Tuberculosis care among refugees arriving in Europe: a ERS/WHO Europe Region survey of current practices

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Introduction

According to the most recent World Health Organization (WHO) Global TB Report the estimated annual tuberculosis (TB) incidence decreased globally by an average of 1.5% per year since 2000 and the estimated TB prevalence in 2014 was 42% lower than in 1990 [1]. However, an estimated 9.6 million people worldwide developed active TB in 2014, among them 12% being HIV-infected [1]. During the same year TB caused 1.5 million deaths, making it the commonest cause of death from an infectious disease.
In 2014, a total of 329,270 TB cases were reported from 51 countries in the WHO European Region (notification rate: 36.7 cases per 100,000 population), with 33,000 estimated deaths [2]. The estimated incidence in Europe represents 3% of the global TB burden.

TB is considered a major public health challenge in many countries worldwide, particularly among vulnerable populations, such as individuals at higher risk of exposure to discrimination, hostility or economic adversity. These factors unfortunately afflict the lives of many migrants and refugees (here defined in agreement with the 1951 'Convention and Protocol relating to the status of Refugees' http://www.unhcr.org/3b66c2aa10.html)[1-5].

Several factors have contributed to increase population mobility in the WHO European Region, such as the establishment of the European Union (EU) and free movement within the Newly Independent States (NIS), particularly for seasonal labour [5,6]. This increased population mobility poses challenges for TB control and requires effective and sustainable mechanisms to ensure quality TB and Latent TB Infection (LTBI) prevention, diagnosis and treatment [5,7].
The need for coordinated intervention in these areas is justified from the perspective of individual human rights (independent of legal or residential status of the subject) as well as public health pre-requisites to control and ultimately eliminate TB, including multi- and -extensively drug resistant TB (MDR- and XDR-TB) [3,8-10].
For undocumented migrants, full access to TB diagnosis and treatment (with guarantee of protection from deportation until the end of treatment) has been recommended by WHO; this is in the interest of both the individual and the wider hosting community in terms of TB control and elimination [11-15].

In 2015 more than one million migrants and refugees reached Europe by land and sea. In 2014 the estimated figure was significantly lower (219,000) [4,16].

According to official data, between January 1st and April 12, 2016, an estimated 173,728 new migrants arrived in Europe, with 716 reported deaths; Eighty-two percent of arrivals in the Mediterranean sea originate from the top 10 countries which are the origin of most refugees [16].

At the current time, the four countries from which most refugees originate are: the Syrian Arab Republic (43% of the overall flow), Afghanistan (23%), Iraq (14%), Pakistan (4%) and Iran (4%).

(see also: http://ec.europa.eu/eurostat/statistics-explained/index.php/File:First_time_asylum_applicants_in_the_EU-28_by_citizenship,_Q4_2014_%E2%80%93_Q4_2015.png)

Despite the recent release of resolutions and statements by bodies such as WHO, the European Respiratory Society (ERS) and the EU [4,17], not much is known about the policies in force in the European countries with regards to TB and LTBI management among refugees upon arrival.

In light of the ongoing refugee situation in Europe, the aim of this ERS/WHO European Region study (performed through the ERS ad hoc Working Group on TB Advocacy) is to document the policies and practices of low and intermediate TB incidence European countries with regards to detection and management of TB and LTBI among refugees.

Methods

Survey Questionnaire

In September-October 2015, experts from the ERS, WHO Regional Office for Europe and the WHO Collaborating Centre in Tradate, Italy, as members of the ERS ad-hoc Working Group on TB Advocacy, (http://www.ersnet.org/index.php?option=com_flexicontent&view=items&id=5200-tb-advocacy-working-group.html accessed 12 April 2016) developed a short questionnaire for a rapid survey containing multiple choice and open-ended questions on screening and management of TB and LTBI among refugees in Europe. The questionnaire was finalized after reviewing suggestions and comments received from the members of the ERS TB Advocacy ad-hoc Working Group and reaching overall consensus among the members. In addition to basic demographic data of the respondents, the survey comprised questions on the following subject areas: screening for, and management of TB/LTBI; guidelines, legislation and evidence for current practice; cross-border TB care; organisational aspects of TB care and infection control measures.

