



# TUBERCULOSIS IN THE AMERICAS

**Regional Report  
2021**

**PAHO**



Pan American  
Health  
Organization



World Health  
Organization  
REGIONAL OFFICE FOR THE  
Americas



# TUBERCULOSIS IN THE AMERICAS

Regional Report 2021

Washington, D.C.  
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## Acronyms

<b>DM</b>	diabetes mellitus
<b>DST</b>	drug susceptibility testing (antituberculosis drugs)
<b>HIV</b>	human immunodeficiency virus
<b>MDR/RR-TB</b>	multidrug-resistant or rifampicin-resistant tuberculosis
<b>PAHO</b>	Pan American Health Organization
<b>RR-TB</b>	rifampicin-resistant tuberculosis
<b>TB</b>	tuberculosis
<b>TPT</b>	tuberculosis preventive treatment
<b>USD</b>	United States dollars
<b>WHO</b>	World Health Organization
<b>XDR-TB</b>	extensively drug-resistant tuberculosis



## Introduction

Tuberculosis (TB) continued to be a public health problem in the Region of the Americas in 2020; it is estimated that there were 291 000 cases of all forms of the disease that year. COVID-19 has reversed much of the progress made in the End TB Strategy: there were 3000 more TB deaths in 2020 than in 2019 and the incidence increased slightly. Progress was made, however, in the introduction and expansion of rapid molecular testing.

A total of 4007 cases of multidrug-resistant or rifampicin-resistant tuberculosis (MDR/RR-TB) were diagnosed and of these, 89% started treatment. The proportion of RR-TB cases tested for fluoroquinolone resistance decreased to 29% compared to 53% in the previous year. Furthermore, 210 cases of extensively drug-resistant TB (XDR-TB)<sup>1</sup> were diagnosed and reported by 14 countries. There were an estimated 29 000 new cases of TB in people with human immunodeficiency virus (HIV) infection (10%), as well as 27 000 TB deaths, of which 29% were in people with HIV. Eighty percent of TB/HIV cases were concentrated in seven countries: Brazil, Colombia, the Dominican Republic, Haiti, Mexico, Peru, and the Bolivarian Republic of Venezuela.

Information on cases of comorbidity with diabetes and on preventive treatment remained limited; treatment outcomes did not change favorably.

The TB situation in the Region reflects the persistence of social determinants and risk factors that most directly affect vulnerable population groups. However, some countries in the Region are closer to eliminating the disease as a public health problem. Efforts by national programs, most of which have their own resources, must be accelerated to meet the targets of the End TB Strategy and of international commitments made by countries.

With the onset of the COVID-19 pandemic in the first quarter of 2020, the provision of health services in general, including TB services, was severely disrupted by lockdown measures, the population's fear of being infected in health services, and the redeployment of staff to pandemic-related care. This has impacted TB prevention and control interventions in all countries.

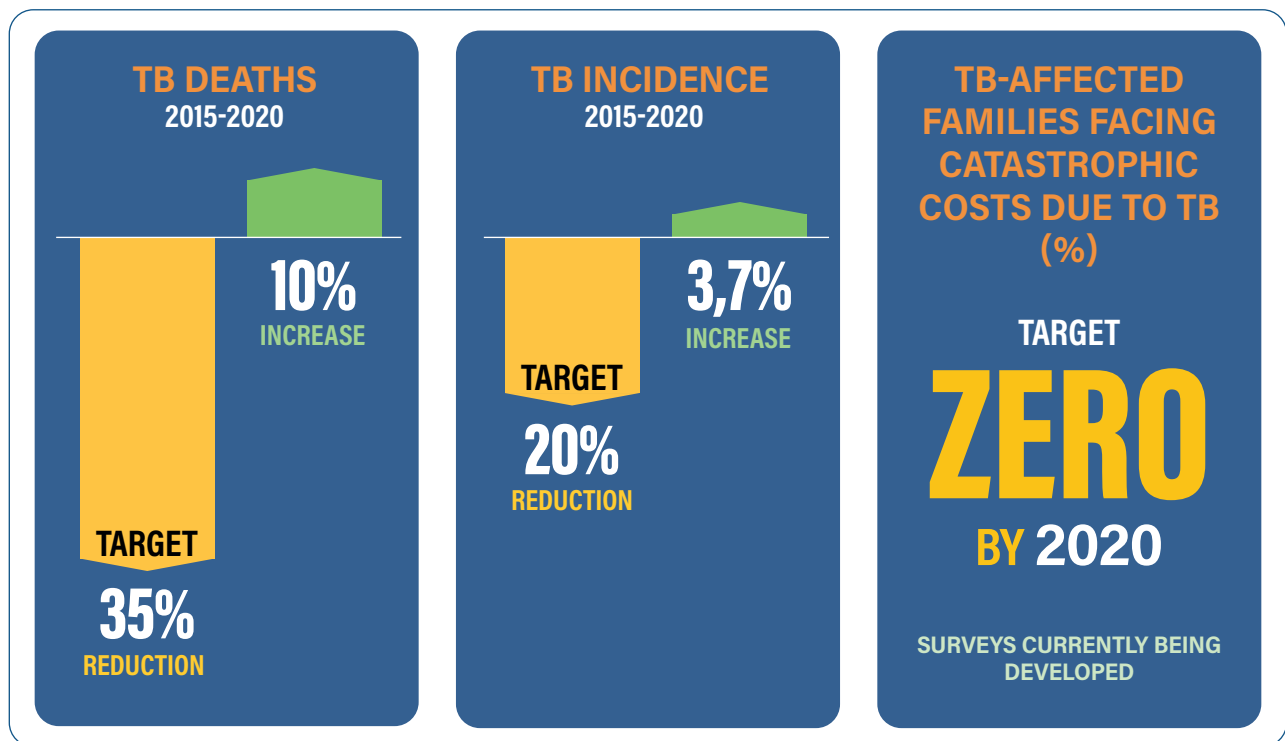
Among the 28 countries that reported data, there was a decrease in TB case reporting of 16.8% in 2020 compared with 2019: from 239 121 to 197 364 reported cases year-on-year.

<sup>1</sup> XDR-TB: fulfils definition of MDR-TB and also resistant to any fluoroquinolone and at least levofloxacin, moxifloxacin, bedaquiline, or linezolid.

# 1. Progress

The goal of the End TB Strategy is to end the TB epidemic. To measure progress toward this objective, 3 high-level indicators (figure 1) and 10 priority indicators are used.

**Figure 1.** Progress towards End TB Strategy targets



Note: TB: tuberculosis.

## 1.1. High-level indicators

The End TB Strategy aims to end the global TB epidemic, and is linked to the targets of the Sustainable Development Goals (SDGs), with three high-level indicators (Table 1):

- reduce the number of TB deaths;<sup>2</sup>
- reduce the TB incidence rate;<sup>2</sup>
- zero households facing catastrophic costs due to the disease.

**Table 1.** High-level indicators of the End TB Strategy

Global indicators	Baseline	Current situation	Milestones		SDG targets	END TB targets
	2015	2020	2020	2025	2030	2035
Reduction in number of TB deaths, compared with 2015	25 100	12.5% increase	35%	75%	90%	95%
		27 000	16 300	6 300	2 500	1 300
Reduction in TB incidence rate, compared with 2015	27.5	28.5	20%	50%	80%	90%
			22.0	13.5	5.4	2.7
Percentage of households facing catastrophic costs due to TB	N. A.	N. A. <sup>a</sup>	0	0	0	0

Note: Rate per 100 000 population.

<sup>a</sup> First survey conducted, with others in preparation stage.

N. A.: not available; SDG: Sustainable Development Goals; TB: tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/item/9789240037021>.

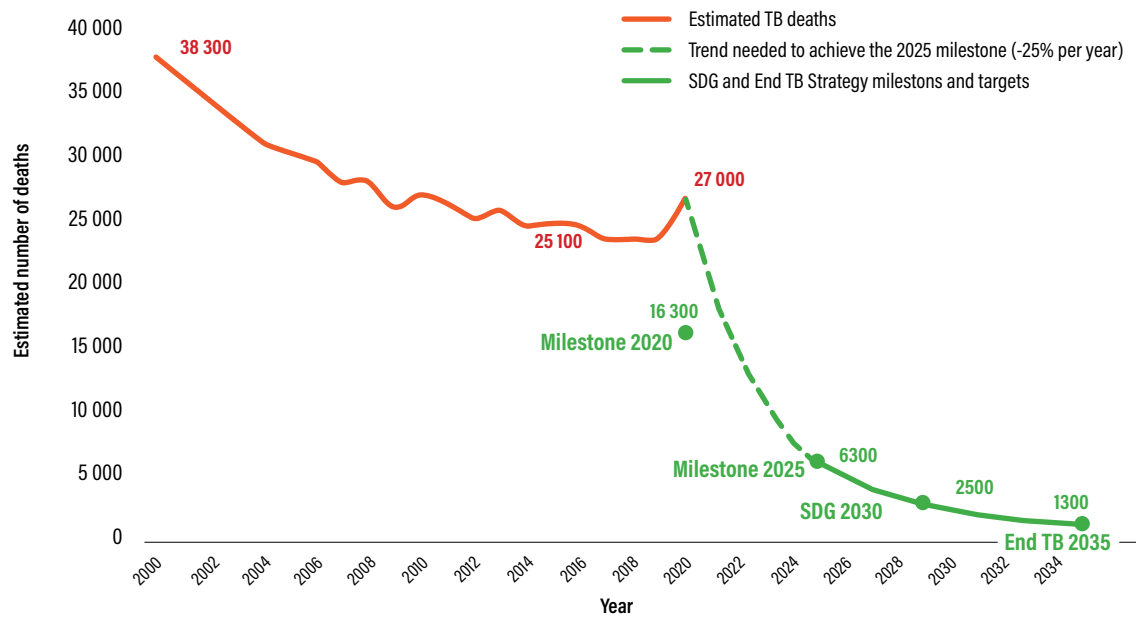
**ACHIEVEMENT OF THE END TB STRATEGY TARGETS IS AT RISK.  
THE SITUATION HAS BEEN AGGRAVATED BY THE EFFECTS OF THE  
COVID-19 PANDEMIC. EFFORTS MUST BE ACCELERATED TO REDUCE  
TUBERCULOSIS DEATHS AND CASES**

<sup>2</sup> Compared to 2015 values.

## 1.2. Number of deaths from tuberculosis

Tuberculosis mortality increased significantly from 24 000 deaths in 2019 to 27 000 in 2020. In this scenario, the Region has failed to reach the 2020 milestone and is even further away from the 2025 milestone (figure 2).

**Figure 2.** Trends and forecasts of the estimated number of deaths from tuberculosis, 2000-2035



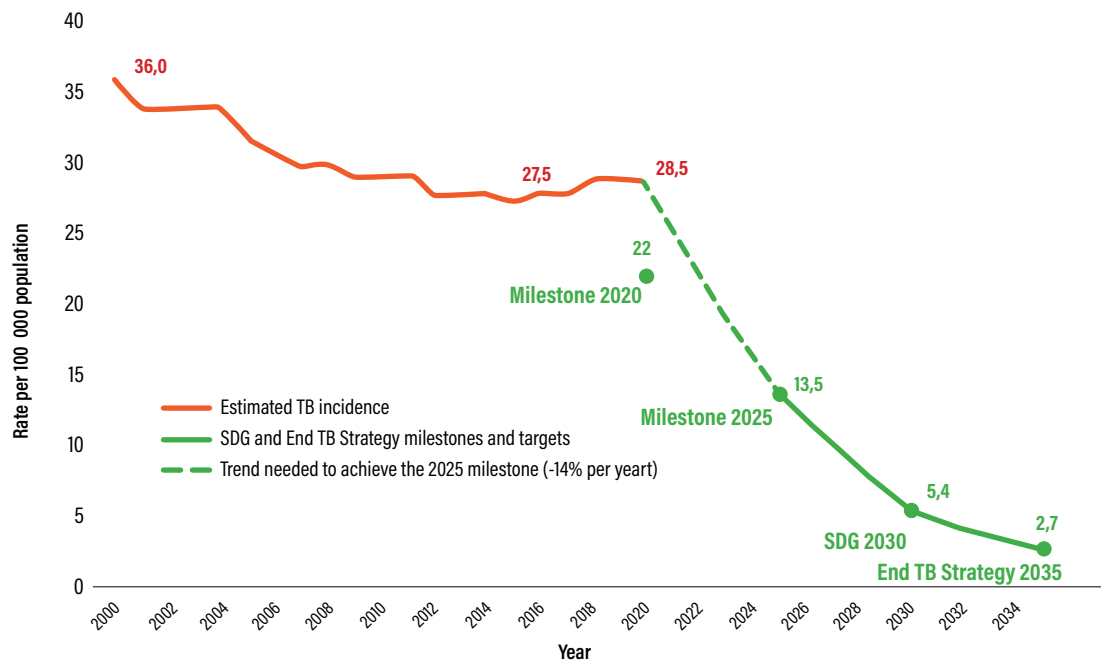
Note: SDGs: Sustainable Development Goals; TB: tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

### 1.3. Tuberculosis incidence

The estimated incidence rate in the Region has not reached the 2020 milestone. It has remained stable in recent years, with an average annual decrease of 0.10% between 2000 and 2019 and a slight increase in the last year. To achieve the 2025 milestone, the rate of decline would have to be 14% per year over the next three years (figure 3).

**Figure 3. Estimated tuberculosis incidence rate, trend and forecast, 2000-2035**



Note: SDGs: Sustainable Development Goals; TB: tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/item/9789240037021>.

WHO estimated that in 2020 there were 291 000 new TB cases and relapses in the Region of the Americas, representing 3% of the global TB burden (9.8 million cases) and an incidence of 28.5 cases per 100 000 population. It was also estimated that 89% of TB cases were in 13 countries. Just over half were concentrated in Brazil, Mexico, and Peru (table 2). The lowest estimated TB rates were concentrated in 16 countries; most in the Caribbean including Costa Rica (10.4), Bahamas (9.1), and Curaçao (7.9).

