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Interregional workshop for
tuberculosis control and care
among refugees and migrant
populations

10–11 May 2016, Catania, Italy

ABSTRACT

Migrants may play an important role in the epidemiology of communicable diseases, including tuberculosis (TB). To help countries address it, the WHO Regional Office for Europe, with the support of the Ministry of Health of Italy, organized an interregional workshop on TB control and care among refugees and migrant populations in Catania, Italy, on 10–11 May 2016. The workshop was attended by national and international health experts from low to intermediate TB incidence countries of the WHO European Region, Iraq, Jordan, Lebanon and Yemen and main international partners. The workshop facilitated an exchange of experience among the countries on their current practices for the management of TB among refugees and migrant populations. It also provided an updated overview of TB-relevant policies and practices with a focus on two recently developed tools for TB screening and cross-border TB control and care, and helped to identify the priorities for future research on TB control and care among refugees and migrant populations.

Keywords

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Abbreviations

ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
IOM	International Organization for Migration
LTBI	latent TB infection
STAG	Strategic and Technical Advisory Group
TAG	Technical Advisory Group
TB	tuberculosis
UNHCR	United Nations High Commissioner for Refugees

Introduction

Economic disparities within the WHO European Region and with other regions have led to large flows of labour migrants to the European Union/European Economic Area (EU/EEA) while events in the Middle East and North Africa continue to cause a dramatic exodus of refugees towards safer countries.

Migrants may play an important role in the epidemiology of communicable diseases, including tuberculosis (TB). In recent years, new TB patients of native origin declined steadily to levels now lower than those of foreign origin notified in many EU/EEA countries. Health systems and national TB programmes are now challenged with the need to ensure the provision of low-threshold health services, including early diagnosis and effective treatment of TB, that are physically and culturally accessible to all. The risk for migrants of being infected or developing TB depends on the TB incidence in their country of origin, their exposure to infectious cases during their travel and stay in the receiving country, their living and working conditions, and their access to health services and social protection. The transmission of TB from migrants to the native population has been shown to be limited when health services can ensure early diagnosis and effective treatment.

WHO emphasizes that all migrants, regardless of legal status, should have full access to quality services for TB prevention, diagnosis and care, and stresses that persons diagnosed with TB should be promptly treated. Nobody with TB should be deported because of the disease or forced to leave a country during a course of treatment. Movements are, however, common and effective cross-border collaboration is required in order to ensure good continuity of care and surveillance.

The *Minimum package for cross-border TB control and care in the WHO European Region (1)* is available to guide countries. Moreover, a new function for management of cross-border cases was recently developed under the TB Consilium electronic platform developed by the European Respiratory Society (ERS) and the WHO Regional Office for Europe for communication between countries (2).

WHO conditionally recommends that migrants from high- to low-incidence countries should be considered for systematic TB screening. Due to a lack of strong evidence on effectiveness and cost-effectiveness, however, WHO does not have clear recommendations on which migrants to screen for active TB and latent TB infection (LTBI). Many operational challenges exist for the effective implementation of TB screening among migrants. WHO has recently developed a specific tool, Screen-TB, to help prioritize the risk groups and select the most appropriate algorithms for systematic screening of active TB (3).

A High-Level Meeting on Refugee and Migrant Health, held in Rome in November 2015, was the first step in the development of the European strategy and action plan on refugee and migrant health in the WHO European Region 2016–2022. In that spirit, and as a follow-up to the Interregional Workshop on Cross-Border TB Control and Care held in Tehran, Iran in May 2014, the Regional Office, with the support of the Ministry of Health of Italy and in coordination with WHO headquarters and other WHO regional offices, organized an Interregional Workshop on TB Control and Care among Refugees and Migrant Populations in Catania, Italy, on 10–11 May 2016.

The objectives of the Interregional Workshop were to:

- provide an updated overview of TB-relevant policies and practices, with a special focus on screening for TB in migrants and cross-border collaboration;
- provide orientation on cost-effective TB screening;
- strengthen intercountry communication; and
- identify the areas for further research and evidence-building.

The expected outcomes of the Workshop were:

- greater knowledge of the different challenges and practices towards cross-border TB control and care;
- increased awareness and understanding of the use of available tools; and
- identification of areas for further research on migrant TB screening and cross-border TB control and care.

The programme of the Workshop is in Annex 1. The workshop was attended by 80 national and international health experts from 16 countries with low to intermediate TB incidence in the WHO European Region and from Iraq, Jordan, Lebanon and Yemen; experts from the Australian Immigration Department, the European Centre for Disease Prevention and Control (ECDC), ERS, the International Organization for Migration (IOM), the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) and the United Nations High Commissioner for Refugees (UNHCR); and experts from the WHO regional offices for Europe, the Eastern Mediterranean, South-East Asia and the Western Pacific and WHO headquarters (Annex 4).

Welcome and opening

The speakers highlighted both the heavy pressure on Italy in general and Sicily in particular in the last few years arising from the influx of refugees and migrants and the coordinated response of government institutions and nongovernmental organizations through the naval/air operation Mare Nostrum and the subsequent Frontex Operation Triton.¹ The integration of refugees and migrants will remain a problem for all of Europe in the next few decades. Catania in Sicily became a centre of excellence for the reception of refugees and migrants and now hosts the EU Regional Task Force office recently established by Frontex. Meanwhile, the recently agreed action plan between the EU and Turkey to end irregular migration has diverted the majority of migrants back to the central Mediterranean route. Italy is ready to continue its open borders reception policy and looks towards WHO's values of solidarity, civilization and evidence-based technical work.

Since 2012, with the establishment of the Public Health Aspects of Migration in Europe (PHAME) project (4) in partnership with the Italian Ministry of Health, the Regional Office has been giving priority attention to migration and health. The outcome document of the High-Level Meeting on Refugee and Migrant Health (5) represents the cornerstone for the development of the European strategy and action plan on refugee and migrant health in the WHO European Region 2016–2022, which is to be submitted for endorsement to the sixty-sixth session of the WHO Regional Committee for Europe in September 2016.

¹ Frontex (Frontières extérieures) is the European Union (EU) agency established in 2004 to manage cooperation between national border guards securing the external borders of the EU.

Seventy-seven million international migrants are living in the Region, 8% of its total population. The main countries of origin of the refugees are Syria (41%), Afghanistan (26%), Iraq (16%), Iran, Pakistan, Nigeria, Gambia, Guinea, Senegal and Morocco. The main countries of destination/transit of the Syrian refugees are Turkey (2.7 million), Lebanon (1 million), Jordan (>600 000), and then Germany (125 000), Sweden (80 000), Serbia, Hungary, Austria and the Netherlands. The public health implications of migration, the risks of which should be assessed, include migrants' health status (with the possible re-emergence of neglected diseases and communicable diseases), the potential exposure to hazards of both migrants and the resident community, the burden on countries' health systems and economic capacity, the need for integration and updated policies, access to health services and the need to collect and analyse data.