The questionnaire was sent to the national TB programme representatives of all European Union/ European Economic Area countries of the WHO European Region, Switzerland and six other countries who have hosted, or were deemed likely to host, or become a transient country for a significant number of refugees in the near future. The six additional countries were the current EU candidate countries (Albania, Bosnia and Herzegovina, the former Yugoslav Republic of Macedonia, Montenegro, Serbia and Turkey). The survey, along with a cover letter for additional information, was sent to each of the national TB programme representatives on 23rd October 2015 with an initial deadline set for 6th November 2015. Furthermore, there was an offer for the TB programme representatives to conduct a telephone interview to complete the survey, should returning the document prove too difficult by the deadline provided. On 9th November 2015 a reminder email was sent to programme representatives who had not responded. The survey was closed on February 24th 2016.

Data Analysis

The results of the survey were entered into a Microsoft Excel programme (Excel 2010, Microsoft Corporation, Albuquerque, New Mexico, USA) and double-checked (LDA; RC) prior to analysis. Results produced a mixture of quantitative and qualitative data, with descriptive statistics being calculated where appropriate, and supplemented with qualitative information provided by responders to the survey.

Ethics

As a broad evaluation of current policies and practices within countries, ethical approval was not required because the study did not collect individualized information on subjects.

Results

36 out of 38 (94.7%) countries contacted responded to the questionnaire (all except Poland and Bosnia-Herzegovina)

The results from Section 1 (Screening for TB and LTBI among refugees in the European Region) are summarized in Table 1.

- Refugees are routinely screened for active TB by the majority of the countries (30/36, 83.3%), with the exception of Italy, Monaco and Portugal where a non-systematic screening is performed (only in symptomatic individuals); in Germany refugees are only screened for active TB if they are

to be accepted into a shared accommodation, while no screening is performed in Former Yugoslavia Republic of Macedonia (length of stay in holding center is not long enough for screening to take place) and Serbia (insufficient governmental funding).
Nineteen countries (52.7%) screen systematically for LTBI among refugees, eight countries (22.2%) (Denmark, Finland, Germany, Italy, Monaco, Netherlands, Portugal and Slovenia (this one reporting low numbers)) do not perform it systematically and nine (25%) do not screen at all for LTBI (Albania, Austria, Czech Republic, Hungary, Ireland, Latvia, Former Yugoslav Republic of Macedonia, Serbia and Switzerland) (Figure 1).

However, almost half of the countries (8/17, 47%) that currently do not screen for TB and LTBI have plans to introduce it for TB and/or LTBI in the near future. There is a legal obligation to screen for TB and/or LTBI in 21 of the 36 (58.3%) countries responding to this survey.

Screening for TB is performed with algorithms using different combinations of symptom-based questionnaires (21/36, 58.3% of which one not systematically collected), bacteriology (18/36, 50% sputum smear/culture collection of which nine for symptomatic individuals only) and chest radiography (26/36, 72.2% of which two perform not systematically); six countries (Denmark, Germany, Italy, Monaco, Portugal and Turkey) do not systematically perform any TB specific examination, while one country (Spain) starts the algorithm with tuberculin skin tests (TST) and blood test.

In two countries (Croatia and Hungary) routine bacteriology for TB is part of the screening procedure.

Similar to the findings described by a previous ERS/WHO Europe Region Study [10], LTBI screening is performed by using different combinations of TST and Interferon-γ Release Assays (IGRAs) in 23/36 (63.8%) different European countries (8/36, 22.2% TST only, 11/36, 30.5%, TST plus IGRA, 4/36, 11.1% TST plus IGRA in selected cases).

In 22/36 (61.1%) countries, TB and LTBI screening are performed in refugee centres, using also other combinations of measures (See Table 1 for details).

The decision to perform TB/LTBI screening is determined by the TB incidence rate in the country of origin of refugees in 14/36 (38.8%) of the surveyed countries. No single threshold was provided.

In the majority of countries where any screening takes place, it is performed only once (28/30; 93.3%).

The results from Section 2 (Management of TB and LTBI among refugees in Europe) are summarized in Table 2.

In the majority of countries (24/36, 66.6%) treatment after diagnosis of active TB in a refugee is required, whereas in Denmark, Monaco, Netherlands and Portugal the TB treatment is voluntary; in six other countries (Belgium, Germany, Ireland, Sweden, Switzerland, and UK) individuals cannot be legally forced to take medications, but can usually be convinced to start anti-TB treatment; involuntary isolation is foreseen in case of refusal to comply with treatment, while in Serbia isolation is only considered for MDR-TB patients who refuse treatment, and in Macedonia no TB treatment is proposed due to the short length of stay in the country. Overall, no EU country reported that TB detection was a reason for deportation.

