Introduction

Tuberculosis is currently the leading infectious cause of death worldwide. The World Health Organization (WHO) End Tuberculosis strategy aims to substantially reduce tuberculosis incidence by 90% and mortality by 95% compared with the 2015 baselines of 142 cases per 100 000 population and 5.3 to 19 cases per 100 000 (depending on human immunodeficiency virus (HIV) status), respectively. Achieving this goal requires successful management of latent tuberculosis infection, which serves as a reservoir for new tuberculosis cases. In high-income countries which already have a low incidence of tuberculosis, management of latent infection can contribute to elimination of the disease. A review of treatment regimens found that treatment of latent tuberculosis can reduce the risk of disease reactivation by 60% to 90%. A recent randomized controlled trial in a high tuberculosis burden country showed that the benefits of preventive treatment in people living with HIV can last for more than 5 years.

The WHO recommends tailored latent tuberculosis infection management based on tuberculosis burden and resource availability. Systematic testing and treatment for latent infection is strongly recommended for people living with HIV and for children younger than 5 years who are household contacts of a pulmonary tuberculosis case, regardless of the country’s background tuberculosis burden or resource availability. In upper-middle or high-income countries, depending on low tuberculosis burden and availability of resources, systematic testing and treatment of latent tuberculosis is strongly recommended for certain other risk groups: adult household contacts of pulmonary tuberculosis cases; patients with silicosis; patients initiating anti-tumour necrosis factor treatment; patients on dialysis; and organ transplant recipients.

Despite some progress, particularly over the last decade, the scale-up of tuberculosis preventive treatment remains suboptimal globally. The 161 740 children started on tuberculosis preventive treatment in 2016 represented only 13% of the 1.3 million children estimated to be eligible for treatment. The total number of people living with HIV who were started on tuberculosis preventive treatment in 2016 was at least 1.3 million. Data for other risk groups are not available or very limited.

Barriers to scale-up of tuberculosis preventive treatment include the absence of national policies and a lack of monitoring and evaluation systems. Here we review national policy documents to identify differences in programmatic management of latent tuberculosis infection in high- and low-burden countries.

Methods

The baseline for this descriptive policy review was the 216 countries and territories reporting data to the WHO Global Tuberculosis Programme (194 Member States and 22 associate Member States and territories). Based on the current WHO approach we divided countries into two groups: low burden and high burden. We defined low-burden countries as upper-middle or high-income countries with an estimated annual tuberculosis incidence of less than 100 cases per 100 000 population. High-burden countries were low- to lower-middle-income or other income countries with annual tuberculosis incidence of 100 or more cases per 100 000 population.
Among the high-burden countries, we focused on the top 30 countries in terms of high burden of tuberculosis (both in terms of number of cases and incidence) and on the top 30 countries in terms of high burden of HIV-associated tuberculosis. These countries account for most of the global burden of tuberculosis (9.1 out of 10.4 million cases, 88%) and HIV-associated tuberculosis (0.91 out of 1.03 million, 88%). Because many countries feature in the top 30 of both lists, this produced a list of 35 target countries. Our approach resulted in
Table 2. Definitions of symptoms to exclude active tuberculosis before providing tuberculosis preventive treatment to adults and children living with human immunodeficiency virus (HIV) in countries with the highest burdens of tuberculosis or HIV-associated tuberculosis

| Country                      | Adults living with HIV | Children living with HIV |
|------------------------------|------------------------|--------------------------|
|                              | Symptoms defined by WHO | Additional symptoms or findings | Symptoms defined by WHO | Additional symptoms or findings |
| Angola                       | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; weight loss or poor weight gain |
| Bangladesh                   | N/A                    | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain |
| Botswana                     | N/A                    | N/A | Chest X-ray findings suggestive of tuberculosis |
| Cambodia                     | Current cough; fever; night sweats | N/A | Fatigue, lethargy, neck mass, ascites |
| Cameroon                     | Current cough; fever; night sweats; weight loss | N/A | Failure to thrive, enlarged lymph nodes |
| Central African Republic     | Current cough; fever; night sweats; weight loss | N/A | Fatigue, lethargy, neck swelling, wheeze |
| Democratic Republic of the Congo | Current cough; fever; night sweats; weight loss | N/A | |
| Ethiopia                     | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain |
| Ghana                        | N/A                    | N/A | N/A |
| India                        | Current cough; fever; night sweats; weight loss | N/A | N/A |
| Indonesia                    | Current cough; fever; night sweats; weight loss | Signs of extrapulmonary tuberculosis | N/A | |
| Kenya                        | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain |
| Lesotho                      | Current cough; fever; night sweats; weight loss | N/A | Lethargy, less playful than usual |
| Malawi                       | Current cough; fever; night sweats; weight loss | N/A | Failure to thrive, night sweats, malnutrition |
| Mozambique                   | N/A                    | N/A | N/A |
| Myanmar                      | Current cough; fever; night sweats; weight loss | N/A | N/A |
| Namibia                      | Current cough; fever; night sweats; weight loss | Chest pain; shortness of breath; haemoptysis; loss of appetite; diarrhoea; fatigue; enlarged lymph nodes | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain |

(continues...
a target of 148 countries (113 low-burden countries and 35 high-burden countries) for the study (Fig. 1).

We aimed to analyse each country’s or territory’s national guidelines on the management of tuberculosis, HIV, paediatric tuberculosis, latent tuberculosis infection and HIV-associated tuberculosis, and standard national operating procedures for tuberculosis. We obtained documents by contacting WHO country offices or national programme managers or by downloading them from the official website of the ministry of health or other national health organization.

We selected the information to be extracted a priori based on WHO recommendations for the management of latent tuberculosis infection (Table 1 and Table 2). We collected information on the following: (i) at-risk populations targeted; (ii) recommended tests for latent tuberculosis infection; (iii) diagnostic algorithms to exclude active tuberculosis before starting treatment for latent tuberculosis infection; (iv) treatment regimens for latent tuberculosis infection; and (v) presence of monitoring and evaluation systems for the management of latent tuberculosis infection. For high-burden countries, we focused the review only on people living with HIV and children younger than 5 years who have household contact with a tuberculosis case. One researcher collected and entered the data for all low-burden countries and another researcher for all high-burden countries using data extraction forms developed for the study.

Statistical analysis of the data was performed using GraphPad Prism (GraphPad Software Inc., La Jolla, United States of America) and STATA (Stata Corp LLC, College Station, USA) software. Where percentages are indicated, binary indicators (0, 1) were created for the absence or presence of each policy item extracted. The means of those binary indicators corresponded to the percentage of countries addressing each policy item. The number and percentage of countries addressing each policy item were calculated and presented.