The Strategy and action plan for refugee and migrant health in the WHO European Region 2016–2022 should be built on:

- stronger collaboration across sectors, mandates and borders
- improved data gathering, analysis and dissemination
- increased national, regional and international capacity of the health workforce
- overcoming of barriers to health care
- advocacy and policies that leave no-one behind.

Nine strategic areas are already identified for the strategy and action plan:

- establishing a framework for collaborative action
- advocating for the right to health of refugees, asylum seekers and migrants
- addressing the social determinants of health
- achieving public health preparedness and ensuring an effective response
- strengthening health systems and their resilience
- preventing communicable diseases
- preventing and reducing the risks posed by noncommunicable diseases
- ensuring ethical and effective health screening and assessment
- improving health information and communication.

On 9 March 2016, the Region of Sicily ratified a collaboration agreement with the WHO Regional Office for Europe for the establishment of a knowledge hub on health and migration – building know-how and expertise on the public health aspects of migration in the WHO European Region. This hub has the following objectives:

- to promote collaboration and interaction between the health and non-health sectors to foster action-oriented research and policy analyses;
- to gather and collate experiences, best practices and knowledge;
- to engage governments, scientists and civil society in addressing the public health aspects of migration through a participatory approach;

- to contribute to the implementation of Health 2020 (the European policy for health and well-being) (6) by proposing interventions to reduce health inequalities and improve the health and health care of the migrant population.

Overview on health and migration

Globally, there are estimated to be 244 million international migrants and 740 million internally displaced people. More than 150 million international migrants are labour migrants. At least 50 million international migrants are estimated to be “irregular”. Fifty one percent of the international migrants reside in 10 countries. As at 1 May 2016, there had been 184 546 arrivals by sea in Europe (Italy, Greece, Spain and Cyprus) and more overland through Turkey, Greece or Bulgaria, the former Yugoslav Republic of Macedonia, Serbia, Croatia, Hungary to northern Europe. Many are the deaths and missing migrants along these routes.

In 2014, the IOM assisted nearly 20 million migrants (refugees resettled, voluntary returnees, migrants trained, refugees repatriated, trafficked persons assisted) throughout the world. The IOM strategy to address the health needs of refugees and migrant populations is centred on: access to health care, strengthening of health systems, use of information on mobility patterns and cross-border and regional cooperation. In collaboration with WHO, the IOM is looking forward to holding the second global consultation on migration and health in Sri Lanka in October 2016. The first global consultation on migration and health, in Madrid, Spain in March 2010, identified four priority areas for action, including monitoring migrant health, migrant-sensitive health systems, policy/legal frameworks, partnership networks and multicountry frameworks. In Europe the IOM is active in the assessment and monitoring of health among refugees and migrants on the southern borders of the EU, supporting the European Relocation Programme from Greece and, with ECDC, carrying out surveys of the health services for infectious diseases.

In 2016, around 60 million people are forcibly displaced in the world. The top countries of origin of refugees are (in numerical order of refugees) Syria, Afghanistan, Somalia, South Sudan, Sudan, the Democratic Republic of the Congo, the Central African Republic, Myanmar, Eritrea and Iraq. The top countries hosting refugees are Turkey, Pakistan, Lebanon, Iran, Ethiopia, Jordan, Kenya, Uganda, Chad and Sudan. Current refugee crises are found in all WHO regions, including Europe. Refugees are vulnerable to TB because of poor shelter and living conditions, poor health and nutritional status and poor socioeconomic status. The UNHCR “out-of-camp” policy is to improve living conditions for refugees and create opportunities for them to earn their livelihoods by promoting their settlement in urban and rural host communities, advocating access for them to national structures and services, creating income-generating activities and promoting their access to the labour market. Where TB is concerned, the UNHCR advocates that national TB programmes develop refugee-inclusive, refugee-sensitive and human rights-based policies and services.

TB screening among migrants: effectiveness and cost- effectiveness

Early diagnosis and treatment of TB and LTBI are among the key interventions necessary to accelerate a decline in TB incidence after 2025 and reach the targets of the End TB Strategy for 2035. Screening high-risk groups of the population, including migrants, for active TB and LTBI is a main activity under the TB elimination framework for TB low-incidence countries (23 of which are in the European Region). WHO’s migrant-specific recommendations are, however,

only conditional and, for countries with a high to intermediate TB burden, are limited to screen systematically for active TB those subpopulations with poor access to health care and, for countries with an intermediate to low TB burden, to screen systematically for LTBI immigrants from high-burden TB countries (those with a TB incidence >100/100 000 population). Evidence in literature is building up and additional operational research is needed. WHO plans to update the current guidelines and the Screen-TB tool for the screening of migrants for active TB and LTBI.

Before immigrants can acquire visas to Australia, Canada, New Zealand, the United Kingdom and the United States of America, they are required to undergo pre-entry medical screening, including for TB. Medical evaluations of immigrants are conducted by authorized medical doctors (panel physicians). Approximately 700 panel physicians screen migrants for the United States and 2400 panel physicians and radiologists screen for Australia, Canada, New Zealand and/or the United Kingdom. All panel physicians must adhere to the technical instructions and requirements given by each country of destination for migrants. Differences in practice management worldwide, however, create unique opportunities for professional growth through the International Panel Physicians Association and the Immigration and Refugee Health Working Group (IRHWG), established in 2005 under the Five Country Conference Framework.

Compulsory pre-entry TB screening of migrants is motivated in these countries by the increasing percentage of foreign-born TB cases among all TB cases. Pre-entry TB screening is seen as an opportunity for early diagnosis and treatment of TB, prevention of transmission and cost-saving (by reducing the number of cases diagnosed and treated) in the Working Group countries. Analysis of TB screening internationally shows the need for more cooperation between countries to identify evidence-based common approaches. It also reveals that temporary residents may represent a significant burden of TB. Through pre-departure diagnosis, the number of foreign-born TB cases diagnosed in Australia, the United Kingdom and the United States has fallen during the last decade. Pre-arrival screening for LTBI (and its treatment) could be considered but more studies on cost-effectiveness and feasibility are required.

In 2014, 29 EU/EEA countries reported to ECDC/WHO a total of 58 008 new/relapsed TB cases, of which 15 565 (26.8%) were of foreign origin. This percentage has been steadily increasing since 2007, while the absolute number of TB cases of native and foreign origin has steadily decreased. The surveillance data of 2015 have been collected and, for the first time for many years, show an increased number of TB cases in the Netherlands and Sweden, the cause of which needs to be further analysed.

In 2009, a systematic review of different types of TB screening among migrants (at port of entry, at arrival in reception/holding centres and in the community following arrival) found median yields of 0.28% for mandatory testing and 0.40% for voluntary testing of migrants for TB (7).² In 2014, a systematic review of pre-entry screening among migrants found yields of TB cases detected increasing with the TB prevalence in their country of origin and suggesting the need to target high-prevalence TB countries (those with >350/100 000 population) (8). In October 2015, the ECDC published scientific advice on the public health needs of irregular migrants, refugees and asylum-seekers across the southern and south-eastern borders of the EU (9). The ECDC is currently working on two guidance documents relevant for migrants: (i) prevention of infectious

² According to the authors, such data do not indicate differences in effectiveness between the three main strategies but, most probably, reflect a variation in risk factors for TB, in particular the composition of the groups of migrants entering the country.

diseases among newly arrived migrants in the EU/EEA; and (ii) the programmatic management of LTBI (modelling and cost-effectiveness analysis in different risk groups, including migrants).