Anti-TB treatment is proposed immediately after diagnosis in the majority of countries (26/36, 72.2%), where its costs are covered by central governmental funds (26/36, 72.2%).

Almost a third of countries (23/36, 63.8%) report that efforts are ongoing to adapt TB services to refugees' specific needs through specific national/regional programmes and improved cooperation with the non-governmental sector.

A similar number of countries (22/36, 61.1%), directly or indirectly [through certified non-governmental organizations (NGOs)] allow undocumented refugees access to TB services.

Among countries with general or specific regional/national programmes (or guidelines) for TB management in refugees (14/36, 38.8%), more than half (9/14, 64.2%) report difficulties in fully complying with requirements of their own guidelines, given the high number of refugees in the present situation.

Further details on specific national programmes are available in Table 2.

The results from Section 3 (Guidelines, Legislation and Evidence on the results of screening and treatment of TB and LTBI in Europe) are summarized in Table 3.

In particular, 27/36 (75%) countries answered that screening for TB is done as per national and international guidelines (offering the same services to refugees and nationals), while 19/36 (52.7%) gave the same answer with regards to LTBI screening.

Similarly, while 22/36 (61.1%) countries confirmed that they collect data on the yield of active TB screening among refugees (with Estonia, Finland, Norway and the UK partially/not systematically collecting data), only 11/36 (30.5%) countries (Bulgaria, Finland, France, Iceland, Italy, Lithuania,

Norway, Slovakia, Slovenia, Turkey and UK) are equipped to collect similar data for LTBI screening (Finland, Norway and the UK providing data not systematically).

Finally, detailed information on TB treatment outcomes is available in 19/36 (52.7%) countries, while treatment completion rates for LTBI therapy among refugees are available in only 8 (22.2%) countries (Bulgaria, France, Iceland, Netherlands, Portugal, Slovakia and Slovenia and Turkey).

The results from Section 4 (Organisational aspects of TB care and infection control issues) are summarized in Table 4.

Seven (19.4%) countries (Austria, Croatia, Germany, Greece, Former Yugoslavia Republic of Macedonia, Serbia and Turkey) reported to host > 250,000 refugees in the 6 months preceding the survey, Hungary notified a range between 100,001 and 250,000, while Italy and Sweden reported hosting between 50,001 and 100,000 refugees.

In the vast majority of the countries (30/36, 83.3%) the public sector services are in charge of managing refugees for TB-related issues, complemented by international organisations (e.g. Red Cross in Bulgaria, Denmark, Former Yugoslavia Republic of Macedonia, Serbia and Spain, the International Organization for Migration in Romania and Medicine du Monde in UK).

Several problems were reported among the different countries, including internal and external communication and coordination issues, cultural mediation/language differences and inadequate funding or human resources. The sheer volume of refugees was also cited as a challenge in eight (22.2%) countries (Austria, Belgium, Germany, Greece, Italy, Netherlands, Norway, Serbia) to deal with.

Although respirators are generally available to protect staff and complement administrative infection control measures, a general lack of consistency with international guidelines emerges from the countries' answers.

Discussion

The aim of our study was to investigate which policies and practices exist for TB and LTBI screening and management among refugees in low and intermediate TB incidence countries of Europe.

The survey had a very high response rate (36/38, 94.7%) which shows countries' interest and prioritisation of this issue.

The results of our study confirm that screening for TB is considered as an important public health measure in Europe, although significant differences exist in screening practices among countries.

According to a survey conducted in 2012 on screening practices on infectious diseases among newly arrived migrants to Europe, all countries perform TB screening, with the second most screened condition being Hepatitis B (30% of the countries) [18].
The results of our survey also indicate that there is a general lack of analysis of the yield of TB and LTBI screening among refugees. The huge workload is assumed as the main reason. Furthermore, much less information is available for LTBI than for active TB disease.

While our survey shows that 30 countries regularly screen refugees for TB, only 19 screen for LTBI, and even a fewer report outcomes of LTBI treatment [9].

The large number of arrivals in holding centres, particularly in some European countries, makes LTBI screening and subsequent management problematic. In addition, several countries reported difficulties in coordination between holding centres and TB services serving the native population.