**Results**

**Results of search**

We obtained and analysed copies of policy documents from 98 countries (Table 3; available at: http://www.who.int/bulletin/volumes/96/3/17-199414).

| Country                  | Adults living with HIV | Children living with HIV |
|--------------------------|------------------------|--------------------------|
|                          | Symptoms defined by WHO | Additional symptoms or findings | Symptoms defined by WHO | Additional symptoms or findings |
| Nigeria                  | Current cough; fever; night sweats; weight loss | N/A | N/A | N/A |
| Pakistan                 | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain | N/A |
| Papua New Guinea         | Current cough; night sweats; weight loss | N/A | N/A | N/A |
| Philippines              | Current cough; fever; night sweats; weight loss | N/A | N/A | N/A |
| Sierra Leone             | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain | Fatigue |
| South Africa             | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain | N/A |
| Swaziland                | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain | N/A |
| Thailand                 | N/A | N/A | N/A | N/A |
| Uganda                   | Current cough; fever; night sweats; weight loss | N/A | Fever; contact history with a tuberculosis case; weight loss or poor weight gain | N/A |
| United Republic of Tanzania | Current cough; fever; night sweats; weight loss | N/A | N/A | N/A |
| Viet Nam                 | Current cough; fever; night sweats; weight loss | N/A | N/A | N/A |
| Zambia                   | Current cough; fever; night sweats; weight loss | N/A | Current cough; fever; contact history with a tuberculosis case; weight loss or poor weight gain | N/A |
| Zimbabwe                 | Current cough; fever; night sweats; weight loss | Haemoptysis | N/A | N/A |

HIV: human immunodeficiency virus; N/A: data not available; WHO: World Health Organization.

Notes: WHO recommended four-symptom algorithm for people living with HIV includes: current cough, fever, night sweats and weight loss for adults and current cough, fever, poor weight gain and contact history with a tuberculosis case for children.10 (Non-continued)
For high-burden countries, we obtained guidelines from 30 of 35 (85.7%) high-burden countries. We were unable to retrieve any national policies pertaining to latent tuberculosis infection for Chad, Democratic People’s Republic of Korea, Guinea Bissau, Liberia and Congo. For guidelines obtained, publication year ranged between 2007 and 2016. We also included one draft guideline under review.

For low-burden countries, we were able to obtain policy documents from 68 of 113 (60.2%) countries, with a publication year ranging from 2001 to 2015. The policy documents ranged from detailed policies focusing on latent tuberculosis infection to a brief mention of latent tuberculosis infection in a general tuberculosis policy.

**High-burden countries**

**Risk groups defined**

Of the 30 high-burden countries for which guidelines were obtained, information on the management of latent tuberculosis infection among children with a household contact was available for 25 countries. In four countries the relevant tuberculosis guidelines could not be obtained and in one country the guidelines were written in local languages that we were not able to translate. All 25 countries followed WHO policy (Table 1) recommending treatment for children younger than 5 years with a household tuberculosis contact (Table 4); 17 of these specifically targeted contacts of smear-positive cases. India and Nigeria recommended preventive treatment for children under 6 years old with a household contact. No policy recommended preventive treatment for contacts of a multidrug-resistant tuberculosis case.

For people living with HIV, 29 countries (96.7%) had recommendations on tuberculosis preventive treatment; only Ghana did not provide any recommendations.

**Testing recommendations**

For children younger than 5 years with a household contact, 24/25 (96.0%) of the countries analysed did not have recommendations for testing for latent tuberculosis before starting preventive treatment. Only in the Philippines was a tuberculin skin test recommended, with the option to provide preventive treatment without testing when testing was not available. To exclude active tuberculosis before treatment of latent tuberculosis, most countries (24/25, 96.0%) had a policy on symptomatic screening alone. Symptom-based algorithms to exclude active tuberculosis were defined in the guidelines of 12 countries (Table 2). Of these, 11 countries included cough, fever and weight loss or poor weight gain in their algorithms. The presence of a variety of additional symptoms and signs were also specified: fatigue, wheeze, neck mass, abdominal mass, ascites, diarrhoea, loss of appetite and night

### Table 4. Recommendations for management of latent tuberculosis infection in countries with the highest burdens of tuberculosis or HIV-associated tuberculosis

| Indicator | Total no. of countries reviewed | No. (%) following recommendation |
|-----------|-------------------------------|---------------------------------|
| Guidelines identified on testing and treatment of tuberculosis, with or without HIV | 35 | 30 (85.7) |
| **Latent tuberculosis infection treatment recommended for:** | | |
| Children aged < 5 years with household tuberculosis contact | | |
| Yes | 30 | 25 (83.3) |
| Unknown* | 30 | 5 (16.7) |
| People living with HIV | | |
| Yes | 30 | 29 (96.7) |
| No | 30 | 1 (3.3) |
| **Recommended treatment regimens** | | |
| 6 months isoniazid monotherapy | 30 | 18 (60.0) |
| 6–9 months isoniazid monotherapy | 30 | 6 (20.0) |
| Isoniazid monotherapy, other durations | 30 | 5 (16.7) |
| 6 months isoniazid and 3 months rifampicin | 30 | 1 (3.3) |
| **Monitoring and evaluation indicators** | | |
| Isoniazid preventive therapy for children aged < 5 years with household tuberculosis contact | 30 | 4 (13.3) |
| Screening coverage among children aged < 5 years with household tuberculosis contact | 30 | 7 (23.3) |
| Isoniazid preventive treatment coverage among HIV-infected people | 30 | 18 (60.0) |
| Isoniazid preventive treatment reporting tool available | 30 | 15 (50.0) |
| **Screening of children aged < 5 years old with household tuberculosis contact** | | |
| Clinical examination only | 30 | 24 (80.0) |
| Clinical examination and tuberculin skin test | 30 | 1 (3.3) |
| Unknown | 30 | 5 (16.7) |
| **Screening of HIV-infected people** | | |
| Adults | | |
| Clinical examination only | 30 | 26 (86.7) |
| Clinical examination and tuberculin skin test | 30 | 1 (3.3) |
| Not defined | 30 | 3 (10.0) |
| Children aged > 12 months | | |
| Clinical examination only | 30 | 20 (66.7) |
| Clinical examination and tuberculin skin test | 30 | 1 (3.3) |
| Clinical examination and chest X-ray | 30 | 1 (3.3) |
| Not defined | 30 | 8 (26.7) |

*We could not obtain any relevant treatment guidelines for child contacts and we found no recommendations in other available guidelines (4 countries) or the guidelines were written in a local language and we were unable to translate them with confidence (1 country).
sweats. The exclusion algorithm was not defined in the remaining countries.

