HBV

Syphilis

HIV

Chagas

New generations free of HIV, syphilis, hepatitis B and Chagas disease in the Americas 2018

EMTCT PLUS

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

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Planning and production of the report: Mónica Alonso González, Maeve B. Mello, and Leandro Sereno.

The following persons were part of the team that provided meaningful inputs or conducted a technical review of the document (in alphabetical order):

Luis Gerardo Castellanos (PAHO), Massimo Ghidinelli (PAHO), Bertha Gomez (PAHO), Rodolfo Gómez Ponce de León (CLAP SMR/PAHO), Sandra Jones (PAHO), Elizabeth Rodriguez (PAHO), Alba Maria Ropero (PAHO), Roberto Salvatella (PAHO), Mariangela F. Silveira (CLAP SMR/PAHO consultant), Marcelo Vila (PAHO), Nick Walsh (PAHO).

EXECUTIVE SUMMARY

The elimination of mother-to-child transmission of HIV and syphilis in the Americas gained significant political momentum in 2010 when the PAHO Member States approved the *Strategy and Plan of Action for the Elimination of Mother-to-Child Transmission of HIV and Congenital Syphilis* (document CD50/15).[1] More recently, Member States approved the Plan of Action for the Prevention and Control of HIV and STI 2016-2021 (document CD55/14),[2] renewing the commitment for the elimination of mother-to-child transmission (EMTCT) of HIV and syphilis and encouraging the expansion of elimination to other diseases, such as hepatitis B and Chagas disease.

This document reports the progress made in the Americas towards the EMTCT of HIV and syphilis between 2010 and 2017. It is the first Regional report regarding elimination of mother-to-child and early childhood transmission of hepatitis B and congenital Chagas disease. The main findings are as follows:

- **Access to prenatal and delivery care for pregnant women is high in the Americas.** Based on 2017 values, 89% of pregnant women in the Region of the Americas received consistent antenatal care with four or more visits and 95% had a hospital delivery. Access has remained at similar levels since 2010 and inequities persist; for example, there are five countries where less than 70% of women have four or more prenatal consultations and another four countries where less than 80% of women deliver in hospital settings.
- **Screening of pregnant women for HIV and syphilis remains high but little progress has been made in closing the gaps; meanwhile, screening of pregnant women for Chagas disease varies widely, ranging from 7% to 55% among the few reporting countries**. In 2017 in Latin America and the Caribbean, 73% of pregnant women received at least one HIV test—an increase from 62% in 2010, but a reduction compared to the peak coverage in 2014 (75%). Syphilis screening among pregnant women that attended antenatal care declined from 74% in 2011 to 69% in 2017. Regional data are not available for screening of pregnant women for Chagas disease, and few countries have national data on testing coverage.
- **HIV and syphilis treatment of seropositive pregnant women continues to increase.** Between 2010 and 2017, access to antiretroviral therapy for pregnant women living with HIV increased from an estimated 50% to 73% in Latin America and the Caribbean. Appropriate syphilis treatment for pregnant women attending antenatal care services increase to 87% in 2017, after remaining around 83% between 2010 and 2016.
- **Vaccination for hepatitis B has stabilized at 87% of children under one year old who completed their third dose, and policies for universal timely hepatitis B vaccine birth dose are increasingly being adopted.** All countries in the Americas have introduced the hepatitis B vaccine or hepatitis B containing vaccine in their routine immunization schedule for infants, and the coverage of the third dose in children under one year old was 87% in 2017.

[1] Pan American Health Organization. Strategy and Plan of Action for the Elimination of Mother-to-Child Transmission of HIV and Congenital Syphilis in the Americas. 50th Directing Council, 62nd Session of the Regional Committee, 27 Sep-1 Oct 2010; Washington, DC. Document CD50/15. Available from: http://www1.paho.org/hq/dmdocuments/2010/CD50-15-e.pdf

[2] Pan American Health Organization. Plan of Action for the Prevention and Control of HIV and Sexually Transmitted Infections 2016-2021. 55th Directing Council of PAHO, 68th Session of the Regional Committee of WHO for the Americas; 26-30 Sep 2016; Washington, DC. Document CD55/14. Available from: https://www.paho.org/hq/dmdocuments/2016/CD55-14-e.pdf

Additionally, 25 countries and territories have introduced the universal birth dose in the first 24 hours to all newborns; coverage in the Americas increased from 61% in 2010 to 76% in 2017. The estimated Regional prevalence of HBV among children 5 years old is 0.1%.

- **MTCT of HIV experienced longstanding reductions but has begun to stabilize.** The estimated mother-to-child transmission (MTCT) rate of HIV decreased from 17% in 2010 to 12% in 2017, representing an estimated 30,800 HIV infections in children averted due to EMTCT interventions in Latin America and the Caribbean.
- **Congenital syphilis cases are on the rise.** The incidence rate of congenital syphilis (CS) increased since 2010, reaching 2.1 per 1,000 live births and over 28,800 reported cases in 2017. Newly published estimates for 2016 indicate almost double that amount, at 51,000 CS cases in the Americas. Despite an increase in treatment coverage among pregnant women with syphilis, there was an increase in syphilis prevalence among pregnant women in the Americas, resulting in the increase in CS cases.
- **Mother-to-child transmission is estimated to cause over 20% of new cases of Chagas disease.** With the reduction of new cases of Chagas disease transmitted by domestic vectors and blood products, MTCT has become an important transmission route. There are 9,000 estimated new cases of congenital Chagas disease each year in Latin America and the Caribbean.

In 2017, 20 countries and territories in the Region of the Americas reported data compatible with the achievement of the goal and targets of EMTCT of HIV, and 15 countries reported data compatible with the elimination of congenital syphilis and the dual EMTCT of HIV and syphilis. Thirteen countries, based on modeling of HBV epidemics, have reached the impact target for EMTCT and early childhood transmission of HBV (referred to the prevalence of the surface antigen of the hepatitis B virus (HBsAg) in 5-year-old children).

INTRODUCTION

In 2015, Cuba was the first country in the world to receive World Health Organization (WHO) validation for eliminating mother-to-child transmission of HIV and syphilis. Subsequently, Anguilla, Antigua and Barbuda, Bermuda, the Cayman Islands, Montserrat, and Saint Kitts and Nevis were certified by WHO in 2016 and 2017 as having eliminated MTCT of HIV and syphilis. Beyond the Americas, Thailand and Belarus in 2016 and Malaysia in 2018 were also validated as having achieved dual elimination, while Armenia received validation for the elimination of MTCT of HIV and the Republic of Moldova for the elimination of congenital syphilis, both in 2016.[1]

With the approval of the *Plan of Action for the Prevention and Control of HIV and Sexually Transmitted Infections 2016-2021* (document CD55/14),[2] PAHO Member States not only renewed their commitment to the elimination of MTCT of HIV and syphilis, but also agreed to expand this initiative to other diseases.

This expansion was formalized with the publication of the *Framework for elimination of mother-to-child transmission of HIV, syphilis, hepatitis B, and Chagas*,[3] known by the abbreviation EMTCT Plus. Building on the experience and lessons learned from the first phase of the EMTCT, countries such as Colombia and Uruguay have incorporated perinatal hepatitis B and congenital Chagas disease in the elimination strategy as an opportunity to advance elimination of communicable diseases and further strengthen the quality and coverage of maternal and child health services.

In 2015, PAHO Member States approved the first Regional *Plan of Action for the Prevention and Control of Viral Hepatitis* (document CD54/13, Rev.1),[4] promoting public health policies and interventions to eliminate viral hepatitis in Member States by 2030. The elimination of mother-to-child and early childhood transmission of hepatitis B is a milestone towards the elimination of viral hepatitis, and is feasible with a tiered set of evidence-based interventions. These include universal childhood immunization with hepatitis B or hepatitis B containing vaccine during the first year of life, universal provision of birth dose in the first 24 hours, testing of pregnant women, provision of hepatitis B immunoglobulin (HBIG) to exposed infants, and provision of antiviral treatment to pregnant women with a high viral load.

After years of successful control of Chagas disease and the reduction of new cases transmitted by domestic vectors and blood products, the mother-to-child transmission becomes an important factor for new *Trypanosoma cruzi* infections. In countries such as Uruguay and Chile, where vectorial transmission was interrupted in 1997 and 1999, respectively, mother-to-child transmission has become the main route of transmission. To respond to these new scenarios of *T. cruzi* epidemics, interventions developed to eliminate congenital Chagas disease include the screening of pregnant women for *T. cruzi* infection, the screening with parasitological tests of exposed newborns, the prompt treatment of seropositive newborns and mothers, and the follow-up of negative newborns up to 1 year.

[1] World Health Organization. WHO validation for the elimination of mother-to-child transmission of HIV and/or syphilis. Assessed in November 2018. Available from: http://www.who.int/reproductivehealth/congenital-syphilis/WHO-validation-EMTCT/en/

[2] Pan American Health Organization. Plan of Action for the Prevention and Control of HIV and Sexually Transmitted Infections 2016-2021 Document CD55/14. 55th Directing Council of PAHO, 68th Session of the Regional Committee of WHO for the Americas. 26-30 Sep 2016; Washington, DC. Available from: https://www.paho.org/hq/dmdocuments/2016/CD55-14-e.pdf

[3] Pan American Health Organization. EMTCT Plus framework for elimination of mother-to-child transmission of HIV, syphilis, hepatitis B, and Chagas. Washington, DC: PAHO; 2017. Available from: http://iris.paho.org/xmlui/handle/123456789/34306

[4] Pan American Health Organization. Plan of Action for the Prevention and Control of Viral Hepatitis Document CD54/13, Rev.1. 54th Directing Council, 67th Session of the Regional Committee of WHO for the Americas. 28 Sep-2 Oct 2015; Washington, DC. Available from: https://www.paho.org/hq/dmdocuments/2016/2016-cha-plan-action-prev-hep-en.pdf

Elimination targets of the EMTCT Plus initiative are as follows:

- A rate of MTCT of HIV to 2% or less
- Incidence of congenital syphilis (including stillbirths) to 0.5 cases or less per 1,000 live births
- HBsAg prevalence among four to six years old[5] children to 0.1% or less
- ≥90% of children treated and cured of *T. cruzi* infection with post-treatment negative serology

In order to achieve and sustain these targets, the following programmatic objectives must be met and maintained:[6]

- Sexual and reproductive health/maternal and child health
  - Unmet family planning needs of 10% or less among women 15–49 years old
  - Coverage of antenatal care and hospital deliveries of 95% or more
- HIV and syphilis
  - Coverage of HIV and syphilis screening among pregnant women of 95% or more
  - Coverage of adequate HIV and syphilis treatment among pregnant women of 95% or more
- Hepatitis B
  - Coverage of timely birth-dose vaccination against HBV (≤24 hours) of 95% or more
  - Coverage of third-dose vaccination against HBV in childhood of 95% or more
  - Coverage of timely birth-dose and third-dose vaccination for hepatitis B in all provinces or areas of more than 85% (supporting objective)
  - Coverage of HBsAg testing among pregnant women of 80% or more (supporting objective)
  - Provision of HBV-specific immunoglobulin (HBIG) to neonates with HBV-infected mothers of 80% or more (supporting objective)
- Chagas diseases
  - Coverage of *T. cruzi* screening among pregnant women of 90% or more
  - Testing of neonates with *T. cruzi* seropositive mothers of 90% or more
  - Treatment after delivery of *T. cruzi* seropositive mothers of 90% or more

The information compiled in this document is intended to support health authorities and help program managers monitor national and regional achievements and identify remaining gaps towards the elimination of mother-to-child transmission of infectious diseases.

[5] The focus is on children 5 years old, and measurement of achievement is conducted among children between ages of 4 to 6 years old depending on practical opportunities to implement such measurements (i.e. school cohorts).