Based on our survey, it appears that there are no systematic follow-up screening/check-ups of refugees for TB sometime after their arrival. Given that refugees are often exposed to precarious, stressful travelling conditions during transit – which provide a risk of *Mycobacterium tuberculosis* transmission-, there is a need to ensure people-centred care is available to them beyond arrival in their host country. Symptomatic screening of refugees and more intensive follow-up for those with LTBI may be justified. This is particularly important as many European countries are scaling-up their efforts to eliminate TB [10].

In an attempt to make screening as cost-effective as possible, countries have applied different algorithms in line with WHO recommendations [19]. They are based on different combinations of: symptom-based questionnaires, bacteriology and chest radiography (Table 2).

Evaluation of the yield of these screening procedures was beyond the scope of this study, however there is a real need for analysis of such data at national and regional level [5,6].

Our study identified different models of screening for TB/LTBI in Europe. Some countries perform radiological screening of all migrants in a hub or holding center, and carry out further investigations in decentralised centres only if radiological abnormalities are identified. Others implement different screening algorithms or organise provision of health services differently at the refugee centres.

In this context, screening for LTBI by use of IGRAs and/or TST- although considered an important intervention in the pursuit of TB Elimination [9,10] is still difficult to implement in several countries.

Based on the unprecedented number of refugees, it is important to have a specific response plan and ensure its full funding both at the national and European level.

Interestingly, in the majority of countries (22/36, 61.1%), TB services are organised in collaboration with NGOs and other sectors. Among others benefits, this approach has the advantage of increasing cultural sensitivity of the TB services.

Infection control measures are generally inadequate in a large proportion of the countries surveyed. Surgical masks are often used to 'protect' health care workers when it is well known that they are ineffective against *M. tuberculosis* from active TB patients who are not on treatment; certified respirators are needed for this purpose. Furthermore, a lack of specific training on infection control measures has been reported. Similar problems have previously been described in European MDR-TB reference centres [20].

Although surveys of this kind are subject to several limitations (related to the instrument used, the missing information from non-responding countries, the possible erroneous responses from national programmes and the limitations of aggregated data), strengths of this study include: continuous dialogue with National TB representatives; the very high response rate (94.7%); and the consistency of the answers received with previous surveys carried out using similar methodology [10].

The results of the present study highlight the need for improved coordination of TB screening in Europe, with the ultimate goal of implementing the End TB Strategy, the TB Action Plan for the WHO European Region 2016-2020 [21] and the Health 2020 Policy Framework [22] to address inequity. The ultimate goal of these strategies is to achieve TB Elimination [9,10,23,24].

This will require quality operational research evaluating surveillance (aimed at attaining better data for better planning), the efficacy of existing algorithms and the yield of screening activities [25].

Furthermore, within the limited information available on LTBI in the European context, further clinical and operational research is also needed to inform clinicians and public health authorities on the correct approach to follow when LTBI is diagnosed in contacts of MDR-TB cases.

Finally, the new function of the ERS/WHO Europe TB Consilium (a free-cost, internet-based instrument supporting clinicians to manage difficult-to-treat cases of tuberculosis) is now live and accessible under the TB Consilium website (www.tbconsilium.org). This electronic platform will allow better cross-border TB control by contributing to the provision of quality prevention, diagnostic and treatment services to migrants and refugees.

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Figure 1: Graphical summary of the countries screening for tuberculosis (TB) and Latent Tuberculosis Infection (LTBI)

