



Low yield of screening asylum seekers from countries with a tuberculosis incidence of <50 per 100 000 population

To the Editor:

In low tuberculosis (TB) incidence countries foreign-born patients constitute a high percentage of the TB burden, up to 90% in Scandinavian countries [1] and 73% in the Netherlands in 2014 [2]. Several European Union (EU) countries have developed screening strategies to identify TB in migrants at an early stage and prevent transmission, but there is no uniform EU policy [3–5]. In the Netherlands, TB screening of migrants has been stipulated in the Alien's Act since 1966. At that time, screening was mainly carried out for migrant workers from Southern European countries, Morocco and Turkey. Since the 1990s, TB screening has increasingly included immigrants and asylum seekers from other countries in the world. For the screening of asylum seekers a mobile radiography screening programme has been in place since 1992 with national coverage [6]. The annual overall yield of TB screening has been well above 200 cases per 100 000 persons screened until a few years ago [6, 7]. It declined to 85 cases per 100 000 persons screened in 2014, due to the high number of asylum seekers from countries with traditionally low TB incidence rates such as Iran, Iraq and, predominantly, Syria [2].

The screening of regular immigrants, who come to the Netherlands for work, study or permanent residence, has been evaluated several times during the past two decades [8–10]. In the most recent evaluation the number needed to screen (NNS) for immigrants from countries with a World Health Organization (WHO) estimated TB incidence of <50 cases per 100 000 was 4600 [10] and was well above the cut-off of 2000 used in the Netherlands to decide on continuation or discontinuation of screening. This cut-off was arbitrarily set to limit exposure of healthy individuals to radiation and increase the effectiveness of screening. Cost-effectiveness arguments were not used in setting the cut-off, since these data were lacking in the Netherlands, as they are in most countries in the world [11]. After changes to the Alien's Act, the screening of immigrants from countries with a TB incidence of <50 per 100 000 was stopped on January 1, 2015. The screening of asylum seekers from countries with this lower TB incidence was continued, because the evaluation did not include the screening of asylum seekers and it was assumed that asylum seekers had higher TB risks than the WHO estimated TB incidence in their countries of origin [12], *e.g.* due to the conditions during their journey.

The Netherlands operates a centralised system of asylum application, with asylum seekers filing their request at the national airport Schiphol or the national reception centre in Ter Apel. Chest radiography screening for TB at the national reception centre operates on a daily basis, including weekend days. Chest radiographs are transferred for reading to the TB departments of the Municipal Public Health Service (MPHS) of Amsterdam and Groningen, and are read within 24 h. The procedure of registration, identity verification by the Alien Police and mandatory TB screening is usually completed within 3 days. If TB is diagnosed in an asylum seeker, the patient is treated either as an inpatient by hospital specialists or as an ambulatory patient by TB public health physicians of the MPHSs, and subsequently the patient is notified to the National Tuberculosis Register (NTR). Healthcare costs of asylum seekers are covered by the healthcare insurance scheme in which all asylum seekers are enrolled.

In August and September 2015, asylum requests almost doubled with on average 2000 persons arriving each week. Due to stagnation in processing at the national reception centre, large numbers of newly arriving asylum seekers were temporarily accommodated in emergency locations such as empty office buildings, schools, sporting facilities, *etc.*, without TB screening. An *ad hoc* working group of the Committee for Practical TB Control advised the Minister of Health in mid-September to defer TB screening of Syrian refugees due to the low yield in 2014 [2] and the low numbers identified by screening in 2015 so far, and to prioritise the screening of asylum seekers from high-endemic countries. The Minister of Health endorsed the advice and requested KNCV Tuberculosis Foundation and the Committee for Practical TB Control to evaluate the screening of asylum seekers from countries with a TB incidence <50 per 100 000 and provide advice on the measure to temporarily stop screening of Syrian refugees.

In this research letter, we present the methods and results of the evaluation of screening asylum seekers over the period from 2011 to September 2015, and its policy implications in the Netherlands.