In September–October 2015, the ERS TB Advocacy ad-hoc Committee, in collaboration with the Regional Office and the WHO Collaborating Centre for TB and Lung Diseases in Tradate, Italy, conducted a survey on policies and practices for screening and case management of TB and LTBI among migrants. The questionnaire, the answers to which highlighted the need for harmonizing current policies, was completed by 36 out of 38 countries with low/intermediate TB incidence. Of these, 21 (58%) countries have a legal obligation to screen migrants for TB and/or LTBI, while 22 (61%) countries screen systematically for active TB and 19 (53%) for LTBI. The most frequent screening methods are chest X-ray (72%) and symptom-based questionnaire (58%). All countries provide anti-TB treatment and none have a deportation policy. More survey results were provided at the International Union against Tuberculosis and Lung Disease (UNION) Europe Conference held in Bratislava, 22–24 June 2016.

TB screening can be costly, ineffective, inefficient, unethical and harmful. Its design, therefore, requires careful consideration. Many factors may influence its cost-effectiveness, such as the TB risk of the target population, the diagnostic algorithm and the operational arrangements. The local context is also important for deciding the balance between the costs of diagnostics/operations and the yield of detected TB, the TB risk and the size of the population to screen. Recently, a web-based tool Screen-TB (3) has been developed by the WHO Global TB Programme and the WHO Regional Office for the Western Pacific (building on a previous tool) that provides a number of outputs (number of people to screen, number of true and false positive diagnosis expected, costs per TB case detected and total) against a number of inputs (size and TB prevalence of the populations, their reachability and the acceptability/accuracy and cost of each screening method). This tool can be adapted for use within different TB risk groups of migrants and there are plans to develop a similar tool for screening for LTBI.

The panel discussion around the question of the kind of tools and support countries need to plan and implement screening in migrants was enriched by the views of Switzerland, Turkey and the Global Fund to Fight AIDS, Tuberculosis and Malaria. The experience of Sicily also formed the subject of a short introduction, which underlined that TB screening on arrival may be appropriate for many refugees (especially in view of their frequent stays in unhealthy camps and prisons in transiting countries), although the most important consideration is to ensure their long-term access to health services since the majority of those who develop TB do so years after immigrating. In Sicily, the incidence of TB among the native population has been steadily decreasing despite the increasing numbers of migrants and of TB cases among them.

In Switzerland, all migrants have had to pass a medical assessment since 2006, including screening for TB via a simple questionnaire in 32 languages, with instructions for the interviewers in French, German and Italian. The questionnaire explores the country of origin and the presence of main indicative signs and symptoms (10). All answers, together with the observations and evaluations of the interviewer, are matched to a scoring scale that indicates whether further investigation (chest X-ray) for active TB is needed. About 4% of all migrants interviewed had a chest X-ray and 10% of these were found with abnormalities and further checked with sputum microscopy and bacteriological culture. Data show that 1/1000 migrants screened was found with active TB. This approach is considered sensitive and effective enough for the early diagnosis of TB and prevention of its transmission within the migrant community, easy to implement and acceptable to politicians.

Turkey is currently hosting the largest refugee population in the world, including approximately 2 750 000 registered Syrian citizens. This is the biggest influx of refugees since the Second World War. Currently, approximately 10% of the Syrians are sheltering in 25 temporary protection centres while the rest of them live outside. Although it has been assumed that these conditions constitute a main risk for TB, by the end of 2015 the TB notification among Syrians was only 19 per 100 000, quite similar to the rate in Turkey. Any person in Turkey, native or foreign-born, can have access to primary health care free. Diagnosis of and treatment for TB are organized at first point of contact with the health system, free of charge and irrespective of legal status. There are 179 TB outpatient clinics across the country with primary responsibility for TB management. One of the biggest challenges for preventing TB transmission is the internal movement of Syrians looking for job opportunities in different provinces. The Turkish government is trying to settle and integrate them into the labour market, and has issued a new regulation for this purpose to grant working permits to the Syrians under temporary protection. The national TB programme is also planning to improve contact-tracing via social networks and genotyping investigation of local outbreaks.

The Global Fund is launching an initiative in the Middle East that will use one integrated grant management platform. Currently, the Global Fund has separate grants in Iraq, Palestine, Syria and Yemen and provides emergency TB funding for Syrian refugees in Jordan and Lebanon. It is planned to merge all grants through one system, to be managed by a qualified international organization with experience on the ground, so as to offer more flexible and simplified responses to special challenges such as armed conflict and influxes of refugees. In Iraq, Syria and Yemen, most of the health facilities have been destroyed. The health infrastructure in countries hosting displaced populations is overstretched. As part of the new approach, the Global Fund procedures and in-country coordination will be adapted to ensure that funds will follow the movements of the refugees with TB across countries, tracked through a web-based electronic tool. The Global Fund is calling for proposals from qualified international organizations to assume the role of principal recipient. The grant was expected to start in July 2016 and have a duration of two years, with the possibility of an extension.

Cross-border collaboration

In 2012, the Wolfheze Transborder Migration Task Force published a consensus statement describing a minimum package for cross-border TB control and care in the Region. Among its key activities the package includes the exchange of information between countries to ensure the transfer of complete medical records, a cross-border continuum of care and feedback through a list of national TB focal points. At present the International Health Regulations provide for such communication on a partial (limited to information for contact-tracing) and voluntary basis even though TB does not fall under the Regulations' conditions. The TB Consilium, launched in 2012 by ERS and the WHO Regional Office for Europe to ensure the confidential exchange of clinical data between specialists of different countries, represented an opportunity to expand such data exchange for the cross-border management of TB. In February 2016, a new function was added under the TB Consilium to allow communication between countries for the purposes of retrieving patients' clinical data, transferring TB patients and contact-tracing. The cross-border TB case management tool is available on the internet and can be used by all countries in the world (2).

During the panel discussion, the WHO regional offices for the Middle East, Europe, the Western Pacific and South-East Asia shared their views on how to improve cross-border collaboration on TB.

The Regional Office for Europe has been active in the area of migrant TB for a number of years. The *TB action plan for the WHO European Region 2016–2020*, adopted by the WHO Regional Committee for Europe in resolution EUR/RC65/R6, calls on Member States and WHO to assist with the implementation of a minimum package for cross-border TB control and care. Intercountry communication has been made possible through the new cross-border cases management function of the TB Consilium, which could be also used by countries outside the Region. This function could be a subject for consideration by the Strategic and Technical Advisory Group (STAG) (11) and the European Technical Advisory Group (TAG) (12) for TB during their next meetings in WHO headquarters and the Regional Office. The focus of the Catania workshop is on refugees and asylum-seekers; there is a plan to organize another workshop focusing on labour migrants in eastern Europe.