**Table 2.** Countries with estimated high tuberculosis burdens, 2020

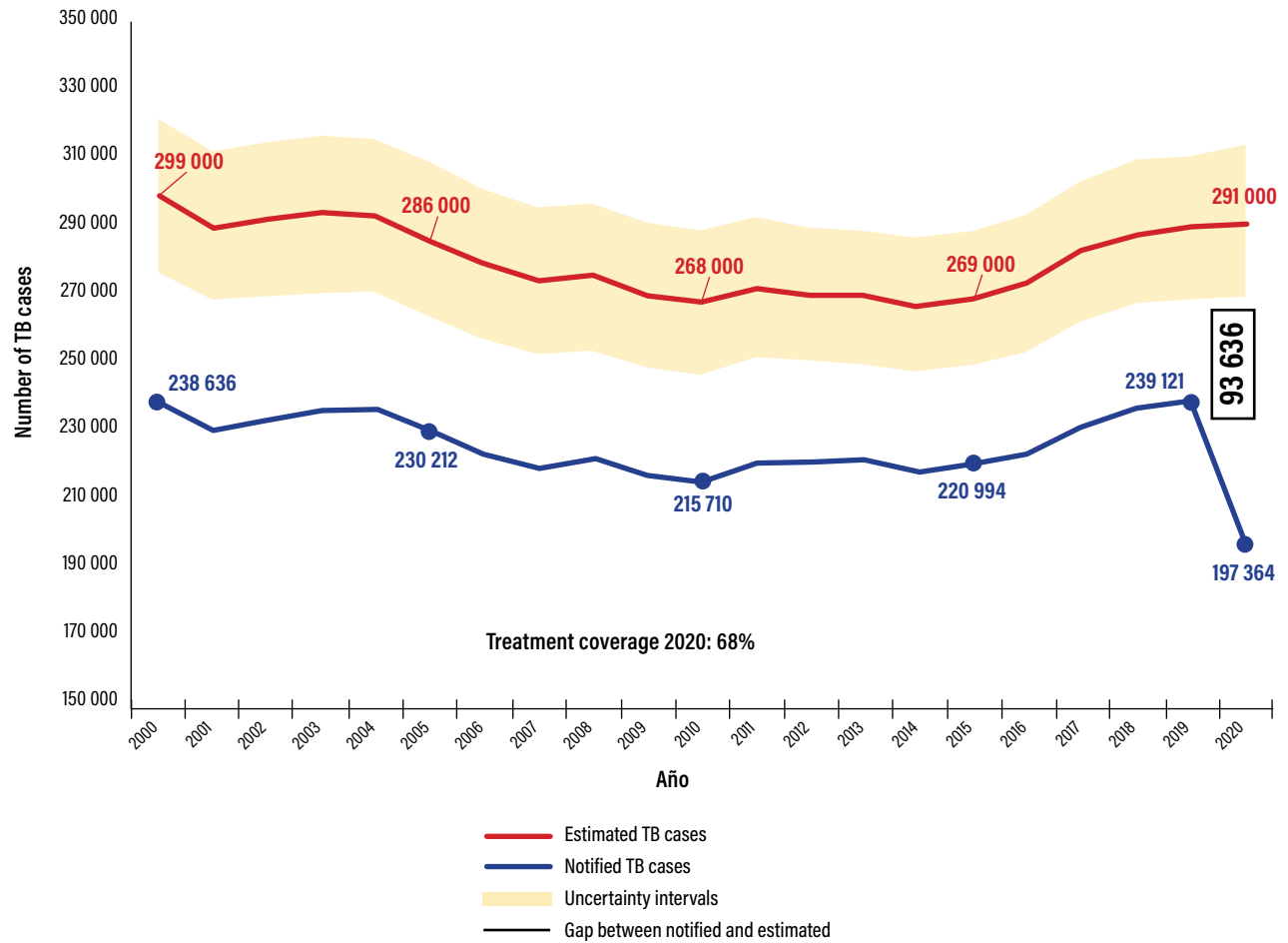
Country	Estimated cases	Percentage of cases in the Region	Estimated rate*
Brazil	96 000	33.0%	45.2
Peru	38 000	13.1%	115.2
Mexico	31 000	10.7%	24.0
Haiti	19 000	6.5%	166.6
Colombia	19 000	6.5%	37.3
Argentina	14 000	4.8%	31.0
Venezuela (Bolivarian Republic of)	13 000	4.5%	45.7
Bolivia (Plurinational State of)	12 000	4.1%	102.8
Ecuador	8500	2.9%	48.2
El Salvador	3600	1.2%	55.5
Paraguay	3400	1.2%	47.7
Guyana	620	0.2%	78.8
Dominica	34	0.0%	47.2
<b>Total in high-burden countries</b>	<b>258 154</b>	<b>88.7%</b>	<b>46.6</b>
<b>Total in the Region</b>	<b>291 000</b>	<b>100%</b>	<b>28.5</b>

*Note:* High-burden countries are those with an estimated absolute number of TB cases greater than 10 000 per year and those with an incidence rate of more than 45 per 100 000 population.

*Source:* World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

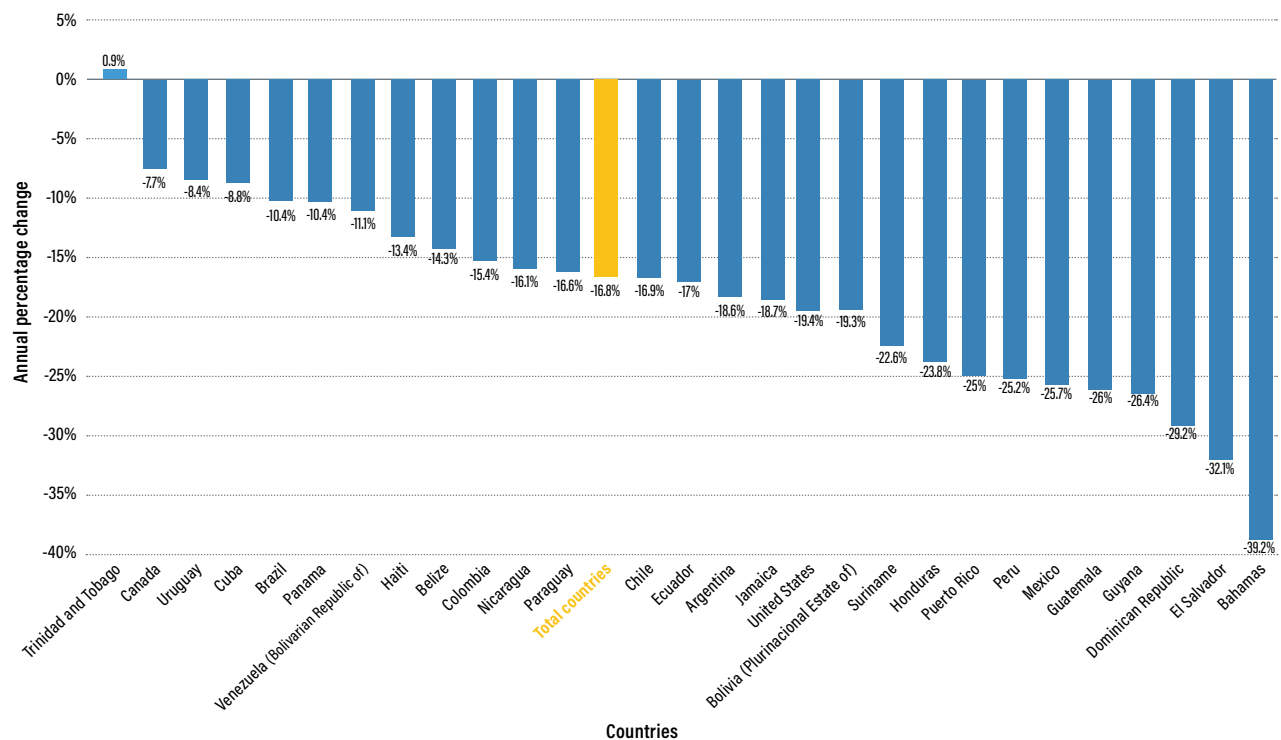
The number of reported TB cases (new and relapses) across the continent decreased from 239 121 in 2019 to 197 364 in 2020, representing 68% of treatment coverage (figure 4). The gap between estimated and reported cases almost doubled in 2020 from the previous year, from 52 500 to 93 600 cases. This is possibly due to the COVID-19 pandemic.

**Figure 4.** Trends in new cases and relapses of tuberculosis, 2000-2020



Note: TB: tuberculosis.  
 Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

In 2020 there was a decline in reported TB cases compared to 2019. In the Region, this deficit was 16.8% among countries that reported data; those with the greatest variation were the Bahamas and El Salvador (figure 5).

**Figure 5. Percentage change in tuberculosis case reporting rate, 2020**

Note: Percentage change calculated relative to 2019.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 1.4. Catastrophic cost

Most countries do not have data on the percentage of individuals and households facing catastrophic costs due to TB. By 2020, Brazil and El Salvador had completed their surveys and published the results. In Brazil, the survey found that 48% of people affected by TB (all forms) and their families incurred catastrophic costs associated with the disease, while in El Salvador, this figure was 13%. Moreover, when considering only drug-resistant TB, the percentage of individuals and families facing catastrophic costs in Brazil was 78%. Several countries were in the process of conducting their national surveys, following WHO guidelines, including Argentina, Colombia, the Dominican Republic, Guyana, Panama, Paraguay, and Paraguay. The remaining countries were in the preparation phase for 2022.

## 1.5. Priority indicators of the End TB Strategy

The End TB strategy has 10 priority indicators that enable countries to monitor progress in implementing the strategy. The impact of the COVID-19 pandemic is evident in the variations observed in most of the values of these indicators between 2019 and 2020 (table 3). The most salient changes are in TB treatment coverage, which dropped from 82% to 68%, and in TB treatment coverage in children under 5 years, which decreased from 59% to 47%. Neither achieved the set target of  $\geq 90\%$ . In contrast, the indicator of coverage of TB patients with drug susceptibility testing (DST) results increased from 41% to 50%.



Overall, for 2020, the best-performing indicators were the percentage of TB patients who know their HIV status (79%) and the treatment success rate in new cases and relapses (74%). However, these indicators are still below the target set for 2025 (100% and 90% respectively). Some other indicators showed very low values in 2020, such as the percentage of new and relapsed TB patients diagnosed using the rapid WHO-recommended tests (27%) and the TB preventive treatment coverage in people living with HIV (44%). The priority indicators by country are detailed in the annex.

**Table 3. Priority indicators of the End TB Strategy, 2019-2020**

INDICATOR		2019 VALUE	2020 VALUE	2025 GOAL
TB treatment coverage		82%	68%	≥90%
Treatment success rate	New and relapse TB cases (2018-2019)	76%	74%	≥90%
	MDR/RR-TB cases (2017-2018)	60%	59%	
Percentage of TB-affected households facing catastrophic costs due to TB		No disponible	No disponible	0%
Percentage of new TB patients who were diagnosed by WHO-recommended rapid tests		25%	27%	≥90%
TB preventive treatment coverage	children under 5 years	59%	47%	≥90%
	HIV	26%	23%	≥90%
Contact tracing coverage		69%	63%	≥90%
Coverage of TB patients with drug susceptibility testing (DST) results		41%	50%	100%
Treatment coverage with new anti-TB drugs		12%	13%	≥90%
Percentage of TB patients who are aware of their HIV status		80%	79%	100%
TB case-fatality rate (2017)		7%	7%	≤6%

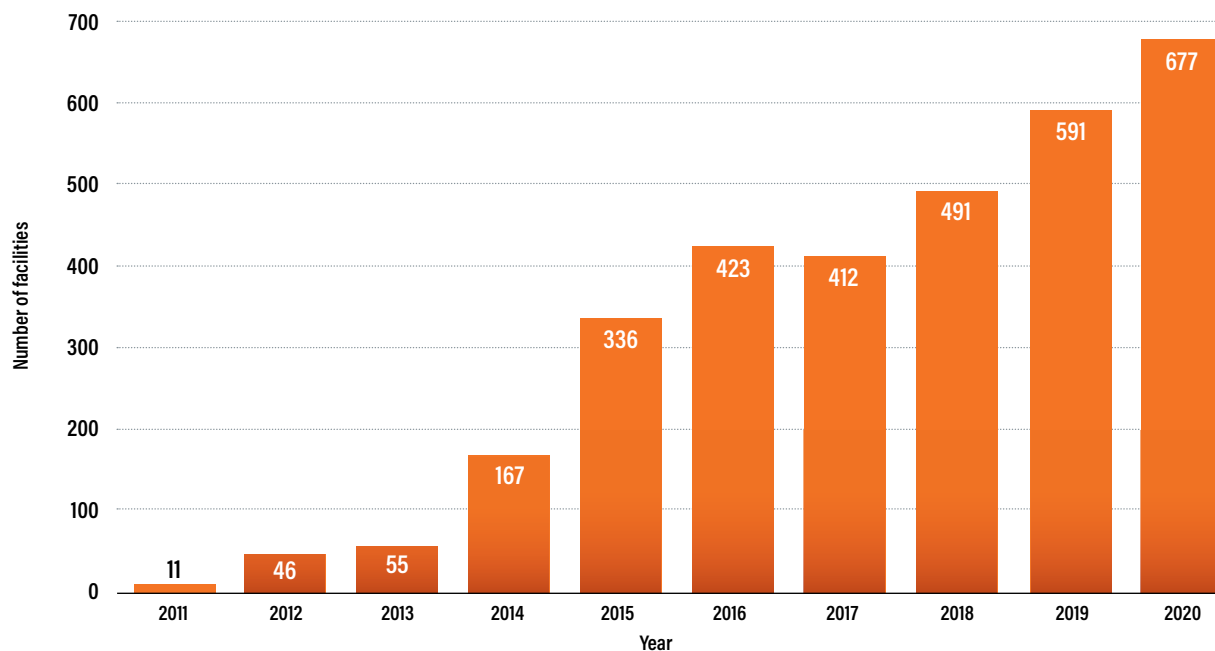
Source: World Health Organization. DST: drug-susceptibility testing; TB: tuberculosis; MDR/RR-TB: multidrug-resistant or rifampicin-resistant tuberculosis; HIV: human immunodeficiency virus.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 2. Tuberculosis diagnosis

The availability of rapid molecular testing has increased in recent years across the Region: rising from 11 GeneXpert® devices in 2011 to 677 in 2020 (figure 6). The percentage of cases diagnosed with these tests was 18% in 2018 and had already risen to 27% by 2020. However, smear testing remains the most widely used method for the initial diagnosis.

