries concerned, as well as the high-income countries that may receive migrants from these countries in time [10].

## Declaration of Competing Interest

IA acted as WHO STAG Chair ended in 2019.

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