The Regional Office for the Eastern Mediterranean is overwhelmed by conflicts, civil disturbances and refugee crises in most of its Member States (Afghanistan, Egypt, Iran, Iraq, Jordan, Lebanon, Libyan Arab Jamahiriya, Pakistan, Somalia, South Sudan, Syrian Arab Republic, West Bank and Gaza Strip, Yemen). Coordination at regional and international level is essential. A regional hub for the supply and management of anti-TB drugs has been established in Dubai. Interregional collaboration with the Regional Office for Europe started with a first interregional workshop on cross-border TB control and care held in May 2014 in Tehran, Iran. The considerable experience in the Eastern Mediterranean Region has led to the development of a guide on TB control in complex emergencies, which was published last year (13). At present, the Regional Office for the Eastern Mediterranean Region is working on the development of an electronic tool for tracking TB patients during their movements across countries, which could be useful to compare and possibly merge with the tool developed in the European Region.

The Regional Office for the Western Pacific works with the action framework for implementation of the End TB Strategy in 2016–2020 (14). TB among migrants, considered one of the populations at high risk for TB, is addressed under pillar one of the framework. To assist those Member States who see TB among migrants as an important challenge, the Regional Office for the Western Pacific has developed some guiding principles and proposals for action (15), the Screen-TB tool (see above) and a package of lectures and group work material aimed at facilitating national stakeholders in holding workshops on how to address high-risk TB populations. The tool developed in the European Region for cross-border TB management is also under consideration by some of the Member States which are at present using the International Health Regulations network since it was presented at the 10th National Tuberculosis Programme (NTP) Managers' Meeting held in March 2016 in Manila, Philippines.

The Regional Office for South-East Asia reaffirmed the commitment of Member States to addressing cross-border TB control. The focus should be on innovative approaches aimed at improving service delivery and strengthening health systems. It could be wise to start with a limited number of countries in which to pilot interventions in specific cross-border geographic areas while continuing to pursue international agreements and the development of effective tools. Member States should develop national TB strategic plans and action plans that address the needs of migrants and are fully funded. WHO should continue to document and share best cross-border practices between countries and its regions. Global Fund support may play an important role through flexible and mobile funding.

The practical use of tools

Participants divided into two groups working in parallel to discuss in more detail the two WHO electronic tools (Screen-TB and TB Consilium cross-border TB case management).

Screen-TB

Participants were guided on how to select the initial parameters that influence the outputs of the tool, as described below:

- “risk group” menu: country, year, TB prevalence source and rate, risk groups for TB screening (up to six groups), TB risk for each group (relative risk or prevalence rate), population of each group (absolute number or percentage);
- “acceptability” menu: reachability of the risk group (percentage), acceptability of the screening (percentage);
- “test accuracy and costs” menu: sensitivity and specificity of each test, costs of each test;
- “algorithm” menu: algorithm with different combination of screening and diagnostic tests.

When these parameters are set, the tool will produce the following outputs: total yield, true vs false-positive, cost per case, number needed to screen, cost vs yield.

Two scenarios were proposed to the participants for a practical exercise (Annex 2).

TB Consilium cross-border TB case management

As time was limited, this tool was presented in its use for a Case B only, that is, a TB patient who the physician of a country needs to refer to the physician of another country for continuation of treatment. The different steps in cross-border communication were described and shown from the computer screen (see Annex 3). During the discussion, it was made clear that Germany is a federal republic consisting of 16 federal states and that the public health officer assigned to each state is the only person (not a physician) allowed by law to share patients’ data with another state or country. At the end of the day, it was agreed that ERS and the Regional Office for Europe would discuss with the national TB programme manager of Germany how to refine the tool and make it usable in Germany.

Research needs

E-Detect TB is a project granted under the 3rd European Union Health Programme and implemented by a consortium of research institutes including: University College London, London, United Kingdom (coordinator); Public Health England, London, United Kingdom; KNCV Tuberculosis Foundation, The Hague, Netherlands; Delft Imaging System, Veenendaal, Netherlands; Hospital San Raffaele, Milan, Italy; the University of Brescia, Brescia, Italy; the National Institute for Infectious Diseases Lazzaro Spallanzani, Rome, Italy; the Karolinska Institute, Stockholm, Sweden; the Public Health Agency of Sweden, Stockholm, Sweden; the Health Strategies Programme Centre, Sofia, Bulgaria; and the National Institute of Pulmonology, Bucharest, Romania.

The project has four specific objectives: (i) to ensure early diagnosis in vulnerable populations (homeless people, Roma, people who use drugs, prisoners) in Bulgaria and Romania; (ii) to

strengthen the integration of care within the same vulnerable populations in Romania; (iii) to evaluate approaches to consolidate the detection of TB in migrants and improve European cross-border management; and (iv) support the development of action plans in member states by taking best practice approaches from countries where E-Detect TB partners have developed evidence. In pursuit of the third objective, it is planned to strengthen the TB screening at the docks already provided for migrants landing in Catania harbour by using the latest diagnostics tools made available from basic research in different harbours of Sicily, including the Xpert MTB/RIF Ultra test performed with the Omni platform.

The panel discussion of priority questions for future research included the views from a country of destination for refugees/asylum-seekers (Belgium), from a country of origin (Iraq) and from a research institute (State Serum Institute of Denmark).

The ensuing general discussion highlighted a number of broad research priorities and approaches related to TB in migrants for future consideration. The broad research priorities are as follows:

- study of the epidemiology of TB and LTBI in different subgroups of migrants;
- further research into cross-border care, in particular exploiting the existing TB Consilium cross-border TB case management tool;
- assessment of yield, impact, cost and cost-effectiveness of different TB screening approaches among migrants;
- evaluation of different screening algorithms for TB and LTBI, including optimization of the use of existing and incoming new diagnostic tools:
 - further investigation of new diagnostic platforms including the new Xpert MTB/RIF Ultra test;
 - assessment of computer-aided diagnostics as part of chest X-ray targeted screening for TB in migrants;
- evaluation of different interventions to improve uptake and adherence, especially of LTBI screening and treatment;
- assessment of the role of social determinants of TB;
- study of the ethical and human rights and political aspects of TB screening.

The following are the research approaches:

- further collaboration between WHO regions, particularly those hit by the refugee crisis;
- further collaboration with other organizations such as ECDC, IOM and UNHCR in joint work to reach particular refugee groups;
- multicountry and multidisciplinary studies.

Conclusions

International migration is giving rise to a growing proportion of TB patients of foreign origin in many countries of the WHO European Region and, possibly, to a future increase in the absolute number of TB cases, and presents a challenge to the ending and elimination of TB. Ethical principles and human rights require that all migrants, irrespective of their legal status, should

have full access to diagnosis and treatment for TB. Ensuring such access is also important as a contribution to ending TB globally and to the economic growth of countries of both origin and destination.