**Figure 6.** Centers with GeneXpert® equipment, 2020



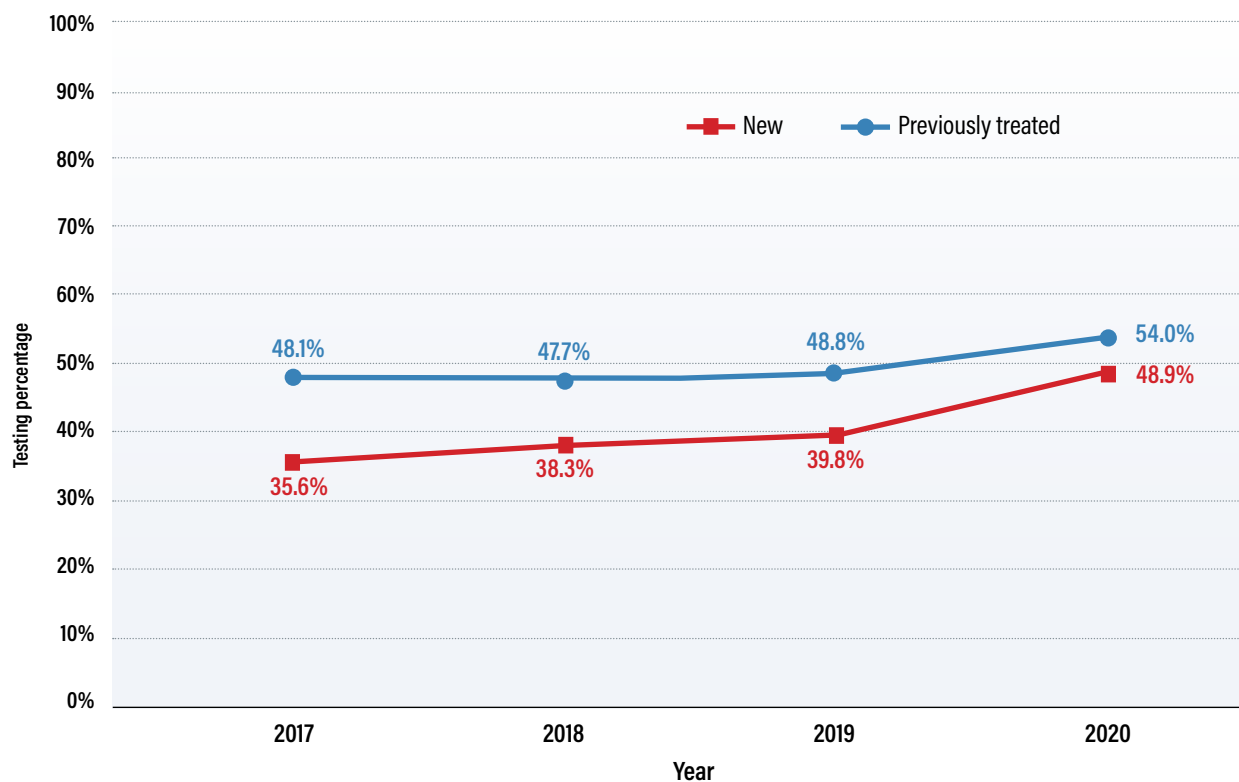
Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

The expansion of rapid molecular testing depends on many factors, including: political decisions; guideline changes; updated and disseminated diagnostic algorithms, which generate demand from medical staff; sustainable financial resources to purchase cartridges and maintain equipment; the efficiency of sample transport, which ensures access to testing; and connectivity for timely notification of results.

The increase in rapid molecular testing centers in recent years and the recent acquisition of molecular diagnostic equipment for COVID-19 could boost the capacity for diagnosing TB with these types of rapid tests, incorporated into multi-purpose platforms. Countries must now incorporate the latest version of GeneXpert® equipment (10 colors) for Xpert® MTB/XDR testing.

Universal access to DST is key to improving the detection of rifampicin- or multidrug-resistant (MDR/RR-TB) cases in the Region. In 2020, DST was conducted for 48.9% of new cases and 54% of cases already treated. This represents a nine-percentage-point increase in new cases compared to 2019 when it was 39.8% (figure 7).

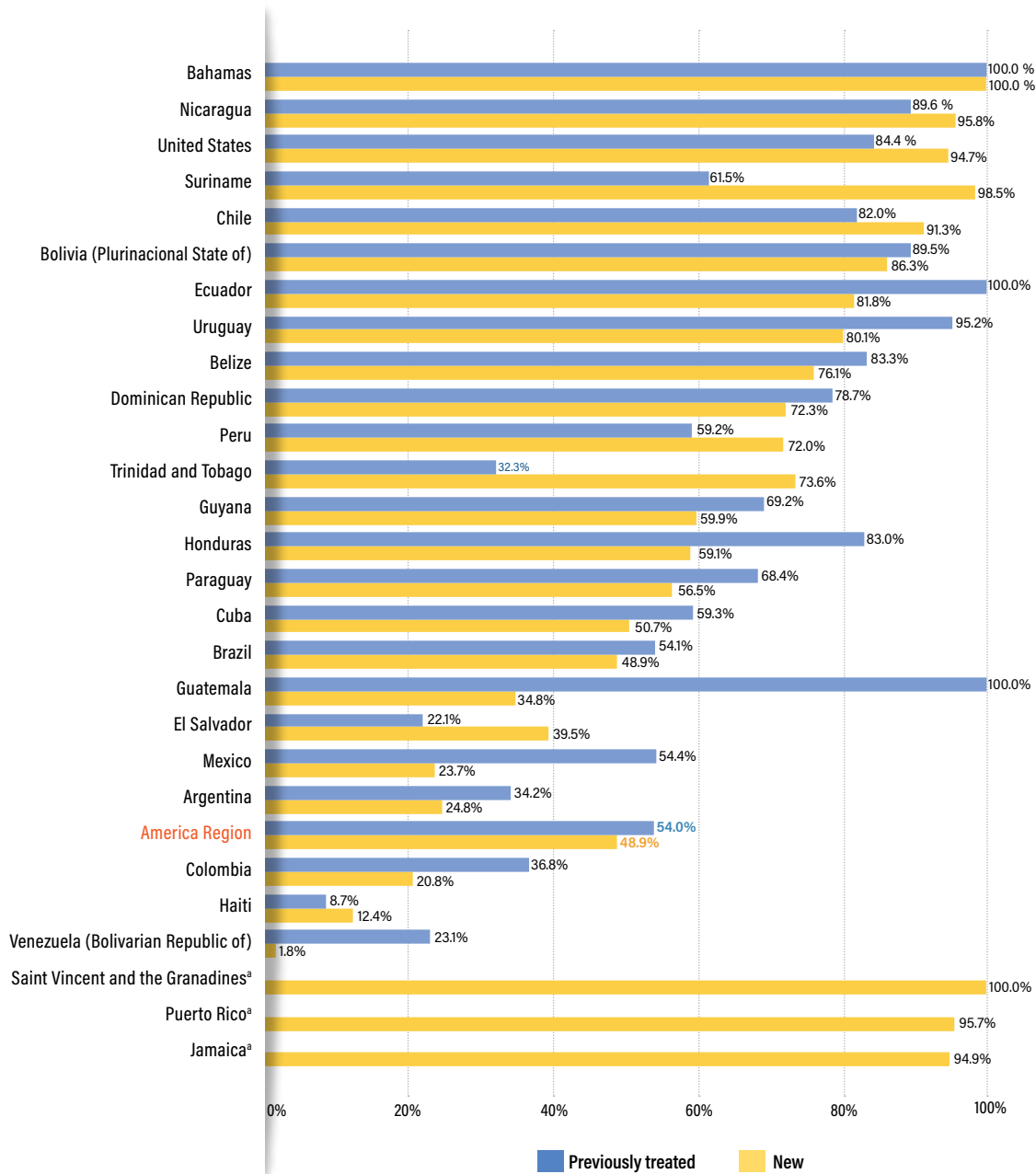
**Figure 7. Proportion of drug susceptibility testing, 2020**



Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

In 2020, the countries that had the highest percentage of DST in new and previously treated cases of pulmonary TB were the Bahamas, Nicaragua, the United States of America, Suriname, and Chile. In contrast, Haiti, Colombia, and the Bolivarian Republic of Venezuela were below the regional average (figure 8).

**Figura 8. Drug susceptibility testing, 2020**



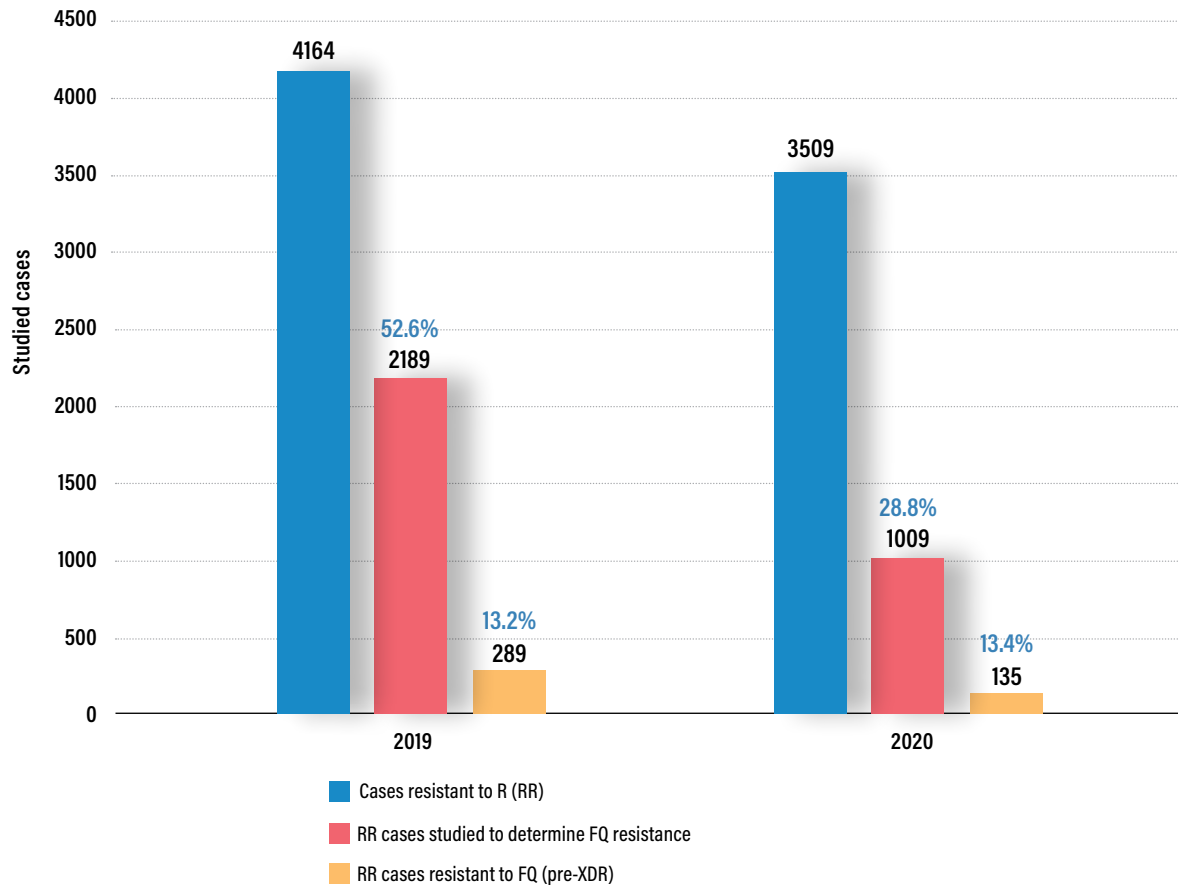
Note: Se Testing of new and previously treated cases of pulmonary TB by country. Only countries reporting 10 or more confirmed cases included. Canada and Panama did not report confirmed cases.

<sup>a</sup> Countries that did not report previously treated cases.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

Only 28.8% of all cases of MDR/RR-TB underwent second-line DST for quinolones, which is a sharp decline compared to 2019, when it was 52.6% (figure 9). However, the percentage of confirmed cases with fluoroquinolone resistance remained at 13.4% in 2020 in the Region.

**Figure 9.** RR-TB cases screened for fluoroquinolone resistance, 2019-2020



*Note:* Confirmed cases of pulmonary tuberculosis.

FQ: fluoroquinolones; RR: rifampicin-resistant; TB: tuberculosis; XDR: extremely drug-resistant.

*Source:* World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

### 3. Drug-resistant tuberculosis

In 2020, 10 countries in the Region accounted for just over 90% of all reported MDR/RR-TB cases; Peru and Brazil were the most affected, with 38% and 23% of all reported cases, respectively. The highest rates of MDR/RR-TB were reported in Peru (4.3) and Ecuador (1.4) (table 4).

**Table 4.** Countries with the highest burden of multidrug-resistant or rifampicin-resistant tuberculosis, 2020

Country	Reported MDR/RR-TB cases		
	Number	Percentage	Rate
Peru	1424	38%	4.3
Brazil	881	23%	0.4
Mexico	270	7%	0.2
Ecuador	253	7%	1.4
Dominican Republic	149	4%	1.4
Colombia	134	4%	0.3
Argentina	110	3%	0.2
Bolivia (Plurinational State of)	98	3%	0.8
Haiti	93	2%	0.8
Guatemala	77	2%	0.4
<b>Total</b>	<b>3489</b>	<b>92%</b>	

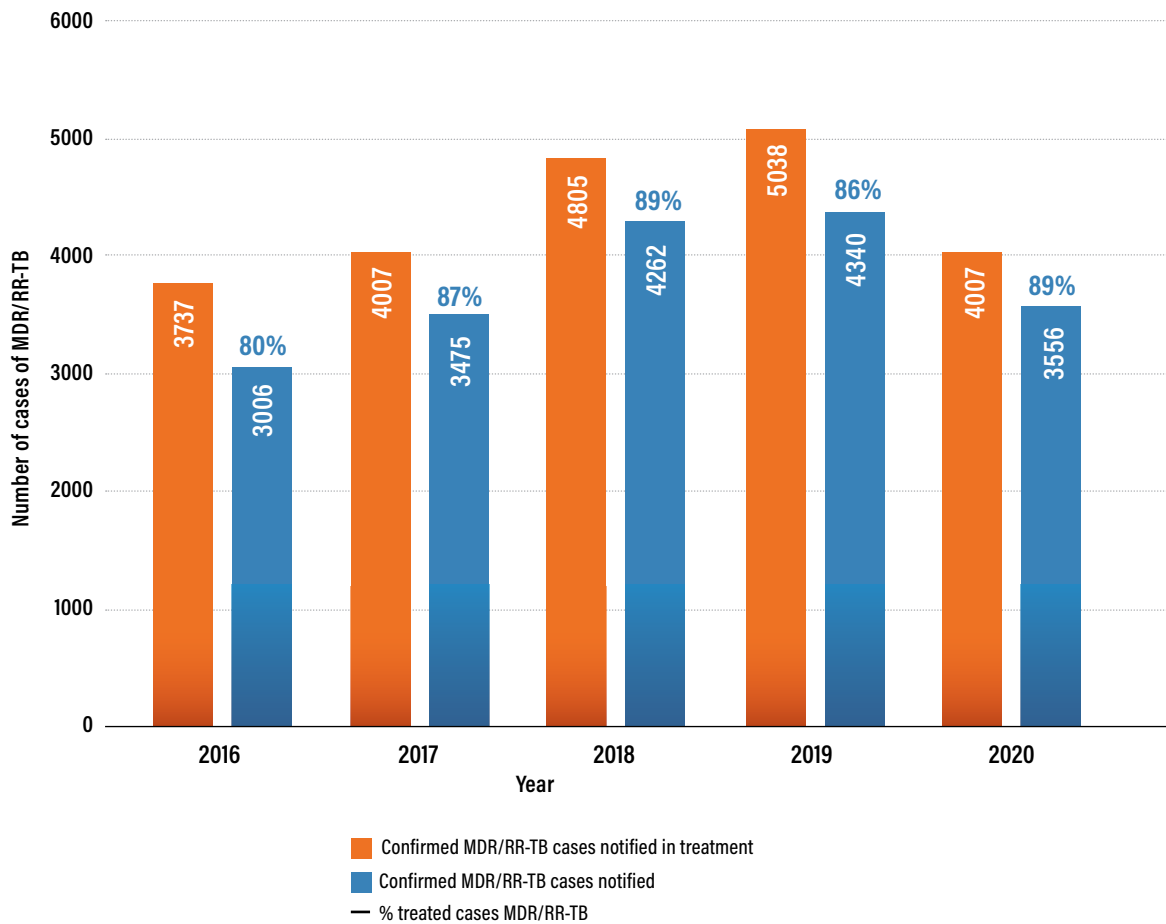
Note: Rates per 100 000 population.

