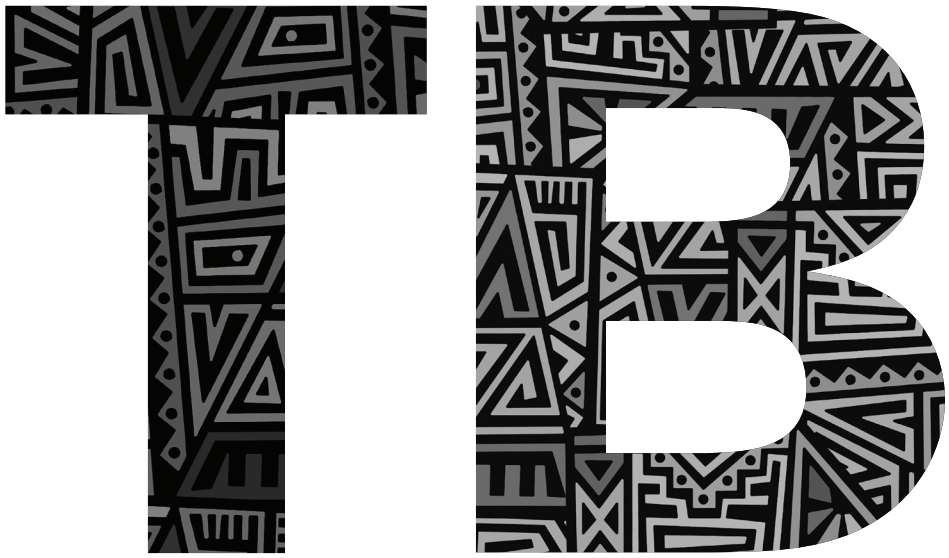
TB

Guidance for

Tuberculosis Prevention and Control in Indigenous Populations

in the Region of the Americas

PAHO
Pan American Health Organization
World Health Organization
REGIONAL OFFICE FOR THE Americas
FIN DE LA TB



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Acronyms

CHW	Community health worker
CSO	Civil society organization
DOT	Directly observed therapy
DOTS	Name of the strategy recommended internationally until 2005
DR-TB	Drug-resistant tuberculosis
DST	Drug susceptibility testing
HIV	Human immunodeficiency virus
LTBI	Latent tuberculosis infection
MDR-TB	Multidrug-resistant tuberculosis
NGO	Nongovernmental organization
NTP	National tuberculosis program
PAHO	Pan American Health Organization
SDGs	Sustainable Development Goals
TB	Tuberculosis
TB/HIV	Tuberculosis and human immunodeficiency virus coinfection
VOT	Video-observed therapy
WHO	World Health Organization

Introduction

In contrast to long-held beliefs, tuberculosis (TB) was present in the Region of the Americas prior to colonization, as numerous archeological findings have shown (*1, 2*). However, it was during European settlement that TB reached epidemic levels, with rapid transmission in indigenous populations. Other factors helped to spread the disease, including social marginalization and food insecurity, as well as other infections such as syphilis (*3*).

As in the rest of the world, TB is a public health problem in the Region, especially in indigenous populations, whose incidence rates far surpass those of the general population (*4*). To control the infection in populations identified as particularly vulnerable, it is necessary to respond to their various needs from an intercultural perspective. This means taking a holistic approach—from a standpoint of equality and mutual respect—that considers the value of each people's cultural practices, including their lifestyles, value systems, traditions, and worldviews.

There has certainly been progress in recognizing the need for an intercultural approach to health services. However, obstacles persist due to discrimination, racism, and exclusion of indigenous peoples, Afro-descendants, Roma populations, and other ethnic groups, in some cases because they are not recognized and their culture is not valued (*5*).

In order to support implementation of the End TB Strategy with an intercultural approach that aligns with the priority lines of its current *Policy on Ethnicity and Health*, the Pan American Health Organization (PAHO) prepared the current guidance. This guidance should also serve for the operational development of the Strategy in the Region's indigenous populations. Accordingly, this document will be particularly useful for the following actors:

- National, subnational, and local health sector authorities.
- Heads of national and subnational TB programs and their technical teams that work with indigenous peoples.
- Those responsible for indigenous and ethnic matters in ministries of health or other ministries.
- Leaders of national and subnational indigenous associations and organizations related to health.
- Health workers at the local level that serve indigenous peoples.
- Groups of current and former TB patients in indigenous areas.
- Organized civil society organizations (CSOs) and nongovernmental organizations (NGOs) that work with or are going to work to support indigenous peoples.
- Investigators, educators, and potential donors.

Leadership for implementation of this guidance should come from each country's national tuberculosis programs, together with those responsible for indigenous and ethnic matters in the ministries of health and governmental entities related to the subject, in close coordination with the subnational levels.

It is important to point out that this document compiles PAHO's accumulated experience and the best practices of some of its Member States in recent years. The discussions and experiences shared at regional meetings on the subject are also included, with an emphasis on innovation and social inclusion. This approach needs to urgently and quickly change traditional paradigms. It is necessary to move away from specific actions that gradually reduce TB incidence to promote more intense multisectoral action, which has proven to be more effective for quickly reducing the epidemic.

This document presents the convergence between the End TB Strategy's pillars and principles and the current PAHO Policy on Ethnicity and Health. It also presents epidemiological indicators of TB in indigenous populations in some of the countries that have current data and guidelines to address TB in these populations.

The guidance is divided into two groups. The first is **general guidance for the intercultural approach to TB**, which should be prepared based on each indigenous people's general vision of health and illness and their TB-related beliefs and practices. The second is **guidance for the implementation of the End TB Strategy** and its interaction with the PAHO Policy on Ethnicity and Health.

Each specific guideline is developed based on the conceptualization of the most relevant technical aspects, the steps that need to be taken to implement the guideline within the framework of the End TB Strategy and the *Policy on Ethnicity and Health*, and a brief description of one or more best practices compiled from the bibliography in this field or programmatic exercises put into practice mainly in the countries of the Americas.

KEY ASPECTS TO ADDRESS TUBERCULOSIS IN THE REGION'S INDIGENOUS POPULATIONS

- Prioritize a system for tuberculosis (TB) prevention and control for indigenous peoples at the regional, national, and subnational levels that is sustainable in the long term.
- Recognize in an effective, resolute manner the existence and legitimacy of traditional health systems, their representatives, and the customary practice of traditional medicine. Furthermore, promote mechanisms to favor the interrelationship and complementarity between the two health systems.
- Have access to up-to-date demographic information on indigenous peoples and their situation with regard to communicable diseases such as TB.
- Investigate and recognize indigenous peoples' health-related knowledge, attitudes, and practices, especially with regard to TB and human immunodeficiency virus (HIV), as an essential part of the approach to disease in ethnic groups that are highly vulnerable and considered to be key populations that require differentiated, focused interventions.
- Address the needs and viewpoints of the most vulnerable groups of indigenous societies, taking into account the gaps associated with gender and inter-ethnic discrimination, without overlooking people with disabilities, children and adolescents, and the elderly (*6*).
- Plan, prepare, and develop intercultural processes between indigenous authorities and governmental and nongovernmental institutions, including the private sector. Human resources that participate in these processes should receive training that guarantees an intercultural, interprogrammatic, and multisectoral approach when prioritizing TB prevention and control activities in indigenous peoples, within the framework of universal access to health and universal health coverage.
- Address determinants of TB such as extreme poverty, malnutrition, alcoholism, drug dependence, overcrowding and housing quality, prevention of HIV and sexually transmitted infections, tobacco use, diabetes, and other factors that could be associated with certain indigenous people's cultural practices, uses, or customs.
- Strengthen the work and integration of civil society, affected people, and their families in intercultural processes that aim to bring health promotion, disease prevention, and TB diagnosis and treatment activities closer to indigenous communities.
- Implement actions to control TB that consider all sociocultural, geographical, historical, and political diversities.

CHAPTER 1

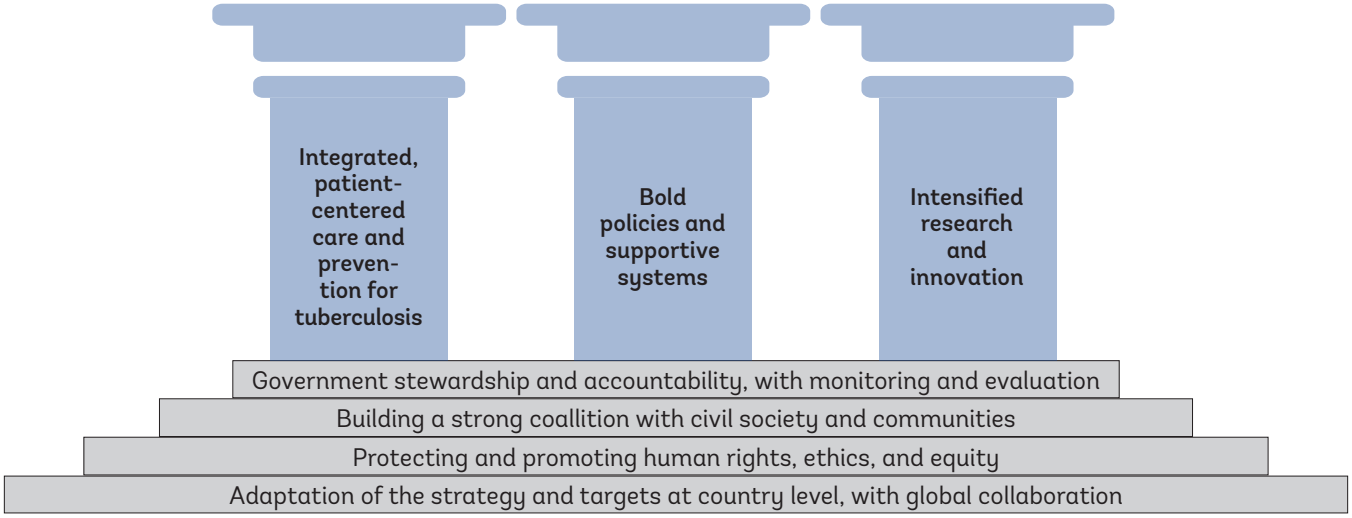
THE END TB STRATEGY, THE REGIONAL *POLICY ON ETHNICITY AND HEALTH*, AND THE SITUATION ANALYSIS OF TUBERCULOSIS IN THE REGION'S INDIGENOUS POPULATIONS

1.1 The End TB Strategy

Since 1993, when the World Health Organization (WHO) declared the TB epidemic to be a global public health emergency, there have been advances and achievements. Even so, this disease remains a serious public health problem throughout the world. With the goal of ending the epidemic by 2035, the End TB Strategy (Figure 1) was adopted in 2014 during the 67th World Health Assembly, in the framework of the Sustainable Development Goals (SDGs).

The Pan American Health Organization (PAHO) incorporated the End TB Strategy into its *Plan of Action for the Prevention and Control of Tuberculosis* 2016-2019 (*7*), which included: "[...] provide care for the specific cultural features of indigenous populations, Afro-descendants, and other minority groups." Implementation of the End TB Strategy was strengthened by the political declaration at the United Nations General Assembly High-level Meeting on Ending TB in 2018, at which Member States agreed to accelerate their efforts to end the disease (*8*). This declaration recognizes the impact and burden of TB in vulnerable populations like indigenous peoples and calls for their prioritization.

