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Letter to the Editor

Screening of migrants for tuberculosis identifies patients with multidrug-resistant tuberculosis but is not sufficient

Dear Sir,

An analysis of a cluster of 29 migrants with multidrug-resistant (MDR) tuberculosis (TB) strains with an identical whole genome sequencing pattern (difference of maximally one single nucleotide polymorphism) identified in seven European countries in 2016–2017 has been published in Lancet Infectious Diseases [1]. The investigation of this cluster led to the conclusion that cases are most likely linked to a larger *Mycobacterium tuberculosis* clone circulating in northern Somalia/Djibouti, and that transmission likely occurred prior to arrival in Europe [1,2]. Since most European countries have entry screening [3] for TB for migrants, this raises the question whether entry screening identified the cases and if not, why not. Because this was not addressed in the publication by Walker et al., we have assessed it in a short survey of the European Centre for Disease Prevention and Control (ECDC) with the countries involved. Information was collected on procedures for screening of migrants, cases in the cluster subjected to screening, cases identified by screening and cases in the cluster not identified by screening but diagnosed later, usually due to symptoms.

After the data collection by Walker et al. was closed, Germany identified five additional patients and Italy identified two cases so that the total number of clustered patients was 36 as of end of November 2017. Germany could provide information on screening for 19/19 patients, Switzerland for 8/8, Italy for 2/2, Finland for 1/1, Sweden for 1/1, and France for 1/2. There was no response from Austria (0/2) and UK (0/1). In total, screening status was known for 32/36 patients.

Twenty-seven of the 32 patients (84%) were known to have undergone screening, 19 in Germany and eight in Switzerland (Fig. 1). The patient in Sweden had presented with symptoms before entry screening. The patients in Italy and the one in France were not screened and the patient in Finland was not screened due to the large number of concurrent arrivals.

Countries had different screening practices. In Germany, screening by chest X-ray is mandatory for asylum seekers ≥15 years of age (if not pregnant) before they are accommodated in a community shelter. For asylum seekers <15 years of age, a tuberculin skin test (TST) or interferon gamma release assay (IGRA) is recommended and, if positive, further investigation for active TB. Switzerland implements mandatory symptom screening by interview within 5 days after a request for asylum. Finland and Sweden offer voluntary screening to migrants from countries with a high incidence of TB that includes an interview. In Sweden screening is performed by IGRA or TST, followed by chest X-ray in case of a positive TST or IGRA and in Finland migrants are screened by chest X-ray. In France, screening is not mandatory at entry but highly recommended for asylum seekers originating from high incidence countries. Italy does not implement systematic screening of migrants for TB at entry at national level, but screening is performed in some regions.

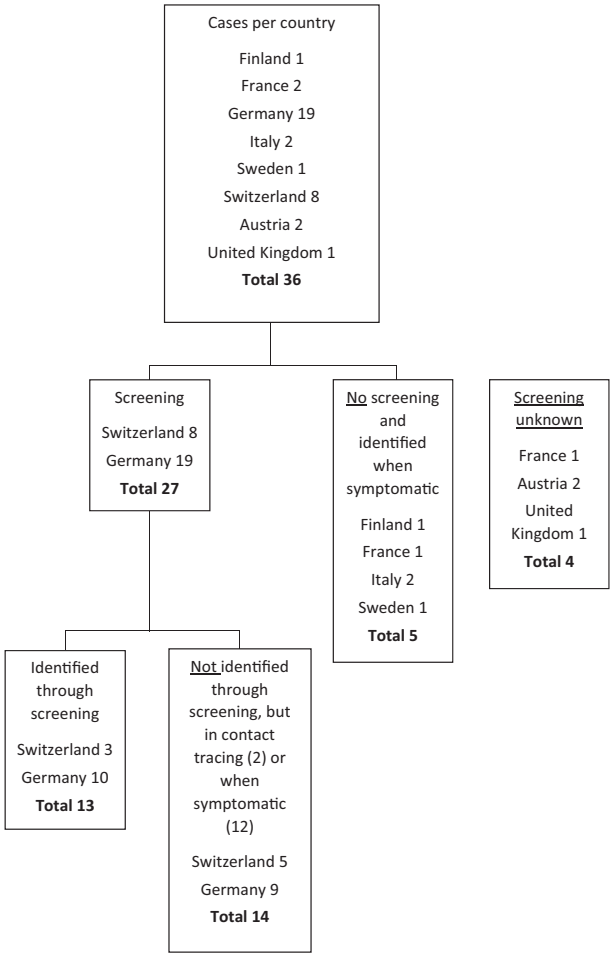

Fig. 1. Entry screening of multidrug-resistant tuberculosis cases of a cluster of patients originating from the Horn of Africa defined by whole genome sequencing.

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Of the 27 patients known to be subjected to screening (age range 15–25 years) 13 (48%) (10/19 in Germany and 3/8 in Switzerland) were identified as a result of the screening and 14 (52%) were not identified (Fig. 1). Of the five cases (three pulmonary TB, one pleural TB, one lymphatic intrathoracic TB) not identified in Switzerland by symptom screening (followed by chest X-ray if TB is suspected), one did not report any symptoms, three (including the two extrapulmonary TB cases) reported symptoms not deemed sufficient for referral to a medical consultation including a chest X-ray, and one referral resulted in a chest X-ray that was deemed normal. Nine cases (seven pulmonary TB, one pleural TB, one bone TB) were not identified by screening in Germany. One pulmonary TB case did not receive a chest X-ray because the patient was pregnant and under treatment for other disease symptoms. None of the nine cases reported symptoms related to TB. Of the 32 cases for whom screening status was known, 17 cases (53%) were identified when symptoms led to investigations days to months after screening or after entry to the country.

This analysis shows that, even though three-quarters of patients were known to have undergone a screening procedure after entering the host country, only approximately half of those screened were diagnosed as a result of screening. Patients not identified by screening may have developed radiological abnormalities or symptoms weeks or months after screening and may thus not have been detectable at screening for active disease. Also, sensitivity for identifying TB of the screening methods used varies; the Swiss screening system has a sensitivity known to be lower than systems using chest X-ray [4].

We conclude that systematic TB screening of migrants at country entry can identify TB disease, which supports the objective of preventing TB transmission by timely detection and treatment. Screening at entry only identifies prevalent active TB. Persons infected with TB but without clinical and/or radiological signs will not be detected by entry screening for active TB but can develop TB in the months or years following migration. Screening and preventive treatment for latent TB infection may prevent the development of TB but is very unlikely to prevent the development of MDR-TB [5]. In any case, it is of utmost importance to provide easy/barrier-free access for migrants to the health system in the host countries and for healthcare workers to have a high index of suspicion for TB in patients originating from countries with high TB incidence to ensure early detection and treatment of cases and avoid further spread [6].

Ethical approval

Investigations were performed under local public health law in each country, as part of an outbreak response. As such, no further ethical approval was necessary for the majority of the countries involved. For patients diagnosed in Switzerland, ethical approval and individual informed consent was obtained (BASEC approval number 2016-02092).

Transparency declaration

The authors have no conflicts of interest to disclose.

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Authors' contributions

PH, SK, WH, and MvdW designed and drafted the article, SG, DMC, RG, J-PG, HS, DH collected the data, reviewed the manuscript, and approved the final version.

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