MDR/RR-TB: multidrug-resistant or rifampicin-resistant tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

Of the total number of MDR/RR-TB cases reported in 2020, 89% started treatment, a percentage similar to that of the previous two years (figure 10). Of these patients, only 2.6% received shorter all-oral treatments, which are more effective, safer, and recommended by WHO.

**Figure 10.** Cases of multidrug-resistant or rifampicin-resistant tuberculosis, reported and in treatment, 2016-2020



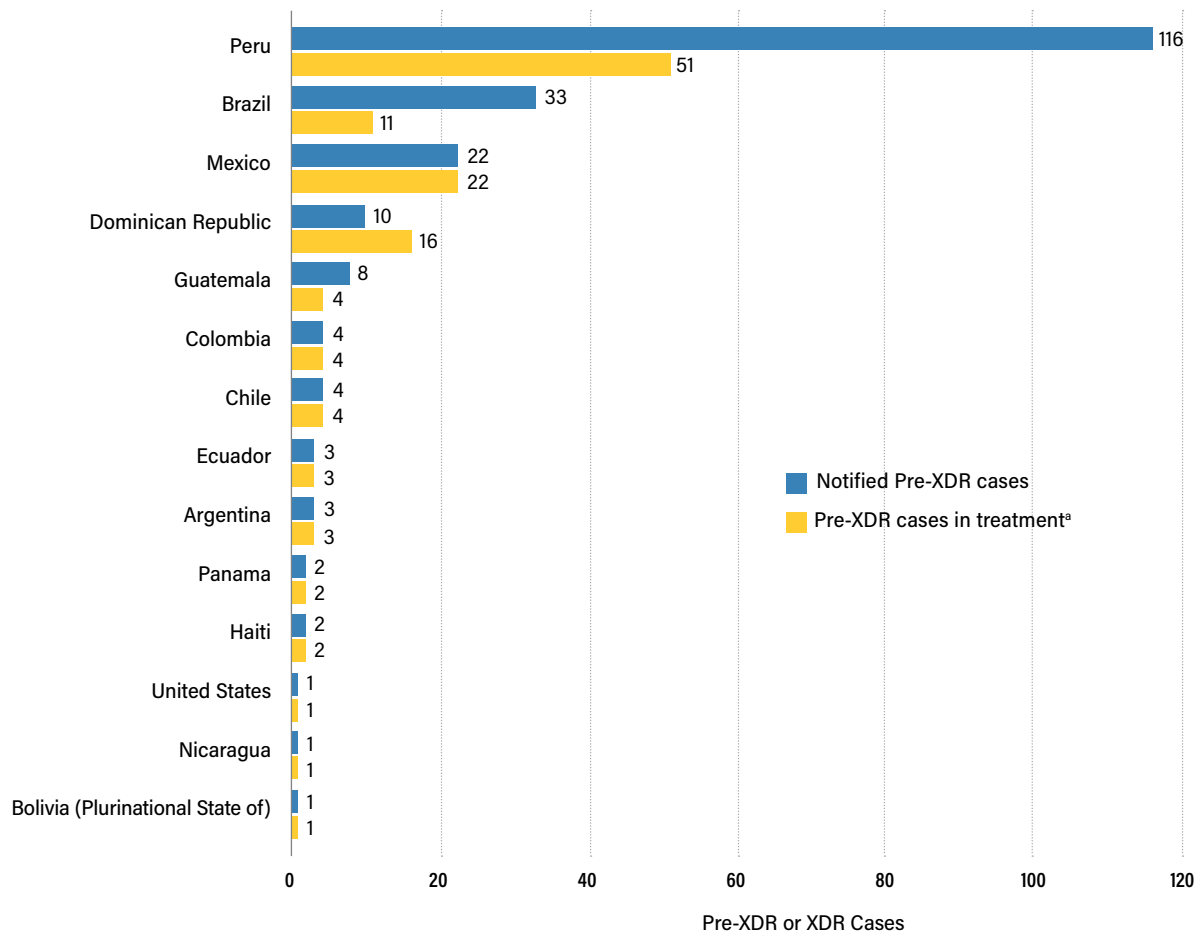
Note: Total cases in the Region of the Americas.

MDR/RR-TB: multidrug-resistant or rifampicin-resistant tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

In 2020, 14 countries in the Region reported a total of 210 cases of extensively drug-resistant (XDR-TB) and pre-XDR tuberculosis, according to the new updated WHO definitions. Countries reporting the highest number of cases are Peru, 55.2%; Brazil, 15.7%; and Mexico, 10.4%. However, only 41%, 9%, and 18% of these cases, respectively, received treatment (figure 11).

**Figure 11.** Cases of pre-XDR and XDR tuberculosis reported and in treatment, 2020



Notes: Total for the Region of the Americas.

<sup>a</sup> Includes cases of pre-XDR or XDR according to new World Health Organization definitions. See Pan American Health Organization. WHO operational handbook on tuberculosis. Module 4: treatment. Drug-resistant tuberculosis treatment. Washington, D.C.: PAHO; 2022. Available at: <https://www.who.int/publications/i/item/9789240006997>.

TB: tuberculosis. XDR: extremely drug resistant.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.



In 2020, 19 countries introduced oral bedaquiline-containing regimens for patients with drug-resistant TB. The Dominican Republic, Peru, Haiti, and Mexico have reported its use since 2017, and the number of patients taking this regimen has increased each year.

**Table 5. Countries using bedaquiline to treat MDR/XDR-TB, 2017-2020**

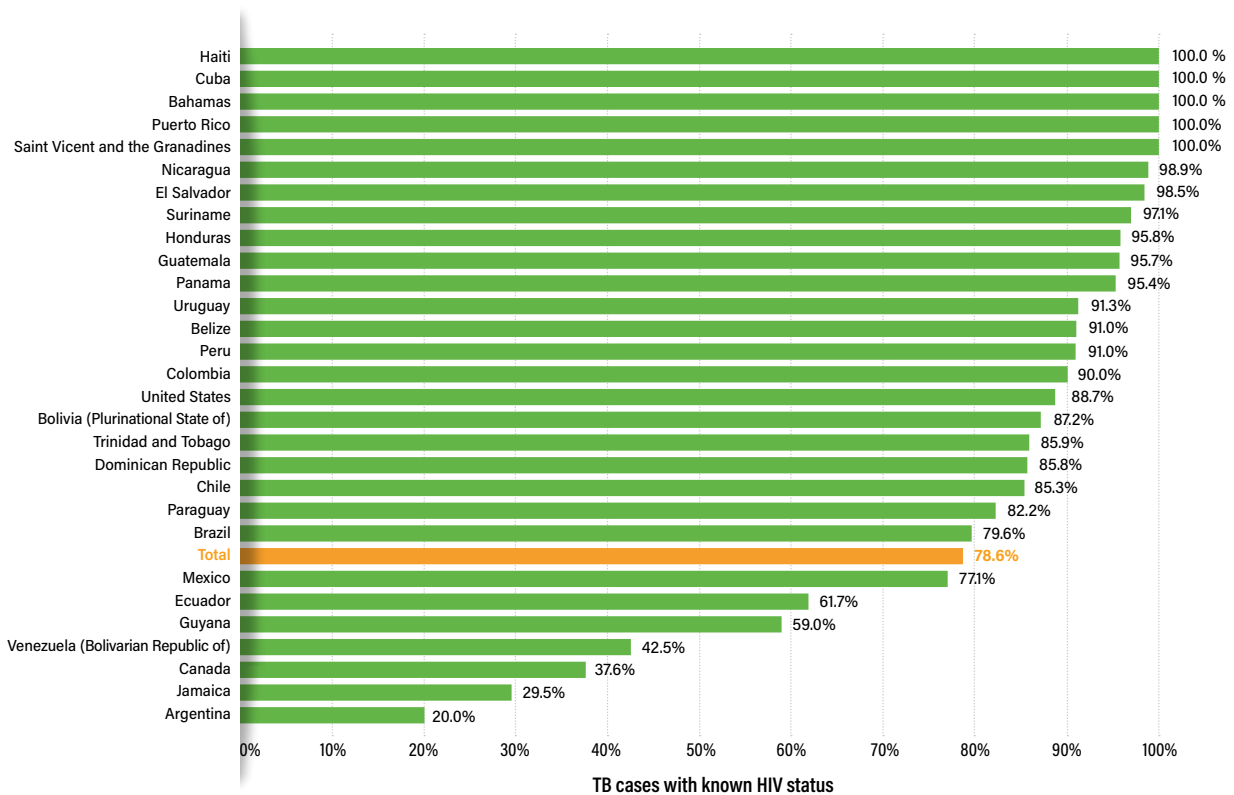
Country	Cases treated with bedaquiline			
	2017	2018	2019	2020
Dominican Republic	6	10	130	162
Peru	102	150	125	107
Haiti	16	17	74	93
Mexico	1	1	11	87
Chile	-	1	12	23
Venezuela (Bolivarian Republic of)	-	-	-	10
Panama	-	-	5	9
Uruguay	-	-	-	9
Paraguay	-	-	6	7
Colombia	-	-	3	5
Honduras	-	-	1	3
Argentina	-	1	15	2
Ecuador	-	-	-	2
Bolivia (Plurinational State of)	-	-	1	1
Puerto Rico	-	-	1	1
Nicaragua	-	-	-	1
Brazil	20	8	10	-
Guatemala	-	1	3	-
United States	15	-	-	-
<b>Total</b>	<b>160</b>	<b>189</b>	<b>397</b>	<b>522</b>

Note: MDR-TB: multidrug-resistant tuberculosis; XDR-TB: extensively drug-resistant tuberculosis.  
Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 4. TB/HIV co-infection

In 2020, the proportion of reported TB cases in the Americas with documented HIV testing was 79%. This percentage is lower than that recommended by PAHO/WHO (100%). Most countries were above the regional average, but some have large gaps to fill or problems with their records, as is the case with Mexico, Ecuador, Guyana, the Bolivarian Republic of Venezuela, Canada, Jamaica, and Argentina (figure 12).

**Figure 12.** Reported tuberculosis cases with documented human immunodeficiency virus status, 2020



Note: Countries with 10 or more cases notified.

TB: tuberculosis; HIV: human immunodeficiency virus.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

In 2020, there were an estimated 29 000 cases of HIV and TB co-infection in the Region (11% of total estimated TB cases), of which 16 669 (57%) were reported. The countries with the highest number of estimated cases of TB/HIV co-infection were Brazil (11 000 cases), Mexico (3900 cases), Colombia (2700 cases), Haiti (2600 cases), and Peru (2400 cases). The highest rates of TB/HIV co-infection were found in Haiti (22.8 per 100 000 population) and the Dominican Republic (10.1 cases per 100 000 population) (table 6).

**Table 6. Countries with the highest number of estimated of TB/HIV co-infection, 2020**

Country	Cases of TB/HIV co-infection	Total percentage of TB/HIV cases in the Region	TB/HIV co-infection rate
Brazil	11 000	37.9%	5.2
Mexico	3900	13.4%	3.0
Colombia	2700	9.3%	5.3
Haiti	2600	9.0%	22.8
Peru	2400	8.3%	7.3
Dominican Republic	1100	3.8%	10.1
Venezuela (Bolivarian Republic of)	1000	3.4%	3.5
Argentina	840	2.9%	1.9
Bolivia (Plurinational State of)	500	1.7%	4.3
Ecuador	400	1.4%	2.3
<b>Total countries with the highest burden of TB/HIV co-infection</b>	<b>26 440</b>	<b>91.2%</b>	<b>4.8</b>
<b>Region of the Americas</b>	<b>29 000</b>	<b>100%</b>	<b>2.9</b>

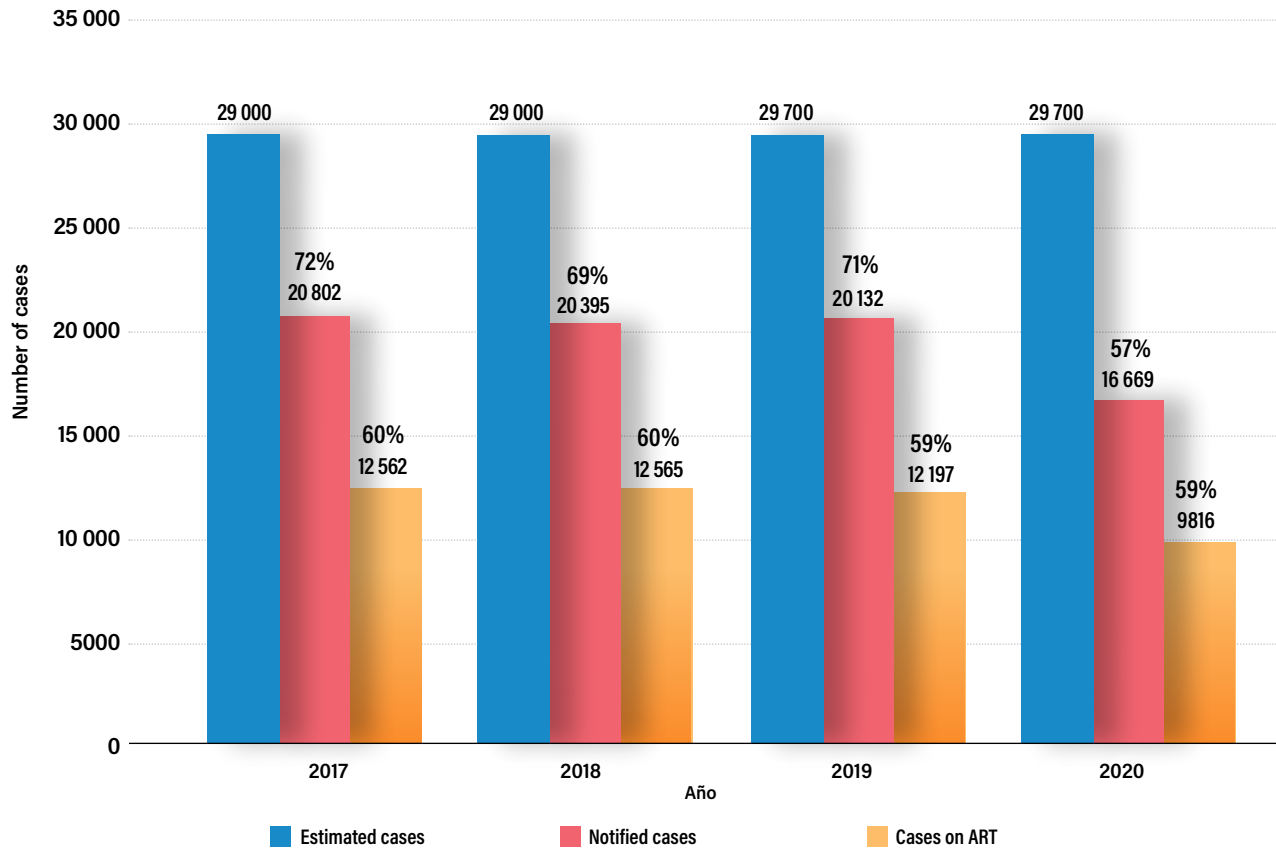
Note: Rates per 100 000 population.