Figure 1 **Pillars, principles, and components of the End TB Strategy**



Pillars and components

1. Integrated, patient-centered care and prevention for tuberculosis

1.1 Diagnosis, universal access to tuberculosis drug susceptibility testing, and systematic screening of high-risk groups
1.2 Treatment of people with tuberculosis, including drug-resistant tuberculosis, using patient-centered support
1.3 Collaborative TB/HIV activities and management of comorbidities
1.4 Preventive treatment of people at high risk and vaccination against tuberculosis

2. Bold policies and supportive systems

2.1 Political commitment with adequate resources for tuberculosis care and prevention
2.2 Engagement of communities, civil society organizations, and public and private sector health service providers
2.3 Universal health coverage policy and regulatory frameworks for case notification, vital registration, quality and rational use of medicines, and infection control
2.4 Social protection, poverty alleviation, and actions on other determinants of tuberculosis

3. Intensified research and innovation

3.1 Discovery, development, and rapid uptake of new tools, interventions, and strategies
3.2 Research to optimize the implementation and impact of the End TB Strategy and promote innovations

1.2 Policy on Ethnicity and Health

Since the 1990s, PAHO has approved guidance and supported various interventions that incorporate an intercultural approach to the health of indigenous peoples (*9, 10, 11*). In 2017, in the context of the 29th Pan American Sanitary Conference and the 69th Session of the WHO Regional Committee for the Americas, the PAHO Member States approved the *Policy on Ethnicity and Health* (*5*) (Figure 2) that affirmed:

> "The invisibility and exclusion experienced by these populations poses a challenge for meeting the targets of the health-related Sustainable Development Goals (SDGs), including those on universal access to health and universal health coverage, tuberculosis, malaria, and mental health, among others."

With the approval of the *Policy on Ethnicity and Health*, the Region of the Americas became the first WHO region to recognize the importance of adopting an intercultural approach to addressing inequities in health.

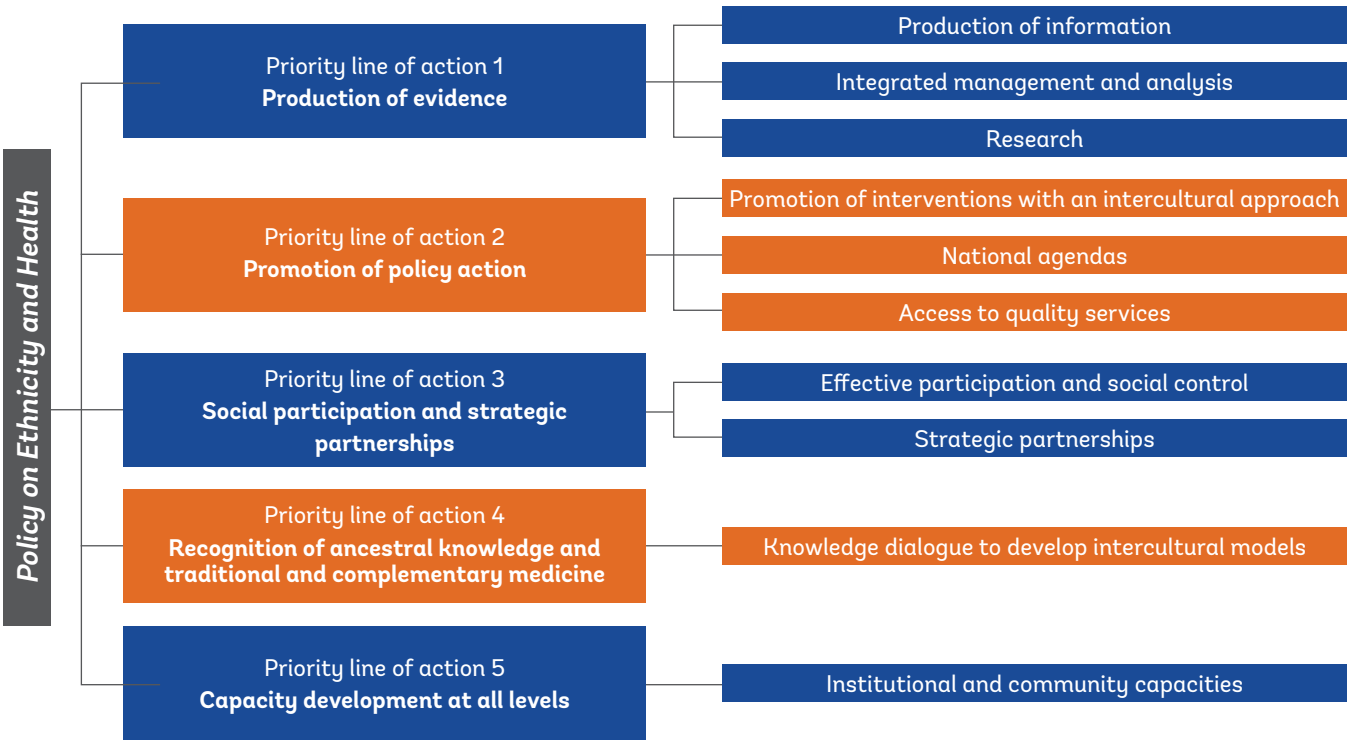
The convergence between the components of the End TB Strategy's pillars and the new PAHO *Policy on Ethnicity and Health's* priority lines represent an opportunity to define technical guidance on the topic. This allows for an intercultural approach to the epidemic in one of the most vulnerable population groups in the Region, with among the highest incidence rates (*4*) and greatest health inequities (*12*).

1.3 Situation analysis of tuberculosis in the Region's indigenous populations

According to data available from censuses and estimates, the indigenous population of the Americas comprised approximately 44.8 million inhabitants in 2010, distributed across 826 indigenous peoples. This information includes published data from the following 17 countries: Argentina, Bolivia (Plurinational State of), Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay, and Venezuela (Bolivarian Republic of). It has also been described that, in 2009, the Region had at least 24 indigenous peoples in non-Spanish-speaking countries: 11 in Suriname, nine in Guyana, three in Belize, and one in Dominica (*13*).

Although the data available on indigenous peoples' health situation are still insufficient and fragmented, they confirm that these ethnic groups' epidemiological profiles continue to show high incidence and mortality rates due to communicable diseases such as TB and noncommunicable diseases such as diabetes associated with malnutrition and obesity (*14*).

Figure 2 **Key aspects of the *Policy on Ethnicity and Health* that should be considered when implementing the current guidance**



A systematic literature review in this field concluded that in several of the Region's countries, some indigenous populations reported TB incidences as much as 75 times higher than the incidence in the general population, for example in the Ache community of Paraguay. Among the Amazon peoples of Brazil, cases often exceed 1,000 per 100,000 population. The incidence among the Yanomami people (37 times higher than in the non-indigenous population) is particularly high (4).

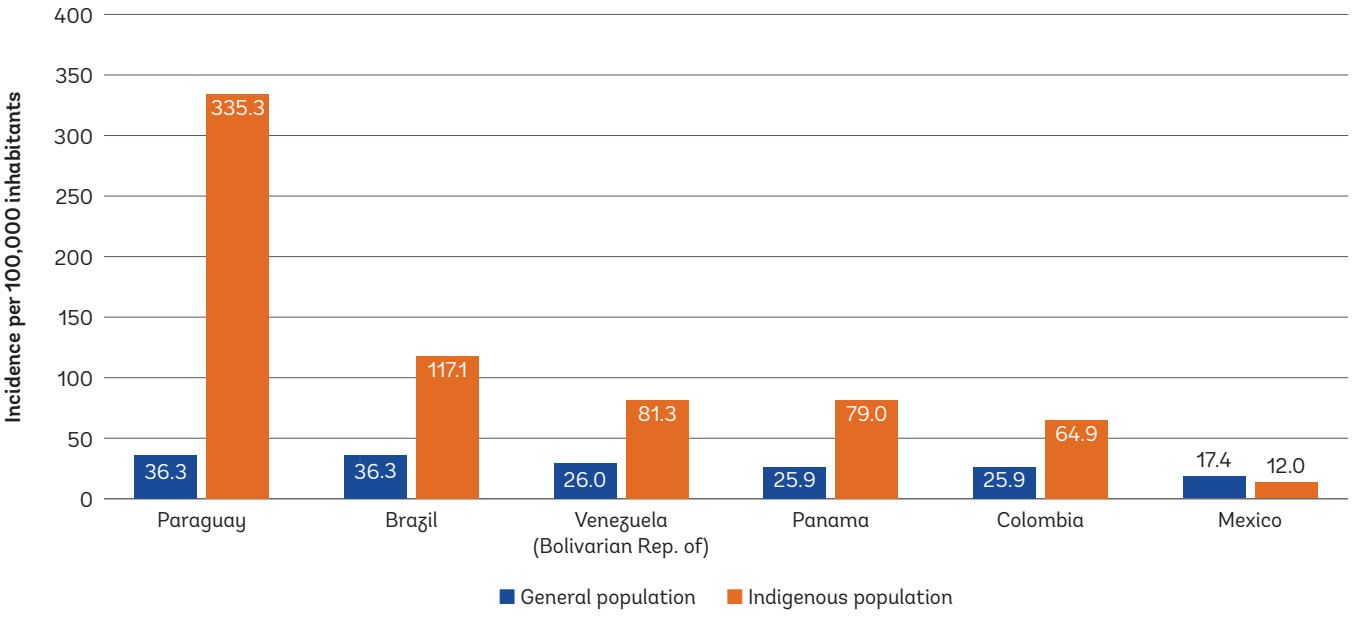
In 2018, PAHO implemented an exercise to collect information on TB in indigenous populations in Latin American and Caribbean countries. The process identified 12 countries (Belize, Brazil, Chile, Colombia, Costa Rica, Guyana, Mexico, Panama, Paraguay, Peru, Suriname, and Venezuela [Bolivarian Republic of]) that have incorporated the variable "ethnic group" or "indigenous population" into their data collection instruments for the national tuberculosis program (NTP) or TB surveillance program, and that had available data. Other countries, like Honduras, have implemented the variable, but do not have data. Guatemala incorporated the variable at the end of the 2016, so has data from 2017, and Ecuador incorporated the variable into its information system in 2018.

When TB incidences in some countries' indigenous peoples[1] are compared with those of the general population, major differences are frequently observed. The incidence in ethnic groups is 2 to 10 times higher than in the general population (Figure 3).

Even though Mexico recorded the highest number of cases per year during the period described (Table 1), it is the only country where the incidence is lower in indigenous populations than in the general population (Figure 3).

In Paraguay, a person who identifies as indigenous is nine times more likely to have TB than a non-indigenous person. In countries like Brazil, Colombia, Panama, and Venezuela (Bolivarian Republic of), the probability is two to three times greater (Table 2).

Figure 3 **Tuberculosis incidence in the general population and the indigenous population in 6 countries of the Region of the Americas with available data, 2016**



Source: Information provided by the National Tuberculosis Programs through countries' PAHO/WHO Representative Offices, 2018.

[1] Many countries experienced difficulties in the construction of this and other indicators due to a lack of official population denominators.

Table 1 **Tuberculosis cases reported in indigenous populations in 12 countries in the Region of the Americas with available data, 2012-2016**

Country	2012	2013	2014	2015	2016	Total
Mexico	1,572	1,505	1,566	1,567	1,469	**7,679**
Brazil	824	879	804	933	865	**4,305**
Colombia	641	703	735	689	832	**3,600**
Venezuela (Bolivarian Republic of)	716	619	557	571	681	**3,144**
Paraguay	520	418	375	337	427	**2,077**
Panama	d.n.a.	d.n.a.	d.n.a.	253	391	**644**
Chile	94	65	63	90	113	**425**
Peru	d.n.a.	d.n.a.	d.n.a.	243	165	**408**
Guyana	d.n.a.	d.n.a.	d.n.a.	83	71	**154**
Belize	17	22	17	15	19	**90**
Costa Rica	13	8	18	8	10	**57**
Suriname	10	11	12	12	6	**51**
Annual total	**4,355**	**4,165**	**4,094**	**4,735**	**5,016**	**22,634**

d.n.a.: data not available.