The NTR contains detailed information about all TB patients, including country of origin and reason for migration. Data on asylum seekers with TB from countries with a TB incidence <50 cases per 100 000 during the study period were obtained from the NTR after approval of its registration committee. Data on screening history and screening results were obtained from the electronic client TB information system (Tubis) used by the MPHs in the Netherlands. The yield of screening was defined as newly diagnosed TB patients as a result of screening and diagnosed within 6 months after screening. TB data from the NTR were matched with the screening records of asylum seekers in the Tubis database, after approval of the NTR registration commission; MPHs were contacted for non-matching data or inconsistencies. Patients already on treatment at entry were excluded.

12 TB patients were identified by screening asylum seekers from countries with a WHO estimated TB incidence of <50 cases per 100 000 population: seven from Syria, three from Iraq, one from Bosnia and Herzegovina, and one from Macedonia. Of the 12 TB cases, 10 were men and two were women; one case was in the 0–12 years-old age group, one case was 13–24 years, five cases were 25–34 years, two cases were 35–44 years and three were aged 45–54 years. All 12 patients had pulmonary TB; four had microscopy-positive sputum smears and in 10 patients TB was confirmed by culture. Four asylum seekers with a normal chest radiograph at entry screening developed TB within 6 months (two Syrians with extrapulmonary TB, one Iraqi with pulmonary TB/extrapulmonary TB and one Jamaican with pulmonary TB). The overall TB prevalence from screening of 26 per 100 000 persons screened mirrors the WHO estimated incidence in these countries (table 1). The NNS, the inverse of the prevalence, of 3787 is above the threshold and has resulted in advice to the Minister of Health to stop screening of asylum seekers from countries with a TB incidence of <50 per 100 000 and to closely monitor the effects of discontinuation of screening.

Interestingly, a few days after discontinuation of the screening of Syrian refugees, a Syrian self-reported himself on the third day of his arrival in an emergency location with cough. An interview revealed that he had started multidrug-resistant (MDR)-TB treatment nearly 1 year earlier in another European country, where he defaulted after 4 months. The chest radiograph showed extensive abnormalities and he was immediately admitted to a TB treatment centre for the management of microscopy smear-positive pulmonary MDR-TB. This example shows that access to quality health services is an important condition when scaling-down radiographic screening [13].

An evaluation of the effectiveness of screening of asylum seekers from high-burden countries is ongoing. The high risk for TB is well-known for these asylum seekers, e.g. those from Somalia and Eritrea [2], with a high proportion developing disease after screening due to late reactivation [14]. More efforts are needed to reduce the burden of TB among these populations, such as screening for latent TB infection and offering preventive treatment for infected individuals [15, 16].

Our evaluation shows that the yield of screening among Syrian refugees and other asylum seekers from countries with a TB incidence <50 cases per 100 000 has been low over the past 5 years in the Netherlands

TABLE 1 Results of screening asylum seekers in the Netherlands from countries with a tuberculosis (TB) incidence <50 per 100 000 people, 2011–September 2015

	Number screened	TB identified via screening	TB prevalence of screening per 100 000	95% CI
TB incidence in the country of origin per 100 000[#]				
0–9.9	423			
10.0–19.9	34 825	8	23.0	10.7–43.6
20.0–29.9	3496			
30.0–39.9	166			
40.0–49.9	6529	4	61.3	19.5–147
Total	45 439	12	26.4	14.3–44.9
Top 5 countries[#]				
Syria [¶]	31 470	7	22.2	9.7–44.0
Iraq [*]	5327	3	56.3	14.3–153
Iran [§]	3086			
Former non-European Union Yugoslav countries ^{f,##}	2051	2	97.5	16.4–322
Albania ^{¶¶}	547			

Data are presented as n, unless otherwise stated. [#]: TB incidence according to the World Health Organization in 2013 [12]; [¶]: incidence 15 per 100 000; ^{*}: incidence 45 per 100 000; [§]: incidence 22 per 100 000; ^f: TB incidence of Bosnia and Herzegovina, Macedonia, Montenegro and Serbia were weighted according to population; ^{##}: incidence 25 per 100 000; ^{¶¶}: incidence 18 per 100 000.

and that it can be stopped according to the screening evaluation criteria used. Our study results may inform an EU policy on TB screening of asylum seekers, which is now very much needed given the huge displacement of asylum seekers in European countries.



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Screening asylum seekers from areas with a TB incidence of <50 per 100000 had a low yield in the Netherlands <http://ow.ly/Yf2PT>

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