TB: tuberculosis. HIV: human immunodeficiency virus.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

Only 59% of the reported cases of TB/HIV coinfection received antiretroviral treatment in 2020 (figure 13). This figure has not changed over the past three years and should have already reached 100%.

**Figure 13.** Cases of TB/HIV coinfection on antiretroviral therapy, 2017–2020



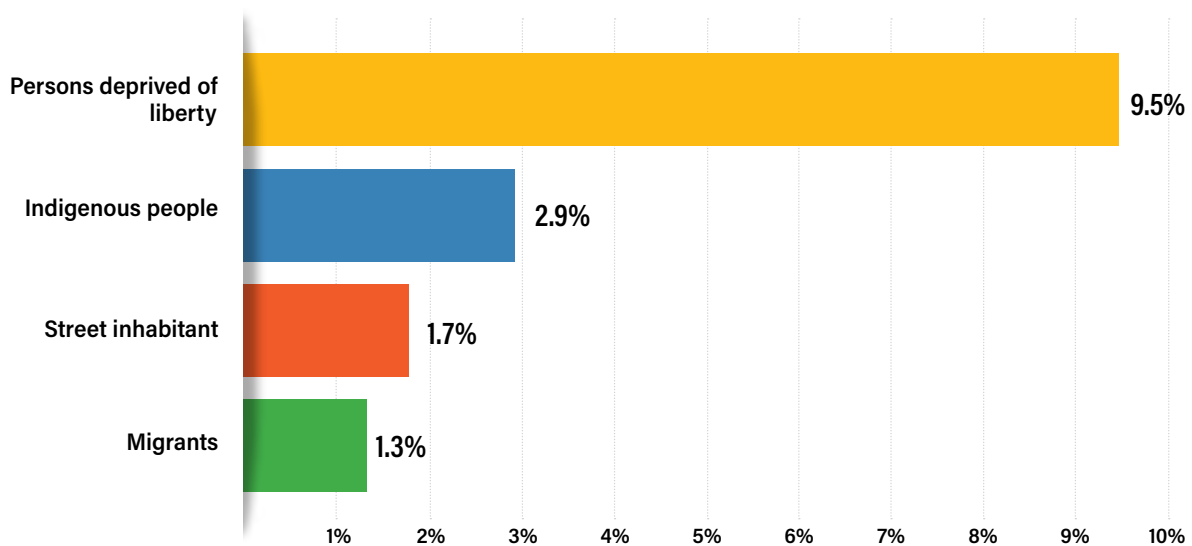
Note: ART, antiretroviral therapy; TB: tuberculosis; HIV: human immunodeficiency virus.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 5. Groups in situations of vulnerability

During 2020, despite the effects of the COVID-19 pandemic, it was possible to continue collecting information on vulnerable population groups with TB in the Americas, especially persons deprived of liberty, indigenous population, homeless persons, and migrants (figure 14).<sup>3</sup> Data on children under 15 years of age also continued to be collected. This population group represented 3.8% of the total reported cases reported in the Region in 2020.

**Figura 14.** Porcentaje de casos de tuberculosis notificados en grupos en situación de vulnerabilidad, 2020



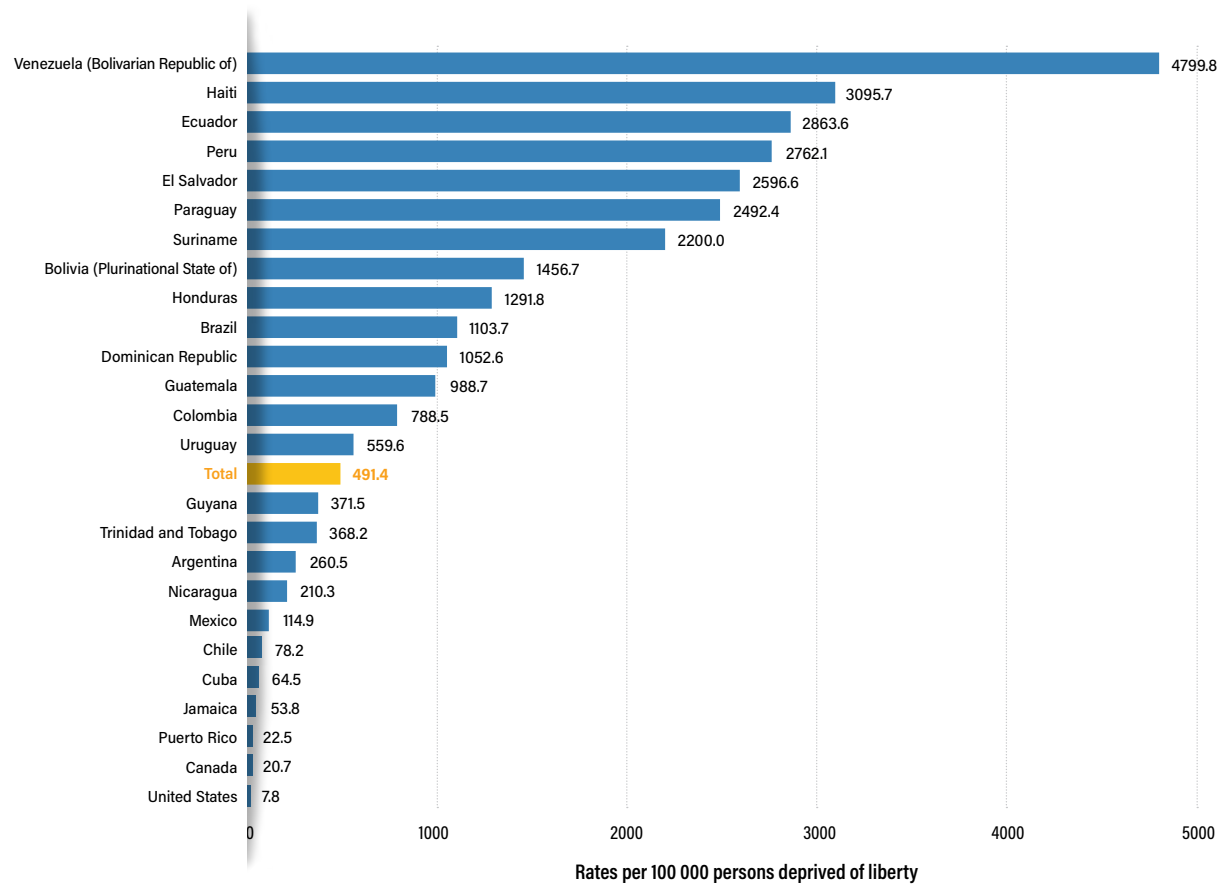
Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/item/9789240037021>.

<sup>3</sup> In the last two reports on Tuberculosis in the Americas, the percentage of cases among the homeless and migrant populations has not changed significantly; therefore, these groups are not analyzed individually. See Pan American Health Organization. Tuberculosis in the Americas Regional Report 2020. Washington, D.C.: PAHO; 2021. Available at: <https://iris.paho.org/handle/10665.2/55047> and Pan American Health Organization. Tuberculosis in the Americas Regional Report 2019. Washington, D.C.: PAHO; 2020. Available at: <https://iris.paho.org/handle/10665.2/52815>

## 5.1. Persons deprived of liberty

Prisons in the Region are places of very high risk for TB transmission due to overcrowding and poor health systems. The incidence of TB among persons deprived of liberty is much higher than that of the general population in many countries (figure 15). Countries reporting the most cases are Brazil, El Salvador, Suriname, and Ecuador.

**Figure 15.** Tuberculosis cases in persons deprived of liberty, 2020



*Sources:*

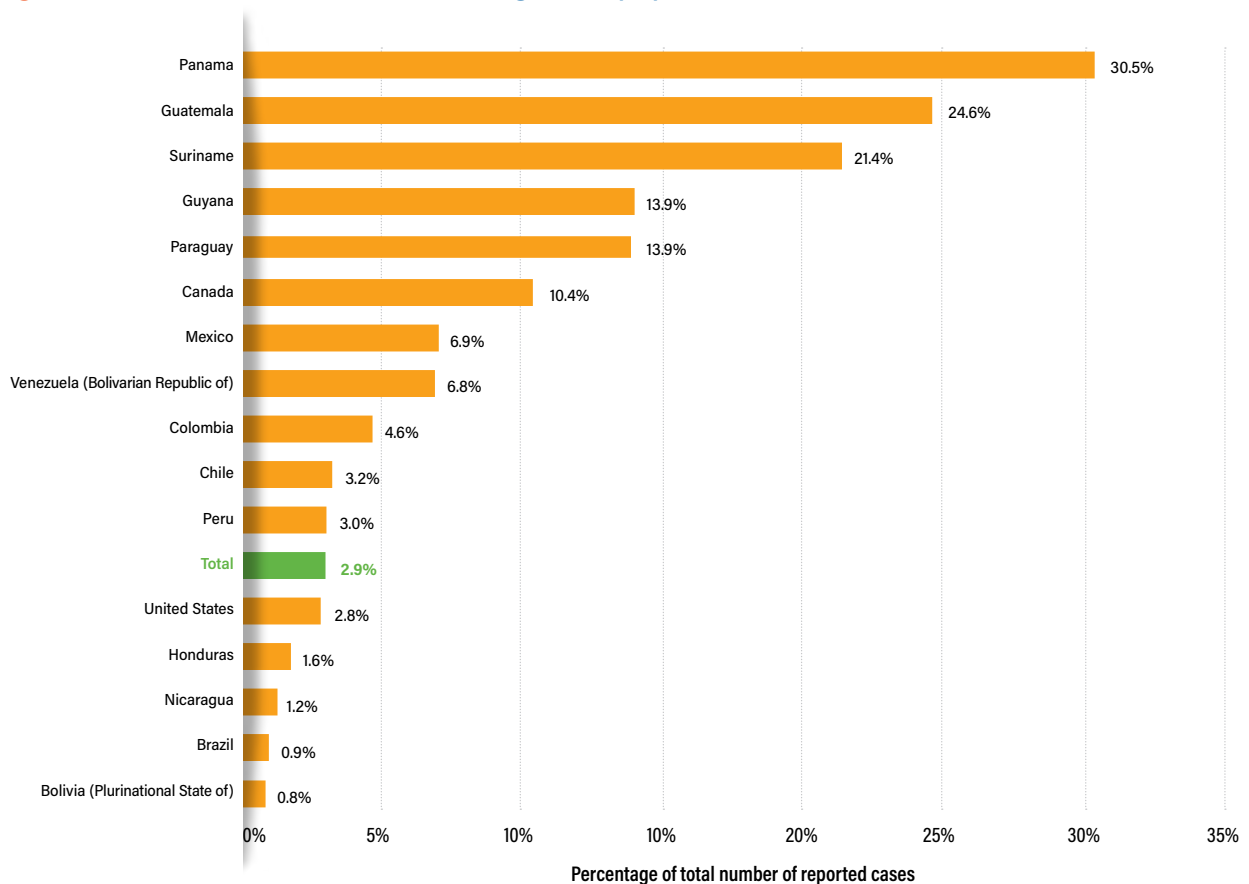
<sup>1</sup> Institute for Crime and Justice Policy Research. World Prison Brief: Welcome. Institute for Crime and Justice Policy Research: London; 2021 [accessed 28 February 2022]. Available at: [www.prisonstudies.org](http://www.prisonstudies.org).

<sup>2</sup> World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 5.2. Indigenous populations

About 3% of all TB cases in the Region affect the indigenous population. The countries with the highest proportion of cases are Panama (30.5%), Guatemala (24.6%), and Suriname (21.4%) (figure 16). These populations have health and social determinants that involve an increased risk of TB.

**Figure 16.** Tuberculosis cases in the indigenous population, 2020



Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

In February 2021, PAHO published *Guidelines for tuberculosis prevention and control in indigenous populations in the Region of the Americas*.<sup>4</sup> These guidelines aim to help implement the End TB Strategy with an intercultural approach that is in line with the priority lines of PAHO's current Policy on Ethnicity and Health.<sup>5</sup>

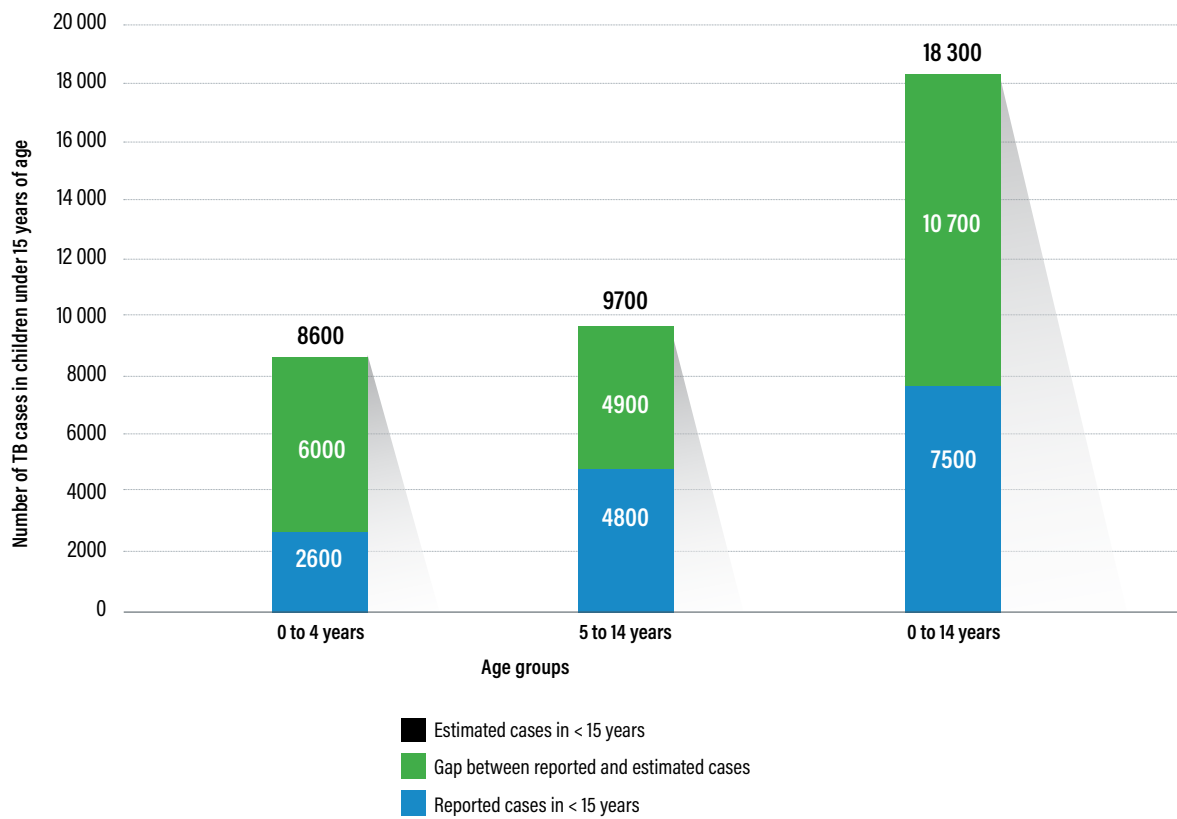
<sup>4</sup> Pan American Health Organization. Guidelines for tuberculosis prevention and control in indigenous populations in the Region of the Americas. Washington, D.C.: PAHO; 2022. Available at: <https://iris.paho.org/handle/106652/53308>.