Source: Information provided by the National Tuberculosis Programs through countries' PAHO/WHO Representative Offices, 2018.

Table 2 **Relative risk of tuberculosis in indigenous populations in 6 countries in the Region of the Americas with available data, 2016**

Country	Indigenous population (%)	Number of new TB cases reported	Number of new TB cases reported in indigenous peoples	TB in indigenous peoples (%)	TB incidence	TB incidence in indigenous peoples	Relative risk
Paraguay	1,9	2,438	427	17.5	36.3	335.3	9.3
Brasil	0,4	75,444	865	1.1	36.3	117.1	3.2
Venezuela (Bolivarian Republic of)	2,7	8,197	681	8.3	26	81.3	3.1
Panama	1,0	12,581	391	3.1	25.9	79	3.1
Colombia	2,4	12,581	761	6.7	25.9	64.9	2.5
Mexico	9,6	22,193	1469	6.6	17.4	12	0.7

Source: Information provided by the National Tuberculosis Programs through countries' PAHO/WHO Representative Offices, 2018.

CHAPTER 2

GENERAL GUIDANCE

The objective of this guidance is to facilitate the process for indigenous peoples to analyze, define, and recognize the realities and worldviews that characterize them.

2.1 General guideline 1

Analyze the behavior of tuberculosis and health systems and services in indigenous populations

To implement and strengthen the End TB Strategy in indigenous populations, it is necessary to carry out two analyses. The first is an epidemiological analysis using available national and subnational data to understand the distribution of the burden of the disease and identify the geographical areas, subpopulations, or sectors with higher TB burdens. The second is an analysis of Western and traditional health systems and services, at all levels, to understand the paths followed by patients, the availability of needed services throughout patients' life course, and the sociocultural, economic, and geographical barriers that people with TB face from the onset of symptoms until after they complete treatment.

Comparison of the epidemiological and health services analyses will make it possible to identify needed activities and prioritize interventions that facilitate the implementation and strengthening of the strategy through the intercultural adaptation of care. The goal is to improve operational conditions and use the results to allocate and reallocate available resources or mobilize new resources (*15*).

For this guideline and the others in this document, a multidisciplinary, intersectoral team needs to be established to support the analyses of TB behavior and health systems and services in indigenous populations. Actions will be also required for adequate TB case finding, screening, treatment, and monitoring and the interprogrammatic and intersectoral actions that this require. The suggested personnel for this team is as follows:

- Health workers, at least one of whom must work in the NTP at the national or subnational level, and professionals from the social and human sciences with skills and competencies in intercultural health, or who are in training to acquire these competencies, prioritizing professionals of indigenous origin.
- Members of the indigenous or ethnic affairs group at the ministry of health at the national or subnational level.
- Members of the health services area of the ministry of health at the national or subnational level.
- National or subnational organizations that represent indigenous populations.
- CSOs of indigenous peoples or that have experience working with them.
- Traditional medicine representatives and indigenous leaders.
- Representatives of academia and NGOs.

This list, above, is not exhaustive and should be adapted to each country's situation. Implementation of this guideline will help to close the existing gap in the production, integrated management, and analysis of data disaggregated by ethnic origin and qualitative and quantitative data on the health of indigenous peoples.

Steps for implementing General guideline 1

- Form an intersectoral, multidisciplinary work team.
- Compile existing information on epidemiology and on Western and traditional health systems and services, primarily from primary and secondary sources (*16*).
- Discuss and analyze the information compiled in three specific working groups (behavior of TB including comorbidities, health systems, and health services) and disaggregate it by key aspects (situation, achievements, weaknesses, and opportunities) identified for implementation and strengthening of the strategy.[2]
- Jointly analyze the results of each group's specific topic and prepare graphic summaries of each that will serve as inputs for developing the care route and prioritizing potential short-, medium- and long-term key interventions, mainly in resource-limited areas.
- Within the team, select a coordinating group for implementation and monitoring of the guidelines, ensuring the effective participation of indigenous leaders and coordination with traditional medicine agents and spiritual leaders from each indigenous group.

One example of a best practice comes from Ecuador, where the Federation of Indigenous Organizations of Sucumbíos (FOISE) and the International Network of Health Organizations (RIOS) developed a pilot project that implemented the DOTS strategy in the indigenous communities of Sucumbíos between 1997 and 2003. One of its principal lines of action was a community health diagnosis that applied participatory mechanisms involving various actors, mainly people from indigenous populations (*17*).

[2] Three separate or parallel spaces are suggested, according to logistical feasibility, in which perspectives about the following topics can be discussed: the epidemiology of TB, including comorbidities such as HIV, malnutrition, diabetes, syphilis and viral hepatitis, among others; and health systems and services from Western and traditional perspectives.

2.2 General guideline 2

Recognize tuberculosis-related knowledge and practices and develop intercultural care routes in indigenous populations

Advocacy, knowledge of the epidemic, and coordination and collaboration processes are three necessary initial actions for appropriate implementation of the End TB Strategy. The first requirement for applying this strategy in indigenous populations is to defend and reach adequate high-level political commitment, in addition to having strong multisectoral collaboration and mechanisms to direct the adaptation and application of the strategy. This involves understanding and recognizing each indigenous group's TB-related knowledge, attitudes, and practices based on their worldview. It also involves building intercultural care routes that make it possible for practitioners of traditional medicine, leaders, agents, promoters, health workers, and the community to see themselves reflected in an integrated system, and to be included in these routes and understand, use, and disseminate them. It is fundamental to establish baselines and TB trends on each indigenous group using reliable, quality information.

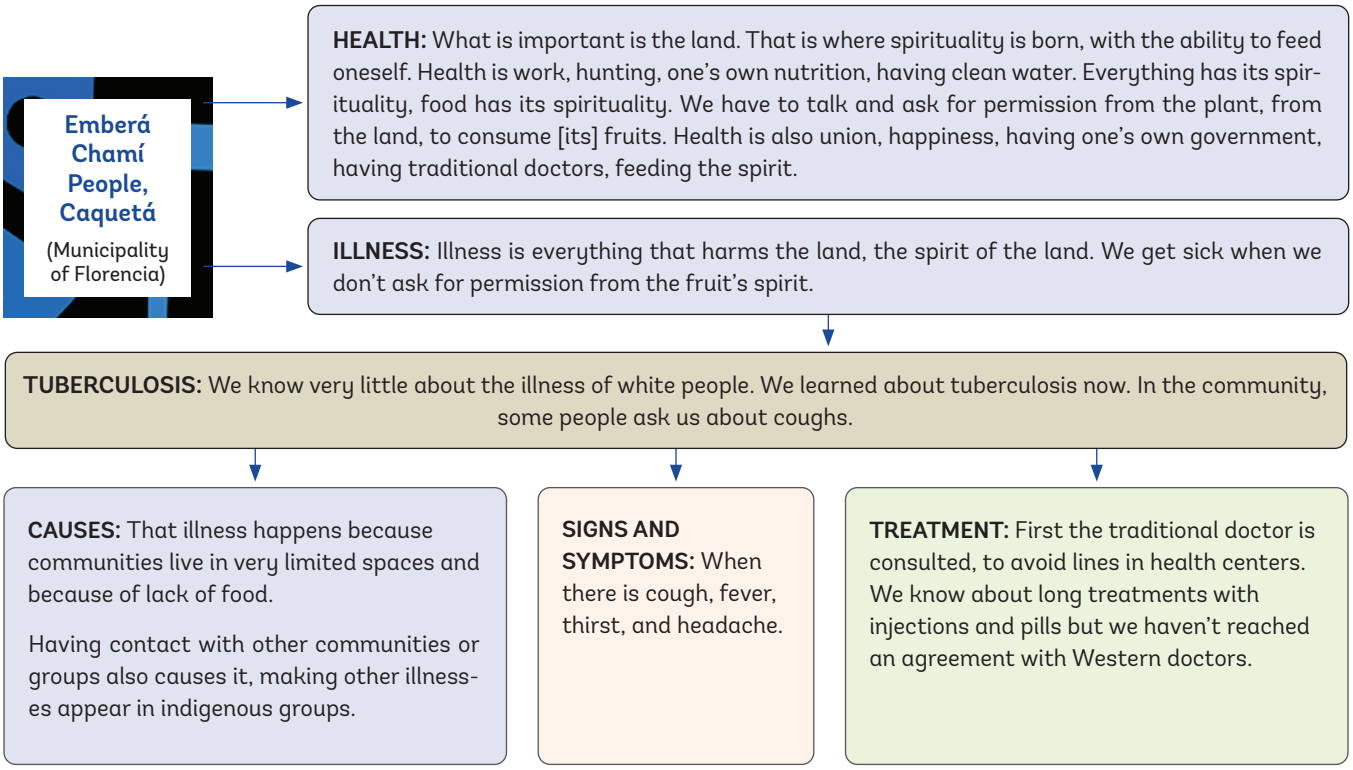
Adequate implementation of this guideline requires promotion of a knowledge dialogue that facilitates the development and strengthening of intercultural health models. These models are a means of providing care focused on the needs of people and communities, articulating and integrating traditional medicine and ancestral knowledge with health services, and adopting self-care interventions with an intercultural approach.

Steps for implementing General guideline 2

- Prepare a directory that includes key actors (indigenous and non-indigenous leaders), representatives of traditional and Western medicine, NGOs, and other organizations and defines their roles in the community. Its development can start based on information compiled during the evaluation (General guideline 1).
- Hold knowledge dialogues with the key actors identified to discuss the indigenous group's knowledge, attitudes and practices related to health, illness, and tuberculosis, including its causes, signs and symptoms, treatment, and treatment adherence.
- Prepare a graphic summary of knowledge, attitudes, and practices (Figure 4).
- Confirm with the participants in the dialogue that what is represented in the graphic summary is knowledge recognized by other indigenous group members who did not participate in the process (validation).
- Design care routes for indigenous patients within or outside of traditional communities that integrate actors and services for both types of medicine, including comorbidities.
- Plan incentives in the health systems and services offered to indigenous peoples for good performance related to case seeking, screening, treatment, rehabilitation, and palliative care actions for people with TB.
- Prepare an action plan with priority interventions, including monitoring and evaluation.