For people living with HIV, 86.7% (26/30) of the high-burden countries analysed provided preventive treatment for latent tuberculosis without testing for infection. In South Africa the recommendation was for a tuberculin skin test before starting preventive treatment, but this was not specified by the remaining countries. The majority of the countries (20/30) applied the WHO four-symptom screening rule (current cough, fever, weight loss and night sweats) for excluding pulmonary tuberculosis before starting preventive treatment (Table 2). Five countries specified a different set of symptoms and another five countries did not specify the symptoms to be used in the exclusion algorithm.

For children older than 12 months living with HIV, 66.7% (20/30) of high-burden countries had a recommendation for symptomatic screening alone before starting preventive treatment. Only India had a policy of doing a tuberculin skin test in addition to symptomatic screening before starting such treatment. In Angola, the recommendations were for chest radiography in addition to symptomatic screening. Only eight (26.7%) countries followed the WHO recommendation to exclude active tuberculosis based on poor weight gain, fever, current cough or contact history with a tuberculosis case (Table 2).

**Treatment recommendations**

WHO recommends 6 months of isoniazid monotherapy both for people living with HIV and children with a household contact in high-burden countries (Table 1). Among the high-burden countries reviewed, the majority (18/30) of guidelines recommended 6 months of isoniazid monotherapy, while in six countries (Cambodia, Democratic Republic of Congo, Namibia, Thailand, Viet Nam and Zimbabwe) it was a course of 6–9 months. Central African Republic had a policy of 3 months of rifampicin plus isoniazid, as well as 6 months of isoniazid (Table 4). In Uganda and Pakistan recommendations were for an additional course of prolonged isoniazid treatment (12 and 36 months, respectively) for people living with HIV who have tuberculosis contact history. In South Africa the recommendations were 6–36 months of isoniazid treatment, depending on the results and availability of tuberculin skin testing. In Malawi the policy was continuation of isoniazid treatment for those not receiving antiretroviral therapy but discontinuation once therapy is started.

**Monitoring and evaluation indicators**

Of the high-burden countries, only Kenya, Malawi, South Africa and Thailand had guidelines that defined indicators to evaluate the coverage of tuberculosis screening and preventive treatment among children younger than 5 years with a household contact. Most countries (18/30) defined an indicator for coverage of preventive treatment in people living with HIV (Table 4). In 2017, 10 of these countries reported data to the Global tuberculosis report about the proportion of patients newly enrolled in HIV care who were provided with tuberculosis preventive treatment (Table 5). Fifteen countries included information on recording and reporting tools for isoniazid preventive treatment in their guidelines (Table 4).

**Table 5. Tuberculosis preventive treatment for people newly enrolled in human immunodeficiency virus (HIV) care in countries with the highest burdens of tuberculosis or HIV-associated tuberculosis, 2016**

| Country            | No. (%) of people living with HIV who were newly enrolled in HIV care | Indicator defined in national policy |
|--------------------|-----------------------------------------------------------------------|--------------------------------------|
|                    | Total | Provided with tuberculosis preventive treatment | Diagnosed with active tuberculosis |                                |
| Cambodia           | 3 193 | 631 (19.8) | N/A | Yes |
| Ethiopia           | 36 761 | 19 244 (52.3) | 2 165 (5.9) | Yes |
| India              | 174 125 | 8 135 (4.7) | 21 032 (12.1) | No |
| Indonesia          | 36 294 | 877 (2.4) | 9 792 (27.0) | Yes |
| Liberia            | 4 528 | 390 (8.6) | 1 219 (26.9) | N/A |
| Malawi             | 145 117 | 72 446 (49.9) | 2 402 (1.7) | Yes |
| Mozambique         | 315 712 | 162 646 (51.5) | N/A | Yes |
| Myanmar            | 34 765 | 1 018 (2.9) | 3 960 (11.4) | Yes |
| Nigeria            | 216 293 | 62 781 (29.0) | 14 794 (6.8) | Yes |
| Philippines        | 5 966 | 2 938 (49.2) | 1 645 (27.6) | No |
| Sierra Leone       | 17 843 | 3 609 (20.2) | 1 627 (9.1) | No |
| South Africa       | 751 620 | 385 932 (51.3) | N/A | Yes |
| Swaziland          | 138 016 | 21 320 (15.4) | 2 342 (1.7) | Yes |
| United Republic of Tanzania | 49 351 | 4 202 (8.5) | N/A | Yes |
| Viet Nam           | 13 593 | 3 474 (25.6) | N/A | No |
| Zimbabwe           | 168 968 | 123 846 (73.3) | 9 176 (5.4) | No |

N/A: data not available.

* Data are from the World Health Organization Global tuberculosis report.

**Low-burden countries**

**Risk groups defined**

The risk groups strongly recommended by WHO to be targeted for latent tuberculosis infection screening (Table 1) were included in the national latent tuberculosis infection policies of between 19 (27.9%) and 54 (79.4%) of 68 low-burden countries (Fig. 2). Specifically, 28 countries (42.1%) had a recommendation to screen children younger than 5 years who are contacts of a tuberculosis case. An additional 49 countries (70.1%) had recommendations to screen all contacts of a tuberculosis case, making no distinction between adults and children. For people living with HIV, the policy in 54 (79.4%) countries was to screen people living with HIV for latent tuberculosis infection and in 23 (33.8%) countries it was to screen immunocompromised individuals, which includes people living with HIV.

In contrast, some of the conditionally recommended categories (such as
prisoners and illicit drug users; Table 1) were rarely mentioned in policies (Fig. 2). Notably, some countries included categories that are not recommended by the WHO; nine countries (13.2%) recommended tuberculous preventive treatment for travellers to high tuberculosis burden countries and 10 (14.7%) for patients undergoing abdominal surgery.

Testing recommendations

The WHO latent tuberculosis infection guidelines indicate that in low-burden countries either a tuberculin skin test or interferon-gamma release assay can be used for diagnosis (Table 1). Of the low-burden countries 33/68 (48.5%) had a recommendation to use tuberculin skin testing as the primary screening method compared with only 2/68 (2.8%) recommending interferon assay (Fig. 3). In 21 countries (30.8%), the policy was either tuberculin skin test or interferon assay as the primary method of screening. In addition, multiple policies specified situations when using one test over the other was preferable. For example, in 21 (30.8%) countries the policy was that interferon assay should be used for individuals vaccinated with bacille Calmette–Guérin (BCG) and in 17 (25.0%) countries that interferon assay and tuberculin skin test should be used sequentially. For some countries, including Costa Rica and Uruguay, there were no explicit recommendations on methods of testing.

Discussion

An algorithm for excluding active tuberculosis was specified in the policies of 43 (63.2%) low-burden countries, although the content of that algorithm varied greatly from country to country. In Colombia, Ecuador and Uruguay the recommendation was only that active tuberculosis should be ruled out, with no mention of an exclusion algorithm. All other countries required at least a chest X-ray.