<sup>5</sup> Pan American Health Organization. PAHO's Policy on Ethnicity and Health (PAHO Resolution CSP29.R3). 29th Pan American Sanitary Conference, 69th Session of the Regional Committee of WHO for the Americas; 25 to 29 September 2017. Washington, D.C.: PAHO; 2022. Available at: <https://iris.paho.org/bitstream/handle/10665.2/34425/CSP29.R3-s.pdf?sequence=2&isAllowed=y>.

### 5.3. Child population

In 2020, it was estimated that there would be 18 300 cases of TB in children under 15 years of age (4% of total estimated cases). However, only 7500 cases were reported (figure 17), which is a difference of 10 700 cases.

**Figure 17. Tuberculosis in children under 15 years of age, 2020**



*Note:* The 0–4 and 5–14 age groups do not include reporting from Nicaragua because it does not differentiate cases in children under 14 years of age.

TB: tuberculosis.

*Source:* World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

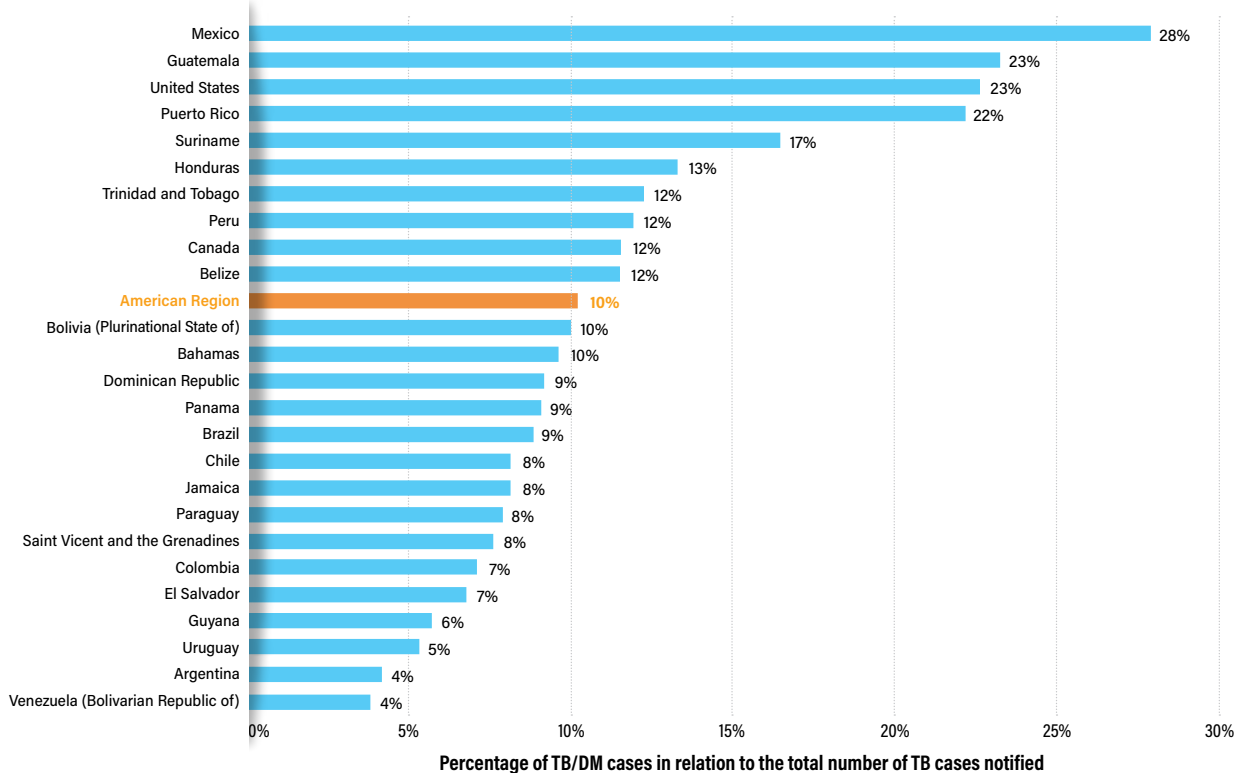


## 6. Comorbidities and risk factors

### 6.1. Tuberculosis and diabetes mellitus

In the Region of the Americas in 2020, in 24% of reported TB cases it was known whether the person already had diabetes mellitus (DM) or was screened to rule out this comorbidity; 10% of reported cases had comorbidity with diabetes mellitus (DM). On the other hand, 26 countries reported this comorbidity with the highest percentages in Mexico (28%), Guatemala (23%), the United States of America (23%), and Puerto Rico (22%) (figura 18).

**Figure 18.** Proportion of reported cases with concomitant diabetes mellitus, 2020



Note: 26 countries reported cases of concomitant tuberculosis and diabetes mellitus in 2020.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

Strengthening of the reporting process for this comorbidity is needed so that the situation in the Region can be better quantified. This would ultimately benefit patients, as they need to be offered timely treatment for both diseases.

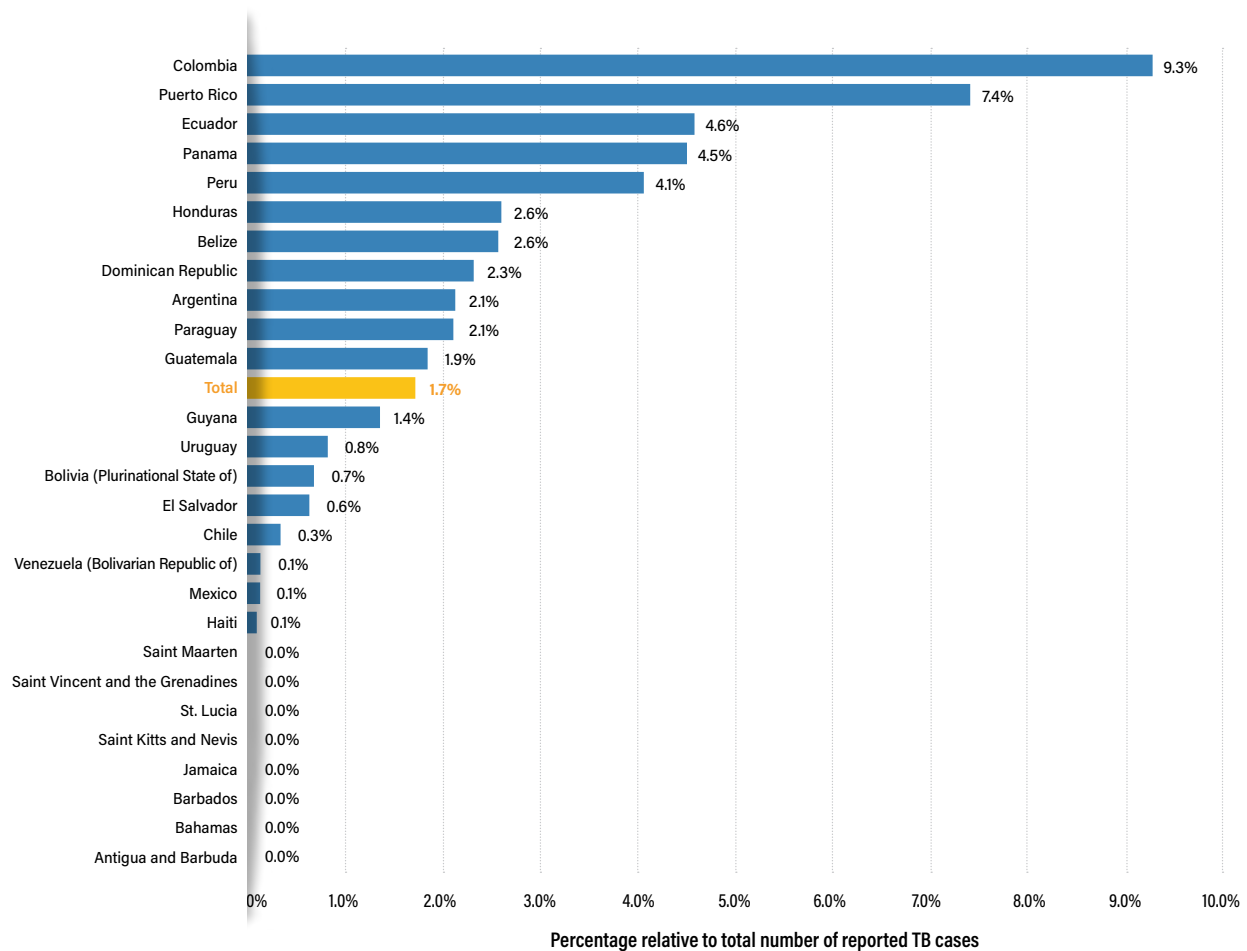
## 6.2. Tuberculosis and COVID-19

The COVID-19 pandemic severely disrupted health service delivery all around the world in 2020. In the case of TB, the demand for consultations was reduced, which lowered case detection; patient follow-up and primary care services were also scaled down. This is added to existing challenges in the supply chain of medicines and laboratory supplies. In short, the negative impact on the indicators is evident as has already been illustrated throughout this report.

During 2020, 27 countries reported concomitant TB and COVID-19 cases with an average of 1.7% of total cases (figure 19). Of these, Colombia (9.3%) and Puerto Rico (7.4%) were the countries reporting the highest proportion of concomitant cases.

These data demonstrate the importance of maintaining active surveillance to understand and address this new comorbidity.

**Figure 19.** Concomitant tuberculosis and COVID-19 cases, 2020



Note: Percentage of concomitant TB and COVID-19 cases relative to the total number of TB cases reported by 27 countries.

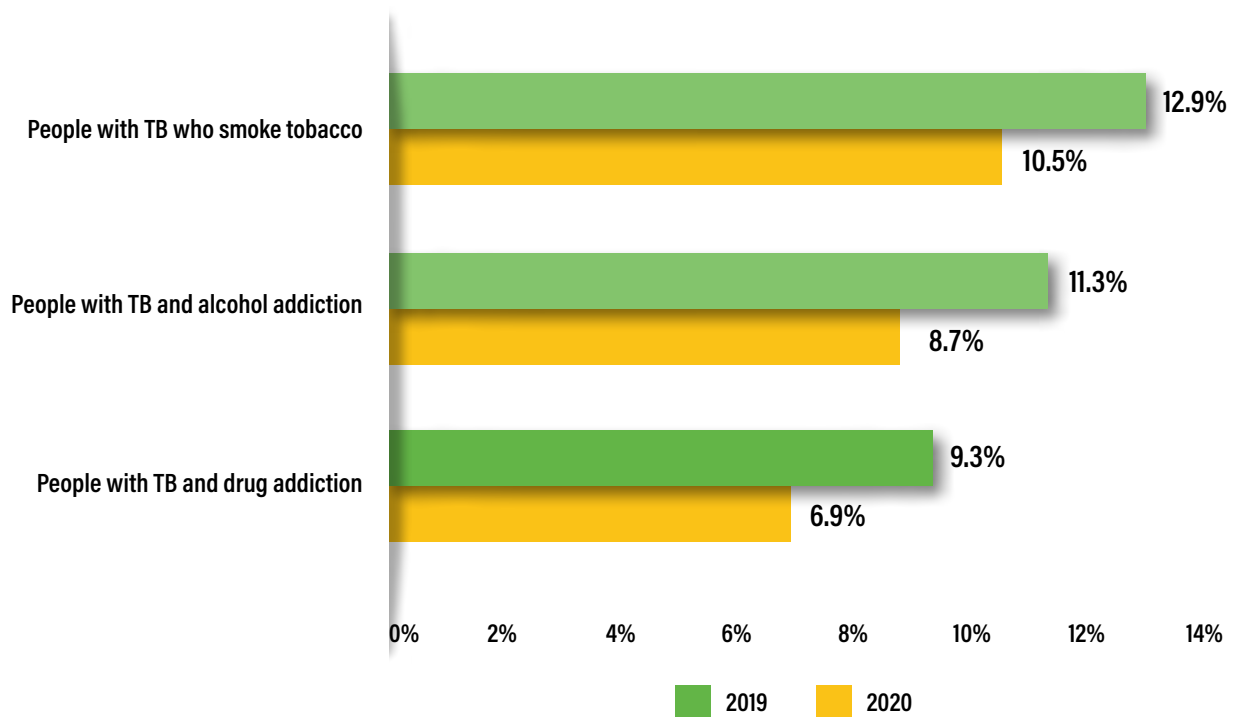
Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at:

<https://www.who.int/publications/i/item/9789240037021>.

### 6.3. Risk factors

The risk of TB infection is influenced by various social determinants, the socioeconomic conditions of the population, and individual risk factors. National TB programs have documented tobacco use and drug or alcohol addiction as individual risk factors (figure 20). These factors must, therefore, be addressed through cross-programmatic work, together with mental health areas, and with intersectoral collaborations, with the support of social partners.

**Figure 20.** Tuberculosis cases reported in people with risk factors, 2019-2020



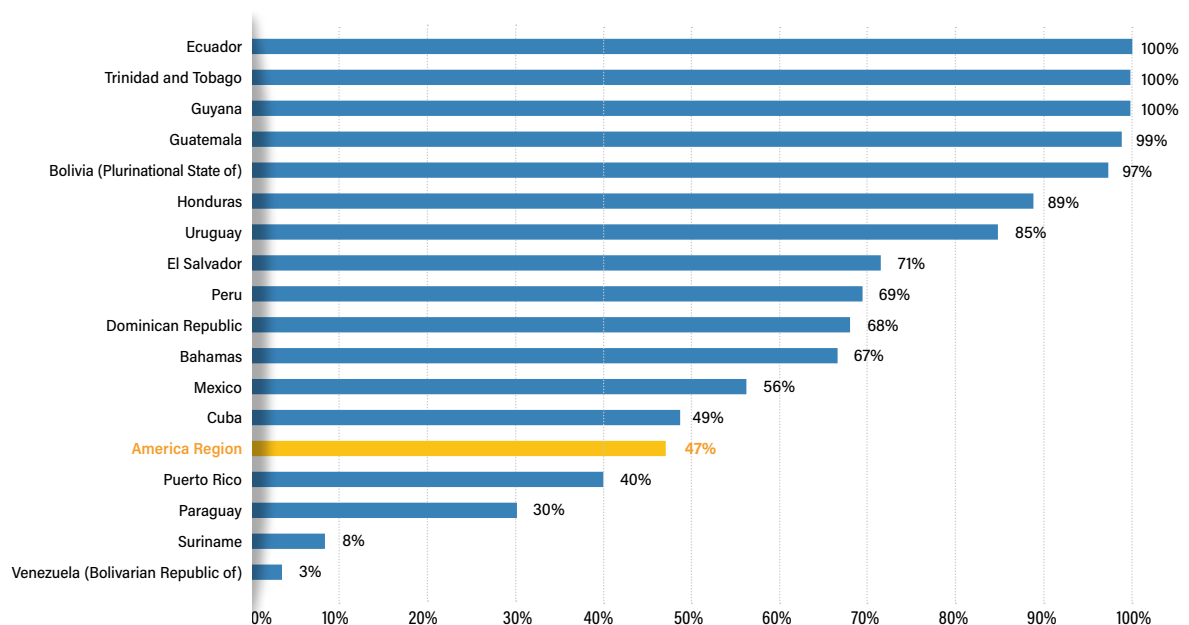
Note: TB: tuberculosis.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 7. Tuberculosis preventive treatment

Progress has been made in the provision of TB preventive treatment to contacts under age 5 in Ecuador, Trinidad and Tobago, Guyana, and Guatemala, where it was administered to 100% of contacts reported by the country in 2020. However, the regional average is only 47% among countries that have this information, and some countries have very low percentages (figure 21). The regional average decreased in 2020 by 12% compared to the previous year.