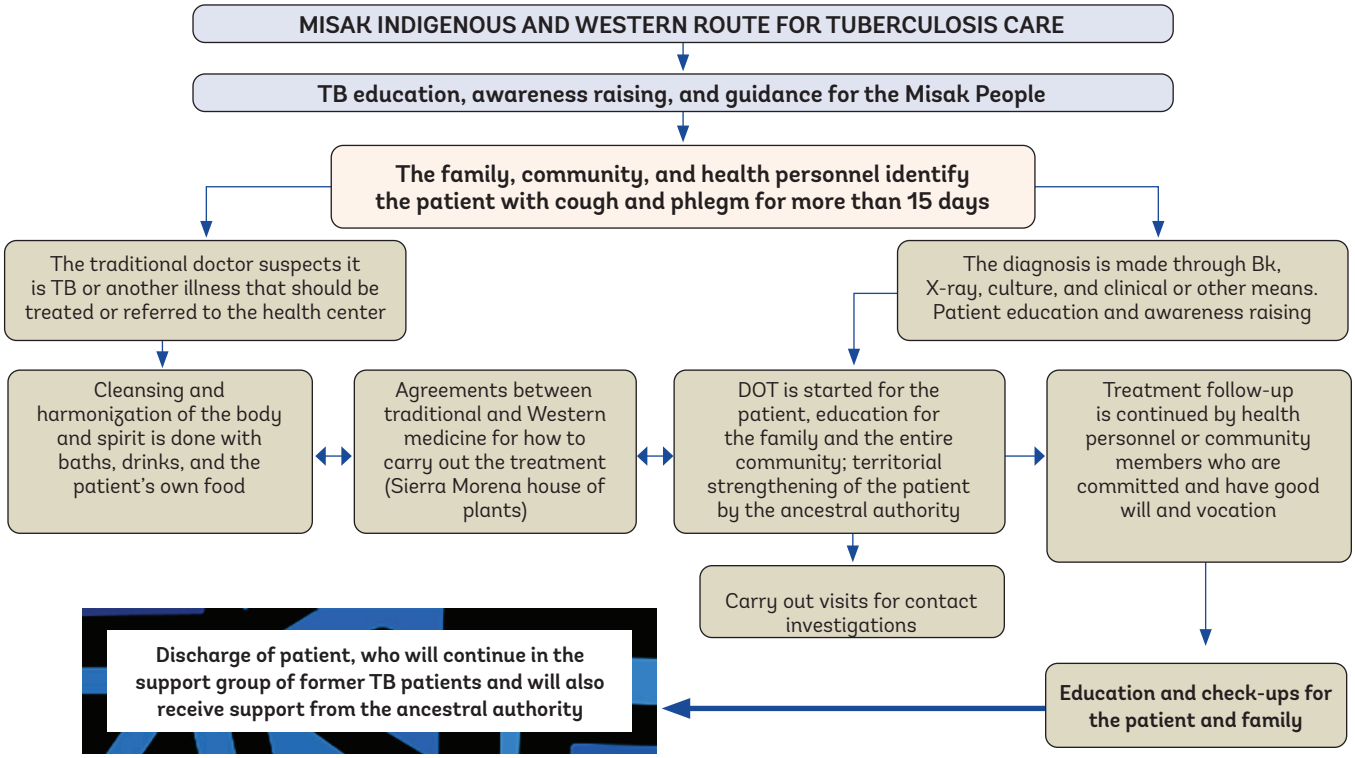
Colombia contributes an example of a best practice. From 2002 to 2012, activities to fight TB were carried out in several indigenous communities (Figures 4 and 5) and different departments, with support from the Canadian International Development Agency (CIDA) and PAHO. Based on this experience, the Ministry of Health and Social Protection committed to financing, adapting, and adopting the Stop TB Strategy in a large part of the country. It prioritized 25 departments, 29 municipalities, and 20 indigenous peoples. Key intercultural activities were targeted at identifying the health-illness-TB worldview of each indigenous group and constructing a TB care route that was shared jointly between traditional and Western medicine.

Figure 4 **Worldview of the Emberá Chamí people in the municipality of Florencia (Caquetá, Colombia)**



Source: Technical Cooperation Agreement between the Pan American Health Organization and the Ministry of Health and Social Protection 486/10, 2011.

Figure 5 **Intercultural route for tuberculosis care among the Misak people in Cauca (Colombia)**



Source: Technical cooperation agreement between the Pan American Health Organization and the Ministry of Health and Social Protection 486/10, 2011.

CHAPTER 3

GUIDANCE FOR IMPLEMENTING THE END TB STRATEGY AND THE *POLICY ON ETHNICITY AND HEALTH* WITH THE INDIGENOUS PEOPLES OF THE AMERICAS

PILLAR 1

INTEGRATED PATIENT-CENTERED CARE AND PREVENTION

Pillar 1 of the End TB Strategy was developed based on the DOTS strategy (1994-2005) and the Stop TB Strategy (2006-2015) and includes all of health services' essential functions. Its application requires close collaboration with all stakeholders, including the social sector, civil society, and communities. This pillar is focused on providing universal access to TB treatment and prevention, with priority given to groups in conditions of vulnerability and hard-to-reach populations (*18*).

To apply the components of this pillar, WHO has compiled different documents and publications (*19*). These can be adapted and used to implement the components in the different contexts where indigenous peoples live their daily lives in Latin America and the Caribbean. This includes cities and populations where people from indigenous populations from all of Latin America have migrated due to phenomena of violence or in search of better opportunities, among other causes.

The objective of this pillar is to provide high-quality TB screening and treatment for all patients from indigenous populations, tapping the potential contribution of traditional and complementary medicine (*20*) and avoiding scenarios in which the affected people or their families have to cope with catastrophic costs.

Component 1. Diagnosis, universal access to tuberculosis drug susceptibility testing (DST), and systematic screening of high-risk groups

Guideline 1.1.1

Strengthen the rapid diagnosis of tuberculosis in indigenous populations

In 2011, WHO prepared a technical document that describes approaches, recommendations, and tools for early detection of TB (*21*), which is of great assistance for practically addressing key aspects of this guideline. The objective is to improve access to timely, quality diagnosis for all members of indigenous populations, including a high percentage of children and older people who are usually not able to be evaluated, diagnosed, and treated on time.

Initially, national TB guidelines should be updated to incorporate diagnostic algorithms that promote the progressive expansion of technologies supported by WHO (*9*) and that clearly designate their use in poor populations and populations in conditions of vulnerability, as could be the case for indigenous populations. Tests like the Xpert® MTB/RIF have proven to be feasible, specific, and of great help in shortening the time to TB treatment initiation in indigenous communities that live in remote regions with a high burden of disease (*22*). Additionally, these technologies represent large savings for the health system since they prevent higher expenditures on aspects like transport and hospitalization when patients are transferred from their places of origin to medical referral centers (*23*). In people with HIV, WHO also recommends the use of the screening test based on the detection of mycobacterial lipoarabinomannan antigen (LF-LAM) in urine (*24*).

Timely TB diagnosis in indigenous populations requires a combination of interventions based on knowledge of the population's behavior and health care seeking, both in the conventional Western health system and in their own traditional medicine system, which they seek out more frequently and in which they usually have greater confidence. It is essential for the health or community workers who make the initial contact with patients presumed to have TB to be trained to acquire abilities and competencies in intercultural health and have good knowledge of the diagnostic tests used, the administrative processes required, and the time to receive results. If this is not possible, they should at least know where or to whom to refer the patient so that the person can be captured and enter a diagnostic route. Calculation of the need for diagnostic services is also required (*25*), in particular the infrastructure for adequate coverage of laboratory networks and X-ray based diagnoses (ideally portable for scattered rural areas), technological needs, and human resources. To achieve this, it is necessary to consider the size of the population that needs to be served, the epidemiological situation, the diagnostic algorithm that will be used for the different groups at risk of TB, TB/HIV co-infection, or drug-resistant tuberculosis (DR-TB), and the current capacity of laboratories, in particular to carry out TB DST, referral and counter-referral of samples or patients, and monitoring (*18*).

Health systems should guarantee the timely collection and transport of samples, mechanisms for more effective referrals between the different levels of health services, and the progressive use of computing tools to accelerate the reporting of results and improve general operations. The timely diagnosis of multidrug-resistant tuberculosis (MDR-TB) requires expanded access to TB DST and

arrangements to decentralize this testing, so that all regions of each country have the established capacity to carry out molecular tests like Xpert® MTB/RIF. This allows both rapid TB diagnosis and DST for rifampicin, an essential drug in the first line of drug-susceptible tuberculosis treatment options.

At present, some diagnostic algorithms recommend the use of rapid molecular methods to detect *M. tuberculosis* and resistance have been adapted according to publications by the Global Laboratory Initiative (GLI) for different scenarios in the Region of the Americas, consonant with each country's conditions and populations. Implementation of the algorithm for vulnerable populations suggested by PAHO is recommended, in line with the country's algorithm.

Adequate implementation of this guideline will promote the representation of indigenous peoples in health systems to ensure that case finding and screening is culturally relevant and that non-indigenous institutional and community health personnel are capable of understanding and linking to traditional knowledge and practices identified during knowledge dialogues (General guideline 2).

Steps for implementing Guideline 1.1.1

- Evaluate the need to acquire, allocate, or reallocate equipment, supplies, and personnel (local professional, technical, and support human resources), for training and standardization of technical procedures, and for training to acquire abilities and competencies in both intercultural health and general logistics.
- Provide education and raise awareness about diagnostic testing using the rapid methods recommended by WHO, chest X-rays, and DST for health workers, and technical and community partners in general (mainly indigenous authorities and traditional doctors). This process, like others, should be framed within a consultation with indigenous peoples.
- Strengthen the TB diagnostic network in geographical areas with indigenous peoples, with fixed or mobile properly-equipped points of care and a sample collection and transport system. Incorporate progress in this area into the care routes.
- Identify and study, using rapid tests, potential TB cases among health workers, representatives of traditional medicine and the community, especially children, people with presumptive DR-TB, or people with TB/HIV coinfection.
- Keep proper records of people diagnosed with TB, confirming that their personal information, including the indigenous population variable, is clearly and systematically indicated.

In Nunavut (Canada), Inuit indigenous communities face a greater TB burden than the rest of the country's population. Furthermore, due to their remote geographical location and the scarcity of health workers, they do not have access to laboratory-based TB diagnostic tests. Traditionally, all samples had to be transported by air to the south of Canada to be processed. This increased the time to diagnosis and slowed the opportune initiation of treatment among members of these indigenous groups. In turn, it increased the probability of disease transmission in the community. A study that implemented the GeneXpert® in the Iqaluit Hospital in Nunavut showed that implementation of Xpert® MTB/RIF tests in this remote site was not only feasible and precise, but also shortened the time needed to obtain results and initiate TB treatment (*22*).

Understanding the DR-TB situation in indigenous populations merits review and research. In this regard, the Mycobacteria Group of Colombia's National Institute of Health published the results of an analysis of 364 M. tuberculosis isolates from indigenous populations, through Spoligotyping and MIRU-VNTR molecular tests, to describe their genetic profile and identify the circulation of similar or different clinical isolates. The results showed that more than 80% of the isolates analyzed did not present any type of anti-TB drug resistance. However, 16% of the isolates were found to have resistance to more than one drug (rifampicin and isoniazid). Furthermore, they found genetic imprints of *M. tuberculosis* that have not been reported in other parts of the world or Colombia, meaning that they probably circulate only among the country's indigenous population. The study also identified the circulation of the Beijing-like SIT 406 genotype, which is associated with DR-TB at the global level, for the first time in Colombia. One of the author's main conclusions is:

> **"The presence of resistant isolates in vulnerable populations such as indigenous populations should serve as an alert that generates and guides the implementation of programmatic actions to control drug-susceptible TB whose treatment is shorter and less toxic than the treatment of drug-resistant TB" (*26*).**

Guideline 1.1.2

Carry out systematic tuberculosis screening tests in indigenous populations

To develop this guideline, it is necessary to prepare a systematic screening strategy. Depending on the situation, it can be prioritized for people with greater risk. Household contacts of TB patients and people with HIV are some of the most vulnerable people, which means that active TB should be ruled out and it should be determined whether they should initiate preventive treatment (see Guideline 1.4), as an integral part of patient care and prevention. The search for presumptive TB cases in the community is carried out through the capture and evaluation of "respiratory symptomatics", i.e, people who present cough with a duration longer than 15 days.

Since some TB patients do not present the characteristic symptoms in the initial stages of the disease, it is possible that they may not request care sufficiently soon and they may not receive TB diagnostic tests. Other groups cannot access health care due to financial, geographical, and language barriers, among others (*18*).