Treatment recommendations

The most commonly recommended treatments in low-burden countries were isoniazid for 6 months (55 countries; 80.8%) or 9 months (55 countries, 80.8%) (Fig. 4), which is in line with the WHO guidelines on treatment of latent tuberculosis (Table 1). Alternative treatment options recommended by the WHO were also frequently mentioned in other policies, but to a lesser extent, ranging from 8 (11.7%) to 51 (75.0%) countries.

Monitoring and evaluation indicators

Monitoring and evaluation of latent tuberculosis infection screening was mentioned in the policies of 32 (47.1%) low-burden countries. Even among the countries that mentioned reporting requirements, those were often specific to active tuberculosis, and therefore the form may be inappropriate for latent tuberculosis infection.
Fig. 3. **Recommendations for screening methods for latent tuberculosis infection in the national policies of low-burden countries**

| Screening method for latent tuberculosis | % of countries recommending method |
|----------------------------------------|----------------------------------|
| Interferon assay (primary)              |                                  |
| Tuberculin skin test for repeat testing (e.g. contact investigation) |                                  |
| Interferon assay for outbreak investigation for children aged >5 years |                                  |
| Interferon assay for immunocompromised people |                                  |
| Sequential use of tuberculin skin test and interferon assay |                                  |
| Tuberculin skin test for contact investigation for children aged <5 years |                                  |
| Interferon assay for BCG-vaccinated people |                                  |
| Tuberculin skin test or interferon assay |                                  |
| Tuberculin skin test (primary)          |                                  |

**BCG**: bacille Calmette-Guérin; **WHO**: World Health Organization.

**Notes**: World Health Organization guidelines are that either tuberculin skin test or interferon-gamma release assay can be used to screen for latent tuberculosis infection. Interferon assay refers to interferon-gamma release assay. The total number of countries analysed was 68.

Guidance, including evidence-based standardized algorithms and a framework of monitoring and evaluation.

The advantage of an evidence-based standardized algorithm was demonstrated by the WHO recommended four-symptom screening rule to exclude active tuberculosis before starting preventive treatment for people living with HIV. This simple algorithm adds to the clarity of the policy and has resulted in a steep rise in implementation of isoniazid preventive treatment among people living with HIV in settings with a high prevalence of tuberculosis and low resources, reaching 1.3 million in 2016. Ensuring that guidelines and algorithms are simple can also facilitate their incorporation into national guidelines. For example, seven out of 10 countries that had algorithms different from the WHO recommendation in a previous policy review have now adopted them (Cameroon, Lesotho, Nigeria, South Africa, Swaziland, United Republic of Tanzania and Viet Nam).

In contrast to the uptake of the screening algorithm for people living with HIV, the corresponding screening algorithm for children was not taken up or defined in national policies. This could be due to the limited evidence about the effectiveness of the algorithm, as it was recommended largely based on expert opinion. Further research is needed to evaluate the performance of the algorithm and identify the optimal approach to exclude active tuberculosis in children before starting preventive treatment.

Consistent with our previous study, we found that the national policies and guidelines in the majority of low-burden countries addressed latent tuberculosis infection specifically or as part of the general tuberculosis policy. The Netherlands has revised its guidelines since the publication of the 2015 WHO latent tuberculosis infection guidelines, which are now mostly consistent with WHO recommendations. A similar revision by other countries would increase alignment between national policies and WHO recommendations. This could lead to more consistent and comprehensive latent tuberculosis infection policies and pave the way for global monitoring and evaluation of the programmatic management of latent tuberculosis infection. Although it may be too early to evaluate the impact of such policy changes on tuberculosis incidence, it is a question that needs to be addressed in the future.

Tuberculin skin testing was the most frequently recommended diagnostic tool. The test requires no laboratory work and is comparably cheaper per unit test than interferon-gamma release assay. That may explain the overwhelming preference for the test over interferon assay in the policies of low-burden countries. Several countries specified additional diagnostic algorithms, such as different tuberculin skin test cut-off points among specific risk groups, sequential use of the two tests, or use of interferon assay for BCG-vaccinated individuals. A systematic review did not show a significant difference in the prediction of progression to active tuberculosis between the two tests in head-to-head analysis. However, there were insufficient data on the predictive utility among specific populations. The diversity of policies across countries calls for more research in how to use interferon-gamma release assay and tuberculin skin testing together among different risk groups based on the underlying tuberculosis epidemiology.

This policy review has limitations. First, determining the latest published guidelines was done through contacting national programmes, WHO offices and through extensive internet searches; however some policies may not have been identified. Even though latent tuberculosis infection monitoring and evaluation indicators may not have been defined in guidelines they may nevertheless exist within a country’s national tuberculosis programme or other guidelines. These limitations might have led to misclassification of the findings. Second, a single person was responsible for reviewing policies, extracting relevant information and entering data within each group (high- and low-burden countries). While this provided internal consistency, the data collection may have been subject to reviewer bias.
In conclusion, our review identified large variations across countries in their national tuberculosis policies. The differences are probably attributable to different country contexts and disease epidemiology and lack of consensus on some aspects of latent tuberculosis infection management. There are unique challenges associated with management of latent tuberculosis infection, such as exclusion of active tuberculosis, testing for latent tuberculosis infection and treatment initiation. It is therefore important to continue to develop clear, implementable and evidence-based WHO policies. An important component of such policies should be monitoring and evaluation, as this is essential to assess progress in the implementation and to make policy decisions. Lack of a monitoring and evaluation component in more than half of the national policies presents a barrier to programmatic management of latent tuberculosis infection.

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Research
National policies on latent tuberculosis
Ann Jagger et al.

摘要
潜伏性结核感染管理国家政策：对 98 个国家的回顾
目标 回顾结核病低负担国家和结核病高负担国家在潜伏性结核感染上的管理政策。
方法 我们根据世界卫生组织（WHO）的标准将向WHO全球结核病项目汇报数据的国家划分为结核病低负担国家和结核病高负担国家。我们通过在线搜索、政府网站、WHO国家办事处和与项目管理者的个人沟通，确定了关于潜伏性结核感染管理的国家政策文件。我们进行了描述性分析，重点关注该国政策与WHO政策建议的差距和偏差。
结果 在113个结核病低负担国家和35个结核病高负担国家中，我们分别获得了68个国家和30个国家的结核病或人类免疫缺陷病毒（HIV）相关结核病的文件。在29个结核病高负担国家（96.7%）和54个（79.7%）结核病低负担国家的政策中，建议对HIV感染者进行潜伏性结核感染的筛查和治疗。25个（83.3%）结核病低负担国家和28个（41.2%）结核病低负担国家的政策规定，对5岁以下、家中有结核病接触的孩子进行筛查。在大多数高负担国家，建议在治疗前单独进行症状筛查，而在全部低负担国家，则在治疗之前进行检测。一些低负担国家的政策不符合WHO建议：其中有9项（13.2%）政策建议对准备去结核病高负担国家的游客进行结核病预防治疗，10项（14.7%）建议患者接受腹部手术。
结论 潜伏性结核感染管理的某些方面缺乏确凿依据，导致国家政策方面有很大差异。这突出了对推动研究，制定清晰、可执行和以证据为基础的WHO政策的需求。