[6] Pan American Health Organization. EMTCT Plus framework for elimination of mother-to-child transmission of HIV, syphilis, hepatitis B, and Chagas. Washington, DC: PAHO; 2017. Available from: http://iris.paho.org/xmlui/handle/123456789/34306

METHODS AND DATA SOURCES

This report compiles secondary data from 52 countries and territories (of which 35 are PAHO Member States) in the Americas (hereafter referred to as "countries"), obtained from country reports to PAHO/WHO, literature review, and modeling estimates. **Box 1** summarizes the core data sources. This and supplementary sources can be found throughout the document, where the information is presented. According to the availability of information, the data presented are categorized as coming from the Region of the Americas, Latin America, and/or the Caribbean.

Regional figures are based on individual reported country data with imputation for countries with missing data in some cases. If there are missing country values for a specific year, last available data within a maximum of two years difference have been imputed. Countries with missing data for more than two years were excluded from the analysis. Methodology aspects regarding specific indicators are explained on foot notes throughout the document.

For this report, the definition of country MTCT elimination of syphilis is when the congenital syphilis rate (including stillbirths) is ≤0.5 per 1,000 live births, prenatal care coverage is ≥95%, syphilis testing among pregnant women attending antenatal care is ≥95%, and ≥95% of syphilis-positive pregnant women receive appropriate treatment and a qualitative analysis of surveillance systems indicates valid and reliable information.

Similarly, the definition of country MTCT elimination of HIV is when the HIV MTCT rate is ≤2%, prenatal care coverage is ≥95%, screening for HIV in pregnant women and treatment of pregnant women with HIV is ≥95%, and a qualitative analysis of surveillance systems indicates valid and reliable information.

The overarching goal of the Regional initiative elimination of mother-to-child and early childhood of hepatitis B is a reduction of HBsAg prevalence among children 5 years old[7] to 0.1% or less. For congenital Chagas disease, the elimination as a public health problem is defined as ≥90% of infected children treated, and cured, and supported by the screening (≥90%) ofpregnant women attending antenatal care and treatment (≥90%) after delivery and testing of exposed neonates (with *T. cruzi* seropositive mothers) of >90%.

[7] The focus is on children five years old, and measurement of achievement is conducted among children between ages of 4 to 6 years old depending on practical opportunities to implement such measurements (i.e. school cohorts).

BOX 1. Report data sources

1. Pan American Health Organization/World Health Organization. Core indicators: Health situation in the Americas 2017. Washington, DC: PAHO/WHO; 2017 *(http://iris.paho.org/xmlui/handle/123456789/34329).*
2. Pan American Health Organization/World Health Organization. Core indicators: Health situation in the Americas 2018. Washington, DC: PAHO/WHO; 2018 *(http://iris.paho.org/xmlui/handle/123456789/49511).*
3. United Nations. World population prospects: the 2017 revision. New York. Accessed 5 December 2018 *(http://esa.un.org/wpp/).*
4. U.S. Bureau of the Census. International Database. September 20118 update. Accessed 3 December 2018 *(https://www.census.gov/data-tools/demo/idb/informationGateway.php).*
5. UNAIDS, WHO. 2017 Global AIDS Monitoring Online Reporting Tool *(https://aidsreportingtool.unaids.org/).*
6. UNAIDS. 2018 estimates using PPE-Spectrum. AIDSinfo database *(http://aidsinfo.unaids.org).*
7. EMTCT country reports submitted to the Pan American Health Organization.
8. U.S Centers for Disease Control and Prevention. Sexually transmitted disease surveillance, 2017 *(https://www.cdc.gov/std/stats16/default.htm).*
9. Pan American Health Organization/World Health Organization. Hepatitis B and C in the spotlight. A public health response in the Americas, 2016. Washington, DC: PAHO; 2016.
10. The Polaris Observatory Collaborators. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The Lancet Gastroenterology & Hepatology. 2018;3(6):383-403 *(https://doi.org/10.1016/S2468-1253(18)30056-6).*
11. UNICEF global databases, 2016, based on Multiple Indicator Cluster Surveys (MICS), Demographic and Health Surveys (DHS), and other nationally representative sources.
12. Pan American Health Organization. Country reports submitted through PAHO-WHO/UNICEF Joint Reporting Form on Immunization (JRF). Washington DC: PAHO, 2018.
13. World Health Organization. Global and country estimates of immunization coverage and chronic HBV infection dashboard. Geneva: WHO; 2016 *(http://whohbsagdashboard.com/).*
14. World Health Organization. Global reporting system for hepatitis. Geneva: WHO; 2018 *(http://www.who.int/hepatitis/reporting-database/en/).*
15. World Health Organization. Chagas disease in Latin America: an epidemiological update based on 2010 estimates. Weekly Epidemiological Record. 2015;6(90):33-44.
16. Ministry of Health Brasil. Secretaria de Vigilância em Saúde. Boletim epidemiológico – Sífilis. 2017;48(36) [cited in November 2018]; see: *http://www.aids.gov.br/pt-br/ pub/2017/boletim-epidemiologico-de-sifilis-2017.*

RESULTS

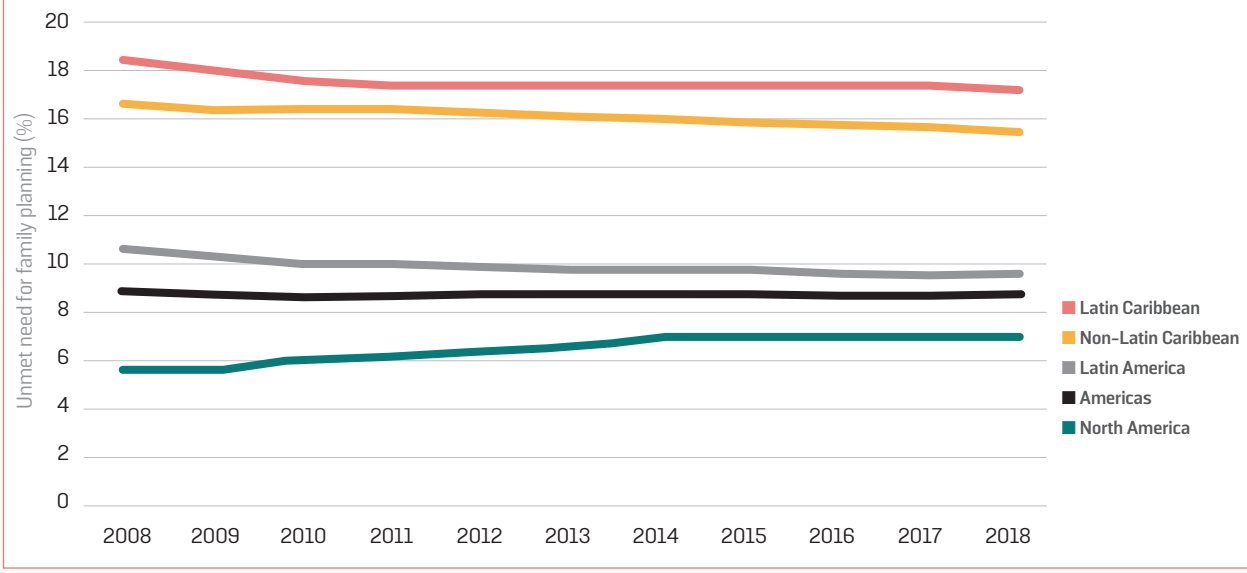
1. Access to family planning interventions

Access to high-quality and comprehensive sexual and reproductive health (SRH) services, including family planning and contraceptive methods, plays an important role in achieving the EMTCT of infectious diseases. A proxy indicator to monitor access to SRH services is the *unmet need for family planning among women of reproductive age* (15–49 years old; *i.e.* those who are fecund, sexually active, in union, and wanting to avoid pregnancy, but without access to modern methods for family planning[8]).

In the Region of the Americas, in 2018, the unmet need is estimated at 8.6% and has remained stable over recent years **(Figure 1)**. Latin America and both Latin and Non-Latin Caribbean subregions showed around one percentage point decrease between 2008 and 2018, while in North America, which has the lowest unmet need in the Region, it increased 1.5 percentage point over the same period **(Figure 1)**.

The countries with the highest gap are Haiti (36%), Guyana (28%), and Trinidad and Tobago (21%) of women 15–49 years old with unmet need for family planning. Another 20 countries have estimated proportions greater than 10%, and 14 have an estimated proportion of unmet need for family planning of 10% or less (see **Annex Table 1)**.

Figure 1. Estimated proportion of fertile women in reproductive age, sexually active, without use of modern contraceptive methods and who want to avoid pregnancy, 2008–2018



Source: Pan American Health Organization, Core indicators: Health situation in the Americas 2018. Washington, DC: PAHO/WHO; 2018. Available at http://iris.paho.org/xmlui/handle/123456789/49511.

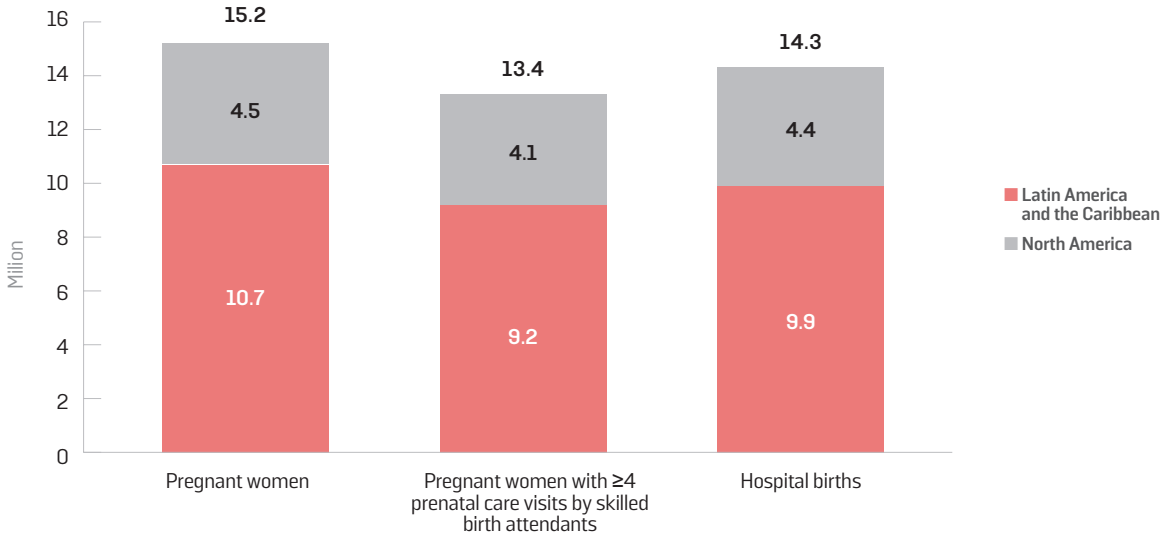
[8] This indicator refers to women who are fecund and sexually active but are not using any modern method of contraception, and report not wanting any more children or wanting to delay the next child, expressed as percentage of fecund women who are married or in a union in a given year (https://unstats.un.org/sdgs/metadata/files/Metadata-03-07-01.pdf and http://www.who.int/reproductivehealth/topics/family_planning/unmet_need_fp/en/).

2. Access to antenatal and delivery care

In the Americas, an estimated 15.2 million women were pregnant in 2017, 10.7 million (70%) of whom resided in Latin America and the Caribbean. Approximately 13.4 million of pregnant women accessed antenatal care consistently with four or more visits (ANC-4),[9] representing 88% of pregnant women in the Americas. In Latin America and the Caribbean, this represented 87%. Access to prenatal care has remained at similar levels since 2010, but inequalities persist. For example, out of 45 reporting countries, 19 have ANC-4 coverage of more than 90%, while seven reported ANC-4 coverage of less than 75% (Grenada, 2017; Guatemala, 2014; Haiti, 2012; Nicaragua, 2016; Suriname, 2010; Turks and Caicos Islands, 2017; and US Virgin Islands, 2015).

The Region has a high coverage of hospital deliveries (95%).[10] The North American countries reported coverage of 98% and Latin America and the Caribbean, 93%. The Caribbean countries, when analyzed separately, achieved coverage of hospital births of 82%. Out of the 48 reporting countries and territories in the Americas, four still have less than 75% of births in hospital settings: Bolivia (2017), Guatemala (2016), Haiti (2013), and Honduras (2017).

