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Clin Infect Dis. Author manuscript; available in PMC 2024 November 06.

Published in final edited form as:

Clin Infect Dis. 2017 October 15; 65(8): 1410–1411. doi:10.1093/cid/cix508.

Keeping Up With a World in Motion: Screening Strategies for Migrating Populations

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Keywords

tuberculosis; tuberculosis screening; migration; asylum seekers; migrants

As global migration increases, especially from countries with a high tuberculosis (TB) burden to countries with a low TB burden, we will continue to see foreign-born persons accounting for an increasing number and proportion of TB cases in the host countries. Therefore, identification of effective interventions to address TB among mobile populations is critical to reaching global World Health Organization (WHO) targets for TB elimination in both low- and high-incidence TB countries [1, 2]. There is a need for more data on optimized approaches, including effectiveness, cost, and yield of TB screening programs, to address the special needs of migrating populations.

In this issue of *Clinical Infectious Diseases*, Vanino et al report on the strategy developed for TB screening among asylum seekers coming to their region in northern Italy, which contributes to the knowledge base on TB screening strategies among mobile and vulnerable populations. The authors implemented a TB screening program based on routine use of chest radiographs (CXRs) as the initial screening tool, which, although similar in approach to many European countries [3], is apparently the first in Italy to use CXRs rather than symptom screening as the initial step in the screening algorithm. Their approach was documented to be high yield and relatively low cost; of note, 33% of migrants identified with TB did not report symptoms and therefore would have been missed by an initial symptom-based approach. A recent study from Switzerland compared the performance of initial screening with CXRs to screening with clinical questionnaires that included symptom screening among asylum seekers from both low- and high-TB-incidence countries, and reported that the 2 different screening approaches resulted in similar overall yields at 90 days; however, screening based initially on CXRs incurred higher costs, and screening based

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Potential conflicts of interest. Both authors: No reported conflicts of interest. Both authors have submitted the ICMJE Form for Disclosure of Potential Conflicts of Interest. Conflicts that the editors consider relevant to the content of the manuscript have been disclosed.

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initially on symptoms was associated with delays in treatment [4]. Therefore, it will be important to plan to compare data from this CXR-based screening algorithm with the data from Switzerland and, more importantly, with data from other Italian regions implementing a symptoms-based approach, to evaluate and report on differential effectiveness, cost, and yield among asylum seekers in Italy, a population which appears to be largely drawn from high-TB-incidence West African countries.

The CXR-based strategy described by the authors is similar to the current US overseas TB screening approach, although the algorithm for performing microbiological and bacterial confirmation of active TB was not provided. Prior to 2007, the algorithm for US screening relied on CXRs followed by acid-fast bacilli smear microscopy to identify TB among US-bound immigrants and refugees. A study conducted in Vietnam among US-bound immigrants found only a 34% sensitivity for serial acid-fast bacilli screening compared with culture [5]. Based on these findings and other data, the US overseas TB screening algorithm was changed in 2007, and by 2013 all immigrants and refugees aged ≥15 years with a CXR suggestive of TB, signs and symptoms of TB, or known to have human immunodeficiency virus (HIV) were required to have 3 sputum specimens that undergo microscopic examination and culture for mycobacteria. In addition to increasing the yield of diagnoses overseas, the change in the US overseas TB screening approach has been temporally associated with a decline in TB cases among foreign-born persons in the United States since 2007 [6, 7].

The TB prevalence reported among the asylum seekers in Italy is quite high even given their high-TB-burden countries of origin. Whether this cohort of persons was already suspected of having TB was not discussed; however, those agreeing to registration and screening may have been a self-selecting group. Other reasons for this finding might be due to low numbers resulting in unstable rates, with high confidence limits, or to comorbidities. The HIV status of the asylum seekers was not reported, although of those found to have active TB from 7 African countries, the lowest HIV-prevalence country was Niger, with a rate of 0.49%, and the highest was Ivory Coast, with a rate of 3.46% (median, 1.47%) among adults aged 15–49 years [8]. The US Centers for Disease Control and Prevention recommends HIV screening for all TB patients, which includes both those with active disease or with latent infection (LTBI) [9]. Additionally, given their likely arduous migration pathway, these asylum seekers probably encountered food insecurity, which may have led to malnutrition. Underweight persons have been shown to have a >10-fold increased incidence of TB compared with persons with normal body mass index over a period of 22 years of US-collected data [10].

Migrants fleeing conflict, persecution, or natural disaster may experience suboptimal or even dangerous living and social situations that likely increase the risk of TB transmission and risk of progression from infection to disease. This study also brings to the forefront the need to consider not just the incidence of TB in migrant source countries, but also the full migrant journey and migration pathway. The asylum seekers undergoing TB screening in Italy reported travel for long distances under stressful circumstances, detention, and overcrowded living arrangements that could indicate that travel and migration history may be independent risk factors for developing TB and should be considered in prioritizing migrant populations for screening and intervention.

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In the United States, typically long intervals exist between US entry and granting of asylum with subsequent medical screening compared with US-resettled refugees (55 weeks compared with 1 week, respectively) [11]. Therefore, the ability to carry out this screening shortly after arrival is a real tribute to the authors, program staff, and Italian government.

Although the TB screening results reported were limited to data on active TB covering a 1-year period, it would be useful to analyze and share follow-up data to evaluate the yield for diagnosing both active TB and LTBI among this migrant population. Numerous studies have demonstrated that the majority of migrants will develop TB after the initial entrance screening, most often due to reactivation of LTBI; therefore, a comprehensive approach that takes into account the full migration pathway and incorporates both geographic and temporal elements of the trajectory (including postmigration follow-up monitoring and interventions) is critical to addressing TB in migrant populations. Finally, in addition to interventions that focus on optimizing TB screening programs among mobile populations, one of the best investments for reducing morbidity and mortality among migrants, supporting progress toward global TB elimination goals, and enhancing global health security is strengthening the capacity of national TB programs to address TB and LTBI, especially in source countries with a high TB incidence [12].

Disclaimer.

The findings and conclusions of this letter are those of the authors and do not necessarily represent the official positions of the Centers for Disease Control and Prevention.

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