

Tuberculosis in asylum seekers in Belgium

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ABSTRACT: Countries with a low incidence of tuberculosis have recently been faced with the problem of tuberculosis (TB) in asylum seekers from countries with a high TB prevalence. We report on the tuberculosis case notification rate (TBCNR) in Belgium in 1993, and on the results of active screening in a group of asylum seekers.

The TBCNR in Belgium in 1993 increased slightly to 14.9 per 100,000, mainly due to the nonindigenous population. The highest TBCNR (312 per 100,000) was reported among the 26,882 asylum seekers staying in Belgium in 1993. Of all new asylum seekers admitted in 1993, 4,794 agreed to undergo radiographic screening for TB at entry, of whom 123 had a chest radiograph which was suspect. Among the 123, 67 could be further investigated, and, of these, 19 cases (28%) of active TB were detected; this represents a TBCNR of 396 per 100,000 when referred to the 4,794 asylum seekers screened. In addition, 56 asylum seekers with suspect chest radiograph were lost to further investigation.

From the present results it appears that: 1) in Belgium, asylum seekers constitute an important risk group for TB, with a TBCNR after screening which is approximately 30 times that in the indigenous population; and 2) there is a deficient follow-up after first screening, generating the risk of transmission of TB within the community.

Our recommendations are, therefore, that in all asylum seekers screening for tuberculosis should be mandatory and follow-up of active tuberculosis should be regulated.

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Although tuberculosis (TB) is still a major problem in developing countries, in most developed countries it has become almost negligible. However, the increase in the TB case notification rates (TBCNR) observed since the mid-1980s, challenged the current expectations of eradicating TB [1].

Many factors contribute to this increasing TBCNR in developed countries. Firstly, changes in immunological properties of some hosts, such as human immunodeficiency virus (HIV)-positive individuals and in elderly persons [2] facilitate TB infection and progression to disease. Second, some marginal groups, *e.g.* drug users, homeless people, prisoners and persons living in crowded communities, not only show an increased TBCNR [3–5], but also induce the emergence of drug-resistant bacilli [1]. Thirdly, reduction of financial support for TB control programmes leads to inadequate detection of TB cases, inaccurate drug prescription and suboptimal follow-up. Fourthly, travel is increasing to and from countries with high TB prevalence [4].

These factors, which are closely related to the mode of life in developed Western countries, have caused a change in the epidemiological pattern of TB. Indeed, whilst early in the seventies TB was mainly a disease

of the indigenous elderly population, TB now, to a large extent, also affects children and young adults in the non-indigenous population [5, 6].

Special emphasis has to be placed on the fact that Belgium, like many other countries, is faced with the problem of increasing numbers of asylum seekers, who are kept waiting in the host country whilst applying for refugee status [4, 5].

The purpose of the present study was to examine: 1) the TBCNR in asylum seekers in relation to other population groups in Belgium; and 2) the yield of active screening for TB in asylum seekers.

Methods

TBCNRs in asylum seekers and in other population groups in Belgium

In Belgium, it is mandatory for physicians to report active TB to the governmental provincial registration centres, which collaborate closely with the Flemish Lung

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and Tuberculosis Association (VRGT) and the Fondation contre les Affections Respiratoires et pour l'Education à la Santé (FARES) [7]. Although the VRGT and FARES are nongovernmental organizations, they receive state subsidies in order to implement TB control by means of their provincial committees and local preventive bureaux (so-called dispensaria), staffed by physicians (for clinical and radiographic examination) and social nurses (for TB contact tracing and directly observed therapy). The VRGT and FARES also have mobile radiographic units for conducting screening programmes, especially in high risk population groups. Finally, the VRGT and FARES register, code and analyse the TB cases notified and provide detailed information on these data in annual reports and in related publications [8, 9]. In the present study, the concept of TBCNR is used for reporting the number of TB cases in all groups cited. For the TB cases in the Belgian population, at least, this TBCNR provides a reasonable approximation of the real incidence, since the performance of the national programmes is reliable.