Figure 2. Estimated number of pregnant women, number with four or more prenatal care consultations, and number receiving hospital delivery in the Americas, by subregion, 2017



Source: Pan American Health Organization, Core indicators: Health situation in the Americas 2018. Washington, DC: PAHO/WHO; 2018. Available at http://iris.paho.org/xmlui/handle/123456789/49511.

Notes: Estimates on total number of pregnant women were available for all countries and territories in the Region. Data on the coverage of antenatal care were not available for Chile, Curacao, Guadeloupe, and Saint Kitts and Nevis. Data on the coverage of hospital births were not available for Aruba.

[9] Previous reports included the indicator antenatal care coverage – at least one visit; however, with the implementation of the recommended four visits during ANC, the indicator with the one visit disaggregation is no longer monitored by PAHO (since 2015). In addition, recent evidence suggests that more ANC visits (a minimum of eight), irrespective of the resource setting, is associated with greater maternal experience of care and reduced perinatal mortality than occurs with fewer ANC visits (https://www.who.int/reproductivehealth/publications/maternal_perinatal_health/anc-positive-pregnancy-experience/en/). A new indicator is currently being developed in line with this new WHO recommendation (https://www.who.int/healthinfo/indicators/2018/en/).

Chile, Curacao, Guadeloupe, and Saint Kitts and Nevis were excluded from the analysis due to unavailability of data on coverage of antenatal care (ANC-4).

[10] Aruba was excluded from the analysis due to unavailability of data on coverage of hospital births.

3. Core interventions for the prevention of MTCT of HIV

3.1 HIV testing in pregnant women

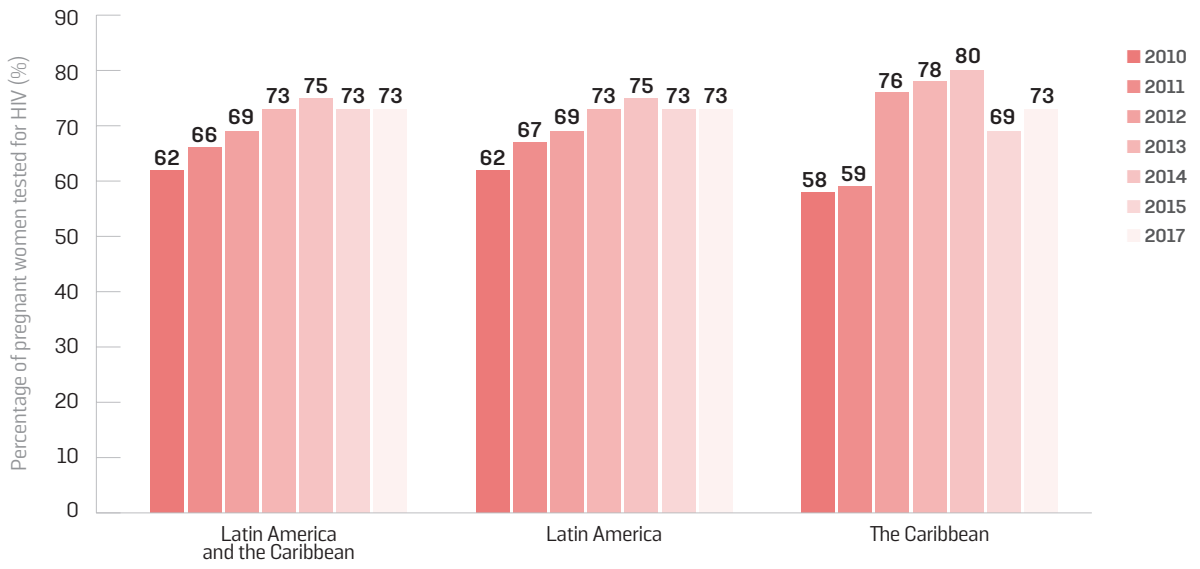
After years of continuous increase since 2010, peaking in 2014 at 75%, the estimated proportion of women tested for HIV at least once during pregnancy decreased to 73% in 2015 and remained at this level in 2017 in Latin America and the Caribbean. Despite this, several countries in Latin America showed increases in HIV testing coverage compared to 2015, including Chile, Paraguay, and Peru. Guatemala also expanded HIV testing coverage among pregnant women from 39% in 2015 to 53% in 2017.

In the Caribbean, the reduction in HIV testing between 2014 and 2015 to 69% was mainly impacted by the 39% reduction on the coverage in Dominican Republic (that may be related to changes in the information system), and by 12% in Grenada and Jamaica. Between 2015 and 2017, reductions on reported testing coverage were observed in Suriname (↓27%), Bahamas (↓19%), and Guyana (↓7%); however, the increase reported by Belize (↑18%), Jamaica (↑27%), and Trinidad and Tobago (↑44%) raised the subregional testing coverage to 73% (**Figure 3**).

73% of pregnant women had at least one HIV test during antenatal care in Latin America and the Caribbean in 2017

In 2017, HIV seropositivity among pregnant women ranged from 0.06% to 2.37%, according to data available from 28 countries in Latin America and the Caribbean. Countries with reported HIV seropositivity above 1% were the Bahamas, Haiti, Jamaica, and Trinidad and Tobago (see **Annex Table 3**).

Figure 3. Estimated coverage of HIV testing among pregnant women in Latin America and the Caribbean, 2010–2017



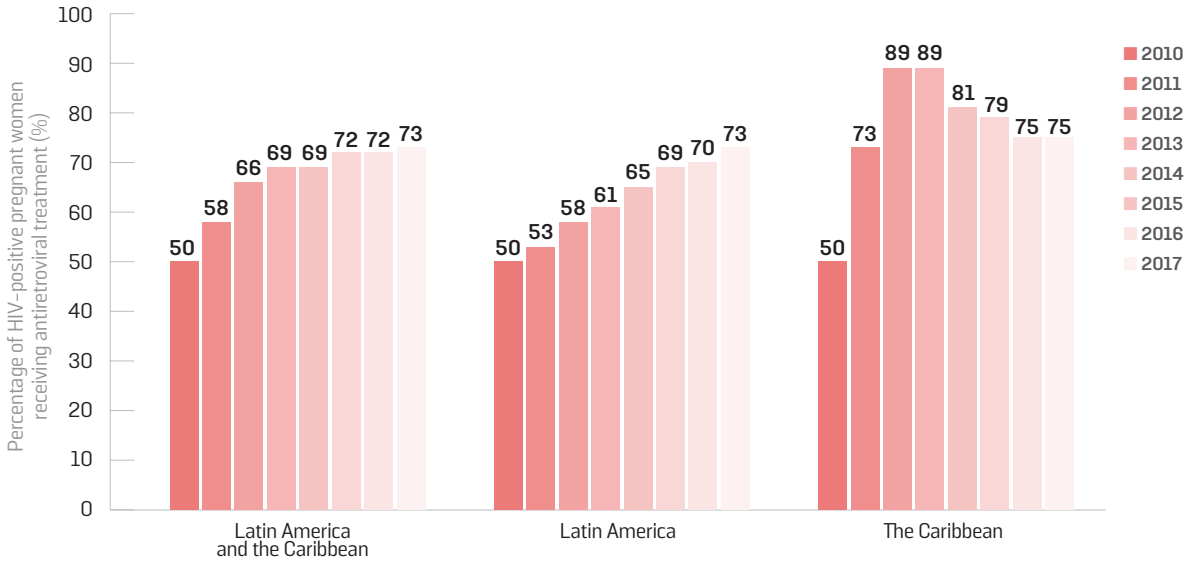
Source: UNAIDS and WHO 2017 Global AIDS Monitoring Online Reporting Tool.

Notes: a) Data on the coverage of HIV screening during antenatal care were not available for Aruba, Curacao, French Guiana, Guadeloupe, Martinique, Puerto Rico, Sint Maarten, and the Virgin Islands (US). b) Data to measure this indicator were not collected in 2016.

3.2 Antiretroviral therapy for the prevention of mother-to-child transmission of HIV

The Latin American and Caribbean Region has systematically increased the access to antiretroviral (ARV) therapy for pregnant women living with HIV since 2010. An estimated 73% of pregnant women living with HIV were receiving ARV therapy in LAC in 2017, a 46% increase compared to the 50% coverage estimated for 2010 (**Figure 4**).

Figure 4. Estimated coverage of antiretroviral therapy in HIV-positive pregnant women for the prevention of mother-to-child transmission of HIV in Latin America and the Caribbean, 2010-2017

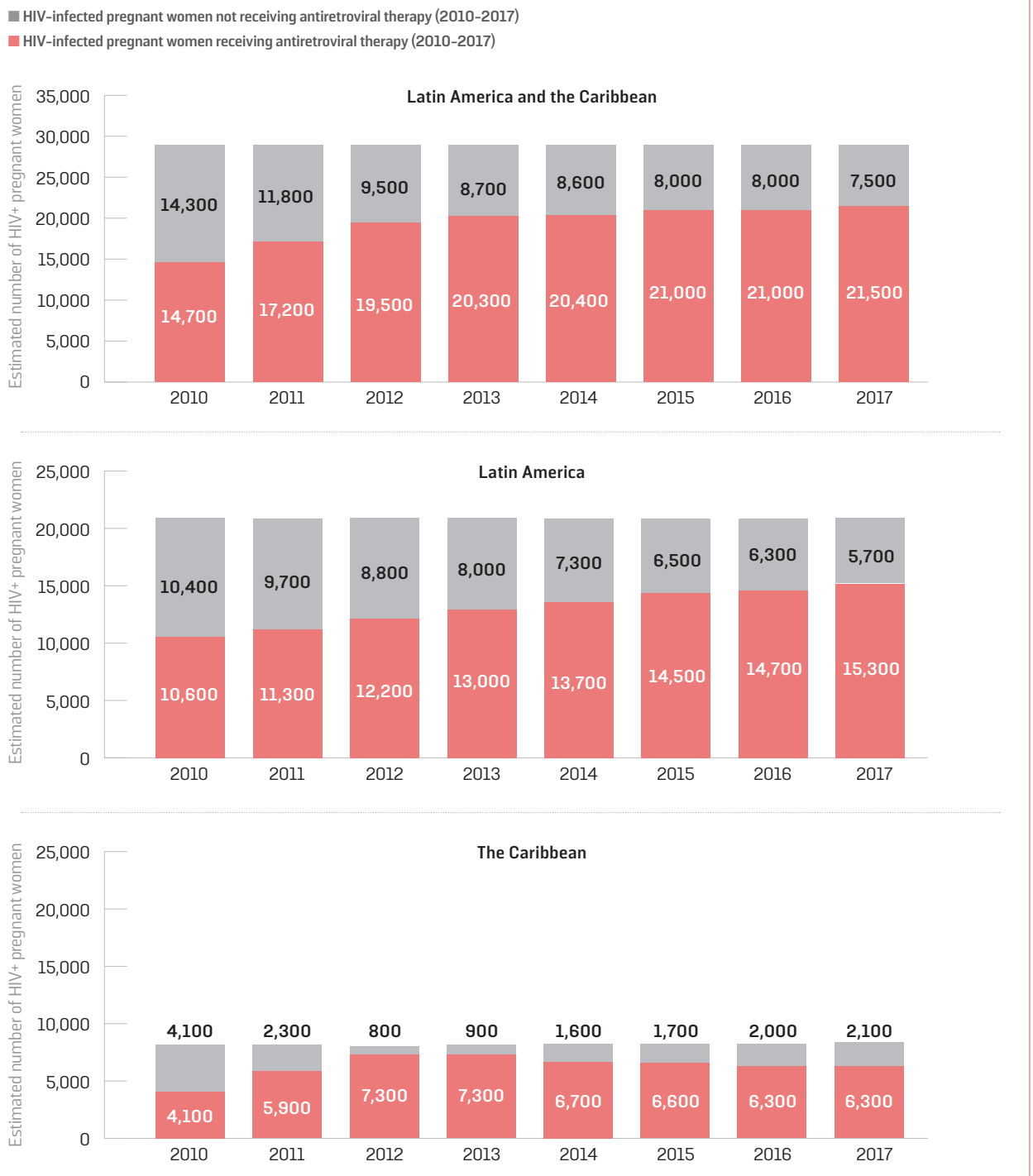


Source: UNAIDS and WHO Global AIDS Monitoring Online Reporting Tool.