Effective TB prevention and control among migrants requires close intra/intersectoral collaboration within countries between all governmental and nongovernmental partners as well as cross-border collaboration between countries and international partners. The present collaboration between the WHO regional offices and between them and major international partners, such as the ECDC, the IOM and UNHCR, should continue and be strengthened.

All WHO regions take account of TB control in migrants in their regional TB strategic and action plans, and many countries updated their national TB programmes accordingly. WHO headquarters and the regional offices have independently developed tools during recent years that can be used by national TB programmes in addressing TB among migrants. These tools should be compared and merged when relevant, further adapted and/or fine-tuned based on countries' feedback.

- The tool developed in the European Region (for cross-border TB case management) should be adapted for use in Germany and proposed for discussion at future meetings of the STAG and TAG.
- The tools developed in the European Region and in the Eastern Mediterranean Region (for tracking TB patients across borders) should be compared and evaluated for a possible merger.
- The tool developed in WHO headquarters and the Western Pacific Region (guidelines on prioritizing vulnerable groups and methodologies for active TB screening) should be further refined and adapted for LTBI.

Evidence for guiding effective action for TB control among refugees and asylum-seekers is still limited and more research is needed. The workshop helped to identify a number of priorities and approaches that should be considered in future international research agenda.

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Annex 1

PROGRAMME

Tuesday, 10 May 2016

- 09:00–09:30 **Welcome and opening**
Chairperson: Dr Claudio Pulvirenti, Head, Port, Airport and Borders Health, Ministry of Health, Catania, Italy
Speakers:
The Honourable Vincenzo Bianco, Mayor of Catania, Italy
Mr Tommaso Mondello, Vice Prefect of Catania
Mr Salvatore Bonura, President, Societa' Aeroporto Catania
Dr Ranieri Guerra, Director General of Preventive Health, Ministry of Health, Italy
Dr Nedret Emiroğlu, Director, Division of Communicable Diseases and Health Security, WHO Regional Office for Europe, Copenhagen, Denmark
- 09:30–09:45 Scope and purpose of the workshop
Dr Masoud Dara, Team Leader, TB and M/XDR-TB Programme, WHO Regional Office for Europe, Copenhagen, Denmark
- 09:45–10:00 WHO activities, strategy and action plan on refugees and migrant health in Europe
Mr Matteo Dembech, Technical Officer, Migration and Health, WHO European Office for Investment for Health, Venice, Italy
- Session 1: Overview on health and migration**
Updated overview of migration and the refugee crisis in the WHO European Region and in the world and how the main international partners assist countries of origin, transit and destination to ensure an effective public health response
Chairperson: *Dr Mohamed Abdel Aziz, Regional Adviser TB, WHO Regional Office for the Eastern Mediterranean, Cairo, Egypt*
- 10:00–10:15 Overview of migration in the world and IOM work in migration health
Dr Poonam Dhavan, Coordinator, Migration Health Programme, International Organization for Migration, Geneva, Switzerland
- 10:15–10:30 The refugee crisis
Mr Heiko Hering, Senior Public Health Officer, United Nations High Commissioner for Refugees, Geneva, Switzerland
- Session 2: TB screening among migrants – what we know and don't know about effectiveness and cost-effectiveness**
Updated overview of TB screening practices in the WHO European Region and in the world and how these practices are supported by the current evidence
Chairperson: Dr Ranieri Guerra

- 11:00–11:30 WHO recommendations on TB screening among migrants
Dr Knut Lönnroth, Medical Officer, Global TB Programme, WHO headquarters, Geneva, Switzerland
- 11:30–11:45 TB screening programmes for migrant and refugee groups in major resettlement countries
Dr Paul Douglas, Head, Immigration Health, Department of Immigration and Border Protection, Australian Government, Sydney, Australia
- 11:45–12:00 The EU/EEA perspective on TB screening among migrants
Ms Marieke van der Werf, Head, Tuberculosis Programme, European Centre for Disease Prevention and Control, Stockholm, Sweden
- 12:00–12:15 Preliminary results of a survey on TB screening and management among refugees in Europe
Dr Masoud Dara
- Chairperson: Professor Bruno Cacopardo, Director, Infectious Diseases Unit, Garibaldi Hospital, Catania, Italy*
- 13:30–14:00 Screen TB: an electronic tool to help prioritize risk groups for screening of active TB
Dr Nobuyuki Nishikiori, Coordinator, Stop TB and Leprosy Elimination Unit, WHO Regional Office for the Western Pacific, Manila, Philippines
- 14:00–15:00 Panel discussion: what tools and support do countries need to plan and implement TB screening in migrants?
Facilitators: Dr Paul Douglas, Professor Bruno Cacopardo
Panellists:
Dr Peter Helbling, Medical Officer, Federal Office of Public Health, Bern, Switzerland
Ms Joumana Al Atwani, Fund Portfolio Manager, Middle East and North Africa, The Global Fund to Fight AIDS, Tuberculosis and Malaria, Geneva, Switzerland
Dr Ahmet Görkem Er, Medical Officer, Tuberculosis Department, Public Health Institution, Ankara, Turkey
- Session 3: Cross-border collaboration**
This session will provide orientation on a newly-developed web-based electronic tool for TB-related communication between countries and offer a forum for discussion on the needs to further strengthen cross-border collaboration for TB prevention and control.
Chairperson: Dr Gerard de Vries, Coordinator Team Netherlands & Elimination, KNCV Tuberculosis Foundation, The Hague, Netherlands
- 15:30–16:00 Cross-border TB case management through the ERS/WHO TB Consilium
Dr Pierpaolo de Colombani, Medical Officer, Joint TB, HIV/AIDS and Hepatitis Programme, WHO Regional Office for Europe, Copenhagen, Denmark
Professor Giovanni Sotgiu, Assembly Secretariat, Respiratory Infections, European Respiratory Society, Lausanne, Switzerland

- 16:00–17:00 Panel discussion: how to improve cross-border collaboration on TB
Facilitators: Dr Gerard de Vries, Dr Pierpaolo de Colombani
Panellists: Dr Mohamed Abdel Aziz, Dr Masoud Dara, Dr Nobuyuki Nishikiori, Mr Lungten Z Wangchuk, Technical Officer TB, WHO Regional Officer for South-East Asia, New Delhi, India
- 17:00–17:20 Conclusions of Day 1
Dr Mohamed Abdel Aziz, Dr Ranieri Guerra, Professor Bruno Cacopardo, Dr Gerard de Vries

Wednesday, 11 May 2016

Session 4: Group work on the practical use of tools

- 08:30–09:30 Practical exercise in two groups on the use of the WHO e-tool Screen TB and of the ERS/WHO cross-border TB case management/TB Consilium
Facilitators: Dr Knut Lönnroth, Dr Nobuyuki Nishikiori (Screen TB), Mr Samuel Pouyt, Web Specialist, European Respiratory Society, Lausanne, Switzerland, Professor Giovanni Sotgiu
- 09:30–10:30 Practical exercise in two groups on the use of the WHO e-tool Screen-TB and of the ERS/WHO TB Consilium cross-border TB case management
Facilitators: Dr Knut Lönnroth, Dr Nobuyuki Nishikiori (Screen-TB) Mr Samuel Pouyt, Professor Giovanni Sotgiu