In indigenous populations, a high number of people turn first to traditional medicine and, through their own decision or on the advice of a traditional doctor (who do not tend to follow serious, articulated, and sustainable intercultural processes), do not seek Western health services on time. Traditional medicine leaders are key actors for early detection and timely treatment initiation since they have greater acceptance and credibility in their own communities. They are also, from that first contact with patients (sometimes in the initial stages of the disease), the actors who have the best opportunity to refer people to Western health services or their focal point in the community, activating institutional interventions that are part of the intercultural route of care, after having initiated traditional interventions.

Traditional doctors run a greater risk of becoming infected since they spend long periods with TB patients in evaluation, diagnosis, and treatment sessions (greater exposure). In addition to this, in some indigenous populations, traditional doctors may have increased likelihood of becoming ill once infected, due to their rigorous dietary practices and living conditions, poverty, long days working in the field cultivating and hunting to survive, and the search for wild medicines required by their patients. Western health workers also have increased risk of infection, which is why proper management of infection control measures is required (see Guideline 2.3), according to their function and the context in which care is provided.

In some indigenous populations, traditional doctors have recognized their limitations and are willing to collaborate with the NTP when they identify symptoms compatible with TB (*27*). This is particularly important and demands improvement and adaptation of Western health systems and services, which tend to suffer from deficient planning and equipment for serving indigenous populations both at fixed points of care and in mobile services in remote places, where there are additional barriers to service delivery. One example is when the personnel providing care do not speak the language or the indigenous language (*28*) or do not have a translator who appropriately dominates the two languages or dialects, or when their work and experience is not considered. One of the most important barriers emerges when health workers are not aware of or interested in the values, traditions, uses, and customs of the indigenous population with which they are working, or do not respect them.

Furthermore, early detection of all people with TB requires clear, simple protocols to help health workers and volunteers identify probable TB cases, recognize mechanisms to carry out timely diagnosis and monitoring, maintain reporting and notification systems for monitoring and evaluation, and include the implementation of both referrals and counter-referrals (the same as described in the previous paragraph, which activates the route in the opposite direction) with traditional medicine.

Mapping the higher risk groups in these populations and planned systematic screening with epidemiological tools, within or outside of the delivery of Western and traditional health services, can help improve timely TB screening.

In indigenous populations, the comprehensive delivery of services in communities should be considered essential. It has been observed that people sometimes do not go to health services because this might imply a referral outside of their ancestral territories. They may be afraid of not having an appropriate burial or having their bodies explored in an autopsy , which also has important traditional connotations.

TB in child populations is considered a *sentinel event* because it indicates deficiencies on two fronts, namely, interruption of the chain of transmission from sick adults to children and the absence of preventive therapy to prevent children from developing TB. Diagnosis in children brings large challenges and the symptoms are often overlooked. Accordingly, these missed or late diagnoses can have a catastrophic effect on the child's health and increase the possibilities of death, since children are often considered an especially vulnerable population. It is imperative that those responsible for formulating policies, civil society, and

health professionals take definitive action to address TB in children, who represent a source of future cases. Above all, a lack of action with this population continues to cost lives (*29*). Very young children, children with HIV infection, or children who are severely malnourished have a greater risk of getting sick or dying from TB. WHO has various programmatic management documents and technical tools (*30*), a road map to end TB in children and adolescents (*31*), and a virtual training to address TB in child populations (*32*).

WHO has formulated guidelines on the systematic screening[3] of active TB and an operational instrument to help implement the activities (*33*). In indigenous populations, in addition to the two groups recommended by WHO, which are contacts and people with HIV, it is necessary to implement an initial epidemiological evaluation to establish whether it is necessary to carry out screening activities with the whole group or prioritize those who have greater risk (e.g. traditional doctors, students in schools and boarding schools, or older people).

Implementation of this guideline requires social participation and strategic partnerships with indigenous peoples, as well as the representation of both women and men, in the development of the actions included in the steps below.

Steps for implementing Guideline 1.1.2

- Plan the logistics to implement case-finding (active or passive) and the proper use of appropriate diagnostic tools, while avoiding the waste of valuable resources, harm to community members due to low-quality diagnoses (false positives or negatives), unnecessary economic expenditures, or increased stigma and discrimination toward people with TB or their families due to lack of confidentiality.
- Creation of work teams that are trained (or are being trained) and have abilities and competencies in intercultural health. Ideally, at least one traditional doctor should participate in order to guarantee timely detection within the framework of the intercultural routes (General guideline 2).
- Determine the activities that will be implemented to identify people who meet the criteria compatible with a TB case and direct them to health or community services adapted to the specific needs of indigenous peoples, while optimizing available resources.
- Strengthen TB-related health education directed at schoolchildren, traditional doctors, women, young people, and other key population groups, identified in the situation analysis within each indigenous population during the implementation of General guideline 1.
- Keep proper records of respiratory symptomatics and other people with signs and symptoms compatible with TB (pulmonary, extrapulmonary, and comorbidities), confirming that their personal information, including the indigenous population variable, is clearly and systematically specified.

Between 2012 and 2014, a best practice was implemented in Palawan (Philippines). The DetecTB project implemented an innovative active case-finding strategy which, through a mobile comprehensive care unit, was able to increase detection and treatment success for TB patients in populations in conditions of vulnerability, including indigenous populations. The study found that active TB case-finding in prison populations, indigenous populations, and poor urban and rural communities was effective and that the combined use of a chest X-ray and the Xpert® MTB/RIF test contributed greatly to detecting more cases (*34*).

[3] The *systematic detection of cases* is a synonym for *active case-finding*.

Component 2. Treatment of people with tuberculosis, including drug-resistant tuberculosis, using patient-centered support

Guideline 1.2

Provide timely treatment for all indigenous patients with tuberculosis and drug-resistant tuberculosis

To cure TB and reduce disease transmission, it is necessary to administer effective treatment to patients as quickly as possible following diagnosis and to guarantee their adherence. Community support can lead to more favorable therapeutic results, particularly in indigenous peoples where social dynamics still have a more collective, community-based connotation. Compliance with TB treatment continues to be essential for the individual and collective health of any community, but especially indigenous communities, since many of their dynamics and traditions are collective.

In this type of environment, someone who is sick with TB and does not receive adequate treatment not only transmits the disease but also contributes to drug resistance, in turn spreading a form of TB that is more difficult to handle from the clinical and programmatic standpoints. Tuberculosis treatment is lengthy (for drug-susceptible TB and even more so for drug-resistant TB) and requires constant support for the person affected with the disease on the part of health systems and services, family, and the community. In indigenous populations, it is essential for traditional doctors—who are respected authority figures that represent the traditional practices component of integrated care (physical, emotional, and spiritual)—to be closely linked with support for treatment and adherence so that patients complete their pharmacological therapy. This starts with a knowledge dialogue that leads to the construction of shared care routes where traditional and Western medicine are jointly reflected (General guideline 2).

Furthermore, TB drug resistance poses a serious threat to advancing in the fight against the disease, primarily in remote places that do not have the capacity to access DST for DR-TB follow-up and monitoring. This requires an immediate, adequate, and responsible approach that uses up-to-date knowledge and state-of-the-art diagnostic tools and medicines.

In some indigenous peoples, studies have shown that the principal factors that determine the choice of therapy are perceived disease etiology, prognosis, and severity (*35*). For this reason, understanding the interpretation of TB causes and symptoms is a fundamental requirement for health teams to understand the steps that people follow when they need health services and the reasons that guide them (General guideline 2). Not only is it important to identify the causes of therapy delay or abandonment, but also the network of TB-related meanings and relationships in the broader group of other biomedical, popular, or indigenous diseases in multicultural contexts (*36*).

This guideline seeks to help reduce the burden of TB disease and deaths, ensuring that all adults and children with TB and DR-TB have access to treatment that is free and without any type of barriers. In the case of MDR-TB, the WHO recommendation is a decentralized model of care.

One of this guideline's principal intercultural actions is to actively promote and support access to the traditional management of TB patients, since, given its holistic nature, this results in an intervention with comprehensive benefits. This represents progress in the process of revaluating and promoting traditional cultural knowledge, practices, and expressions.

Steps for implementing Guideline 1.2

- Implement the agreed upon steps for the route (General guideline 2), establishing mechanisms to provide person-centered care that consider each person's beliefs, values, needs, and customs and their environment in indigenous communities.
- Provide patients and their nuclear family with guidance, social support, and adherence support, ensuring treatment that is directly observed by health workers when necessary or, preferably, in the community (*37*).
- Provide education and raise awareness among patients, their family members, and the community to reduce stigma and discrimination toward patients and their household members, improve treatment outcomes, and prevent losses to follow-up and the onset of DR-TB.
- Establish surveillance activities by the State and CSOs through monitoring and supervision to ensure quality treatment for indigenous peoples.
- Guarantee access to tuberculosis medicines and carry out active pharmacovigilance activities.
- Adapt health service infrastructure according to each indigenous people's uses and customs to guarantee the retention and acceptability of patients who have to seek care from health services and not in the community. This stay can be complemented with an option for productive activities that are adapted to the population's needs and traditions, like the preparation of handicraft products.
- Guarantee nutritional support for patients and their household members according to their uses and customs, in addition to providing other culturally adequate incentives.
- Train health workers to manage and supervise treatment in specific subpopulations, such as children.

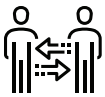
Between 2001 and 2003, the current TB control strategy (DOT) was implemented ahead of time in an indigenous community in the province of Cotopaxi, Ecuador. All people diagnosed during that period (44 in total) were successfully treated and no death or treatment noncompliance was recorded. This only could be achieved thanks to implementation of the strategy strengthened by a model that integrates social structures with the community's worldview and historical-cultural traditions. The fundamental determinants were a holistic vision of the TB program, community acceptance, and adaptation of the strategy to the realities of life in the community (*34*).

An example of a best practice is a systematic evaluation that included 41 studies, for the purpose of analyzing the efficacy of community TB control interventions. The evaluation concluded that these studies suggest that community TB control interventions have the potential to improve access to diagnostic and treatment services in poor rural communities and vulnerable populations, including women and children (*39*). In one of the studies, community TB treatment through community health workers (CHWs) not only improved access and use of the service, but also contributed to the capacity to build and improve systematic TB reporting and information systems through regular support supervision (*40*). In two additional studies, the integrated delivery of services for TB, HIV and prevention of mother-to-child transmission at the community level through CHWs proved to be feasible, acceptable, and effective (*41, 42*). The evaluation also determined that, in some experiences, community groups helped to close the gaps between the health system and the community through support and coordination.

Component 3. Collaborative TB/HIV activities and management of comorbidities

Access to care for comorbidities like HIV infection and diabetes and health risks such as tobacco, psychoactive substance, and alcohol use have serious impacts on TB prevention, diagnosis, treatment, and general management, in addition to a broad impact on public health.

Guideline 1.3.1



Address TB/HIV coinfection through interculturality

HIV debilitates the immune system, increasing the probability that people with HIV will develop active TB when infected with the bacillus that causes TB. In addition to this high immune vulnerability, stigma, lack of precise diagnostics at the point of care, and limited integration between TB and HIV services make TB particularly fatal for this population. Other factors such as gender, poverty, and malnutrition are associated with late diagnoses and barriers to access and treatment adherence (*43*).

Since 2017, the Region has had an up-to-date manual for TB/HIV coinfection. The manual provides clinical recommendations, without losing sight of the public health approach and the 12 TB/HIV collaborative activities that have been implemented in the Americas since 2004 (*44*).