Asylum seekers do not undergo a systematic medical examination or a TB screening at entry into Belgium. Whilst waiting for an official decision for approval to remain in Belgium, asylum seekers are housed in different transit or reception centres throughout the country, of which the Central Transit Center (CTC) in Brussels is the largest. The asylum seeker can request medical help in these transit or reception centres, or after approval of the status of refugee they can go to any medical centre or hospital in the country or to a local bureau of the VRGT or FARES. If active TB is detected, this has to be reported for registration as already outlined and appropriate therapeutic measures are initiated.

For the present study, the data from the VRGT and FARES annual TB incidence registers for 1993 and several preceding years [8] were used to compare the TBCNR in asylum seekers with those in other population groups.

Active screening for tuberculosis in asylum seekers

In 1993, 8,293 asylum seekers (*i.e.* 31% of a total of 26,882 asylum seekers entering the country) were referred to the CTC in Brussels. That year, the VRGT started visiting the CTC weekly with a mobile radiographic unit, and invited all asylum seekers to undergo a small size chest radiograph. These chest radiographs were examined by the chest physician working for the VRGT and were rated as "suspect" when not entirely normal, with special emphasis on findings commonly observed in TB [10]. Asylum seekers with a suspect radiograph were then invited for further investigation, including normal size chest radiograph and sputum examination. They were classified as "clinically active" TB or "not active", class 3 and 4, respectively, according to the American Thoracic Society (ATS) classification [10]. Active cases were officially registered and treatment was initiated.

In the present study, the results of this active screening are reported, and compared with the data of active screening in other risk groups.

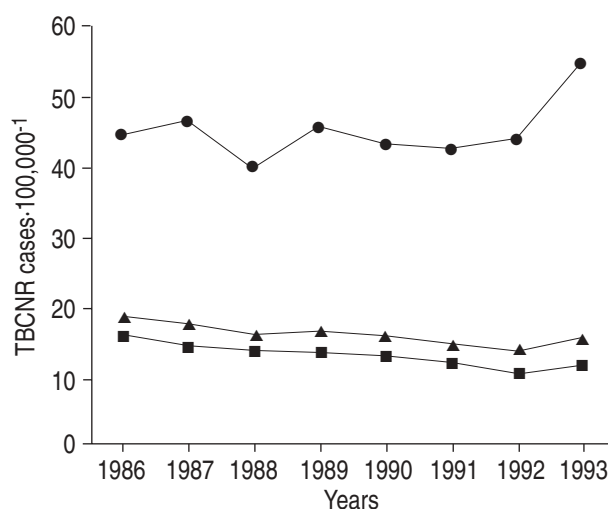


Fig. 1. — Evolution of tuberculosis case notification rates (TBCNR) in indigenous and nonindigenous inhabitants of Belgium from 1986 to 1993. Note the increase in 1993, especially in the nonindigenous inhabitants of Belgium. ●: nonindigenous; ▲: total cases; ■: indigenous.

Results

TBCNRs in different population groups in Belgium, including asylum seekers

Figure 1 shows the TBCNR in Belgium over recent years and compares the indigenous and nonindigenous population. As in most other developed countries, the TBCNR has been steadily declining since the 1970s to a rate of 13.3 per 100,000 in 1992. In 1993, however, this rate increased slightly to 14.9 per 100,000, and in 1994 even to 15.1 per 100,000, which was largely attributable to the nonindigenous population [8].