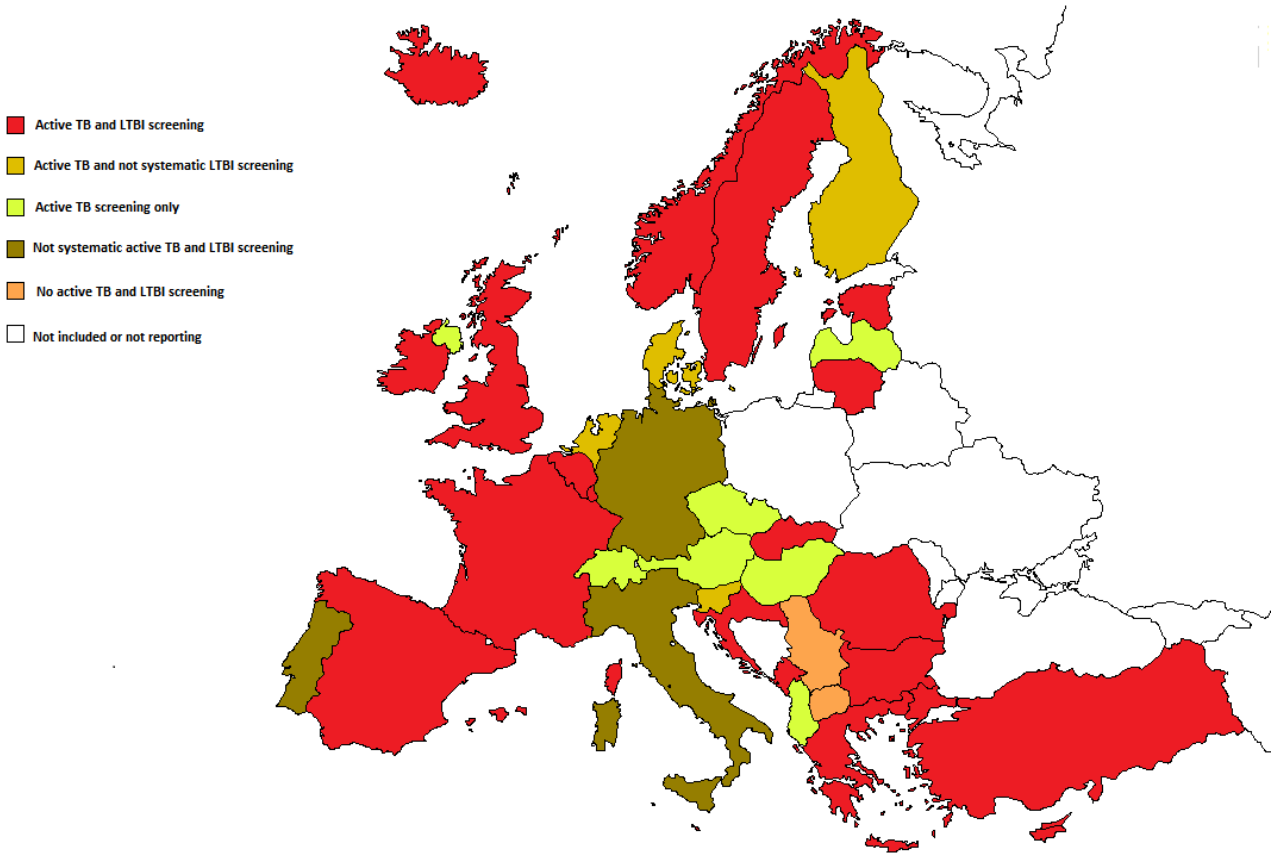

Table 1: Questionnaire Section I: Screening for TB and LTBI among refugees in Europe

Active TB screening Yes/No	**LTBI screening Yes/No**	**Plans to implement screening for active TB / LTBI Yes/No**	**Legal requirement for screening Yes/No**	**Active TB screening performed by:** **- Symptomatic questionnaire** **- Sputum collection** **- Chest radiography** **- Other**	**Routinely sputum collection for microbiological study/culture/ Xpert Yes/No**	**LTBI screening performed by:** **- TST** **- IGRA** **- Other**	**Place of screening:** **- Pre-arrival** **- On arrival** **- In refugees centres** **- In the community** **- Other**	**Information on TB rates in the country of origin to decide for the screening process** **Yes/No**	**Screenings Number 1,2…**
Yes 30/36 (83.3%)	Yes 19/36 (52.7%)	Yes 8/17* (47%)	Yes 21/36 (58.3%)	Yes systematic symptoms-based questionnaires 20/36 (55.5%) Yes not systematic symptoms-based questionnaire 1/36 (2.7%) Yes systematic bacteriology 9/36 (25%) Yes bacteriology for symptomatic individuals only 9/36 (25%)	Yes 2/36 (5.5%)	Yes TST 19/36 (52.7%) Yes TST only 8/36 (22.2%) Yes TST plus IGRA 11/36 (30.5%) Yes not systematic TST plus IGRA 4/36 (11.1%)	Refugees centres only 10/36 (27.7%) On arrival only 4/36 (11.1%) In the community only 1/36 (2.7%) In the National TB Programme Centre only 1/36 (2.7%) On arrival and in refugees centres 6/36 (16.6%) On arrival and at pre-arrival 1/36 (2.7%)	Yes 14/36 (38.8%)	Only once 28/30)# (93.3%) More than once 3/30# (10%) .