Résumé
Politiques nationales pour la prise en charge de l’infection tuberculeuse latente: revue de 98 pays
Objectif Passer en revue les politiques relatives à la prise en charge de l’infection tuberculeuse latente de pays faiblement ou fortement touchés par la tuberculose.
Méthodes Nous avons séparé les pays qui transmettent des données au Programme mondial de lutte contre la tuberculose de l’Organisation mondiale de la Santé (OMS) selon qu’ils présentaient une charge de morbidité tuberculeuse faible ou élevée, suivant les critères de l’OMS. Nous avons trouvé les politiques nationales pour la prise en charge de la tuberculose latente grâce aux recherches en ligne, aux sites Internet des gouvernements, aux bureaux de l’OMS dans les pays et à des communications personnelles avec les responsables des programmes. Nous avons fait une analyse descriptive axée particulièrement sur les lacunes des politiques et leurs écarts des recommandations de l’OMS.
Résultats Nous avons obtenu des documents de 68 pays sur 113 ayant une faible charge de morbidité tuberculeuse et de 30 pays sur 35 ayant les plus fortes charges de morbidité dues à la tuberculose ou à la tuberculose associée au virus de l’immunodéficience humaine (VIH). Le dépistage et le traitement de l’infection tuberculeuse latente chez les personnes vivant avec le VIH étaient recommandés dans les directives de 29 pays (96.7%) à la charge de morbidité élevée et de 54 pays (79.7%) où cette charge était faible. Le dépistage des enfants de moins de 5 ans en contact familial avec la tuberculose était prévu dans 25 pays (83.3%) à la charge de morbidité élevée et dans 28 (41.2%) à la charge de morbidité faible. Dans la plupart des pays à la charge de morbidité élevée, seule la recherche des symptômes avant traitement était recommandée, tandis que tous les pays à la charge de morbidité faible recommandaient un dépistage avant traitement. Les politiques de certains pays à la charge de morbidité faible ne suivaient pas les recommandations de l’OMS: neuf (13.2%) recommandaient un traitement préventif contre la tuberculose pour les personnes se rendant dans des pays à la charge de morbidité élevée et 10 (14.7%) pour les patients subissant une chirurgie abdominale.
Conclusion En l’absence de preuves solides concernant certains aspects de la prise en charge de l’infection tuberculeuse latente, les politiques nationales varient considérablement les unes des autres. Cela met en lumière la nécessité de faire progresser la recherche et, pour l’OMS, d’élaborer des politiques claires, applicables et fondées sur des éléments probants.

Резюме
Национальная политика по борьбе с латентной туберкулезной инфекцией: обзор 98 стран
Цель Провести обзор политики по борьбе с латентной туберкулезной инфекцией в странах с низким и высоким бременем туберкулеза.
Методы На основе критериев ВОЗ авторы разделили страны, предоставляющие данные для глобальной программы борьбы с туберкулезом Всемирной организации здравоохранения (ВОЗ), на несущие низкое и высокое бремя туберкулеза. Авторы определили документы национальной политики по борьбе с латентным туберкулезом посредством онлайн-поиска, правительственных веб-сайтов, региональных бюро ВОЗ и личного общения с руководителями программ. Был проведен описательный анализ с упором на пробелы и отклонения от рекомендаций ВОЗ в политике.

182
Результаты
Были получены документы от 68 из 113 стран с низким бременем и от 30 из 35 стран с самым высоким бременем туберкулеза или вируса иммунодефицита человека (ВИЧ), связанного с туберкулезом. Скрининговое обследование и лечение латентной туберкулезной инфекции у людей с ВИЧ были рекомендованы в руководящих принципах 29 стран (96,7%) с высоким бременем и 54 стран (79,7%) с низким бременем туберкулеза. Скрининговое обследование детей в возрасте до 5 лет, находящихся в контакте с больными туберкулезом в бытовых условиях, проводилось в рамках политики 25 стран (83,3%) с самым высоким бременем и 28 стран (41,2%) с низким бременем. В большинстве стран с высоким бременем туберкулеза перед началом лечения рекомендовано только скрининговое обследование симптомов, тогда как во всех странах с низким бременем проводится тестирование. Политика некоторых стран с низким бременем не соответствовала рекомендациям ВОЗ: в девяти странах (13,2%) рекомендована профилактика туберкулеза для путешественников, въезжающих в страны с высоким бременем, и в 10 (14,7%) — для пациентов, перенесших абдоминальное хирургическое вмешательство.

Вывод
Отсутствие убедительных доказательств некоторых аспектов борьбы с латентной туберкулезной инфекцией приводит к значительным различиям в национальной политике. Это подчеркивает необходимость проведения исследований и разработки четкой, реализуемой и основанной на фактических данных политики ВОЗ.

Resumen
Las políticas nacionales sobre el tratamiento de la infección de tuberculosis latente: análisis de 98 países

Objetivo
Analizar las políticas sobre el tratamiento de la infección de tuberculosis latente en países con niveles bajos y elevados de tuberculosis.

Métodos
Dividimos a los países que informan datos al Programa Global de Tuberculosis de la Organización Mundial de la Salud (OMS) en nivel de tuberculosis bajo y elevado, conforme a los criterios de la OMS. Identificamos los documentos de políticas nacionales sobre el tratamiento de la tuberculosis latente a través de busquedas en línea, sitios web gubernamentales, sedes nacionales de la OMS y comunicación personal con los administradores del programa. Realizamos un análisis descriptivo enfocado en las desviaciones y los vacíos de las políticas con respecto a las recomendaciones de políticas de la OMS.

Resultados
Obtuvimos documentos de 68 de 113 países con nivel bajo y de 30 de 35 países con los niveles más elevados de tuberculosis o tuberculosis asociada con el virus de la inmunodeficiencia humana (VIH). En las pautas de 29 (96,7%) países con nivel elevado y 54 (79,7%) países con nivel bajo se recomendaron exámenes de detección y tratamiento de la infección de tuberculosis latente en personas que viven con el VIH. La política de 25 (83,3%) países con nivel elevado y de 28 (41,2%) países con nivel bajo se basó en exámenes de detección en niños menores de cinco años de edad con contacto doméstico con tuberculosis. En casi todos los países con nivel elevado, la recomendación consistió únicamente en el examen de detección de los síntomas antes del tratamiento, mientras que, en todos los países con nivel bajo, esta consistió en pruebas antes del tratamiento. Las políticas de algunos países con nivel bajo no cumplen con las recomendaciones de la OMS: nueve (13,2%) recomendaron el tratamiento preventivo de la tuberculosis para viajeros que se dirijan a países con nivel elevado y 10 (14,7%) para pacientes que se sometan a una cirugía abdominal.