Figure 2 shows the age-specific TBCNR in indigenous and nonindigenous citizens. In the indigenous subjects, TB still remains a disease of the elderly, with an incidence of about 30 per 100,000 and exceeding 50 per 100,000 in males more than 70 yrs of age. In foreigners, TB is a disease affecting young children (TBCNR

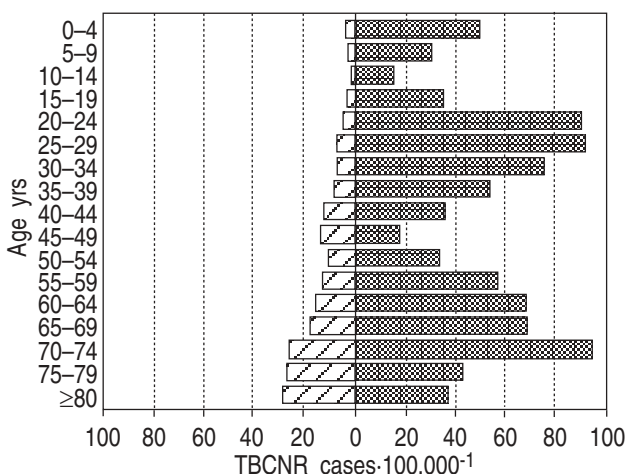


Fig. 2. — Age-specific tuberculosis case notification rates (TBCNR) in indigenous and nonindigenous citizens of Belgium in 1993. The difference in age profile between both groups is striking. ▨: indigenous; ▩: nonindigenous.

Table 1. – Tuberculosis case notification rates (TBCNR) in different population groups in Belgium

	Cases notified			
	1992		1993	
	n	per 100,000	n	per 100,000
Total Belgian population	1335	13.3	1503	14.9
Indigenous population	932	10.2	1007	11.0
Nonindigenous population	403	43.7	496	54.2
Non-Western population	323	94.2	416	119.6
Asylum seekers	57	323.0	84	312.0
AS/indigenous ratio	31.6		28.3	
AS/nonindigenous ratio	7.4		5.7	
AS/non-Western ratio	3.4		2.6	

AS: asylum seekers. Asylum seekers are not included in the totals for nonindigenous and nonwestern populations.

≥40 per 100,000), and young adults (TBCNR ≥90 per 100,000), as well as elderly persons (TBCNR ≥70 per 100,000).

Table 1 shows the TBCNR for 1992 and 1993 in the total Belgian population (≈10,000,000), the indigenous population (≈9,100,000), the nonindigenous population (≈900,000) and, among the latter, the non-Western population (≈350,000). The number of asylum seekers rose from 17,647 in 1992 to 26,882 in 1993 (*i.e.* an increase of 52%). In 1993, 84 cases of active TB were reported in asylum seekers (TBCNR 312 per 100,000), which have been registered as a separate group, and not included in the nonindigenous population. When compared to the indigenous population, the TBCNR is about five times higher in the nonindigenous population (which is mainly attributable to the 10 times higher TBCNR in the non-Western population), and it is about 30 times higher in asylum seekers.

Active screening for TB among asylum seekers

Of the 8,293 asylum seekers in the CTC in Brussels who were invited to undergo a small size chest radiograph, 4,794 (*i.e.* 57%) participated. This represents 18% of the total of 26,882 asylum seekers in Belgium in

1993. Of the 4,794, 36% came from Romania, 10% from Bulgaria, 7% from the former Yugoslavia, 5% from the former Soviet Union, 29% from black Africa, mainly Zaire, and 13% from various other countries [8]. Of the 4,794 asylum seekers, 123 presented a suspect chest radiograph, of whom 56 disappeared from follow-up before further investigation could be undertaken (*fig.* 3). Among the remaining 67 with suspect chest radiograph, 19 cases of active TB were found, of whom 13 came from black Africa, four from Romania and two from other countries. These 19 cases from a total of 4,794 correspond with a TBCNR of 396 per 100,000 (which is close to the TBCNR of 312 per 100,000 reported for the asylum seekers throughout the country).

Thus, the yield of screening for active TB in asylum seekers is 1 in 252. The yield is 1 in 3.5 in the presence of a suspect small size chest radiograph; thus, the probability of finding active TB in asylum seekers with a suspect radiograph on screening can be estimated at 28% (*i.e.* 19 out of 67 fully investigated cases). By extrapolation of this 28% probability of TB to the 56 asylum seekers with suspect radiographs who disappeared before further examination, an additional 16 asylum seekers could be assumed to have active TB, and to have disappeared into the community without therapy. This should bring the TBCNR among asylum seekers to 35 in 4,794, *i.e.* 730 per 100,000.