However, this progress is not uniform: Bolivia, Brazil, and Peru prominently increased access to antiretrovirals since 2010; Colombia, Costa Rica, Panama, and Paraguay have also showed some progress in the coverage with antiretrovirals; while Ecuador, El Salvador, and Mexico were not able to sustain the coverage achieved in previous years (see **Annex Table 3**). The Caribbean showed a 16% reduction in the antiretroviral coverage between 2013 and 2017, mainly impacted by the reduction in Belize (↓34%), Guyana (↓33%), Haiti (↓26%), and Suriname (↓20%) over the same period.

In the Caribbean, the estimated number of pregnant women living with HIV receiving ARV therapy increased from 4,100 in 2010 to 7,300 in 2013 but has decreased since then to 6,300 women in 2017, representing a current coverage of 75% (**Figure 5**). This decreasing trend was mostly impacted by Haiti, where the estimated number of HIV-positive pregnant women receiving ARV decreased from 5,200 in 2013 to 4,500 in 2017, and the Dominican Republic, decreasing from 1,300 in 2012 to 810 in 2017.

Figure 5. Estimated number of HIV-positive pregnant women needing antiretroviral therapy and of pregnant women receiving antiretroviral therapy in Latin America and the Caribbean, 2010-2017



Source: UNAIDS and WHO 2017 Global AIDS Monitoring Online Reporting Tool.

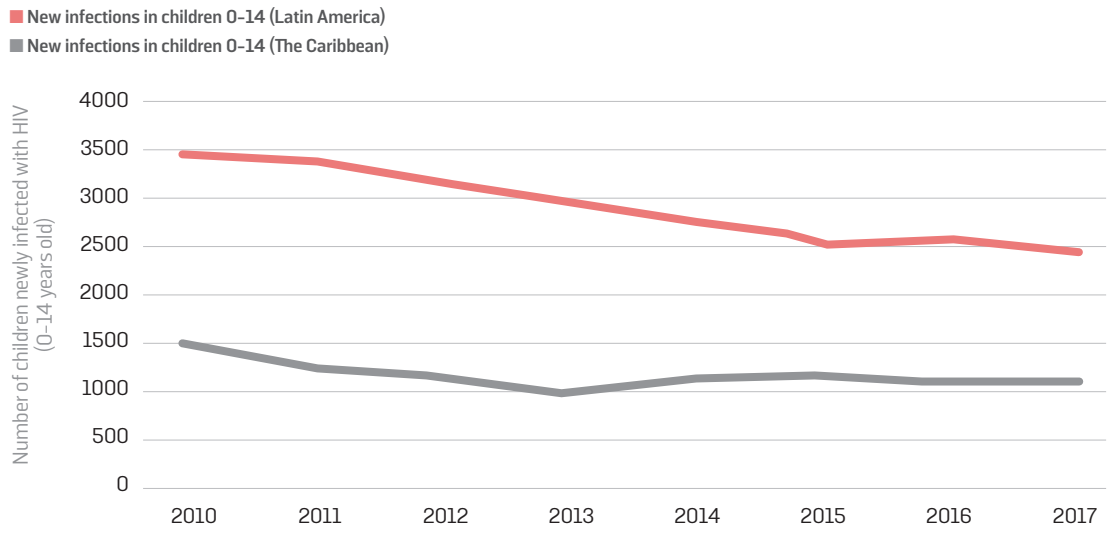
4. Elimination of mother-to-child transmission of HIV

While the reductions in new HIV infections in children are significant, results have appeared to stagnate in the last three years (**Figure 6**). The number of new HIV infections among children 0–14 years old in Latin America declined by 29% between 2010 and 2017, from an estimated 3,400 [2,600–5,200] to 2,400 [1,800–3,600]. In the Caribbean, there was a 27% reduction, from 1,500 [1,000–2,000] in 2010 to 1,100 [1,000–1,900] in 2017. However, the number of new HIV infections among children have stabilized in the last three years (2015–2017).

The overall reduction between 2010 and 2017 represents an estimated 30,800 HIV infections averted in children due to EMTCT interventions in Latin America and the Caribbean (**Figure 7**).

New HIV infections among children 0–14 years old in Latin America declined by 29% between 2010 and 2017

Figure 6. Estimated number of children 0–14 years of age newly infected with HIV in Latin America and the Caribbean, 2010–2017

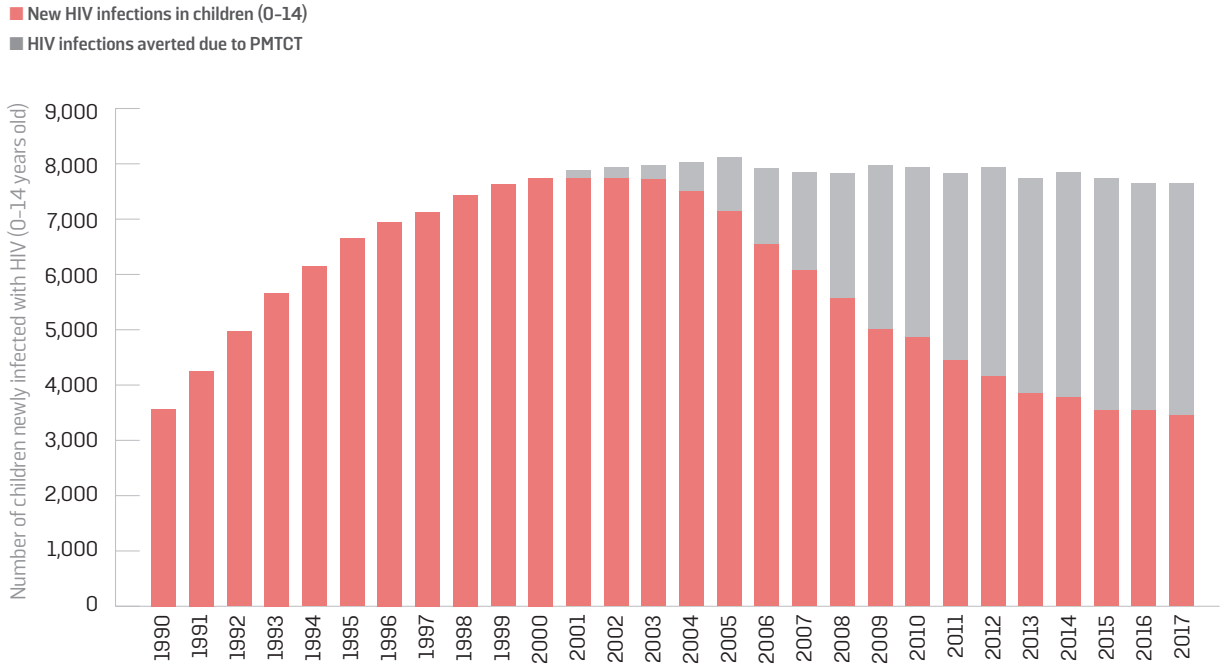


Source: UNAIDS. 2017 estimates using PPE–Spectrum. AIDSinfo database 2018 (http://aidsinfo.unaids.org).

Early infant diagnosis (EID) is a widespread policy in the Region of the Americas. EID allows better monitoring of HIV-exposed children and early treatment initiation when appropriate. Data from 21 reporting countries in 2016 and 2017 show that six countries performed virological testing for over 99% of HIV-exposed babies within two months of birth (**Figure 8**).

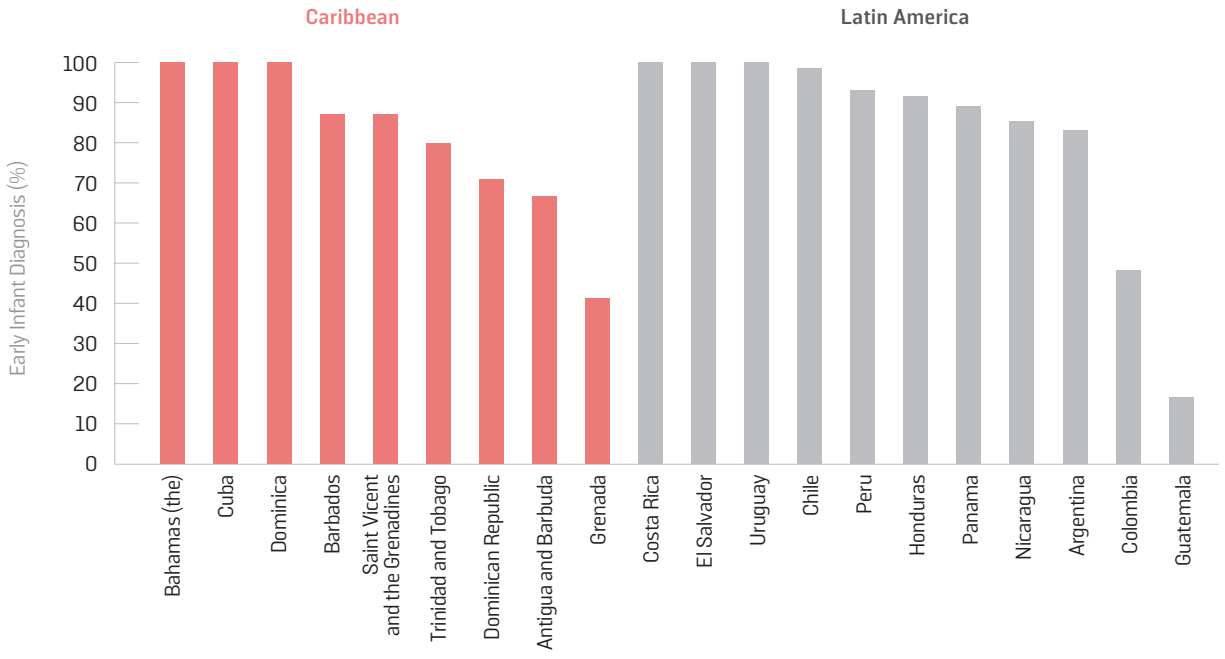
The decrease in the MTCT rate of HIV is associated with the expansion of antiretroviral therapy among pregnant women, contributing to the 29% reduction of the HIV MTCT rate in Latin America and the Caribbean from 2010 to 2017 (**Figure 9**).