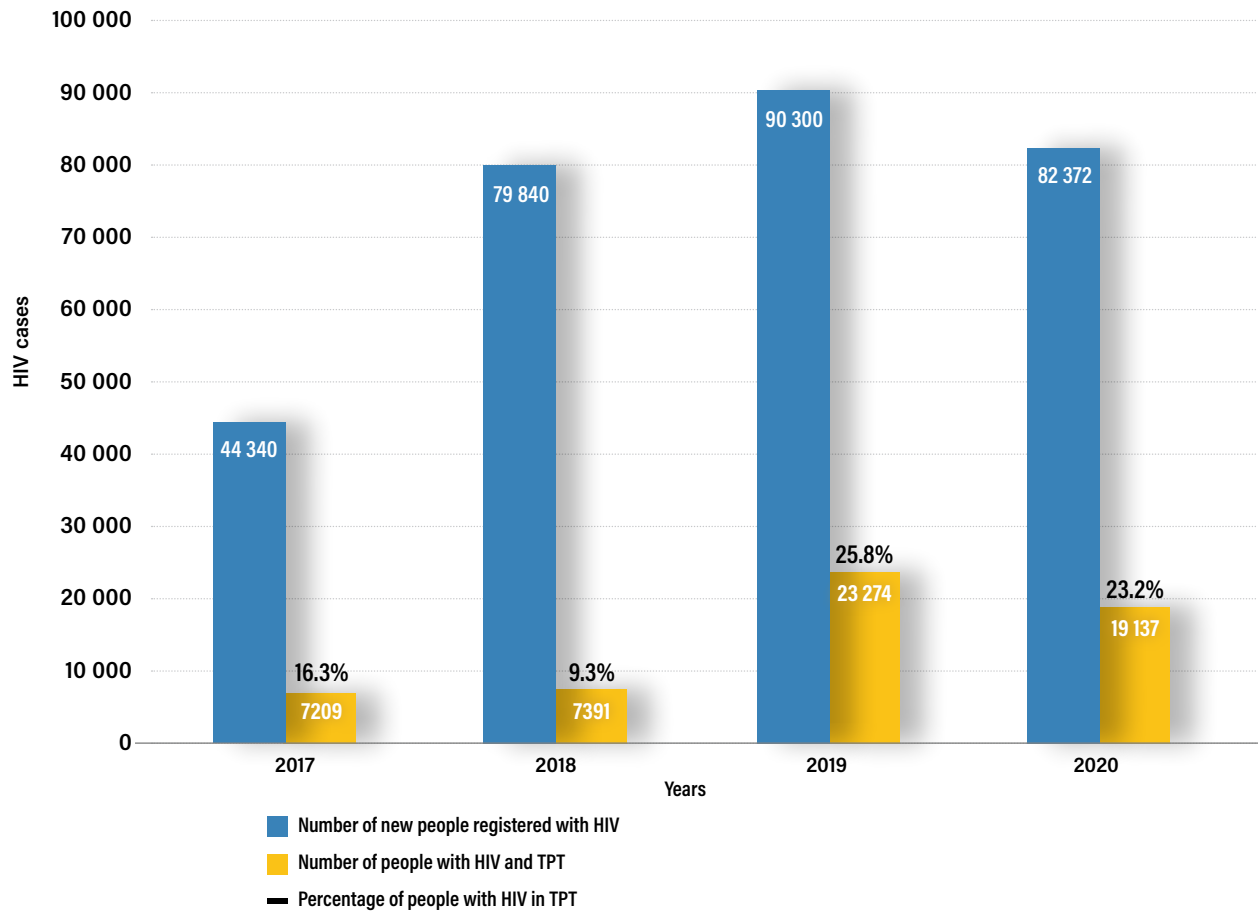
**Figure 21.** Contacts under 5 years of age who started TB preventive treatment, 2020



Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

Among new HIV cases reported in 2020, only 23% received TB preventive treatment (TPT). This figure is lower than that reported in 2019 (25.8%), possibly due to the COVID-19 pandemic (figure 22).

**Figure 22. Tuberculosis preventive therapy (TPT) in people living with HIV, 2017-2020**



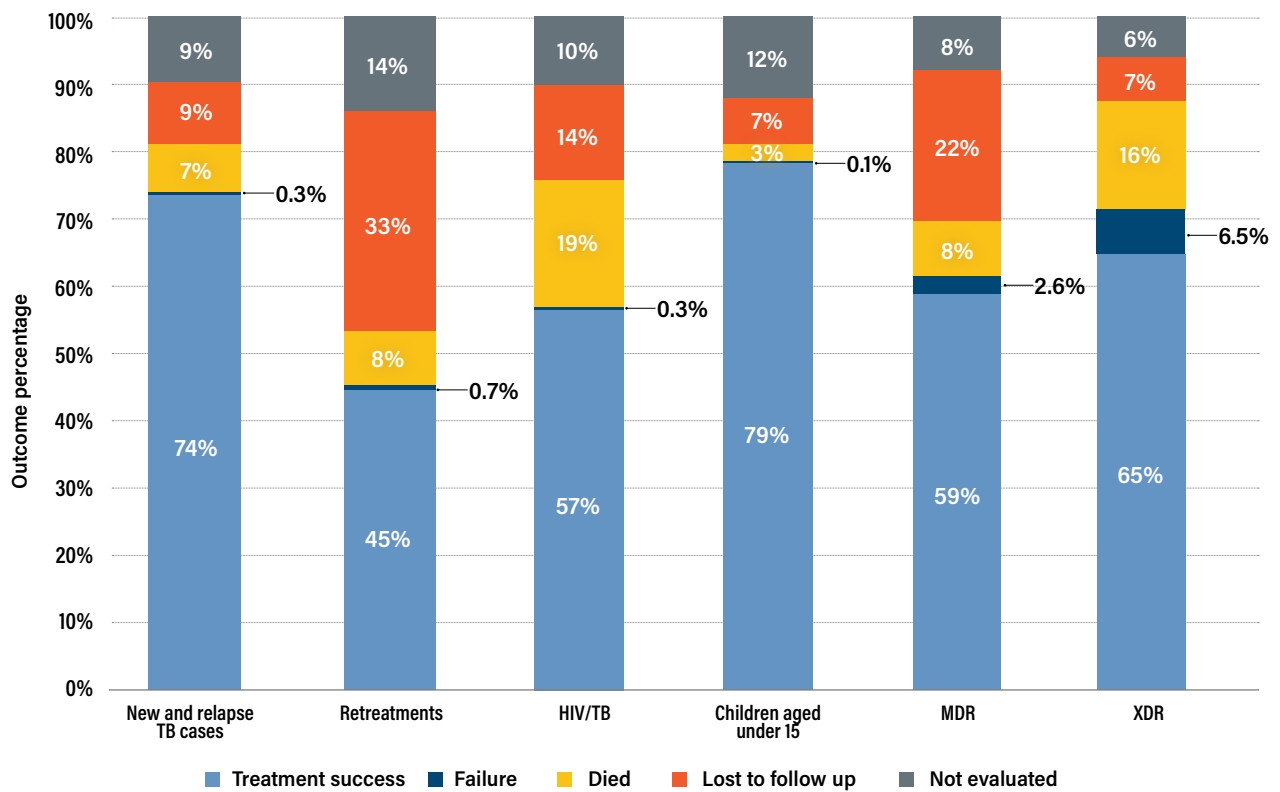
*Note:* Only reporting countries are included: 17 countries in 2017; 20 in 2018, 20 in 2019; and 12 in 2020.  
 TB: tuberculosis; HIV: human immunodeficiency virus.  
*Source:* World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 8. Tuberculosis treatment outcomes

Treatment outcomes for reported cases are summarized below by different treatment cohorts: TB/HIV coinfection, age (under 15 years), and drug resistance. According to 2019 data, success rates were higher in children under 15 (79%) and in new patients and relapses (74%), but still not optimal. The lowest rates were observed in retreatments (45%) and TB/HIV (57%). The percentage of deaths remains high among TB/HIV (19%) and retreatment (8%) groups; as does that of patients lost to follow-up in most groups (figure 23).

Treatment success has decreased slightly, with no marked improvement in the last two reports; among drug-resistant TB cases, there were more deaths than in the previous year. The rest of the conditions (such as loss to follow-up or not evaluated) remain almost unchanged compared to the previous year.

**Figure 23.** Tuberculosis treatment outcomes in selected cohorts, 2018 and 2019



Note: In the 2018 cohort, MDR-TB and XDR-TB cases were evaluated, while in the 2019 cohort, new cases and relapses, as well as retreatments, TB/HIV cases, and cases in children under 15 years of age were evaluated.

MDR-TB: multidrug-resistant tuberculosis; XDR-TB: extensively drug-resistant tuberculosis; HIV: human immunodeficiency virus.

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at:

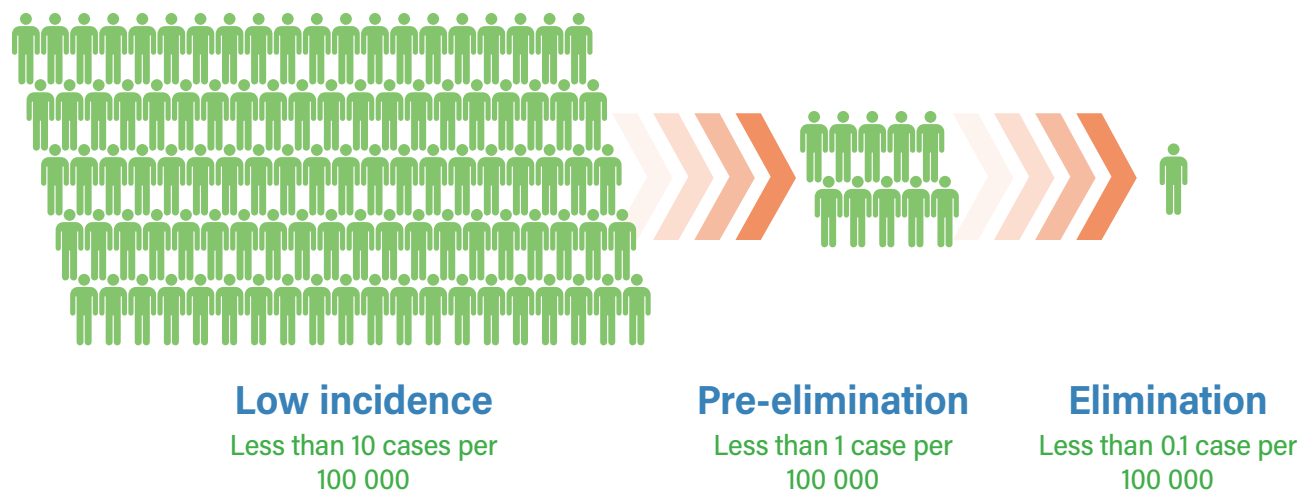
<https://www.who.int/publications/i/item/9789240037021>.

Among patients with drug resistance, treatment outcomes for 2018 indicate that success is higher in the case of XDR-TB (65%) than in MDR-TB (59%). The number of patients with XDR-TB lost to follow-up (7%) is less than that of patients with MDR/RR-TB (22%). This may be due to the effort made by Peru, which has the highest number of XDR-TB cases in the Region, through a special patient-centered care strategy.

## 9. Toward the elimination of tuberculosis in the Region

Countries continue to work toward making the Region of the Americas the first in the world to eliminate TB as a public health problem, following the parameters established by WHO (figure 24).<sup>6</sup>

**Figure 24.** Path towards tuberculosis elimination



At present, there are 16 countries in the low incidence of TB group, which is the first step towards TB elimination (table 7).

<sup>6</sup> World Health Organization. Towards tuberculosis elimination: an action framework in low-incidence countries. Geneva: WHO; 2014. Available at: <https://www.who.int/publications/i/item/9789241507707>.