In 25 asylum seekers the small size chest radiograph was not suitable for interpretation (*fig.* 3). Only seven of them could be further investigated and none appeared to have active TB. By extrapolation one could assume that none of the 18 others who disappeared had active TB, although it cannot be excluded that these also constitute a reservoir of possible active TB cases.

Finally, in 17 of the 67 with suspect radiograph who were further investigated, inactive sequelae of TB were found, for whom appropriate treatment had or had not been given previously.

In table 2, the TBCNR and the yield of active case-finding in these screened asylum seekers is compared to other high-risk groups also actively screened for TB. In asylum seekers, the TBCNR and yield is 2–4 times higher than in the other groups.

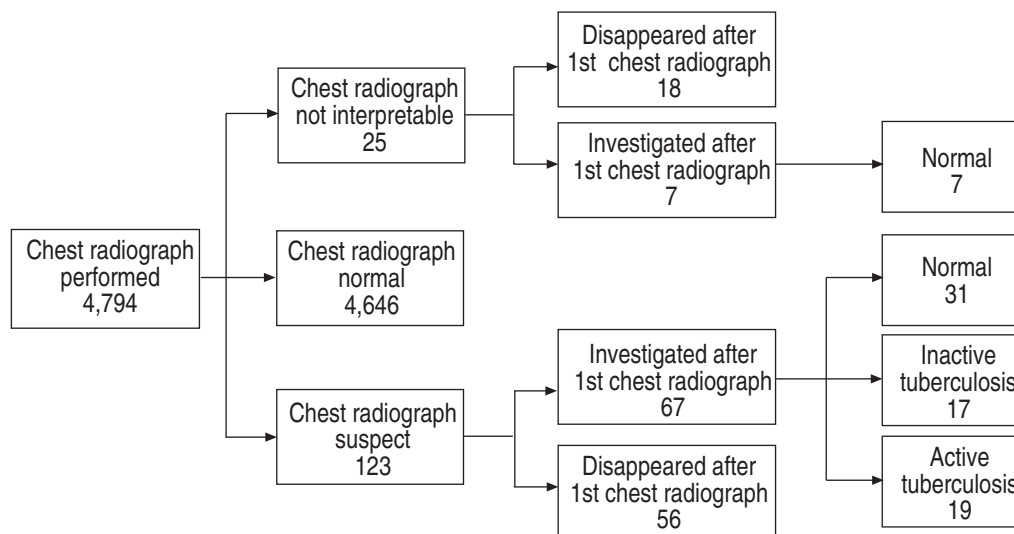


Fig. 3. – Results of radiographic screening in asylum seekers.

Table 2. – Tuberculosis case notification rates (TBCNR) in actively screened risk groups in Belgium in 1993

Group	Actively screened n	Active tuberculosis		
		n	per 100,000	yield [#]
Asylum seekers	4794	19	396	1/252
Contacts of TB case	2785	6	215	1/464
Other risk groups*	3913	4	102	1/978

[#]: number of cases investigated (denominator) necessary to detect one case of active TB (numerator); *: homeless people, detainees in jails, residents of long-term care facilities.

Discussion

The data in table 1 and figure 1 show that the overall TBCNR in Belgium increased slightly in 1993, and that this is largely attributable to the nonindigenous, non-Western population. These data are, thus, in line with the re-emergence of tuberculosis in Western Europe due to increasing migration [2, 4, 11]. The recent recommendation for a European surveillance system of tuberculosis is, therefore, of significant importance [10, 11].