Figure 7. Estimated number of children 0-14 years of age newly infected with HIV, and HIV infections averted due to the prevention of MTCT (PMTCT) in Latin America and the Caribbean, 2010-2017



Source: UNAIDS. 2017 estimates using PPE-Spectrum. AIDSinfo database 2018 (http://aidsinfo.unaids.org

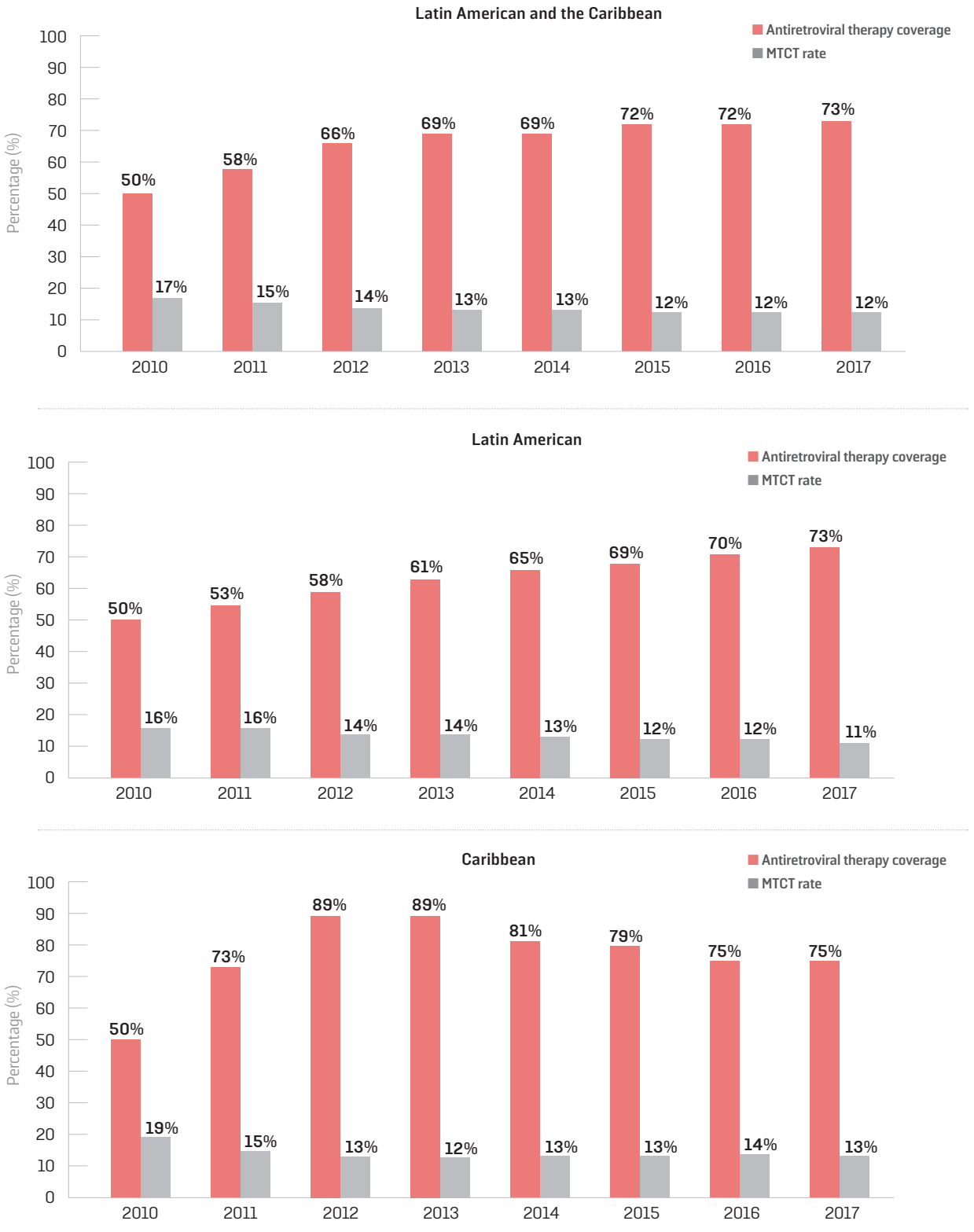
Figure 8. Percentage of reported HIV-exposed babies who received a virological test within two months of birth in Latin America and the Caribbean, 2017



Source: UNAIDS and WHO 2017 Global AIDS Monitoring Online Reporting Tool.

Notes: Numerator: Number of infants who received an HIV test within two months of birth during the reporting period. Denominator: Number of pregnant women living with HIV who gave birth in the past 12 months.

Figure 9. Estimated coverage of antiretroviral therapy among pregnant women to prevent MTCT of HIV and HIV MTCT rate in Latin America and the Caribbean, 2010–2017



Source: UNAIDS. 2017 estimates using PPE–Spectrum. AIDSinfo database 2018 (http://aidsinfo.unaids.org).

Based on country reported data and the evaluation of national impact and programmatic indicators from maternal and child healthcare, along with surveillance system data, PAHO estimates that, in 2017, 20 countries in the Americas may have achieved the EMTCT of HIV. Of those 20, seven have been already validated by WHO.[11] Another 13 countries in the Region are close to achieving the elimination targets (**Table 1**).

Since 2010, 30,800 children have been born free of HIV due to interventions to prevent mother-to-child transmission in Latin America and the Caribbean

Table 1. Classification of countries and territories in the Region of the Americas according to achievement of elimination targets for MTCT of HIV, 2017

Validated by WHO for the elimination of MTCT of HIV	May have achieved elimination of MTCT of HIV (MTCT rate ≤2%)	Close to achieving elimination of MTCT of HIV (rate 2-5%)	Progressing towards elimination of MTCT of HIV	Insufficient information to evaluate progress
Anguilla	Bahamas (The)	Argentina	Bolivia	Aruba
Antigua and Barbuda	Bonaire	Barbados	Colombia	Curaçao
Bermuda	Canada	Belize	Costa Rica	French Guiana
Cayman Islands	Chile	Brazil	Dominican Republic	Guadeloupe
Cuba	Dominica	El Salvador	Ecuador	Martinique
Montserrat	Jamaica	Grenada	Guatemala	Saba
Saint Kitts and Nevis	Puerto Rico	Guyana	Haiti	Sint Eustatius
	Saint Lucia	Nicaragua	Honduras	Sint Maarten
	Saint Vincent and the Grenadines	Panama	Mexico	Venezuela
	Turks and Caicos Islands	Peru	Paraguay	
	United States of America	Suriname		
	Virgin Islands (UK)	Trinidad and Tobago		
	Virgin Islands (US)	Uruguay		

Source: a) UNAIDS/WHO. Reports from the countries on progress in the global response to AIDS, 2011-2017. b) PAHO country reports on the elimination of MTCT, 2015-2017.

Note: Based on data for the period 2013-2017: Prenatal care coverage, mother-to-child transmission of HIV rate ≤2%, HIV screening of pregnant women ≥95%, antiretroviral therapy among HIV+ pregnant women ≥95%, and qualitative analysis of surveillance systems.

[11] Pan American Health Organization. Elimination of mother-to-child transmission of HIV and syphilis in the Americas. Update 2016. Washington, DC: PAHO; 2017. Available from: http://iris.paho.org/xmlui/handle/123456789/34072.

5. Core interventions for the prevention of congenital syphilis

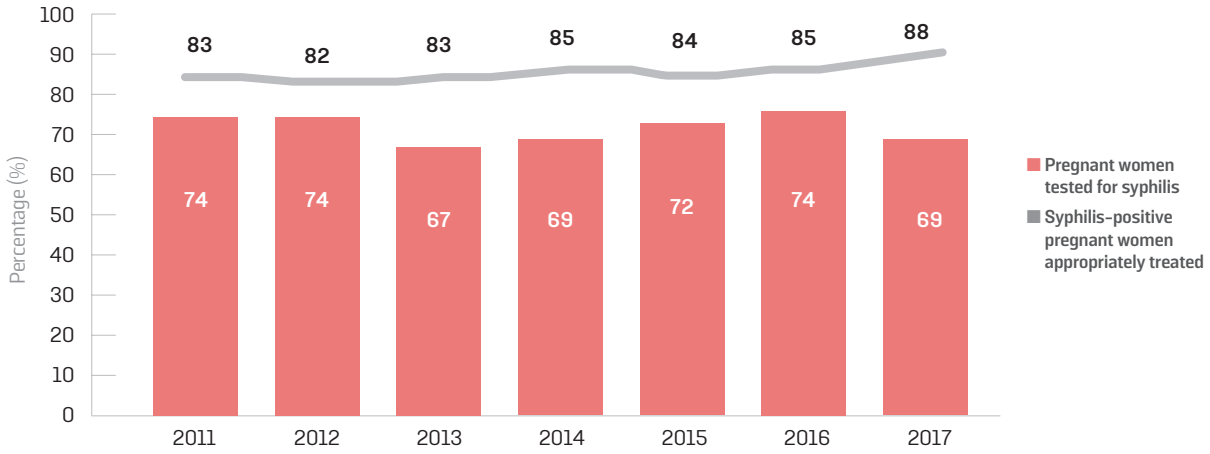
5.1 Syphilis testing and treatment in pregnant women

Syphilis screening among pregnant women in LAC was 69%, a decrease of five percentage points when compared to 2016 (**Figure 10**). The reduction in 2017 was mainly related to a 19% decrease in syphilis screening in Dominican Republic, 15% in Mexico, and 11% in El Salvador when compared to 2016. In contrast, data show an increase of syphilis screening among pregnant women in 2017 in Panama (↑10%), Saint Lucia (↑16%), and Paraguay (↑18%), when compared to 2016. The reported seropositivity of syphilis among pregnant women in 2017 varied from zero in a few small Caribbean countries to 1.9% in Paraguay and 3% in Haiti.

In contrast, there was an increase in appropriate syphilis treatment[12] among pregnant women identified as seropositive to syphilis to 88% in 2017 (based on data from 21 reporting countries). The increase of appropriate treatment coverage of 24% in Colombia and 12% in Peru, between 2016 and 2017 was mainly responsible for the Regional increase. Seven countries reported treatment coverage higher than 95% (or had no cases of syphilis among pregnant women) (see **Annex Table 4**).

Syphilis screening among pregnant women in LAC was 69%, a decrease of five percentage points when compared to 2016

Figure 10. Percentage of pregnant women who have access to prenatal care and were screened for syphilis and the percentage of syphilis-positive pregnant women appropriately treated, Latin America and the Caribbean, 2011–2017



Source: a) UNAIDS and WHO 2017 Global AIDS Monitoring Online Reporting Tool; b) PAHO country reports on the elimination of MTCT.

Notes: Regional data on syphilis screening and treatment were obtained from data from 24 and 21 countries, respectively.

[12] Appropriate syphilis treatment among pregnant women consists of at least one dose of benzathine penicillin G (BPG) at least 30 days prior to delivery.

6. Elimination of mother-to-child transmission of syphilis

There were 28,816 cases of congenital syphilis in 2017 based on case reports from 37 out of 52 countries and territories in the Americas, corresponding to an incidence rate of 2.1 per 1,000 live births (**Figure 11**). The congenital syphilis cases increased 22% from 23,609 in 2016. As in previous years, Brazil accounted for the majority of cases, with 85% of the estimated number of congenital syphilis cases in the Region in 2017, for a national incidence rate of 8.5 congenital syphilis cases per 1,000 live births (**Figure 12**).[13] When analyzing the remaining 36 reporting countries, the incidence rate remains stable with 0.3 cases per 1,000 live births in 2017, below the elimination target.

These figures are affected by under-reporting due to factors such as lack of awareness and diagnosis of congenital syphilis; absence of reporting in several countries; incomplete case definitions of congenital syphilis, which in some countries are not aligned with that of WHO.[14] For example, some countries report symptomatic children only, and do not diagnose and report syphilis in the case of stillbirths. Underreporting is further confirmed when considering WHO-modeled estimates of 51,000 congenital syphilis cases for the Americas in 2016, up from 47,000 in 2012.[15]

In addition, syphilis has been rising among pregnant women in recent years in the Region. Between 2012 and 2016, Ecuador, Antigua and Barbuda, and Panama showed a five-fold increase in the prevalence of syphilis among pregnant women, and eight other countries showed increases of more than 85%. Regional prevalence has been estimated by Korenromp et al. at 0.86% in 2016, an increase from 0.64% in 2012.[16] Furthermore, increase in syphilis prevalence among men who have sex with men has also been reported by several countries.[17]

Despite the slowly increasing treatment coverage among pregnant women with syphilis, improvements in some information systems (including closing gaps in awareness, detection and reporting of congenital syphilis cases), coupled with an increase in syphilis prevalence among pregnant women in some countries, can explain the increase in CS cases.

Over 28,800 babies, including stillbirths, reported with congenital syphilis in the Americas in 2017

In 2017, 15 countries reported data compatible with the achievement of congenital syphilis elimination, of which seven have been validated by WHO. Another 25 countries reported progress toward the goal at different stages, and 12 had insufficient data for assessment (**Table 2**).