To achieve coverage and universal access, as part of the integration of existing TB and HIV services, it is also essential to strategically incorporate services to prevent mother-to-child transmission of HIV, other maternal and child health services, and community HIV interventions (*45*).

Implementation of TB/HIV collaborative activities is fundamental within this guideline and as part of the End TB Strategy. This will require the promotion of social participation and strategic partnerships with indigenous populations, ensuring representation from both women and men in the development of health-related public policies and actions.

Steps for implementing Guideline 1.3.1

- Ensure that the knowledge, attitudes, and practices related to HIV diagnosis and treatment are explored during the process of worldview recognition (General guideline 2).
- Ensure that HIV counseling, voluntary testing, and treatment are established in the care routes (General guideline 2) and that there are supplies and community approval for their effective application in communities.
- Promote the integration of existing TB and HIV services, with professional, technical, and support personnel from indigenous communities.
- Ensure adequate, timely treatment for TB and HIV, with monitoring and evaluation of adverse reactions through an appropriate pharmacovigilance system.
- Carry out TB screening in people with HIV and offer preventive TB treatment to people with HIV in whom active TB has been ruled out.
- Provide continuous training[4] for physicians, nurses, laboratory staff, specialists, and community members on intercultural health and the signs, symptoms, diagnostic algorithms, use and interpretation of tests and results, and treatments for TB and HIV.
- Ensure that all TB/HIV collaborative activities in indigenous communities continue to be implemented and recorded.
- Move forward with epidemiological evaluations and evaluations of the health system and services to understand the burden and challenges related to service delivery and TB/HIV integration (follow-up and monitoring of the implementation of General guideline 1).
- Keep proper records of TB/HIV collaborative activities, confirming that personal and demographic information, including the indigenous population variable, is clearly and systematically specified.

In Papua (Indonesia), there is a specialized clinic for sexually transmitted diseases, HIV/AIDS, TB, and malaria. The health services are provided for the most part by trained indigenous personnel. From the beginning, this has meant that people from the ethnic group sought services with greater confidence and calm since, given that the personnel knew the culture and spoke the local language, the services provided were better adapted to the context. Before the clinic opened, some people from the indigenous population wanted to be tested for things like HIV, but fear had kept them from going to the hospital or other voluntary counseling and testing sites. This is an excellent example of how integrated TB/HIV services can be offered to indigenous populations, integrating the community, culture, and disease prevention and control strategies (*46*).

[4] Training of traditional and community health workers, monitoring, and evaluation are cross-cutting aspects of the entire proposal. However, in the case of TB/HIV co-infection (as in other specific guidelines), training stands out due to constant gaps in knowledge and the double stigma and discrimination that emerge, especially among Western health workers, when a person is affected by both TB and HIV.

Guideline 1.3.2

Address tuberculosis comorbidities in indigenous populations

In addition to HIV infection, there are other comorbidities and health risks associated with TB that are important and require integrated treatment. These include malnutrition, diabetes, excessive use of alcohol and psychoactive substances, tobacco use, silicosis, mental health problems, chronic obstructive pulmonary disease, and other noncommunicable diseases.

These health problems constitute risk factors for TB and can complicate the clinical management of patients. Some of these problems should be considered differential diagnoses. Comorbidities and pertinent health behaviors should be evaluated systematically and controlled to improve tuberculosis treatment and general health outcomes (*18*).

To implement this guideline, it is key to recognize ancestral knowledge and tap the potential of traditional medicine to contribute to universal access to health and universal health coverage, including the articulation or integration of services into national health systems and the adoption of self-care interventions with an intercultural approach. It is important to establish the situation of comorbidities and risks that need to be addressed. This includes the nutritional status of indigenous peoples or a segment of that population, for example, children or the elderly, or the use of psychoactive substances such as yagé (*47*) or alcohol, among others, which are part of indigenous magic-religious cosmogony.

Steps for implementing Guideline 1.3.2

- Ensure that the situation of comorbidities and risks in indigenous populations is included in the initial evaluation (General guideline 1).
- Ensure that the services for counseling, screening tests, and treatment of comorbidities identified in the previous step are established in the routes (General guideline 2); and ensure the supplies and community approval needed to implement the services in communities.
- All people with TB and malnutrition should receive nutritional treatment in line with WHO recommendations (48); it is necessary to assertively analyze the conditions and resources available in the context of indigenous peoples.
- Ensure that all TB patients receive counseling services for diabetes screening and treatment within the collaborative framework for care and control of TB and diabetes (49).
- Screen people affected by TB to detect alcohol and drug use disorders and mental health problems.
- Promote healthy lifestyles, considering that habits like tobacco use are an important, frequent risk factor for TB, especially in the context of indigenous populations, since smoking is a strong tradition in many groups.
- Provide continuous education for health workers and communities on the subjects of diabetes, alcohol use, malnutrition, tobacco use, mental health, and psychoactive substance addictions, among others, which should be coordinated interprogrammatically.

Identifying the situation with TB-associated comorbidities and risk factors in the Region's indigenous peoples is a key step in advancing toward ending TB in these ethnic groups. The report from the III Regional Meeting "Successes and challenges in TB control in indigenous populations," held in Panama in 2010, proposed a brief review of the situation related to diabetes and alcohol and tobacco use experienced by some indigenous peoples in the countries of the Americas at that time (*50*) (Table 3).

Table 3 **Tuberculosis comorbidities and risk factors in selected indigenous populations in the Region of the Americas, 2001–2008**

Diabetes			
Country	**Indigenous peoples**	**Prevalence (%)**	**Authors and year**
Brazil	Xavantes	1,5	Botelho JP et al., 2001
Chile	Mapuches	5,7 ♀	Carrasco E et al., 2004
		14,3 ♂	
	Aymaras	8,5 ♀	
		2,4 ♂	
United States	Montana, Wyoming	17,3 ♀	Moore KR et al., 2003
		12,0 ♂	
Guatemala	Tzutujil, Cachiquel, Quiché	7,00	Guzmán Z et al., 2002
Paraguay	Guaranís	5,40	Benítez E et al., 2003
Alcohol use			
Brazil	Tevena	17.60	Souza J and Aguilar J., 2001
	Kaingang from the Tibagi river basin	40.10 ♂	Coímbra CEA Jr., 2003
United States	Seven tribes of Bemidji, Oklahoma, Portland, Nashville, and Phoenix	2-30 ♀	Koss MP et al., 2003
		1-56 ♂	
	Sixty-three reserves	48.80	CDC Weekly Report, November 2003
Nicaragua	Capaopera	45 ♂	PAHO, 2005
		11 ♀	
Tobacco use			
Canada	Oji-Cree	82.0	Retnakaran R et al., 2005
United States	Alaska natives	18.8	Morton DJ, 2008
	Sixty-three reserves	56.5	CDC Weekly Report, November 2003

Source: Report from the III Regional Meeting "Successes and challenges in TB control in indigenous populations." Panama City, Panama, 2-3 March 2010.

Component 4. Preventive treatment of people at high risk and vaccination against tuberculosis

Guideline 1.4

Prevent tuberculosis in indigenous populations

Early detection and cure of infectious TB cases in communities are high-impact prevention measures. There are also two important strategies to prevent future cases of TB: treating latent tuberculosis infection (LTBI) and administering the Bacillus Calmette-Guerin (BCG) vaccine.

LTBI is a state of persistent immune response to prior-acquired *M. tuberculosis* antigens that is not accompanied by clinical manifestations of active TB. It is estimated that one-third of the world's population is infected by *M. tuberculosis*, that people with verified LTBI have a 5-10% lifetime risk of illness, and a higher risk in cases of HIV coinfection. The majority of those who become ill will do so in the first five years following the initial infection. The risk of illness depends on several factors. The most important is the host's immunity status (*51*). The main populations for which LTBI treatment is prescribed, even without requiring a tuberculin test, are people with HIV and children under age 5 who are household contacts of an active TB case, since they have a higher risk of getting sick, presenting complications, and dying. Systematic administration of LTBI tests and treatment is also recommended for children over age 5, adolescents, and adults who are contacts of people with pulmonary TB. WHO has specific guidelines on how to identify and prioritize at-risk population groups that would benefit from LTBI diagnosis and treatment and recommend diagnostic and therapeutic strategies (*51-52*).

Until new and better vaccines are available, the BCG vaccine should be part of the child vaccination schedule (*53*). This vaccine has been proven to prevent serious forms of TB, such as tuberculous meningitis and miliary TB, which are associated with high mortality in children under age 1

and young children. It is necessary to give the BCG vaccine shortly after birth in all children, except those who have HIV and live in environments with a high TB prevalence (*18*), considering the most recent WHO recommendations (54). Current studies are investigating the development of a truly effective vaccine against TB, which prevents the disease both in people already infected with the TB bacillus and in those who have not contracted the infection.

In indigenous populations, there are many factors that should be considered, including factors that affect the deterioration or effect of the vaccines, like deficient vaccine storage or lack of an adequate immune response in malnourished children. There are also other important factors, such as the availability of vaccines, health centers' opening hours, accessibility, user identification, vaccine administration policies, direct and indirect expenses, the nature of relations between health workers and the community, and missed opportunities to administer the BCG vaccine to newborns in institutional bodies (a large number of deliveries in indigenous communities are attended by midwives and other actors). These other factors should be studied through ethnography in indigenous communities and populations where vaccination coverage does not reach optimal levels (*55*).

Steps for implementing Guideline 1.4

- Provide early detection and timely treatment for all TB cases in the community.
- Provide TB-related education for health workers, while avoiding disinformation, stigma, and discrimination.
- Ensure that the routes constructed (General guideline 2) incorporate case finding, LTBI detection, treatment, and vaccination, and both Western and traditional medicine personnel and interventions.
- Ensure that health services that provide institutional delivery services administer the BCG vaccine to all indigenous newborns.
- Strengthen extramural vaccination, by identifying household contacts under age 5 that can benefit from LTBI treatment.
- Train personnel, including health workers and community volunteers, to expand the implementation of activities related to LTBI treatment, particularly in people with HIV and household contacts under age 5, and to BCG vaccination.
- Implement strategies that make it possible to clearly identify children who have been vaccinated, since it may be difficult for indigenous populations to keep personal vaccination records due to their dynamics, customs, or environment.
- Keep proper records of BCG vaccination and LTBI treatment, and identify adverse effects in patients, if they appear.

A population-based study of the determinants of TB trends in six indigenous populations in the United States of America, Canada, and Greenland from 1960 to 2014 concluded that BCG vaccination in children and LTBI detection and treatment were associated with significant reductions in TB notification rates in these populations. Furthermore, the same study suggests that these interventions should be strengthened in populations still affected by TB, while also addressing persistent socioeconomic and health disparities (*56*).

PILLAR 2 BOLD POLICIES AND SUPPORTIVE SYSTEMS

The second pillar of the End TB Strategy requires the incorporation of strategic actions from beyond the health sector. It is also necessary to include other sectors in order to transform and strengthen the policies and systems that support TB treatment and prevention in the indigenous peoples of the Americas.

A multidisciplinary, multisectoral approach that involves actors beyond the ministries of health and NTPs is required. Other actors should include the Ministry of the Interior (or the ministry that leads on issues related to ethnicity and indigenous populations) and the ministries of finance, justice, labor, social well-being, housing, mining, and agriculture, among others, in addition to nongovernmental partners and civil society.