Session 5: Research needs

- Update on the most relevant research initiatives undertaken in the WHO European Region and a forum for discussion on priority areas of further research and evidence-building
Chairperson: Professor Ibrahim Abubakar, Director, UCL Institute for Global Health, London, United Kingdom
- 11:00–11:15 e-Detect TB: a research project for outreach detection of TB
Dr Daniela Cirillo, Head, Emerging Bacterial Pathogens Unit, San Raffaele Scientific institute, Milan, Italy
- 11:15–12:15 Panel discussion: what are the priority questions for future research?
Facilitators: Professor Ibrahim Abubakar, Dr Knut Lonroth
Panellists:
Dr Wouter Arrazola de Oñate, Medical Director, Belgian Lung and Tuberculosis Association, Brussels, Belgium
Dr Ali Akbar, Medical Officer, WHO Country Office, Baghdad, Iraq
Dr Peter Henrik Andersen, Senior Medical Officer, Statens Serum Institut, Copenhagen, Denmark
- 12:15–12:30 Conclusions of Session 5 and closure
Professor Ibrahim Abubakar, Dr Masoud Dara

Annex 2

PRACTICAL EXERCISE ON SCREEN-TB

Scenario 1. Risk groups in Japan

- Open the tool and set input parameters using the following information¹ (5 minutes).

Country	Japan
Year	2014
Baseline prevalence	Default value (23 per 100k)

Risk group and group name	Relative Risk	TB prevalence (per 100 000)	Risk group size (%)	Population size	Reachability (%)	Acceptability (%)
Elderly >70	5.8	—	—	22 590 000	100	100
Diabetes	5.7	—	—	2 700 000	100	100
Homeless	—	4102	—	8 265	100	100
Social security	4.7	—	—	2 067 244	100	100
Foreign workers	4.5	—	—	682 450	100	100
Foreign students	7.4	—	—	180 919	100	100

- Check all output panels (output table, total yield, true vs false positives, cost per case, number needed to screen) and play with graphic options.
- Download output table and open the comma-separated text (.csv) file with a spreadsheet software (such as Excel).
- Download a graph of “Total yield” after removing “Elderly”, select algorithms of 1d and 3b, and open the PDF file externally.
- Enter a brief summary of the current data in “Scenario”. Save it as a scenario file. Restart the tool. Then load the scenario file. Check if the saved data are loaded.

Questions

1. Which risk group showed the largest total number of yield (true positive)? Which two groups the smallest? (You can deselect a large group for better comparison.) What do you think about the usefulness of this graph? What could be a problem in interpreting this graph?
2. Which risk group is the most cost-effective target (a smaller number needed to screen and cost per case detected)? Which diagnostic algorithms are relatively (consistently) cost-effective (lower cost per case detected)?
3. In “True vs False Positives” panel, what are the major findings in terms of a balance between true positive (TP; blue) and false positive (FP; red)? Is there any tendency related to TB risk and algorithms?
4. In the “Cost vs yield” graph, what are the best-buy algorithms? Why is algorithm 3b relatively expensive? What will happen if the X-ray cost is significantly reduced? Test it by creating a new 3b (3b-digital) with digital X-ray with a low running cost.

¹ Kawatsu L, Ishikawa N, Uchimura K. [Risk Groups for Tuberculosis in Japan: Analysis of Relative Risk and Population Attributable Fraction]. *Kekkaku [Tuberculosis]*. 2015;90(3):395–400.

Scenario 2. Migrant screening by country of origin

- Open the tool and set input parameters using the following information

Country	Sweden (can be any country)
Year	2014
Baseline prevalence	Default value (9 per 100k)

Risk group and group name	Relative Risk	TB prevalence (per 100 000)	Risk group size (%)	Population size	Reachability (%)	Acceptability (%)
Refugees >300	—	450	—	25 200	100	100
Refugees 200–300	—	250	—	9 800	100	100
Refugees 100–200	—	150	—	8 500	100	100

- Check all output panels (output table, total yield, true vs false positives, cost per case, number needed to screen) and play with graphic options.
- Examine “Total yield” for three migrant groups for the algorithm 3b.
- Examine “Cost per case detected” and “Number needed to screen”.
- Download graphs of “Cost vs yield” for the three migrant groups.

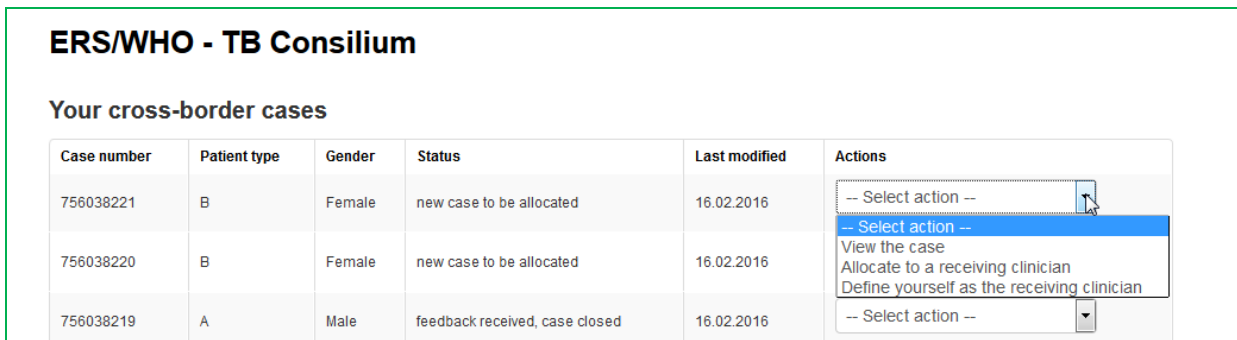
Annex 3

CROSS-BORDER TB MANAGEMENT: INSTRUCTIONS FOR COUNTRY TB FOCAL POINT ON HOW TO REFER A TB CASE (CASE B) TO ANOTHER COUNTRY

The submitting clinician is in charge of a patient who will move to another country. Your task, as TB focal point of this country, will be to find a receiving clinician and ensure he/she will get the correct medical information to continue to treat the patient.