[13] The increase in the reported number of congenital syphilis cases in Brazil is attributed by the Brazilian Ministry of Health to: (a) increased testing and case finding associated with the wider availability of rapid point of care tests; (b) penicillin shortages; and (c) the fact that almost half of primary care clinics do not treat patients but rather refer them to other levels of care for treatment, with subsequent patient loss during the referral process.
Ministry of Health Brasil. Secretaria de Vigilância em Saúde. Boletim epidemiológico – Sífilis. 2017;48(36) [cited in November 2018]; see: http://www.aids.gov.br/pt-br/pub/2017/boletim-epidemiologico-de-sifilis-2017

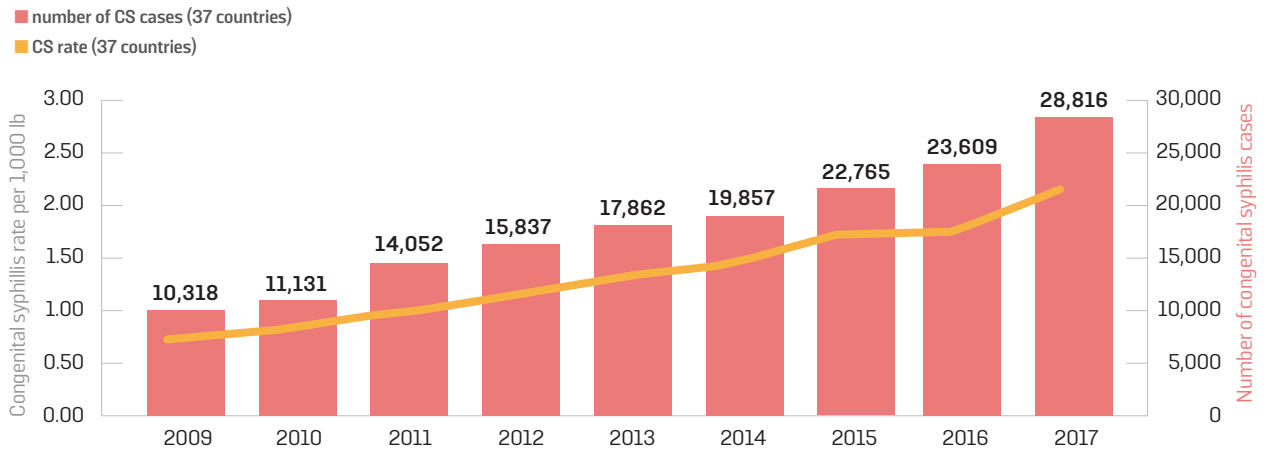
[14] WHO. Global guidance on criteria and processes for validation: elimination of mother-to-child transmission (EMTCT) of HIV and syphilis. Geneva: WHO; 2017. Available from: https://www.who.int/hiv/pub/emtct-validation-guidance/en/

[15] Korenromp EL, Rowley J, Alonso M, Mello MB, Wijesooriya NS, et al. (2019) Global burden of maternal and congenital syphilis and associated adverse birth outcomes — Estimates for 2016 and progress since 2012. PLOS ONE 14(2): e0211720. https://doi.org/10.1371/journal.pone.0211720.

[16] *Idem.*

[17] PAHO. HIV Prevention in the Spotlight. An analysis from the perspective of the health sector in Latin America and the Caribbean, 2017. Available from: http://iris.paho.org/xmlui/handle/123456789/34381

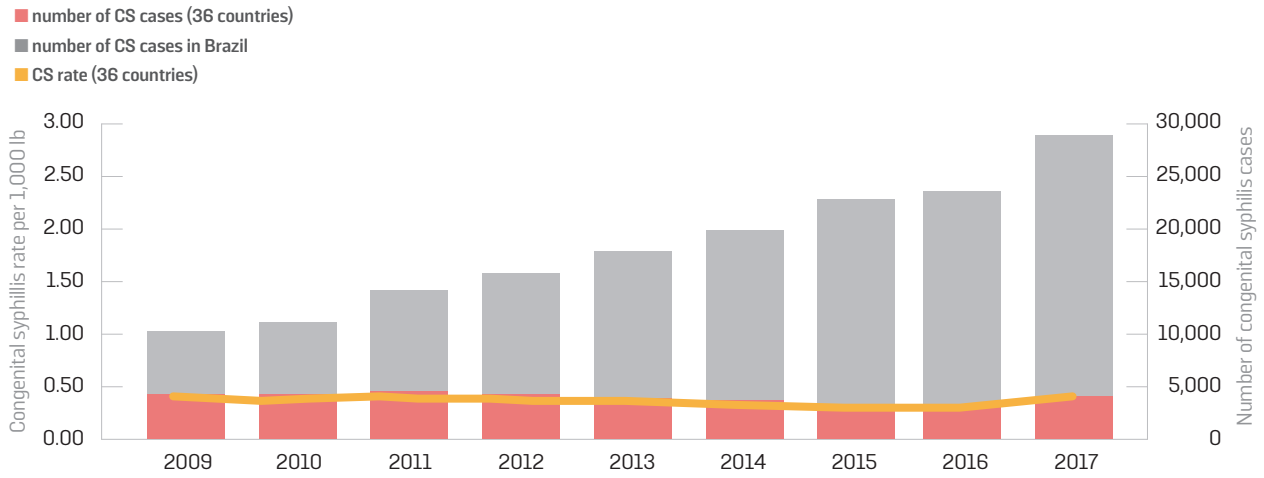
Figure 11. Number and incidence rate per 1,000 live births of congenital syphilis cases in the Region of the Americas, 2009–2017



Source: WHO/UNAIDS. 2017 Global AIDS Monitoring Online Reporting Tool. • EMTCT country reports submitted to the Pan American Health Organization. • Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2017. • Ministry of Health Brasil. Secretaria de Vigilância em Saúde. Boletim epidemiológico – Sífilis. 2017 Denominator: PAHO Health Situation in the Americas: Basic Indicators 2017.

Note: Regional congenital syphilis case totals are based on CS case reports from 37 countries (values include imputing for missing yearly data for some countries). lb = live births; CS = congenital syphilis.

Figure 12. Number and incidence rate per 1,000 live births of congenital syphilis cases in the Region of the Americas excluding Brazil, and number of cases of congenital syphilis in Brazil, 2009–2017



Source: UNAIDS, WHO. 2017 Global AIDS Monitoring Online Reporting Tool. • EMTCT country reports submitted to the Pan American Health Organization. • Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2017. • Ministry of Health Brasil. Secretaria de Vigilância em Saúde. Boletim epidemiológico – Sífilis. 2017. Denominator: PAHO Health Situation in the Americas: Basic Indicators 2017.

Note: lb = live births; CS = congenital syphilis.

Table 2. Classification of the countries and territories in the Region of the Americas with respect to the elimination of MTCT of syphilis, 2017

Validated for the elimination of MTCT of syphilis	May have achieved elimination of MTCT of syphilis (≤0.5 per 1,000 live births)	Progressing towards elimination of MTCT of syphilis	Insufficient information to evaluate progress
Anguilla	Canada	Argentina	Aruba
Antigua and Barbuda	Chile	Bahamas (The)	Bonaire
Bermuda	Dominica	Barbados	Curaçao
Cayman Islands	Puerto Rico	Belize	Ecuador
Cuba	Turks and Caicos Islands	Bolivia	French Guiana
Montserrat	United States of America	Brazil	Guadeloupe
Saint Kitts and Nevis	Virgin Islands (UK)	Colombia	Martinique
	Virgin Islands (US)	Costa Rica	Saba
		Dominican Republic	Sint Eustatius
		El Salvador	Sint Maarten
		Grenada	Suriname
		Guatemala	Venezuela
		Guyana	
		Haiti	
		Honduras	
		Jamaica	
		Mexico	
		Nicaragua	
		Panama	
		Paraguay	
		Peru	
		Saint Vincent and the Grenadines	
		Saint Lucia	
		Trinidad and Tobago	
		Uruguay	

Source: UNAIDS/WHO. Reports from the countries on progress in the global response to AIDS, 2011–2017. b) PAHO. Country reports on the elimination of MTCT, 2015–2017.

Note: a) Categories are based on data from 2011–2017: Rate of congenital syphilis ≤0.5 per 1,000 live births, syphilis screening of pregnant women ≥95%, and syphilis-positive pregnant women who received treatment ≥95% and qualitative analysis of surveillance systems.

7. Dual elimination of MTCT of HIV and syphilis

As of 2018, seven countries in the Americas have been validated by WHO for achieving and/or sustaining the elimination of MTCT of HIV and syphilis. Cuba was the first country in the world to receive the validation in 2015, followed in the Americas by Anguilla, Antigua and Barbuda, Bermuda, the Cayman Islands, Montserrat, and Saint Kitts and Nevis in 2017.

In 2017, another eight countries reported data compatible with the goals for the elimination of MTCT of both HIV and syphilis. Therefore, a total of 15 countries and territories in the Region may have achieved the dual elimination of HIV and syphilis.

Seven countries in the Americas have been validated for the dual elimination of MTCT of HIV and syphilis, and eight additional countries reported data in 2017 compatible with the dual elimination

Table 3. Countries validated and that may have achieved dual elimination of MTCT of HIV and syphilis, 2017

Validated for the dual elimination of MTCT of syphilis and HIV	May have achieved elimination of MTCT of syphilis and HIV
Anguilla	Canada
Antigua and Barbuda	Chile
Bermuda	Dominica
Cayman Islands	Puerto Rico
Cuba	Turks and Caicos Islands
Montserrat	United States of America
Saint Kitts and Nevis	Virgin Islands (UK)
	Virgin Islands (US)

Source: a) UNAIDS/WHO. Reports from the countries on progress in the global response to AIDS, 2011–2017. b) PAHO country reports on the elimination of MTCT, 2015–2017.

8. Core interventions for the prevention of mother-to-child and early childhood transmission of hepatitis B

In the Americas, PAHO estimated 3.9 million people chronically infected with hepatitis B virus (HBV) in 2016, representing a prevalence among general population of 0.4% [0.3–0.6%].[18] Most countries are considered as having low endemicity; however, there are some areas in the Caribbean and in the Amazon Basin with intermediate to high prevalence of HBV.[19]

[18] The Polaris Observatory Collaborators. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The Lancet Gastroenterology & Hepatology. 2018;3(6):383–403. https://doi.org/10.1016/S2468-1253(18)30056-6

The WHO has used different modeling methods to generate the HBV estimates for the publication of the Global Hepatitis Report, 2017. According to WHO, in 2015, 6.6 [4–16] million people were estimated to be chronically infected with hepatitis B in the Americas, representing a prevalence among general population of 0.7% [0.4–1.6%], and a HBsAg prevalence of 0.2% [0.1–0.5%] among children under five years of age. The difference between these estimates is due to methodological differences in the estimation process and data input into the model. In addition, in the context of low-prevalence settings the models may lead to lower precision and greater uncertainty. WHO will continue to engage in comparative modeling to further understand the source of these differences in order to have more precise estimates in the future. Source: World Health Organization. Global Hepatitis Report, 2017. Geneva: WHO; 2017. Available from: http://www.who.int/hepatitis/publications/global-hepatitis-report2017/en.