Conclusión
La falta de pruebas sólidas sobre ciertos aspectos del tratamiento de la infección de tuberculosis latente da lugar a políticas nacionales que varían considerablemente. Esto subraya la necesidad de realizar investigaciones avanzadas y desarrollar políticas de la OMS que sean claras, implementables y empíricas.
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| Country or territory               | WHO region | Country group                        | Data source                                                                                          |
|-----------------------------------|------------|--------------------------------------|------------------------------------------------------------------------------------------------------|
| **High tuberculosis burden**      |            |                                      |                                                                                                      |
| Angola                            | AFR        | High tuberculosis and HIV-associated | Nota técnica sobre as mudancas no diagnóstico e tratamento da infecção pelo VIH e SIDA em Angola para  |
|                                   |            | tuberculosis burden                  | adultos, gestantes, adolescentes e crianças. Luanda: Ministério da Saúde, Instituto Nacional de Luta contra a  |
|                                   |            |                                      | SIDA; 2014. Rotocolo para avaliação e seguimento de enfermagem aos pacientes VIH+. Luanda: Ministério da  |
|                                   |            |                                      | Saúde, Instituto Nacional de Luta contra a SIDA; 2014.                                              |
| Bangladesh                        | SEA        | High tuberculosis burden             | National guidelines for the management of tuberculosis in children. Dhaka: National Tuberculosis Control |
|                                   |            |                                      | Programme, Ministry of Health and Family Welfare; 2012. National guidelines for antiretroviral therapy,   |
|                                   |            |                                      | Bangladesh. Dhaka: National AIDS/STD Programme, Directorate General Health Services, Ministry of Health  |
|                                   |            |                                      | and Family Welfare; 2011.                                                                          |
| Botswana                          | AFR        | High HIV-associated tuberculosis burden| Botswana national HIV and AIDS treatment guidelines. Gaborone: Ministry of Health; 2012. Tuberculosis/HIV |
|                                   |            |                                      | policy guidelines. Gaborone: Ministry of Health; 2011.                                              |
| Bangladesh                        | SEA        | High tuberculosis burden             | National guidelines for diagnosis and treatment of tuberculosis in children. Phnom Penh: National Centre |
|                                   |            |                                      | for Tuberculosis and Leprosy Control, Ministry of Health, 2008. Standard operating procedures for      |
|                                   |            |                                      | implementing the three I’s in continuum of care settings. Phnom Penh: National Centre for HIV/AIDS  |
|                                   |            |                                      | Dermatology and STD and National Centre for Tuberculosis and Leprosy Control; 2010.                   |
| Cambodia                          | WPR        | High tuberculosis burden             | Guide technique pour les personnels de Santé. Yaoundé: Programme National de Lutte contre la         |
|                                   |            |                                      | Tuberculose, Ministère de la Santé; 2015.                                                           |
| Cameroon                          | AFR        | High HIV-associated tuberculosis burden| Directives nationales de prévention et de prise en charge du VIH au Cameroun. Yaoundé: Ministère de la  |
|                                   |            |                                      | Santé; 2015. Guide technique pour les personnels de Santé. Yaoundé: Programme National de Lutte contre  |
|                                   |            |                                      | la Tuberculose. Ministère de la Santé de l’Hygiène Publique et de la Population; 2016. Guide de prise  |
|                                   |            |                                      | en charge de la tuberculose de l’enfant. Yaoundé: Programme National de Lutte Contre la Ministère de la  |
|                                   |            |                                      | Santé de l’Hygiène Publique et de la Population; 2016.                                              |
| Democratic Republic of the Congo | AFR        | High tuberculosis and HIV-associated | Guide national de prise en charge de l’infection à VIH en RDC. Kinshasa: Programme National de Lutte     |
|                                   |            | tuberculosis burden                  | contre le VIH/SIDA et les ISTs PNLS; 2013. Guide de prise en charge de l’infection VIH-tuberculose dans  |
|                                   |            |                                      | la zone de santé. Kinshasa: Ministère de la Santé Public; 2012.                                        |
| Ethiopia                          | AFR        | High tuberculosis and HIV-associated | Guidelines for clinical programmatic management of tuberculosis, tuberculosis/HIV and leprosy in      |
|                                   |            | tuberculosis burden                  | Ethiopia. Ministry of Health, 2013. National guidelines for comprehensive HIV prevention, care and      |
|                                   |            |                                      | treatment. Addis Ababa: Ministry of Health; 2014. National childhood tuberculosis implementation guide. |
|                                   |            |                                      | Addis Ababa: Ministry of Health; 2015.                                                              |
| Ghana                             | AFR        | High HIV-associated tuberculosis burden| Guidelines for diagnosis and management of tuberculosis in children. Accra: Ghana Health Service; 2012. |
|                                   |            |                                      | Guidelines for the clinical management of tuberculosis and HIV co-infection. Accra: Ghana Health      |
|                                   |            |                                      | Service; 2007. Guidelines for antiretroviral therapy in Ghana. Accra: National HIV/AIDS/STI Control     |
|                                   |            |                                      | Programme, Ministry of Health and Ghana Health Service; 2008.                                        |
| India                             | SEA        | High tuberculosis and HIV-associated | National guidelines on diagnosis and treatment of paediatric tuberculosis. New Delhi: Central        |
|                                   |            | tuberculosis burden                  | Tuberculosis Division, Directorate General of Health Services, Ministry of Health and Family Welfare; 2012. |
|                                   |            |                                      | DOTS-plus guidelines. New Delhi: Revised National Tuberculosis Control Programme; 2010.                |