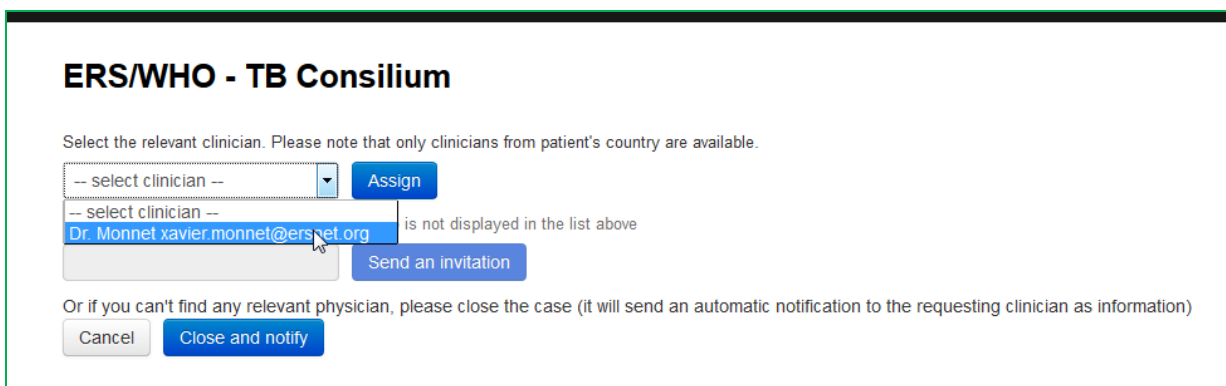
The form he/she will fill in contains the following information about the patient to be transferred: generic identification (sex, age), travel (place, date), main clinical features (date of diagnosis, drug resistance, infectiousness) and treatment to be continued.

You will be informed by e-mail of the new case. It will look like this in your dashboard:



Case number	Patient type	Gender	Status	Last modified	Actions
756038221	B	Female	new case to be allocated	16.02.2016	-- Select action -- -- Select action -- View the case Allocate to a receiving clinician Define yourself as the receiving clinician
756038220	B	Female	new case to be allocated	16.02.2016	-- Select action -- -- Select action -- View the case Allocate to a receiving clinician Define yourself as the receiving clinician
756038219	A	Male	feedback received, case closed	16.02.2016	-- Select action --

You will need to find a receiving clinician and add him/her in the system. We assume that at this stage you will have discussed the patient with him/her and that he/she will have agreed to take the patient.



ERS/WHO - TB Consilium

Select the relevant clinician. Please note that only clinicians from patient's country are available.

-- select clinician --

-- select clinician --
Dr. Monnet xavier.monnet@ers-net.org is not displayed in the list above

Or if you can't find any relevant physician, please close the case (it will send an automatic notification to the requesting clinician as information)

Once done, both submitting and receiving clinicians will receive an e-mail and see the case in their dashboard.

Receiving clinician:


Your cross-border cases					
Case number	Patient type	Gender	Status	Last modified	Actions
756038221	B	Female	case submitted, waiting for full report	16.02.2016	<input type="text" value="-- Select action --"/> <input type="text" value="-- Select action --"/> View the case
756038219				16.02.2016	

Submitting clinician:

Your cross-border cases					
Case number	Patient type	Gender	Status	Last modified	Actions
756038221	B	Female	clinician found, waiting for your full report	16.02.2016	<input type="text" value="-- Select action --"/> <input type="text" value="-- Select action --"/> View the case Complete your full report
756038221				16.02.2016	

The submitting clinician will have to complete the 10-step full report:

ERS/WHO - TB Consilium

 Full report for case #756038219 has been created.

Case code #756038219
Please fill the entire form, from step 1 to 10.

1 — 2 — 3 — 4 — 5 — 6 — 7 — 8 — 9 — 10

1. Case definition

Susceptible * Yes No

Mono-resistant * Yes No

Poly-resistant * Yes No

MDR * Yes No

XDR * Yes No

Once done, both you and the receiving clinician will receive an email. The receiving clinician will be able to see the full report in his/her dashboard.

Annex 4

PARTICIPANTS

Country representatives

WHO European Region

Austria

Dr Bernhard Benka
Division III – Public Health and Medical Affairs
Department of Communicable Diseases, Crisis Management, Disease Control
Federal Ministry of Health
Radetzkystr. 2
1030 Vienna

Belgium

Dr Wouter Arrazola de Oñate
Medical Director, Belgian Lung and Tuberculosis Association
Eendrachtstraat 56
1050 Brussels

Dr Annemie Forier
Infectious Disease Control Physician
Agency for Care and Health Prevention Division
Koningin Astridlaan 50 bus 7
3500 Hasselt

Dr Maryse Wanlin
Director, Fonds des Affections Respiratoires
Rue de la Concorde 56
1050 Brussels

Denmark

Dr Peter Henrik Andersen
Senior Medical Officer, Department of Infectious Disease Epidemiology
Division of Epidemiology and Disease Surveillance
Statens Serum Institut
Artillerivej 5
2300 Copenhagen S

Dr Gry St-Martin
Medical Officer, Regional Public Health Officers of Eastern Denmark
Danish Health Authority
Islands Brygge 67
2300 Copenhagen S

Finland

Dr Hanna Soini
Senior Expert, National Institute for Health and Welfare,
Department of Infectious Diseases
Mannerheimintie 166
00271 Helsinki

Germany

Professor Walter Haas
Leiter des Fachgebiets für respiratorische Erkrankungen
Robert Koch-Institut
Seestraße 10
13353 Berlin

Hungary

Dr Balazs Tujner
Head of Cabinet, Chief Medical Officer's Office
Albert Flórián út 2-6
1097 Budapest

Italy

Dr Enrico Girardi
Director, Department of Epidemiology and Preclinical Research
National Institute of Communicable Diseases "L. Spallanzani"
Via Portuense 292
00149 Rome

Dr Ranieri Guerra
Director General of Preventive Health, Ministry of Health
Viale Giorgio Ribotta 5
00144 Rome

Netherlands

Dr Gerard de Vries
Coordinator Team Netherlands and Elimination
KNCV Tuberculosis Foundation
Benoordenhoutseweg 46
2596 BC The Hague

Ms Wieneke Meijer
Head, Tuberculosis Department
Municipal Public Health Services Amsterdam
Postbus 2200
1000 CE Amsterdam

Norway

Dr Trude Margrete Arnesen
Department of Infectious Diseases Surveillance
Norwegian Institute of Public Health
P.O. Box 4404 Nydalen
0403 Oslo

Romania

Dr Nicoleta Cioran
Epidemiologist, National TB Programme
Marius Nasta Institute for Pneumology
Sos. Viilor 90 – Sector 5
050159 Bucharest

Dr Gilda Popescu
Projects Coordinator, National TB Programme
Marius Nasta Institute for Pneumology

Serbia

Dr Snezana Pantic Aksentijevic
Head of Group for Public Health
Ministry of Health of Serbia
Omladinskih Brigada 1
11000 Belgrade

Dr Vesna Skodric Trifunovic
Clinic for Pulmonology
Clinical Centre of Serbia
Medical School University of Belgrade
Koste Todorovica 26
11129 Belgrade

Sweden

Dr Jerker Jönsson
Public Health Agency of Sweden
Nobels väg 18
171 82 Solna

Switzerland

Mr Peter Helbling
Medical Officer, Federal Department of Home Affairs
Federal Office of Public Health, Division of Communicable Diseases
Schwarztorstrasse 96
3003 Berne

Turkey

Dr Ahmet Görkem Er
Medical Officer, Tuberculosis Department
Public Health Institution of Turkey
Ministry of Health
Adnan Saygun Street 55
Sihhiye, Cankaya
06100 Ankara

Dr Kanuni Keklik
Head, Community Health Services Department
Public Health Institution of Turkey
Ministry of Health