In this regard, the PAHO *Policy on Ethnicity and Health* calls for the implementation of effective interventions with an intercultural approach, namely: a) determine current gaps in national policies relative to international recommendations; b) propose policy frameworks—based on the right to enjoy the highest standard of health—that favor and promote equity, interculturality, and access to quality health services, considering the national context; c) promote the review, adaptation, and effective implementation of existing policies in accordance with an intercultural approach, and d) promote and facilitate the full participation of indigenous peoples and members of other ethnic groups, as applicable to the national context, in health and well-being (*5*). Furthermore, the policy emphasizes that:

> "The formulation, implementation, monitoring, and evaluation of public policies should ensure the participation of the populations involved, human rights approaches, and interculturality and gender equality."

Component 1. Political commitment with adequate resources for tuberculosis care and prevention

Guideline 2.1

Carry out strategic planning with an intercultural approach

For adequate development of this pillar, it is essential for TB-related issues in indigenous populations to be prioritized during the periodic updating of the NTP's strategic plan in countries with indigenous peoples. It is also essential that indigenous peoples' representatives participate in this prioritization and approach.

This guideline aims to promote policy actions that are effective for implementing substantive interventions that recognize and implement an intercultural approach in the context of the social determinants of health. The formulation, implementation, monitoring, and evaluation of public policies should ensure the participation of the populations involved, human rights approaches, interculturality, and gender equality.

Steps for implementing Guideline 2.1

- Ensure that the national strategic plan is ambitious and comprehensive and incorporates funding, implementation, monitoring and evaluation, research, and technical assistance with a differential approach to indigenous populations and other vulnerable populations.
- Integrate the End TB Strategy in the country's health policy for indigenous peoples and other ethnic groups.
- Periodically evaluate the planning, budget, and management, with the participation of national or local indigenous organizations, NGOs, civil society, people affected, and other stakeholders.
- Incorporate traditional and complementary medicine as a fundamental part of TB care.
- Prepare educational materials directed at patients, families, and affected communities together with indigenous populations. The materials should be culturally relevant and available with versions adapted to the indigenous language or dialect, if still in use.
- Develop systems for referrals, counter-referrals, and support for patients and family members who live in or outside of traditional indigenous territories and who are referred to health services in places other than their home communities.

In the Strategic Plan for the National Response to Tuberculosis in Paraguay 2016-2020, the country considered indigenous peoples as a high-risk, priority population. The Paraguayan NTP has conducted TB prevalence studies, training activities for health promoters with an intercultural approach, advocacy with indigenous leaders and indigenous NGOs, and coordination with health services and local health councils. The NTP has had intersectoral support, in addition to some international cooperation support. The Plan describes specific actions to strengthen TB diagnosis and treatment in indigenous populations (*57*).

Component 2. Engagement of communities, civil society organizations, and public and private sector health service providers

Guideline 2.2

Strengthen community participation, including public and private associations

One of the four principles of the End TB Strategy is to create a strong coalition with communities, NGOs, and other CSOs. For the preparation and development of this component, the ENGAGE-TB approach (*58, 59, 60*) contains guidance formulated by WHO to integrate community activities to fight TB into the work of NGOs and other CSOs. Some communities and CSOs play a significant role in education, promotion, and the provision of support for people and providers so that they are able to offer patient-centered TB care and compile firsthand information in communities to broadly strengthen monitoring and evaluation systems.

Private sector participation is essential for various aspects of TB treatment and prevention, particularly programs that target local families and communities or that are part of corporate social responsibility programs. These programs are important given that several private enterprises carry out their work in some of the ancestral territories of America's indigenous peoples. The programs represent an opportunity for indigenous peoples to be the beneficiaries of strategies to strengthen the prevention and control of diseases such as TB, HIV, and diabetes, among others.

Steps for implementing Guideline 2.2

- Identify community actors with leadership capacity who can help to compile information in communities to provide continuous follow-up of needs and programmatic challenges, and support implementation of the End TB Strategy's priority activities in indigenous populations. Bring them together in a community support network for TB.
- Recognize CSOs, CHWs, and community volunteers as community actors with leadership capacity.
- Coordinate with communities, health services, and NTPs and determine the tasks of CSOs, CHWs, and community volunteers.
- Carry out systematic follow-up, monitoring, and evaluation in indigenous populations, with support from CSOs, CHWs, and community volunteers to measure processes and outcomes and inform all interested parties. Indicators that measure community actors' efforts to provide support activities for the TB program are required.
- Develop communication materials about the daily practices of Western or traditional health workers, CSO members, CHWs, and community volunteers.
- Mobilize support from the corporate private sector with the assistance of community actors to expand NTP actions in indigenous populations, whether in their territories or wherever they require them.
- Promote the participation of communities and civil society to demand quality TB care by all public and private health care providers.

During 2005 and 2006, the Confederation of Indigenous Peoples (CIDOB) of the Plurinational State of Bolivia executed a TB control project, centered on the indigenous peoples of Santa Cruz. Its objective was to improve TB health care through a model adapted to the reality of 11 lowland indigenous populations aimed at increasing TB case-finding and curing TB cases through a community-based directly observed treatment (DOT) strategy. Some of the most relevant achievements of this experience were: increased capture of respiratory symptomatics, and diagnosis and cure of patients; positioning of the CIDOB as a strategic partner of the country's NTP; education of 105 indigenous health promoters; awareness raising among national, regional, and community indigenous authorities; adequate budgetary execution; training of health center and health post personnel and school cluster directors and educators; preparation of a TB procedures manual for indigenous health promoters; and design, preparation, dissemination, and delivery of educational materials with intercultural content (*61*).

Component 3. Universal health coverage policy and regulatory frameworks for case notification, vital statistics, quality and rational use of medicines, and infection control

In the Region of the Americas, PAHO and its Member States are committed to advancing toward universal health—particularly for indigenous peoples. Universal health coverage and universal access to health fundamentally means that all people can access the good-quality health services they need without experiencing economic difficulties to pay for them. We should do everything possible to achieve universal health, and effort should be redoubled when working with and for the most vulnerable populations. Clear state policies for health care financing and access to quality health services are needed, accompanied by cross-cutting regulatory frameworks that regulate the production, quality, and use of TB diagnostic options and medicines; compulsory notification of TB cases; improved TB death reporting in vital statistics; and comprehensive infection control measures.

Guideline 2.3

Improve TB case reporting and infection control

Underreporting of cases hinders TB surveillance, contact tracing, the response to an unexpected increase in cases, correct estimation and use of medicines, and infection control. Many of the unreported TB cases are seen by private health providers or NGOs unrelated to NTPs. Furthermore, the Region has been very slow to implement specific variables for ethnicity and indigenous status in TB surveillance and programs. Poor reporting of deaths in the vital statistics system in many of the Region's countries limits understanding of the impact on the number of deaths5 and the case-fatality ratio[6] in some countries, especially in vulnerable populations.

While countries, ministries, and NTPs continue to strengthen information systems, some alternatives and options described in the bibliography on the topic and programmatic exercises can provide ideas about how communities, academia, NGOs, CSOs, and other organizations and strategic partners can contribute to this strengthening.

This guideline aims to improve the process to produce quantitative and qualitative data and achieve good-quality information on this population's health, disaggregated by relevant stratifiers such as sex, age, and place of residence. Community support is very important, but should function under a monitoring and evaluation system with simple instruments and tools that are harmonized with the NTP. Furthermore, they should not represent additional financial costs for users. Mobile phones are inexpensive and widely available in almost the entire world, even in settings with limited resources (*62*). Notifications through text messages (SMS) can be very useful for reporting the identification of potential TB cases in the community. They can also let patients know when they should take their medication or remind them about appointments at a health center or health post. Patient databases administered through mobile applications by CHWs and community volunteers can be shared with health centers to validate and confirm reporting and monitoring data, for example, data related to the referral of cases from and to the community (*59*).

Interrupting the transmission of *M. tuberculosis* is essential to ending the global TB epidemic. This requires the implementation of interventions to rapidly identify infectious cases (bacilliferous pulmonary cases) and prevention of person-to-person transmission by reducing the concentration of infectious particles in the air and healthy people's exposure time. These principles are the foundation for the prevention and control of airborne infections such as TB (*63*).

There are three principal infection prevention and control measures for institutional health service providers: 1) administrative and managerial control; 2) environmental control; and 3) respiratory protection. At the community level and especially in homes, the most efficient measure to prevent transmission is to maximize natural ventilation (keep windows open for the longest possible time), provided that climatic conditions allow this, and implement cough etiquette and respiratory hygiene (*64*).

[5] This is one of three high-level indicators in the End TB Strategy.
[6] This one of ten priority indicators devised by the End TB Strategy.

Steps for implementing Guideline 2.3

- Ensure that the 'indigenous' variable is included in all records from the health sector and other sectors, to support public health surveillance, programs, strategies, and health services delivery.
- Improve the identification and reporting of all people of indigenous origin, especially newborns and young children, to close the gaps in universal health coverage and universal access to health.
- Determine whether the use of verbal autopsies (65), which has been useful for improving information about mortality due to other events of interest for public health, can be effective in the case of TB-related mortality in indigenous populations where there is underreporting of TB-associated deaths.
- Develop processes for institutional health service providers in indigenous communities to strengthen airborne infection control measures (66). This includes education and intercultural efforts to raise awareness and establish agreements related to habits, uses, and customs that may be increasing the likelihood of community TB transmission in homes, places where traditional medicine is practiced, or gathering places.
- Adapt and integrate information systems to improve the quality of tuberculosis surveillance.

The epidemiological profile of the Mapuche population living in the health service coverage area in BíoBío province in Chile, published in January 2011, describes a methodology prepared by two investigators. Based on their knowledge of this indigenous population's internal dynamics, they utilized three specific aspects of existing records (which did not include the ethnic status variable) to operationally define indigenous status in cases of morbidity and mortality, namely: indigenous surnames, Hispanic surnames historically associated with traditional indigenous territories, and accredited indigenous status in the records of the National Corporation for Indigenous Development (CONADI) (*67*).

Component 4. Social protection, poverty alleviation, and actions to impact other determinants of tuberculosis

Guideline 2.4

Include the indigenous people affected by tuberculosis and their families in social protection programs and advocate for the cultural adaptation of those programs

Of all the End TB Strategy's components, this is perhaps one that should be strengthened with the greatest urgency in the Region's indigenous communities. However, it is also one of the components that will require greater intersectoral and multisectoral efforts to advance toward the proposed goals.

Social protection encompasses various policies and measures that should promote the exercise of economic, social, and cultural rights in the labor market, food and nutrition, health, pensions, and health care. It should also aim to include decent income levels (68). Recognition of the rights of indigenous peoples in the Region has been creating important opportunities to overcome vulnerability and the deficiencies imposed by the historical processes that deprived them of their livelihoods. This includes growing recognition of their territorial rights and knowledge systems, and various instruments to safeguard their social, economic, and cultural rights. However, these opportunities are still far from uniform in the Region, especially at the practical level (*69*).

Under this definition, social protection for indigenous peoples should seek to improve essential aspects that are part of their worldview, order, and integral approach to perceiving the world and their participation in it. It should not be limited to providing standardized food packages, subsidies, and other types of supports that in and of themselves do not resolve situational problems within the ethnic group. This guideline seeks, among other things, to value and promote traditional cultural knowledge, practices, and expressions through the indigenous culture's own transmission mechanisms in order to adapt the social protection aimed at these populations.