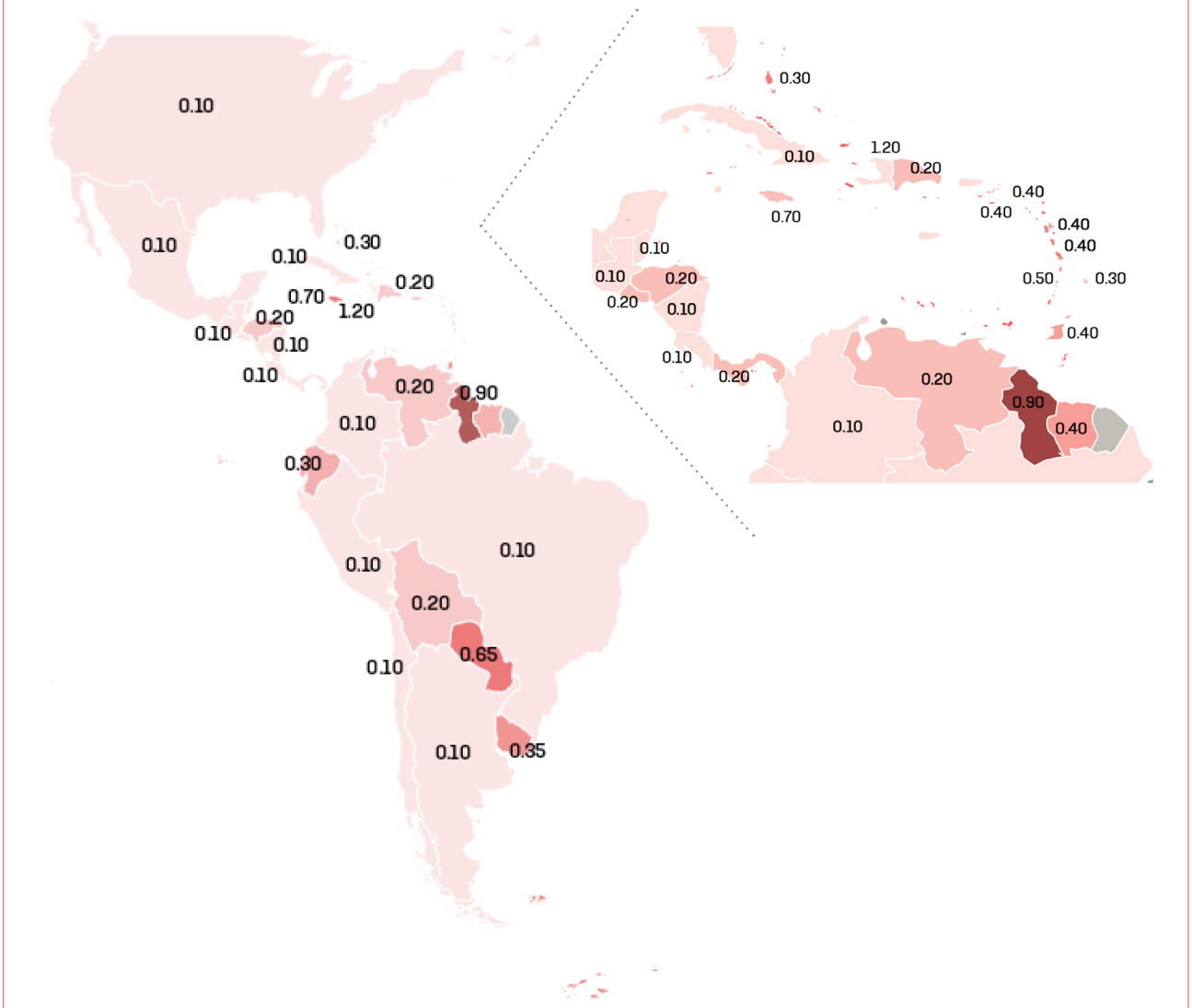
[19] Areas can be classified as high (>8%), intermediate (2–8%), and low (<2%) prevalence of HBV (World Health Organization. Department of Communicable Diseases Surveillance and Response. Hepatitis B. Geneva: WHO; 2002. Available from: http://apps.who.int/iris/bitstream/handle/10665/67746/WHO_CDS_CSR_LYO_2002.2_HEPATITIS_B.pdf?sequence=1.

HBsAg prevalence in the Region of the Americas has decreased over the last decades, mainly as a result of the introduction of the hepatitis B vaccine in the early 1990s.[20] By 2016, the regional prevalence of HBsAg among 5-year-old children was estimated at 0.1% (representing 9,200 [7,300-16,400] children five years old),[21] indicating that the Region may have already achieved the regional impact target of elimination of perinatal hepatitis B set at ≤0.1% HBsAg prevalence among children five years old. Differences among countries exist, and based on modeled estimates, less

24 countries have a policy for universal screening of pregnant women for hepatitis B

than half of the countries (13) achieved the impact target for elimination of mother-to-child and early childhood transmission of hepatitis B. **Figure 13** shows the national estimated prevalence of HBsAg among children five years old in countries in the Americas.

Figure 13. Estimated prevalence of hepatitis B surface antigen among children five years old, 2016



Source: The Polaris Observatory Collaborators, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. Lancet Gastroenterol Hepatol. 2018 Jun;3(6):383-403. • World Health Organization. 2015 Global and Country Estimates of immunization coverage and chronic HBV infection. Hepatitis B HBsAg estimates, a baseline towards the elimination targets, 2017. Geneva: WHO. Available from http://whohbsagdashboard.com

[20] PAHO. Hepatitis B and C in the spotlight. A public health response in the Americas, 2016. Washington, DC: PAHO; 2016. Available from: http://iris.paho.org/xmlui/handle/123456789/31449

[21] The Polaris Observatory Collaborators. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The Lancet Gastroenterology & Hepatology. 2018;3(6):383-403. https://doi.org/10.1016/S2468-1253(18)30056-6

8.1 Hepatitis B vaccination

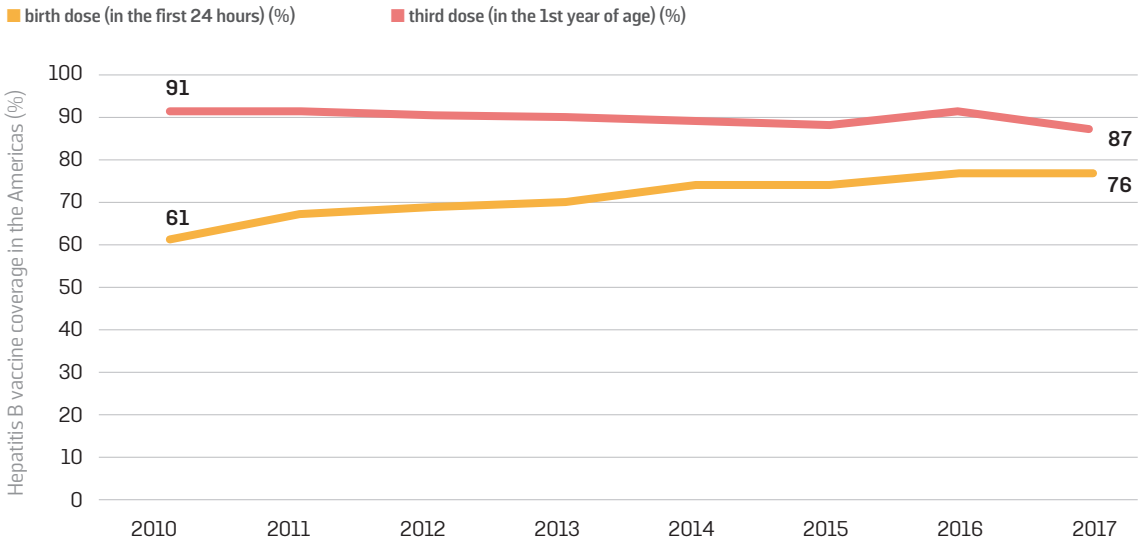
Hepatitis B vaccination has been gradually implemented in the Americas since 1982. Haiti was the last country to introduce the HBV vaccine into the routine immunization schedule in 2012.[22] The three-dose coverage of the hepatitis B vaccine in children under one year old was reported as 87% in the Americas in 2017 (**Figures 14 and 15**). The decrease in 2017 observed in comparison to past years is related to changes in information systems with more accurate data (such as for Brazil), interruptions in vaccination programs due to natural disasters (such as some countries in the Caribbean), and health system reforms and challenges (such as in Honduras and Venezuela). The countries reporting the lowest coverage were Haiti, 59%; Venezuela, 66%; and Paraguay, 79% (see **Annex Table 5**). These results emphasize the need for high-quality information systems and more resilient health systems to support and ensure high coverage of this essential intervention.

Additionally, 25 countries and territories have introduced the birth dose in the first 24 hours to all newborns (**Table 10**). With systematic increases, the birth dose coverage during the first 24 hours of life reached 76% in 2017 (**Figure 14**).

25 countries have implemented the policy of providing vaccination to all newborns in the first 24 hours after birth

In 2017, 24 out of 31 reporting countries in the Americas had a policy for universal screening of pregnant women for HBV. In addition, 22 out of 28 reporting countries indicated that immunoglobulin was made available to exposed newborns. However, most countries in the Region do not routinely monitor HBV screening among pregnant women or the use of immunoglobulin for exposed babies (see **Annex Table 5**).

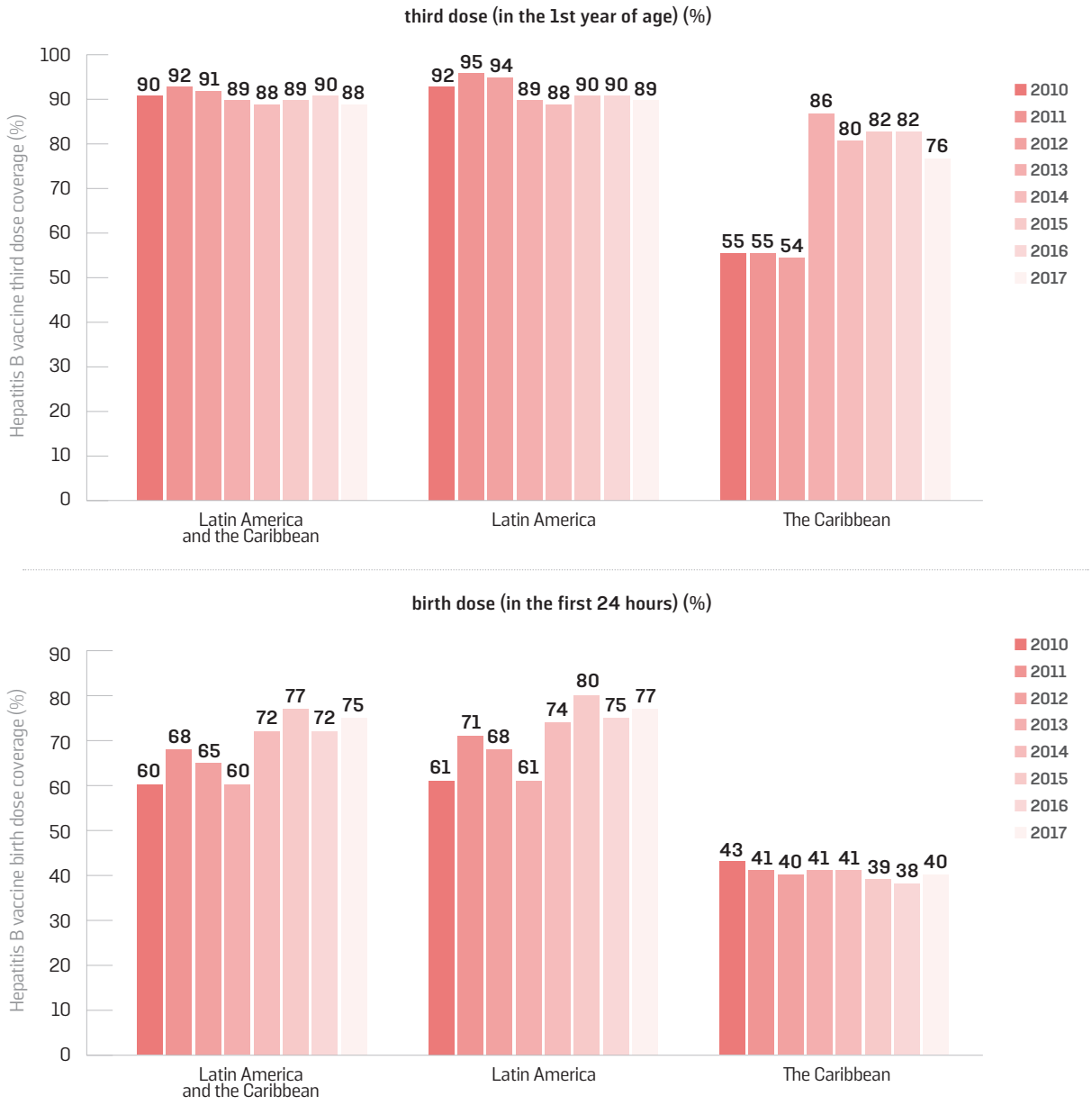
Figure 14. Coverage of birth dose and third dose of hepatitis B vaccine in the Americas, 2010-2017



Source: PAHO-WHO/UNICEF Joint Reporting Forms. Accessed October 2018. Available from: http://ais.paho.org/imm/IM_JRF_COVERAGE.asp

[22] Ropero Álvarez AM, Pérez-Vilar S, Pacis-Tirso C, et al. Progress in vaccination towards hepatitis B control and elimination in the Region of the Americas. BMC Public Health. 2017;17(1):325. doi:10.1186/s12889-017-4227-6

Figure 15. Coverage of third dose and birth dose of hepatitis B vaccine in Latin America and the Caribbean, 2010-2017



Source: PAHO-WHO/UNICEF Joint Reporting Forms. Accessed October 2018. Available from: http://ais.paho.org/imm/IM_JRF_COVERAGE.asp

Note: In order to estimate the regional coverage of vaccines, countries with no birth dose were considered as having 0% coverage. Countries with data missing in a specific year had the coverage from previous year input into the missing year. Bonaire, Guadeloupe, French Guiana, Martinique, Saba, and Sint Eustatius were not included in the analysis.