				Yes systematic chest radiography 24/36 (66.6%) Yes not systematic chest radiography 2/36 (5.5%)			On arrival and in the community 1/36 (2.7%) On pre-arrival and in the community 1/36 (2.7%) In refugees centres and in the community 6/36 (16.6%) Not applicable information 5/36 (13.8%)		
No 2/36 (5.2%)	No 9/36 (25%)	No 5/17* (29.4%)	No 12/36 (33.3%)	Other procedures § 1/36 (2.7%)	No 34/36 (94.4%)	Not applicable (for both) 13/36 (36.1%)		No 19/36 (52.7%)	
Not sistematically 4/36 (11.1%)	Not sistematically 8/36 (22.2%)	Not answered 3/17* (17,6%)	Not applicable 3/36 (13.8%)	Not systematic screening for active TB 6/36 (16.6%)**				Not applicable 3/36 (13.8%)	
		Not applicable 1/17* (5.9%)							

Footnotes: TB: tuberculosis; LTBI: latent Tuberculosis infection; TST: tuberculin skin test; IGRA: Interferon-Gamma Release Assays; *denominator is the number of countries that do not (and not systematically) screen for TB/LTBI; §: initial algorithm with tuberculin skin tests (TST) and blood examination; #: denominator is the number of countries that screen for TB/LTBI; **: numerator includes countries which do not systematically perform any examination

Table 2: Questionnaire Section II: Management of TB and LTBI among refugees in Europe

Procedures if active TB is diagnosed: **- Refusal of asylum** **- Obligation to undergo treatment** **-Other**	**Obligation to undergo treatment:** **a. Where** **b. When** **c. Funding**	**Procedures if LTBI is diagnosed:** **- Refusal of asylum** **- Obligation to undergo preventive therapy** **-Other**	**Obligation to undergo preventive therapy:** **a. proposed to all positive for LTBI** **b. same procedure as native nationals positive for LTBI** **c. therapy delivery** **d. funding**	**Regional/ national specific programmes for TB management in refugees Yes/N o**	**Regional/ national programmes to provide sensitive services Yes/No**	**Special measures to deal with undocumented migrants Yes/No**	**Discrepancy/ies between guidelines and implementation Yes/No**	**TB Management funding**
No Refusal of asylum 34/36 (94.4%) Yes Obligation to undergo treatment 24/36 (66.6%) Other 10/36 (27.7%) Not applicable	**a.** Treatment in Hospital 24/36 (66.6%) Not applicable 8/36 (22.2%) Not answered 4/36 (11.1%) **b.** Treatment immediately started after diagnosis	No Refusal of asylum 20/36 (55.5%) Yes Obligation to undergo preventive therapy 8/36 (22.2%) Other 18/36 (50%) Not applicable	**a**. Proposed to all positive for LTBI 3/36 (8.3%) No, proposed for specific groups and ages only 7/36 (19.4%) Not applicable 24/36 (66.6%) Not answered	Yes 10/36 (27.7%) No, not fully specific 4/36 11.1%) No 22/36(61.1%)	Yes 23/36(63.8%) No 1/36 (2.7%) Not answered 12/36 (33.3%)	Yes 22/36 (61.1%) No 1/36 (2.7%) Not answered 13/36 (36.1%)	Yes 9/36 (25%) No 6/36 (16.6%) Not answered 8/36 (22.2%) Not applicable 13/36 (36.1%)	Government funds 22/36 (61.1%) Not answered 12/36 (33.3%) Not applicable 2/36 (5.5%)

2/36 (5.5%)	26/36 (72.2%) Not answered 2/36 (5.5%) Not applicable 8/36 (22.2%) **c**. Governmental funds 26/36 (72.2%) Not answered 2/36 (5.5%) Not applicable 8/36 (22.2%)	8/36 (22.2%)	1/36 (2.7%) **b**. Same procedure as native nationals positive for LTBI 7/36(19.4%) Not applicable 24/36(66.6%) Not answered 5/36 (13.8%) **c.** Therapy delivered at Chest/DOT/TB centres/TB specialists 7/36 (19.4%) Not applicable 23/36(63.8%) Not answered 6/36 (16.6%) **d.** Government					

			budget 9/36 (25%) Not applicable 23/36 (63.8%) Not answered 4/36 (11.1%)					