Steps for implementing Guideline 2.4

- Empower organizations of indigenous peoples, ensuring that the voices of women, young people, and current and former TB patients are represented in national, regional, and local spaces, so that they can participate in the design and implementation of social protection programs to ensure that they better meet their needs (including those of people affected by TB and their families) and respond to the reality in which they live (*70*).
- Strengthen the public resource management and administration capacity of indigenous peoples and communities, especially in previously recognized autonomous jurisdictional areas (indigenous autonomies, indigenous territorial entities, regions, etc.), and their coordination with municipal development plans and potential resource mobilization from other sources (*71*).
- Promote the production, preservation, and strengthening of the characteristic agrobiodiversity of each community's food systems and overall productive systems to improve the indigenous population's nutritional status by improving poor families' access to more and better food (*72*).
- Prepare a directory of social protection programs for ethnic groups and establish mechanisms to allow indigenous peoples affected by TB to access existing social protection programs.
- Promote indigenous peoples' access to transportation subsidies, conditional cash transfers, and other social protection measures (70), some of which were shown to be principal predictors of TB prevention in recent studies (73). By prioritizing these initiatives for TB patients and their families, some of the catastrophic costs associated with the disease can be defrayed.
- Plan and allocate sufficient resources to provide care for the health challenges linked to food and nutrition, especially malnutrition, and adapt social protection services to the needs of vulnerable rural and urban indigenous populations (*71*).
- Implement the human rights approach to food and nutrition, so that indigenous communities and families can exercise self-determination and consume the foods they desire, produce, and are accustomed to, instead of being provided with standardized packages that are not adapted to their traditional diets.

In Brazil, the Family Allowance Program (PBF) is the principal cash transfer program. Introduced in 2004, the PBF currently covers all Brazilian municipalities and benefits almost 14 million families. The state of Mato Grosso do Sul is home to the second highest number of indigenous peoples and has the country's highest TB incidence rates in indigenous populations. Between March 2011 and December 2012, a case-control study was carried out in four of the state's municipalities to evaluate the effect of the PBF and other predictive factors of active TB among high-risk indigenous populations. The results showed that being a beneficiary of the PBF (OR = 0.5; 95% confidence interval, 0.3-0.6) and BCG vaccination (OR = 0.5; 95% confidence interval, 0.3-0.9) were protective factors against TB. This result is in line with the End TB Strategy, which identifies social protection, poverty alleviation, and efforts to address other determinants of TB as key actions (*74*).

PILLAR 3 INTENSIFIED RESEARCH AND INNOVATION

To end the TB epidemic, new and improved tools are needed to detect, treat, or prevent the disease, in addition to optimizing the use of tools that are currently available. It is urgent that innovation and research attain both these things, and this will require intensified national investment and the creation of an enabling environment for current and future generations of scientists (*18*).

Component 1. Discovery, development, and rapid uptake of new tools, interventions, and strategies

Guideline 3.1

Implement new tools and strategies for TB in indigenous populations

In its guidelines for treatment of drug-susceptible tuberculosis and patient care, for several years WHO has been recommending directly observed treatment (DOT) in the community or in the home, rather than DOT in health facilities. Despite this, even where vulnerable populations reside, this alternative approach is often not available. This alternative approach has demonstrated higher treatment success rates and a higher number of patients with negativization of sputum during the first two months of multidrug therapy, among other factors (*37*). Globally there are various experiences of community-based TB care, not only for DOT, but also for countless support activities to prevent, seek out, diagnose, and provide treatment support for people affected by TB and its comorbidities (*75*).

In addition, several digital health approaches have the potential to be validated and implemented in indigenous populations based on specific needs and conditions, such as the population's geographical distribution, levels of decentralization, and models of care, and the subgroups of patients included in the program (level of adherence, capacity to use conventional or smart phones, etc.). Some interventions, such as SMS reminders and video observed therapy (VOT) to support patient adherence, are digital technologies for which studies have been conducted with TB patients and that are well-positioned to provide daily support for TB treatment on a large scale (*76*). The smartphone video function has the potential to save resources when it is used to observe treatment and support patients. VOT is more feasible as telephones with Internet access increasingly dominate mobile phone markets in rich and poor environments alike.

Involving the community in the major challenges represented by the implementation of the End TB Strategy among the indigenous peoples of the Americas and using available technology resources is an opportunity that should be considered. Reasons include geographical dispersion in rural areas, the time and resources needed to visit health services daily, the convenience of combining daily activities with treatment at home or in the community, and reduced stigma and discrimination, among others.

Steps for implementing Guideline 3.1

- Form groups of community health workers or volunteers in different geographical areas where indigenous populations are more affected by TB, and provide them with continuous training on aspects of the End TB Strategy that need strengthening.
- Evaluate the connectivity options available in these geographical areas to define the technology alternatives that can be implemented (a large number of indigenous people live in urban areas where connectivity is higher than in rural areas).
- Define the minimum conditions for a person affected by TB to be able to opt for treatment support or monitoring through VOT, or another option such as SMS to mobile phones, computers, or tablets.
- Set up a monitoring and evaluation system that helps organize digital or physical monitoring of the chosen alternatives (community registries, SMS, VOT, among others) and that can be used for follow-up and evaluation.

In the United States of America and Mexico, a series of studies were conducted through TB programs in order to evaluate the feasibility, acceptability, and patient perceptions of VOT to monitor TB treatment adherence. In these studies in 2016, 378 U.S. TB patients and 30 Mexican TB patients used VOT for an average of 5.5 months. The principal results were that most patients reported that they preferred VOT to DOT because it is "very user-friendly" and more confidential than DOT, and that they would recommend VOT to other TB patients. The TB program personnel reported that VOT was feasible, required less time per patient, and cost less than DOT. Additionally, there were no differences observed between urban and rural areas of the U.S. and Mexico (*76*).

Component 2. Research to optimize the implementation and impact of the End TB Strategy and promote innovations

Guideline 3. 2

Develop operational research on tuberculosis in the context of indigenous populations

Improved understanding of the changing dynamics of the TB epidemic requires operational research to design, refine, implement, and expand not only the response to this disease, but also the instruments used to better address all factors related to prevention and control. WHO, the Stop TB Partnership, and the Global Fund to Fight AIDS, Tuberculosis and Malaria prepared a specific document to help clarify the priorities that operational research should address to improve TB care and control (*77*). At present, the countries of the Region of the Americas are establishing national operational research networks and setting their own priorities.

To implement this guideline, it is relevant to promote research and generate knowledge about the diverse concepts of health, diseases in indigenous populations, and traditional learning and knowledge. This will provide research-based contributions to the knowledge dialogue and, more broadly, to the enrichment of intercultural processes.

Steps for implementing Guideline 3.2

- Create or strengthen a national TB research network as an essential measure for coordinating and using existing resources to investigate and include operational studies of indigenous populations, in which the research priorities are based on an in-depth understanding of the current TB epidemic and an inventory of capacities. It is necessary to seek the participation of ethnic institutions and members of ethnic groups, as well as co-financing from indigenous organizations.
- Strengthen and promote the training of investigators from indigenous populations who can not only participate in, but also direct TB research initiatives using more integrated perspectives that incorporate traditional knowledge, uses, and customs.
- Involve representatives of traditional medicine, persons affected by TB, and communities in the consensus-building process and implementation of operational research on TB and other communicable diseases in indigenous populations.
- Identify the principal difficulties and gaps in LTBI screening and treatment, avoidable mortality, treatment adherence, intercultural approaches and other topics, to use them as a key input in the design and implementation of operational research, with the goal of improving the performance of TB programs in indigenous populations.

The Structured Operational Research and Training IniTiative (SORT IT) is a global partnership led by the WHO Special Programme for Research and Training in Tropical Diseases (TDR). The TDR collaborates closely with ministries of health, WHO regional and country offices, donors, and technical agencies such as the International Union Against Tuberculosis and Lung Disease (The Union), and Doctors without Borders (MSF). Through this partnership, SORT IT provides support to countries to carry out operational research around their own priorities, develop adequate, sustainable capacity in operational research in public health programs, and promote evidence-based public health measures. SORT IT has supported operational research related to TB in vulnerable groups such as prisoners and indigenous populations in El Salvador and Mexico, respectively (*78*).

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Annex. Summary of the Regional *Policy on Ethnicity and Health*

Priority lines and actions of the *Policy on Ethnicity and Health*

1. Production of evidence

Promote the production, integrated management, and analysis of information disaggregated by ethnic origin and qualitative and quantitative data on the health of indigenous peoples, as well as its determinants, taking human rights and gender into account in decision-making on intersectoral public health policies. ***Information and analysis***

Promote research to generate knowledge about the diverse conceptions of health, characteristic diseases in these groups, and traditional learning and knowledge. ***Research***

Improve the production of sound quantitative and qualitative data and information on the health of these populations, disaggregated by relevant stratifiers, such as sex, age, and place of residence. ***Information***

The participation of the communities involved and their individual members in data collection and use, ensuring the representation of both women and men, is vital for guaranteeing the quality of the data in administrative records and vital statistics and for adequate decision-making to respond to the specific needs and characteristics of these populations' members. Furthermore, good-quality disaggregated data will make it possible to include ethnic groups in monitoring and evaluation systems. ***Analysis***

2. Promotion of policy action

Promote policy actions that are effective for implementing substantive interventions that recognize and employ an intercultural approach in the context of the social determinants of health. The formulation, implementation, monitoring, and evaluation of public policies should ensure the participation of the populations involved, human rights approaches, interculturality, and gender equality. ***Push toward public policies – Domestic agendas***

3. Social participation and strategic partnerships

Promote social participation and strategic partnerships with indigenous peoples, ensuring the representation of women and men in the drafting of public health policies and activities. ***Social participation and control – Strategic partnerships***

4. Recognition of ancestral knowledge and traditional and complementary medicine

Strengthen the knowledge dialogue to facilitate the development and strengthening of intercultural health models as a way of achieving health care centered on the needs of people and communities. Recognize ancestral knowledge to tap the potential for traditional medicine to contribute to universal access to health and universal health coverage, including the articulation or integration of these services into national health systems and the adoption of self-care interventions with an intercultural approach. ***Knowledge dialogue for intercultural models***

New appreciation and promotion of traditional knowledge, practices, and cultural expressions through each culture's own transmission mechanisms. ***Knowledge dialogue for intercultural models***

5. Capacity development at all levels

Train institutional and community health workers as intercultural facilitators who can create the conditions for knowledge dialogue. ***Institutional and community capacities***

Promote the representation of indigenous peoples in health systems, to ensure that health care is culturally appropriate. ***Institutional and community capacities***

Promote the inclusion of interculturality into the design of technical and professional health training curricula. ***Institutional and community capacities***

Tuberculosis continues to represent a severe public health problem in the Region of the Americas, even more so in the case of indigenous peoples, whose TB incidence is much higher than that of the general population.

To achieve tuberculosis control in these communities, it is necessary to respond to communities' diverse needs from an intercultural perspective that allows the application of a holistic approach—from a standpoint of equality and mutual respect—and considers the value of their cultural practices. In the Region of the Americas, although there has been progress toward recognizing the need for an intercultural approach to health services, obstacles rooted in discrimination, racism, and the exclusion of indigenous peoples and other ethnic groups persist.

To respond to this situation, the Pan American Health Organization (PAHO) prepared this guidance which—based on an intercultural approach in accordance with the priority lines of the current PAHO *Policy on Ethnicity and Health* and its practical development in the Region's indigenous populations—represent a support tool for implementing the End TB Strategy.

This publication integrates PAHO's accumulated experience and best practices developed by its Member States in recent years, including discussions and experiences shared in regional meetings on the issue, and emphasizes innovation and social inclusion. This requires an urgent shift away from traditional paradigms, taking specific actions that gradually reduce TB incidence and moving toward effective multisectoral actions that have proven effective in quickly containing the epidemic.

PAHO
Pan American Health Organization
World Health Organization
REGIONAL OFFICE FOR THE Americas

525 Twenty-third Street, NW
Washington, D.C., 20037
United States of America

www.paho.org