**Table 7.** Countries with a low incidence of tuberculosis, 2020

Countries	Estimated number of cases	Estimated rate
Costa Rica	530	10.0
Bahamas	36	9.1
Curaçao	13	8.0
Saint Vincent and the Grenadines	7	6.7
Cuba	720	6.3
Canada	2200	5.9
Saint Kitts and Nevis	2	4.3
Grenada	3	2.8
Sint Maarten	1	2.7
Barbados	7	2.4
United States	7900	2.4
Jamaica	70	2.4
Antigua and Barbuda	2	2.3
Saint Lucia	4	2.2
Puerto Rico	31	1.1
Aruba	1	1.1
Total	11 527	2.9
Region of the Americas	291 000	29

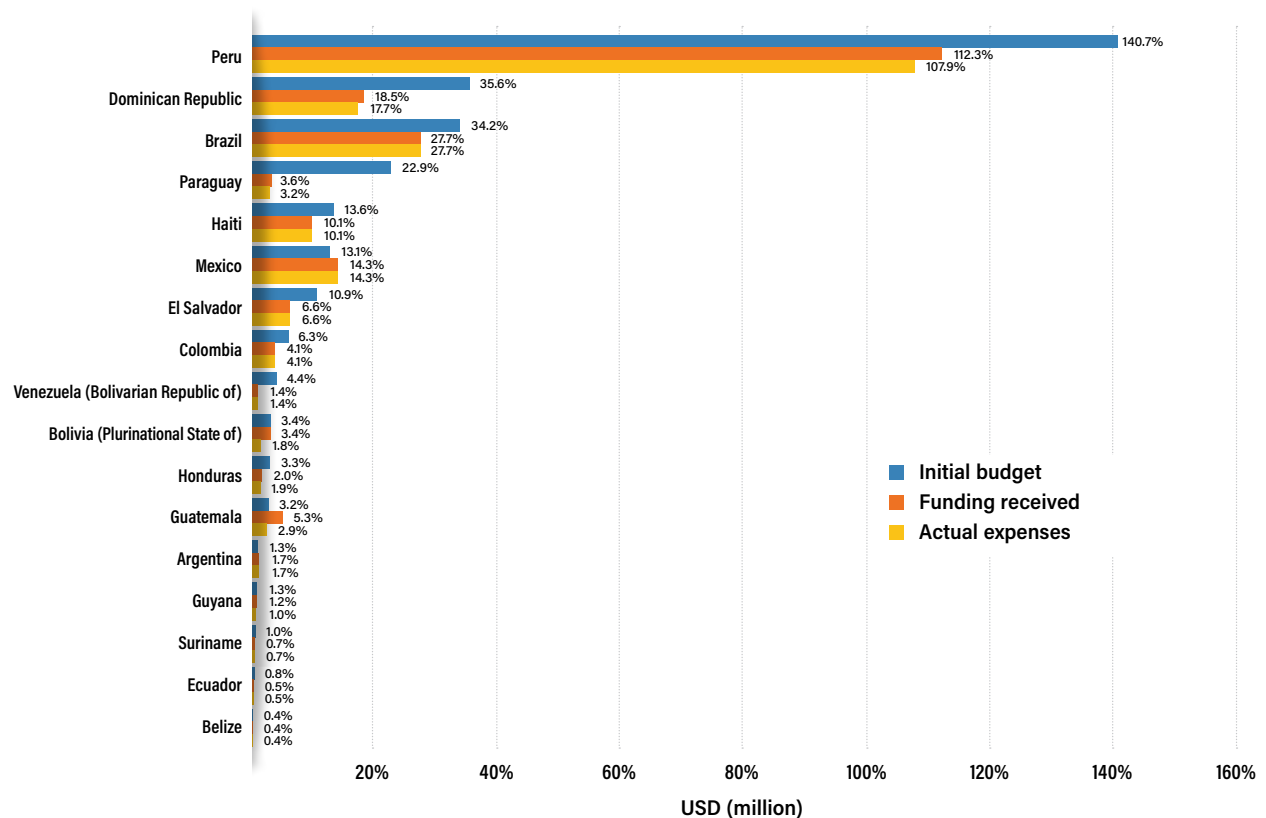
Note: Countries with an incidence rate less than or equal to 10 cases per 100 000 population included. The estimated rate per 100 000 population.  
Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 10. Funding to end tuberculosis

During 2020, 17 countries in the Region reported the resources used to end tuberculosis.

Argentina, Belize, Brazil, Colombia, Ecuador, El Salvador, Haiti, Mexico, Suriname, and the Bolivarian Republic of Venezuela executed 100% of budgeted funding. Honduras, Peru, Paraguay, and the Dominican Republic used between 88% and 96% of budgeted resources (figure 25).

**Figure 25.** Initial budget, funds received, and actual expenditure on prevention and control, 2020



Note: Data from the 22 reporting countries.

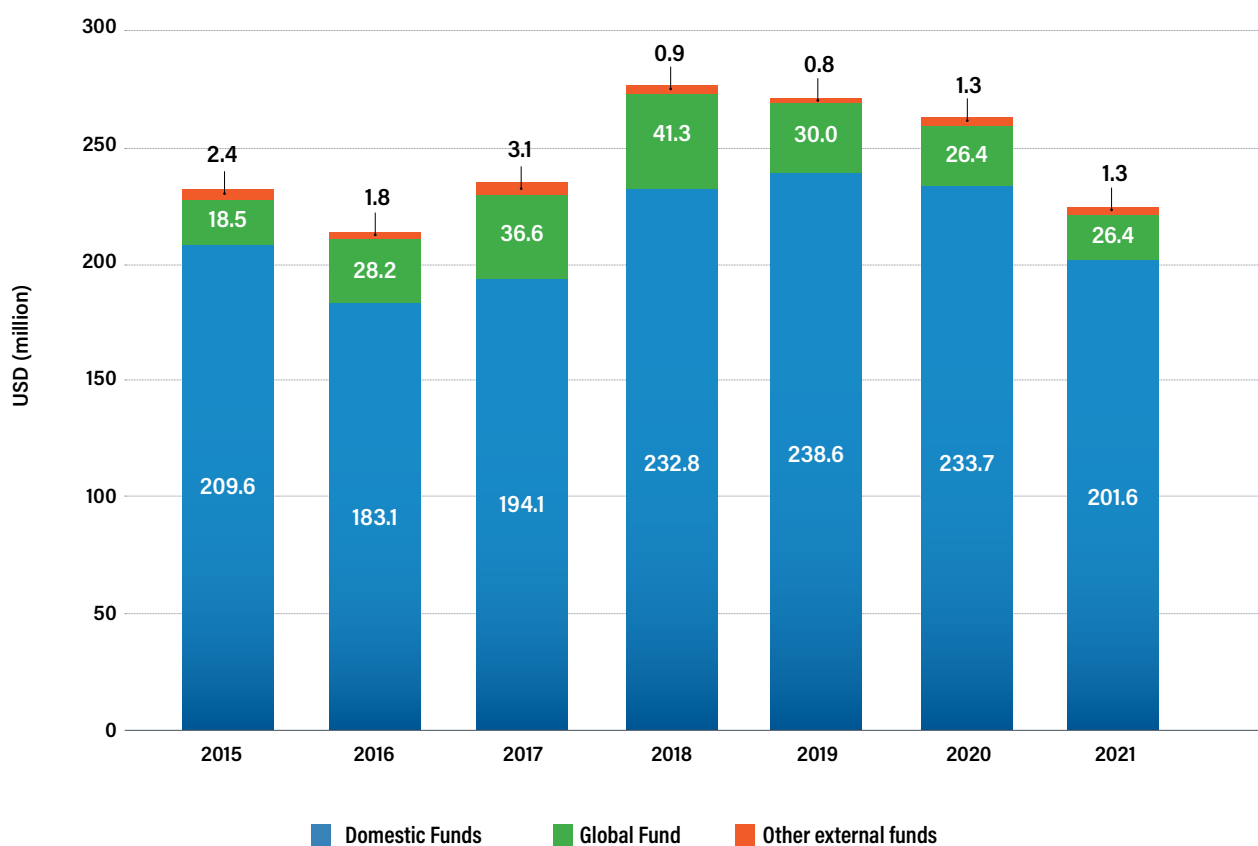
USD: United States dollars

Source: World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

For 2021, the countries of the Region earmarked about USD 392 million for TB prevention and control, of which USD 223 million were expected to be financed (91% corresponding to national resources).

According to that reported by 22 countries, the funds received in 2021 from external actors, such as the Global Fund to Fight AIDS, Tuberculosis and Malaria, continued to decrease, dropping from USD 41.3 million in 2018 to USD 20.3 million. Total funding for 2021 decreased by USD 39 million compared with 2020 (figure 26). The sustainability of funding is essential to accelerate and sustain efforts to end TB in the Region and is also necessary to be able to present the corresponding reports.

**Figure 26.** Funding sources available for tuberculosis prevention and control, 2015-2021



*Note:* Global Fund: Global Fund to Fight AIDS, Tuberculosis and Malaria; USD: United States dollars.  
*Source:* World Health Organization. Global Tuberculosis Report 2021. Geneva: WHO; 2021. Available at: <https://www.who.int/publications/i/item/9789240037021>.

## 11. Recommendations to accelerate progress towards ending tuberculosis in the Region of the Americas

The following recommendations made to the countries of the Region of the Americas—based on the information collected from national TB programs, after consolidation and analysis—aim to accelerate actions towards ending TB:

1. Take advantage of lessons learned from the COVID-19 pandemic in terms of strengthening diagnosis, adapting health services, controlling respiratory infections, strategies to promote follow-up and adherence to TB treatment, and seeking innovations to restore prevention and control actions in the Region.
2. Establish mechanisms to facilitate the prompt adoption of the latest evidence-based recommendations from WHO and PAHO, as well as the use of new tools.<sup>7</sup>
3. Accelerate and expand early diagnosis with WHO-recommended rapid molecular diagnostic testing and increase coverage of first- and second-line DST.<sup>8</sup>
4. Ramp up the search for TB cases and contact tracing, as well as improve coverage of preventive treatment, especially in contacts under 15 years of age and in persons living with HIV.
5. Strengthen person-centered management for TB and HIV, ensuring integration of diagnosis and treatment into services.
6. Scale up and accelerate the implementation of new oral treatment regimens for MDR/RR-TB and improve the comprehensive approach to drug-resistant TB.
7. Expand actions for the prevention and control of tuberculosis and diabetes mellitus and TB in vulnerable population groups or with risk factors, through cross-programmatic and intersectoral work.
8. Continue to improve the collection, consolidation, and analysis of TB information, using interoperable electronic surveillance and monitoring systems that collect individual data, promoting analysis at all levels for timely decision-making.
9. Continue implementation and expansion of the Guidelines for tuberculosis prevention and control in indigenous populations in the Region of the Americas.<sup>9</sup>
10. Advocate and provide training to health providers to encourage TB screening in children and introduce treatment with pediatric dispersible medicines.
11. Increase the work and participation of civil society in TB prevention, control, and elimination interventions.
12. Optimize and increase national resources allocated to TB to ensure sustainability.
13. Advance the implementation of a multisectoral accountability framework proposed by PAHO as a mechanism to monitor progress towards the achievement of the End TB Strategy goals.<sup>10</sup>

<sup>7</sup> Pan American Health Organization. Tuberculosis. Washington, D.C.: PAHO; [undated]. Available at: <https://www.paho.org/en/topics/tuberculosis>.

<sup>8</sup> *Ibid*

<sup>9</sup> See footnote 4.

<sup>10</sup> Pan American Health Organization. Tuberculosis. Washington, D.C.: PAHO; [undated]. Available at: <https://www.paho.org/en/topics/tuberculosis/who-multisectoral-accountability-framework-tb>

## Annex. Priority indicators by country

Country	Tuberculosis treatment coverage		Treatment success rate		Percentage of TB-affected families facing catastrophic TB costs	Percentage of new TB patients diagnosed using WHO-recommended rapid tests	Tuberculosis preventive treatment coverage		Contact tracing coverage	DST coverage for TB patients	Treatment coverage, new TB drugs	Percentage of TB patients who know their HIV status	TB case fatality rate
	2020	New and relapses 2019	MDR/RR-TB 2018	2020			2020	Children under 5 years 2020					
Antigua and Barbuda	87%				50%			100%	0%		100%		
Argentina	66%	47%	30%		3%				26%	2%	16%	5.9%	
Aruba	87%				100%				0%		0%	-	
Bahamas	87%	75%	100%		16%	67%		100%	100%		100%	-	
Barbados	87%				50%			100%	100%		0%		
Belize	84%	66%	100%		85%			100%	77%		91%	-	
Bolivia (Plurinational State of)	49%	83%	70%		100%	97%		83%	87%	1%	87%	-	
Brazil	78%	69%	60%	48%	40%			62%	50%		80%	7.0%	
Canada	79%	79%									38%		
Chile	87%	74%	46%		44%		70%	83%	90%	56%	85%	13.7%	
Colombia	64%	75%	45%		19%			7%	21%	4%	90%	8.2%	
Costa Rica	No information												
Cuba	81%	82%	35%		22%	49%	11%	89%	52%		100%	5.9%	
Curaçao	No information												
Dominica	No information												
Ecuador	62%	80%				100%	2%	86%	84%	1%	62%	-	
El Salvador	57%	90%	100%	13%	49%	71%	48%	100%	37%		98%	8.3%	
United States	87%	75%	85%						93%		89%	0.0%	
Grenada	32%	33%							0%		100%	0.0%	
Guatemala	56%	85%	40%		29%	99%	7%		40%		96%	7.8%	
Guyana	59%	71%	29%		58%	100%	5%	38%	61%		59%	-	

Country	Tuberculosis treatment coverage	Treatment success rate		Percentage of TB-affected families facing catastrophic TB costs	Percentage of new TB patients diagnosed using WHO-recommended rapid tests	Tuberculosis preventive treatment coverage		Contact tracing coverage	DST coverage for TB patients	Treatment coverage, new TB drugs	Percentage of TB patients who know their HIV status	TB case fatality rate
		2020	New and relapses 2019			MDR/RR-TB 2018	2020					
Haiti	59%	84%	83%		38%		85%	100%	12%	98%	100%	-
Honduras	62%	89%	57%		42%	89%		38%	61%	12%	96%	-
Jamaica	87%	66%			61%				95%		30%	-
Mexico	57%	72%	58%		4%	56%		83%	28%	30%	77%	9.1%
Nicaragua	67%	88%	72%		70%		76%	100%	95%	4%	99%	5.5%
Panama	81%	83%	48%				4%			27%	95%	12.2%
Paraguay	69%	67%	67%		37%	30%	6%	97%	59%	70%	82%	7.3%
Peru	62%	83%	62%		5%	69%		33%	70%	7%	91%	4.4%
Puerto Rico	87%	83%			59%	40%		74%	96%	50%	100%	11.1%
Dominican Republic	57%	80%	52%		61%	68%		41%	73%	100%	86%	-
Saint Kitts and Nevis	87%	100%			100%				50%		0%	-
Sint Maarten	87%	100%							0%		0%	-
Saint Vincent and the Grenadines	170%	100%			100%				100%		100%	-
Saint Lucia	200%	67%			38%			0%	43%		88%	-
Suriname	61%	79%			93%	8%		97%	93%		97%	-
Trinidad and Tobago	87%	61%	0%		46%	100%	0.1%		62%		86%	5.6%
Uruguay	87%	73%	100%		50%	85%		71%	82%	69%	91%	6.7%
Venezuela (Bolivarian Republic of)	69%	81%	61%		2%	3%	2%	63%	4%	45%	43%	0.0%
<b>The Americas</b>	<b>68%</b>	<b>74%</b>	<b>59%</b>		<b>27%</b>	<b>47%</b>	<b>23%</b>	<b>63%</b>	<b>50%</b>	<b>13%</b>	<b>79%</b>	<b>7.0%</b>

Note: WHO: World Health Organization; DST: drug-susceptibility testing; TB: tuberculosis; MDR/RR-TB: multidrug-resistant or rifampicin-resistant tuberculosis; HIV: human immunodeficiency virus.





This regional report on the situation of tuberculosis in the Americas contains information from 2020, provided by the countries of the Region through the World Health Organization's tuberculosis data collection system. These data have been consolidated and analyzed at the regional level. In addition to presenting the epidemiological and programmatic situation in the Americas, the report aims to raise awareness and motivate all stakeholders in the prevention and control of this disease.

The report records the Region's achievements, but also the gaps to be addressed in diagnosis, treatment, comorbidities, vulnerable populations, risk factors, and funding. Finally, recommendations are provided for further progress towards the elimination of tuberculosis in the Region within the framework of the End TB Strategy, the Sustainable Development Goals, and the commitments made at the high-level meeting on ending tuberculosis held by the United Nations in 2018, including lessons learned from the COVID-19 pandemic.

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