Footnotes: TB: tuberculosis; LTBI: latent Tuberculosis infection; DOT: direct observed therapy

Table 3: Questionnaire Section III: Guidelines, Legislation and Evidence on the results of screening and treatment of TB and LTBI in Europe

Screening and management of active TB among refugees according to national or international guidelines/legislation in force Yes/No	**Screening and management of LTBI among refugees according to national or international guidelines/legislation in force Yes/No**	**Data collection in place to assess the yield of screening for active TB among refugees Yes/No**	**Data collection in place to assess the yield of screening for LTBI among refugees Yes/No**	**Data collection in place to assess treatment success rates of active TB among refugees Yes/No**	**Data collection in place to assess completion rates of LTBI among refugees Yes/No**
Yes 27/36 (75%)	Yes 19/36 (52.7%)	Yes 18/36 (50%)	Yes 8/36 (22.2%)	Yes 19/36 (52.7%)	Yes 8/36 (22.2%)
No 3/36 (8.3%)	No 7/36 (19.4%)	Yes partially or not systematically 4/36 (11.1%)	Yes partially or not systematically 3/36 (8.3%)	No 10/36 (27.7%)	No 20/36 (55.5%)
Not applicable 1/36(2.7%) Not answered 5/36 (13.8%)	Not applicable 5/36 (13.8%) Not answered 5/36 (13.8%)	No 8/36 (22.2%) Not answered 4/36 (11.1%) Not applicable 2/36 (5.5%)	No 18/36 (50%) Not answered 4/36 (11.1%) Not applicable 3/36 (8.3%)	Not answered 6/36 (16.6%) Not applicable 1/36 (2.7%)	Not answered 6/36 (16.6%) Not applicable 2/36 (5.5%)

Footnotes: TB: tuberculosis; LTBI: latent Tuberculosis infection

Table 4: Questionnaire Section IV: Organisational aspects of TB care and infection control issues

N. of refugees hosted at the national level during the last 6 months **- <50,000** **- 50,001 – 100,000** **- 100,001 – 250,000** **- >250,000**	**Organisation(s) responsible for first-line medical care of refugees at the national level**	**Special measures for cross-border care when a refugee is diagnosed active TB** **Yes/No**	**Priority problems identified at the national level to manage TB among refugees**	**Personal protection/ infection control measures in place for presumptive active TB cases** **- No specific measures in place** **- Respirators used for staff in contact with refugees** **- Respirators used for staff and surgical masks for individuals with possible TB or other respiratory disease** **- Other**
<50,000 25/36 (69.4%) 50,001 – 100,000 2/36 (5.5%) 100,001 – 250,000 1/36 (2.7%) >250,000 7/36 (19.4%) Not answered 1/36 (2.7%)	National and/or local medical/public health services (including Ministry of Health) 21/36 (58.3%) Medical staff of holding centres 3/36 (8.3%) Primary health care clinics 3/36 (8.3%) Federal /State Agencies for Refugees 3/36 (8.3%) Red Cross/International Organizations 6/36 (16.6%) Public/private providers 1/36 (2.7%)	Yes 17/36 (47.2%) No 14/36 (38.8%) Not answered 3/36 (8.3%) Not applicable 2/36 (5.5%)	System in place overloaded by the recent increase of migrants/ Suboptimal coverage of screening and contact-tracing (high screening numbers, separate registers) Organizations /Public Health services understaffed regarding the workload (delay and difficulties in diagnosis, treatment, care and follow up/ Treatment &.care/ organise cross-border care /low compliance , many lost-to-follow-up under TB treatment and continuing migration mobility **22/36 (61.1%)** Major barriers to access health care services related to cultural, religious, and language differences/ lack of knowledge about TB, lack of information about the healthcare system in the country and cultural constraints/Stigmatization of TB patients/ insufficient patient counselling and motivation	Respirators used for staff and surgical masks for individuals with possible TB or other respiratory disease 24/36 (66.6%) Only Respirator used for staff in contact with refugees 1/36 (2.7%) Other 7/36 (19.4%) Not answered 4/36 (11.1%)

			13/36 (36.1%) Lack of coordination among involved entities **6/36 (16.6%)** Logistical problems **10/36 (27.7%)**	

Footnotes: TB: tuberculosis