Furthermore, we found that the TBCNR in asylum seekers throughout Belgium was about 30 times higher than in the indigenous population. The TBCNR of 312 per 100,000 in asylum seekers reported throughout the country in 1993 was also similar to the TBCNR of 396 per 100,000 in a group of actively screened asylum seekers, which may support the reliability of the notification and registration of TB in Belgium. The yield of the active case-finding in screening of asylum seekers was 1 in 252, and in those with a suspect chest radiograph was as high as 1 in 3.5. The very high TBCNR and yield of active case-finding are not surprising since asylum seekers come mostly from countries with high TB prevalence: South-East Asia, Mid-Africa, Middle and South America, and Eastern Europe [3, 12]. Furthermore, their immune system is probably suppressed because of malnutrition and other diseases, thus increasing the risk for reactivation of TB as well as for primary progressive disease. Because of this high TBCNR, asylum seekers should obtain special medical attention from governmental organizations and systematic screening of asylum seekers would appear to be cost-effective [12]. In Belgium, guidelines for the TB surveillance of asylum seekers have recently been released by the VRGT, consisting of interpretation of tuberculin skin testing, modalities of screening for active TB, and preventive and therapeutic measures [8].

When our TBCNR data in asylum seekers are compared with those of other reports on asylum seekers and immigrants from other developing countries [13–17] (table 3), they appear to be similar to those of the Netherlands [13] and Israel [14], somewhat higher than in Canada [15], but much higher than in England [16], and much lower than in Switzerland [17]. The differences in TBCNR in asylum seekers (and immigrants) between countries may be due to several factors. Firstly, the immigration pattern varies for the different countries: for example, in Belgium most asylum seekers came from Eastern Europe and black Africa, whereas in England they came from India and Pakistan [18], and in Switzerland from Africa and the Middle East [17]. Secondly, only in Switzerland [17] and Canada [15] active screening at entry mandatory for all immigrants and asylum seekers, while in the other countries only 14–65% of the subjects had been investigated [13, 14, 16, 18]. Systematic, and possibly mandatory, screening of all asylum seekers at entry, therefore, seems to be advisable in the various countries.

A disturbing finding in the present study was that 46% of the asylum seekers with a suspect small size chest radiograph disappeared before further investigation could be carried out. We consider there to be a 28% probability of active TB in these cases, based on the data presented in figure 3, and we are thus faced with the risk of TB transmission by the individuals among their companions and also among other groups in the community. In the host land, asylum seekers have less access to health care facilities because of language barriers and possible fear of expulsion from the country, all of which cause postponement of diagnosis and treatment [19]. Asylum seekers are, thus, "ideal candidates" for transmitting TB to others, especially because they live mainly in crowded conditions [14]. This complex problem of TB among asylum seekers and the subsequent risk for TB propagation among the population in low prevalence countries, therefore, warrants a stringent approach, not only to detection but also to therapy and follow-up. The actual differences in guidelines between countries regarding obligation for asylum seekers to undergo medical examination at entry, interpretation of tuberculin skin tests, chemoprophylaxis and use of bacille Calmette-Guérin (BCG) vaccination [2, 14, 20, 21] should optimally be replaced by a uniform surveillance system.

In conclusion, for the detection of tuberculosis, mandatory medical screening of asylum seekers at entry appears to be desirable and logical. In addition, exact registration of residence and destination appears mandatory, in order to make follow-up of chemotherapy or

Table 3. – Tuberculosis case notification rates (TBCNR) in actively screened immigrants (Imm) and asylum seekers (AS) in different countries

Country [Ref.]	Category	Year	Actively screened n	Cases per 100,000
Switzerland [17]	Imm	1991	4512	1218
Canada [15]	Imm	1988–1990	21959	232
England [16]	Imm	1990	20000	100
The Netherlands [13]	Imm + AS	1991	12945	355
Israel [14]	Imm	1984–1986	1721	369
Belgium (present study)	AS	1993	4794	396

even chemoprophylaxis possible [6, 22]. Since asylum seekers are a vulnerable and poorly compliant population, they should be offered individual follow-up care by instituting directly observed therapy or other measures that improve compliance (*i.e.* intermittent or short-term therapy with compound antituberculosis drugs) [23]. Such measures also imply more governmental support for tuberculosis control programmes, in order to reverse this new threat to public health in low prevalence countries [24].

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