United Kingdom

Professor Ibrahim Abubakar
Director, Centre for Infectious Disease and Epidemiology
Research Department of Infection and Population Health
University College London
London WC1E 6JB

Dr Sarah Anderson
National Infection Service
Public Health England
61 Colindale Avenue
London NW9 5EQ

Dr Dominik Zenner
Centre for Infectious Disease Surveillance & Control
Public Health England

WHO Eastern Mediterranean Region

Dr Ibrahim Abed Rabuh Al Mashaykh
Director of Chest Diseases & Immigrants Directorate
Ministry of Health
Amman, Jordan

Local participants

The Honourable Vincenzo Bianco
Mayor
Town of Catania

Mr Salvatore Bonura
President
Società Aeroporto Catania

Professor Bruno Cacópardo
Director, Infectious Diseases Unit
Garibaldi Hospital

Dr Diana Cinà
Director, Laboratory of Microbiology
Garibaldi Hospital

Dr Antonio Maria Ciravolo
Physician
Port, Airport and Borders Health, Augusta, Ministry of Health

Dr Mario Cuccia
Physician
National Health Service, Catania Province

Dr Nadia D'Agostino
Physician
Port, Airport and Borders Health, Catania, Ministry of Health

Dr Angela Dimartino
University of Catania

Dr Lucio Di Mauro
Adviser
Board of Physicians, Surgeons and Orthodontists

Dr Emma Elefante
Physician
Port, Airport and Borders Health, Catania, Ministry of Health

Ms Elena Faganello
Commander
Fiscal Police, Airport of Catania

Dr Maria Elsa Gambozza
Ministry of Health

Colonel Francesco Gargaro
Commander
Carabinieri Corps

Dr Giuseppe Giammanco
General Director
National Health Service, Catania Province

Dr Gabriele Giorgianni
University of Catania

Dr Domenico Grimaldi
President
Family Doctors

Mr Giuseppe Lanaia
Director
Border Police, Italian National Police

Dr Carmen Longo
Head Physician
Italian National Police

Dr Sabrina Menghini
Manager, Infection Control Technology

Mr Tommaso Mondello
Vice Prefect
Migrants and Refugees, Catania Province

Dr Mario Patanè
Physician
National Health Service, Catania Province

Dr Sergio Pintaudi
Head, Emergency Department
Garibaldi Hospital

Dr Claudio Pulvirenti
Head
Port, Airport and Borders Health, Ministry of Health

Dr Giorgio Santonocito
General Director
Garibaldi Hospital

Dr Elena Sentina
University of Catania

Dr Salvatore Sofia
Physician
Port, Airport and Borders Health, Catania, Ministry of Health

Dr Salvatore Soraci
Physician
Papardo Piemonte Hospital

Dr Rocco Tinnirello
Physician
Port, Airport and Borders Health, Catania, Ministry of Health

Dr Marletta Valeria
Physician
Port, Airport and Borders Health, Catania, Ministry of Health

Dr Fabrizio Vanaria
Physician, Italian National Police

WHO Collaborating centres

Professor Alberto Matteelli
WHO Collaborating Centre for TB/HIV and TB Elimination
Institute for Infectious and Tropical Diseases
University of Brescia
Piazza Spedali Civili 1
25123 Brescia, Italy

Dr Susanna Capone
WHO Collaborating Centre for TB/HIV and TB Elimination
Institute of Infectious and Tropical Diseases
University of Brescia

Dr Daniela Cirillo
Head of Emerging Bacterial Pathogens Unit
WHO Collaborating Centre and TB Supranational Reference Laboratory
San Raffaele Scientific Institute
Via Olgettina 60
20132 Milano, Italy

Representatives of other organizations

Australian Immigration Department

Dr Paul Douglas
Head, Immigration Health, Department of Immigration and Border Protection, Australian Government
Member of the Five Country Conference (Australia, Canada, New Zealand, UK and US)
Immigration Refugee and Health Working Group
GPO Box 9984
NSW 2001, Sydney, Australia

European Centre for Disease Prevention and Control

Dr Marieke van der Werf
Head, Tuberculosis Programme
European Centre for Disease Prevention and Control
Tomtebodavägen 11a
171 65 Solna, Sweden

European Respiratory Society

Mr Samuel Pouyt
Web Specialist, ERS headquarters
4, Avenue Ste-Luce
1003 Lausanne, Switzerland

Professor Giovanni Sotgiu
Assembly Secretariat
Respiratory Infections
ERS headquarters

International Organization for Migration

Dr Poonam Dhavan
Coordinator, Migration Health Programme
Migration Health Division
Department of Migration Management
Route des Morillons 17
1211 Geneva 19, Switzerland

Stop TB Italia

Dr Giorgio Besozzi
President
Viale Zara 81
20159 Milan, Italy

The Global Fund to Fight AIDS, Tuberculosis and Malaria

Ms Joumana Al Atwani
Fund Portfolio Manager, Middle East and North Africa
Chemin de Blandonnet 8
1214 Vernier-Geneva, Switzerland

Mr Wilfried Thalmas
Fund Portfolio Manager, Middle East and North Africa

United Nations High Commissioner for Refugees

Mr Heiko Hering
Senior Public Health Officer
Rue de Montbrillant 94
1201 Geneva, Switzerland

World Health Organization

WHO Regional Office for Europe

Dr Masoud Dara
Team Leader, TB and M/XDR-TB Programme
Copenhagen, Denmark

Dr Pierpaolo de Colombani (*Rapporteur*)
Medical Officer, Joint TB, HIV/AIDS and Hepatitis Programme

Mr Matteo Dembech
Technical Officer, Migration and Health
WHO European Office for Investment for Health and Development
Venice, Italy

Dr Nedret Emiroğlu
Director, Division of Communicable Diseases and Health Security

Ms Elizabeth Neville
Programme Assistant, Joint TB, HIV/AIDS and Hepatitis Programme

Professor Ivan Solovič
WHO external consultant
Head Institute for TB, Respiratory Diseases and Thoracic Surgery
05984 Vyšné Hágy
Slovakia

WHO Regional Office for the Eastern Mediterranean

Dr Mohamed Abdel Aziz
Regional Adviser TB
Cairo, Egypt

Dr Ali Akbar
Medical Officer
Baghdad, Iraq

Dr Alissar Rady
National Professional Officer
Beirut, Lebanon

Dr Areej Taher
National Professional Officer
Sana'a, Yemen

WHO Regional Office for South-East Asia

Dr Lungten Z. Wangchuk
Technical Officer – TB, TB Unit
Department of Communicable Diseases
New Delhi, India

WHO Regional Office for the Western Pacific

Dr Nobuyuki Nishikiori
Coordinator, Stop TB and Leprosy Elimination Unit
Manila, Philippines

WHO headquarters

Ms Soleil Labelle
Technical Officer, Global TB Programme
Geneva, Switzerland

Dr Knut Lönnroth
Medical Officer, Global TB Programme
Geneva, Switzerland

Interpreters

Ms Vanna Laura Scalia
Mr Maurizio Di Fresco