|                                   |            |                                      | Standards for tuberculosis care in India. New Delhi: Central Tuberculosis Division, Directorate General  |
|                                   |            |                                      | of Health Services, Ministry of Health and Family Welfare; 2014.                                   |
| Indonesia                         | SEA        | High tuberculosis and HIV-associated | National policy on tuberculosis/HIV collaboration [translated]. Jakarta: Ministry of Health, 2015.     |
|                                   |            | tuberculosis burden                  | Technical guidelines on management of tuberculosis in children [translated]. Jakarta: Ministry of Health; 2013. |
| Country or territory | WHO region | Country group | Data source |
|----------------------|------------|--------------|-------------|
| Kenya                | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis in Kenya. Nairobi, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in Kenya. Nairobi, Ministry of Health, 2013. Clinical management of tuberculosis and HIV in Kenya. Nairobi, Ministry of Health, 2012. Clinical management of tuberculosis and HIV in Kenya. Nairobi, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Nairobi, Ministry of Health, 2007. |
| Lesotho              | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2013. National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Maseru, Ministry of Health, 2007. |
| Mozambique           | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2014. National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2012. National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2010. National tuberculosis and leprosy control programme policy and manuals. Maputo, Ministry of Health, 2007. |
| Lesotho              | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2013. National guidelines for the management of tuberculosis and HIV in Lesotho. Maseru, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Maseru, Ministry of Health, 2007. |
| Mozambique           | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2014. National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2012. National guidelines for the management of tuberculosis and HIV in Mozambique. Maputo, Ministry of Health, 2010. National tuberculosis and leprosy control programme policy and manuals. Maputo, Ministry of Health, 2007. |
| Malawi              | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Malawi. Lilongwe, Ministry of Health, 2014. National guidelines for the management of tuberculosis and HIV in Malawi. Lilongwe, Ministry of Health, 2012. National guidelines for the management of tuberculosis and HIV in Malawi. Lilongwe, Ministry of Health, 2010. National tuberculosis and leprosy control programme policy and manuals. Lilongwe, Ministry of Health, 2007. |
| Namibia              | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Namibia. Windhoek, Ministry of Health and Social Services, 2015. National guidelines for the management of tuberculosis and HIV in Namibia. Windhoek, Ministry of Health and Social Services, 2013. National guidelines for the management of tuberculosis and HIV in Namibia. Windhoek, Ministry of Health and Social Services, 2011. National tuberculosis and leprosy control programme policy and manuals. Windhoek, Ministry of Health and Social Services, 2007. |
| Nigeria              | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Nigeria. Abuja, Department of Public Health, Federal Ministry of Health, 2010. National guidelines for the management of tuberculosis and HIV in Nigeria. Abuja, Department of Public Health, Federal Ministry of Health, 2008. National guidelines for the management of tuberculosis and HIV in Nigeria. Abuja, Department of Public Health, Federal Ministry of Health, 2007. National tuberculosis and leprosy control programme policy and manuals. Abuja, Department of Public Health, Federal Ministry of Health, 2007. |
| Pakistan             | EMR        | High tuberculosis burden | National guidelines for the control of tuberculosis in Pakistan. Islamabad, Ministry of National Health Services, Regulation and Coordination, 2015. National guidelines for the control of tuberculosis in Pakistan. Islamabad, Ministry of National Health Services, Regulation and Coordination, 2013. National guidelines for the control of tuberculosis in Pakistan. Islamabad, Ministry of National Health Services, Regulation and Coordination, 2011. National tuberculosis and leprosy control programme policy and manuals. Islamabad, Ministry of National Health Services, Regulation and Coordination, 2007. |
| Papua New Guinea     | WPR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Papua New Guinea. Port Moresby, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in Papua New Guinea. Port Moresby, Ministry of Health, 2013. National guidelines for the management of tuberculosis and HIV in Papua New Guinea. Port Moresby, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Port Moresby, Ministry of Health, 2007. |
| Philippines          | WPR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Philippines. Manila, Department of Health, 2015. National guidelines for the management of tuberculosis and HIV in Philippines. Manila, Department of Health, 2013. National guidelines for the management of tuberculosis and HIV in Philippines. Manila, Department of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Manila, Department of Health, 2007. |
| Sierra Leone         | AFR        | High tuberculosis burden | National guidelines for the prevention and control of tuberculosis in Sierra Leone. Freetown, Ministry of Health and Sanitation, 2015. National guidelines for the prevention and control of tuberculosis in Sierra Leone. Freetown, Ministry of Health and Sanitation, 2013. National guidelines for the prevention and control of tuberculosis in Sierra Leone. Freetown, Ministry of Health and Sanitation, 2011. National tuberculosis and leprosy control programme policy and manuals. Freetown, Ministry of Health and Sanitation, 2007. |
| South Africa         | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in South Africa. Pretoria, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in South Africa. Pretoria, Ministry of Health, 2013. National guidelines for the management of tuberculosis and HIV in South Africa. Pretoria, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Pretoria, Ministry of Health, 2007. |
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| Thailand             | SEA        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Thailand. Nonthaburi, Department of Tuberculosis, Department of Disease Control, Ministry of Public Health, 2013. National guidelines for the management of tuberculosis and HIV in Thailand. Nonthaburi, Department of Tuberculosis, Department of Disease Control, Ministry of Public Health, 2011. National guidelines for the management of tuberculosis and HIV in Thailand. Nonthaburi, Department of Tuberculosis, Department of Disease Control, Ministry of Public Health, 2009. National tuberculosis and leprosy control programme policy and manuals. Nonthaburi, Department of Tuberculosis, Department of Disease Control, Ministry of Public Health, 2007. |
| Uganda               | AFR        | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis and HIV in Uganda. Kampala, Ministry of Health, 2015. National guidelines for the management of tuberculosis and HIV in Uganda. Kampala, Ministry of Health, 2013. National guidelines for the management of tuberculosis and HIV in Uganda. Kampala, Ministry of Health, 2011. National tuberculosis and leprosy control programme policy and manuals. Kampala, Ministry of Health, 2007. |

(continues...)
| Country or territory | WHO region | Country group | Data source |
|----------------------|------------|--------------|-------------|
| United Republic of Tanzania | AFR | High tuberculosis and HIV-associated tuberculosis burden | National guidelines for the management of tuberculosis in children. Dar es Salaam: Ministry of Health and Social Welfare; 2013. Manual for the management of tuberculosis and leprosy. Dar es Salaam: Ministry of Health and Social Welfare; 2013. National policy guidelines for collaborative TB/HIV activities. Dar es Salaam: Ministry of Health and Social Welfare; 2008. National guidelines for the management of HIV and AIDS. Dar es Salaam: Ministry of Health and Social Welfare; 2012. |
| Viet Nam | WPR | High tuberculosis burden | Diagnosis, treatment, and prevention of tuberculosis [translated]. Hanoi: Ministry of Health, 2015. Guidelines for HIV/AIDS diagnosis and treatment. Hanoi: Ministry of Health, 2014. Collaborative protocol for TB/HIV diagnosis, treatment and care management. Hanoi: Ministry of Health, 2007. |
| Zambia | AFR | High tuberculosis and HIV-associated tuberculosis burden | National guidelines on management of tuberculosis in children. Lusaka: Ministry of Health, Division of Leprosy, Tuberculosis and Lung Disease; 2013. Zambia consolidated guidelines for treatment and prevention of HIV infection. Lusaka: Ministry of Health and Ministry of Community Development, Mother and Child Health, 2014. |
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| Low-tuberculosis burden countries | | | |
| Algeria | AFR | Low-tuberculosis burden | Measure de prevention pour les sujets contact. Chapitre VI. In: La prevention de la tuberculose. Alger: Ministère de la Santé, de la Population et de la Réforme Hospitalière; 2011 |
| American Samoa | WPR | Low-tuberculosis burden | Latent tuberculosis infection: a guide for primary care providers. Atlanta: United States Centers for Disease Control and Prevention; 2013. |
| Antigua and Barbuda | AMR | Low tuberculosis burden | Caribbean guidelines for the prevention, treatment, care and control of tuberculosis and HIV/TB. Washington: Caribbean HIV/AIDS Regional Training Network; 2010. |
| Argentina | AMR | Low tuberculosis burden | Programa nacional de control de la tuberculosis. Normas técnicas. Buenos Aires: Ministerio de Salud de la Nación; 2013. |
| Aruba | AMR | Low tuberculosis burden | Caribbean guidelines for the prevention, treatment, care and control of tuberculosis and HIV/tuberculosis. Washington: Caribbean HIV/AIDS Regional Training Network; 2010. |
| Australia | WPR | Low tuberculosis burden | CDNA national guidelines for the public health management of tuberculosis. Canberra: Department of Health; 2013. |
| Austria | EUR | Low tuberculosis burden | Österreichische leitlinie zur tuberkulose – umgebungsuntersuchung. Vienna: Bundesministerium für Gesundheit; 2013. |
| Bahamas | AMR | Low tuberculosis burden | Tuberculosis control [Internet]. Nassau. Ministry of Health; 2011. |
| Barbados | AMR | Low tuberculosis burden | Caribbean guidelines for the prevention, treatment, care and control of tuberculosis and HIV/TB. Washington: Caribbean HIV/AIDS Regional Training Network; 2010. |
| Belgium | EUR | Low tuberculosis burden | Recommendations concernant le dépistage cible et le traitement de l'infection tuberculeuse latente. Brussels: Fondation Contre Les Affections Respiratoires et Pour L’Éducation a La Santé; 2003. |
| Belize | AMR | Low tuberculosis burden | Caribbean guidelines for the prevention, treatment, care and control of tuberculosis and HIV/TB. Washington: Caribbean HIV/AIDS Regional Training Network; 2010. |
| Bermuda | AMR | Low tuberculosis burden | Caribbean guidelines for the prevention, treatment, care and control of tuberculosis and HIV/TB. Washington: Caribbean HIV/AIDS Regional Training Network; 2010. |
| Country or territory | WHO region | Country group | Data source |
|----------------------|------------|---------------|-------------|
| Brazil               | AMR        | Low tuberculosis burden | Manual de recomendaciones para el control de la tuberculosis no Brasil. Brasilia: Ministerio da Saude; 2011. |
| Brunei Darussalam    | WPR        | Low tuberculosis burden | Guidelines for tuberculosis control in Brunei Darussalam. Bandar Seri Begawan. Ministry of Health; 2013. |
| Canada               | AMR        | Low tuberculosis burden | Canadian tuberculosis standards, 7th edition. Ottawa: Public Health Agency of Canada; 2014. |
| Chile                | AMR        | Low tuberculosis burden | Normas técnicas para el control y la eliminación de la tuberculosis. Santiago: Programa Nacional para el Control y la Eliminación de la Tuberculosis; 2014. |
| China, Hong Kong Special Administrative Region | WPR | Low tuberculosis burden | Guidelines on targeted tuberculin testing and treatment of latent tuberculosis infection. Hong Kong: Tuberculosis and Chest Service; 2015 (last update on 31 March 2015). |
| Colombia             | AMR        | Low tuberculosis burden | Guía de promoción de la salud y prevención de enfermedades en la salud pública. Guía II: Guía de atención de la tuberculosis pulmonar y extrapulmonar. Bogotá: Programa de Apoyo a la Reforma de Salud/PARS, Ministerio de la Protección Social; 2005. |
| Costa Rica           | AMR        | Low tuberculosis burden | Manual de normas de atención y vigilancia para el control de la tuberculosis. San José: Programa Nacional para el Control de la Tuberculosis; 2003. |
| Cyprus               | EUR        | Low tuberculosis burden | Prolypsis metadosis fymatosis se xorous parohsy psevosen ygeias. [Prevention of the transmission of tuberculosis to health-care facilities.] Nicosia: Ministry of Health; 2015. |
| Czechia              | EUR        | Low tuberculosis burden | Vyhláška 473/2008 Sb: Ministerstva zdravotnictví ze dne 17 prosince 2008 o systému epidemiologického alarmu pro vybrané infekce. [Declaration 473/2008 Sb by the Ministry of Health of 17 December 2008 on an epidemiological alert system for selected infections.] Prague: Ministry of Health; 2008. |
| Dominican Republic   | AMR        | Low tuberculosis burden | Reglamento tecnico para la prevención y el control de la tuberculosis. Santo Domingo: Ministerio de Salud Pública; 2014. Normas nacionales para el control de la tuberculosis en República Dominicana. Serie de normas nacionales no. 16. Santo Domingo D.N.: Secretaría de Estado de Salud Pública y Asistencia Social, Programa Nacional de Control de la Tuberculosis; 2003. |
| Ecuador              | AMR        | Low tuberculosis burden | Manual de normas y procedimientos para el control de la tuberculosis en Ecuador. Quito: Ministerio de Salud Pública; 2010. |
| Fiji                 | WPR        | Low tuberculosis burden | Tuberculosis guideline. Suva: National Tuberculosis Programme; 2011. |
| Finland              | EUR        | Low tuberculosis burden | Suositus tuberkuloosin kontaktiselvityksen toteuttamiseksi. Helsinki: Terveyden ja hyvinvoinnin laitos; 2011. |
| France               | EUR        | Low tuberculosis burden | Avis du conseil supérieur d’hygiène publique de France section maladies transmissibles. Relatif au traitement de l’ tuberculose-infec. Paris: Direction Générale de la Santé: Ministère de la Santé, de la Famille et des Personnes handicapées; 2003. |
| French Polynesia     | WPR        | Low tuberculosis burden | Guía práctica a la atención de profesionales de salud. Papeete: Dirección de la Santé, Département des Programmes de Prévention, Programme Contre la Tuberculose; 2011. |
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| Greece               | EUR        | Low tuberculosis burden | Fymatiosi: apo ti diagnoxi sti therapia. [Tuberculosis: from diagnosis to therapies.] Athens: Elliniki Pneumologiki Etaireia; 2012. |
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