9. Elimination of mother-to-child and early childhood transmission of hepatitis B

The EMTCT Plus framework defined the impact target for the elimination of perinatal hepatitis B in the Americas as a reduction of HBsAg prevalence among 4- to 6-years-old children to 0.1% or less and established programmatic objectives regarding preventive interventions, such as immunization. **Table 4** lists the countries in the Americas that appear to have achieved the impact target of elimination of mother-to-child and early childhood transmission of hepatitis B and the vaccination coverage for both the birth and third doses. Based on mathematical modeling, 13 countries may have achieved the impact target for the elimination of mother-to-child and early childhood transmission of HBV. Among these, Cuba is the only country that reports meeting the programmatic targets set for vaccination coverage (≥95% coverage of birth and third dose). These data indicate Cuba is a candidate for the validation of the elimination of mother-to-child and early childhood transmission of HBV and triple elimination (HIV, syphilis, hepatitis B).

Other countries listed in Table 4, such as Brazil, Chile, Colombia, Costa Rica, Nicaragua, and the United States of America, have reported having achieved or are close to achieving the 95% coverage of the third dose of hepatitis B vaccine in the first year of life. The coverage of the birth dose, however, needs to be further expanded.

Cuba may be the first country in the Americas to have achieved the targets for the elimination of mother-to-child and early childhood transmission hepatitis B

The current situation represents an opportunity to encourage countries to strengthen or accelerate the implementation of public health policies to maximize hepatitis B vaccination coverage and to spearhead the elimination of mother-to-child and early childhood transmission of hepatitis B in the Region.

Table 4. HBV vaccination coverage and estimated prevalence of hepatitis B among children five years old in countries that may have achieved the impact target of elimination of perinatal hepatitis B in the Americas

Countries	Reported coverage of universal birth dose of hepatitis B vaccine (24 hours), 2017 (%)	Reported coverage of the third dose of hepatitis B vaccine (one year old), 2017 (%)	Estimated prevalence of hepatitis B among children five years old, 2016 (%)
Argentina	82	86	<0.1
Belize	(introduced in 2018)	88	0.1 (<0.1–0.1)*
Brazil	82 (2016)	93	<0.1
Canada	...	69	<0.1
Chile	Only among children of HBsAg+ mothers	93	<0.1
Colombia	81	92	<0.1 (<0.1–0.4)*
Costa Rica	87	97	<0.1
Cuba	99	100	<0.1
Guatemala	45	82	<0.1
Mexico	98 (2015)	93 (2016)	<0.1
Nicaragua	not introduced	100	<0.1
Peru	75	83	<0.1
United States of America	63	91	<0.1

Source: Immunization coverage: Pan American Health Organization. Country reports submitted through PAHO-WHO/UNICEF Joint Reporting Form on Immunization (JRF). Washington DC: PAHO, 2018.
Prevalence estimates: The Polaris Observatory Collaborators, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. Lancet Gastroenterol Hepatol. 2018 Jun;3(6):383-403.

* 95% uncertainty interval.

10. Elimination of congenital Chagas disease

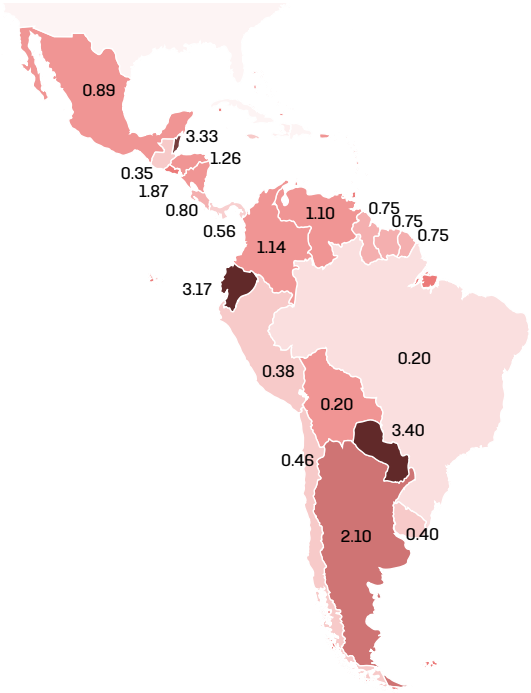
In 21 Latin American countries[23] where *T. cruzi* is endemic, the latest estimate indicates around 5.7 million people chronically infected (2010), representing an overall prevalence of 1.1%.[24] Argentina and Bolivia together accounted for 31% of the estimated 30,000 new infections in Latin America caused by vectorial transmission.

Every year, around 9,000 new cases of *T. cruzi* infections in LAC are estimated to occur because of MTCT[25], however, in 2017, only 280 new cases of congenital Chagas were reported by LAC countries to PAHO[26]. Mexico (1,788), Argentina (1,457), and Colombia (1,046) have the greatest estimated number of new cases of congenital Chagas disease (**Table 11**). The 10 countries of Latin America and the Caribbean with the highest estimated incidence rate in 2010, ≥1.0 per 1,000 live births, are Paraguay (3.4), Belize (3.3), Ecuador (3.2), Bolivia (2.3), Argentina (2.1), El Salvador (1.9), Honduras (1.3), Nicaragua (1.2), Colombia (1.1), and Venezuela (1.1) (**Figure 16**).

Two countries, Argentina and Uruguay, have national policies for universal screening of pregnant women for *T. cruzi*. Uruguay implemented its policy in 2018 for health providers from both public and private sectors.[27] Brazil, Chile, Colombia, Honduras and Paraguay have policies for routine screening of pregnant women from areas of high endemicity and/or with other risk factors.

Every year, an estimated 9,000 babies are born with congenital Chagas disease in Latin America and the Caribbean

Figure 16. Estimated incidence rate of congenital Chagas disease per 1,000 live births in Latin America, 2010



Source: World Health Organization. Chagas disease in Latin America: an epidemiological update based on 2010 estimates. Weekly Epidemiological Record. 2015;6(90):33-44.

[23] Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, French Guiana, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, Venezuela.

[24] World Health Organization. Chagas disease in Latin America: an epidemiological update based on 2010 estimates. Weekly Epidemiological Record. 2015;6(90):33-44.

[25] Idem.

[26] Source: Data reported to PAHO by Ministries of Health in 2017; Only 10 of 21 endemic countries of the Americas reported figures: Bolivia, Brazil, Chile, Colombia, Ecuador, Mexico, Nicaragua, Surinam, Uruguay, Venezuela.

[27] Uruguay. Ministerio de Salud Pública. Ordenanza Ministerial nº119 del 21 de noviembre de 2018. Montevideo.

All 21 endemic countries in the Region have the capacity to perform serological screening for Chagas disease in a decentralized manner. Diagnosis through parasitological methods, recommended in the case of exposed infants, is mostly centralized in reference laboratories.

Although the recommended interventions[28] for the control and elimination of congenital Chagas disease are available in all endemic countries, the data regarding service coverage is limited. As part of the implementation of the EMTCT Plus initiative, several Latin American countries are revising and updating their information systems to monitor Chagas programmatic indicators. Preliminary data are presented below based on the experience of Argentina, Chile, and Paraguay, countries leading this process in the Region (**Box 2 and Table 5**).

Box 2. Efforts for the control and elimination of congenital Chagas disease in selected countries in the Americas (for more details see Table 5).

Argentina

For years, Argentina has monitored cases of congenital Chagas disease, and since 2015 the surveillance system also has monitored *T. cruzi* infection in pregnant women. In 2017, a total of 226,456 pregnant women were screened for Chagas disease, of which 1.9% (4,261) were positive. However, only 48% newborns (2,032) of positive mothers were screened for *T. cruzi* infection, of which 87 had a confirmed infection.

Chile

Chile began to gradually implement routine screening of pregnant women for *T. cruzi* infection in 2015,[a] with improvements in access to screening over the past few years, markedly in endemic areas.[b]

In 2017, *T. cruzi* screening among pregnant women accessing antenatal care was 55%. In endemic areas, 75% of pregnant women were screened for Chagas disease, compared to 8% in non-endemic areas.

Expanding *T. cruzi* screening during pregnancy led to the prompt identification of more cases of congenital Chagas disease, from four reported cases in 2015, to 12 in 2016, and 23 in 2017. These achievements were possible due to the integration of regional management, strengthening of diagnostic laboratories, decentralization of screening algorithms, and investigation of the infection among household members. Access to treatment, however, presents a challenge. In 2017, only 10 out of 23 newborns diagnosed with *T. cruzi* infection started treatment, and seven had completed it.

Paraguay

Paraguay has been working to improve health system capabilities, with 76% of the regional hospitals (13/17) currently able to perform Chagas disease diagnosis. Routine screening is not yet implemented at the national level, but the number of pregnant women screened for *T. cruzi* infection has increased over the past few years, from 6,150 in 2014 to 10,410 in 2017.

Additionally, in 2017, 408 infected women were diagnosed during pregnancy, and 12 confirmed cases of congenital Chagas disease reported, of which all received appropriate treatment.
The priorities of the national program are to implement universal screening of pregnant women for Chagas disease at the national level and improve diagnosis and treatment of exposed newborns.[c]

[a] Gobierno de Chile. Ministerio de Salud. Informe Indicadores Programáticos Plan Nacional de Enfermedad de Chagas, 2016. Available from: https://diprece.minsal.cl/wrdprss_minsal/wp-content/uploads/2017/06/ENFERMEDAD-DE-CHAGAS-2016_01.pdf

[b] Areas historically endemic for Chagas disease include the northern part of Chile, between the regions of Arica and O'Higgins. Non-endemic areas include the southern region, from Maule to Magallanes.

[c] Paraguay. Ministerio de Salud Pública y Bienestar Social. Servicio Nacional de Erradicación del Paludismo. Memoria Anual Institucional 2017, 2017. Available from: https://www.mspbs.gov.py/senepa.

[28] The recommended interventions to control Congenital Chagas include: diagnosis and treatment of infected girls and women of childbearing age; routine serological screening of pregnant women and treatment of seropositive mothers after pregnancy; *T. cruzi* parasitological and serological screening of newborns of infected mothers; immediate treatment of all newborns with positive parasitology test; *T. cruzi* serology test at eight months of age to newborns of infected mothers, and treatment of seropositive children before one year of age. Source: Pan American Health Organization. EMTCT Plus framework for elimination of mother-to-child transmission of HIV, syphilis, hepatitis B, and Chagas. Washington, DC: PAHO; 2017. Available from: http://iris.paho.org/xmlui/handle/123456789/34306

Table 5. Screening coverage and prevalence of Chagas disease among pregnant women and exposed newborns, Argentina, Chile, and Paraguay, 2016 and 2017

Indicator	Argentina		Chile	Paraguay	
Year	2016	2017	2017	2016	2017
Total estimated number of live births	752,300	751,200	169,817*	141,100	141,360
Number and percentage of pregnant women screened for Chagas disease	245,631 (33%)	226,456 (30%)	92,716 (55%)	9,718 (6.9%)	10,410 (7%)
In endemic areas	–	–	87,372 (75%)	–	–
In non-endemic areas	–	–	5,344 (8%)	–	–
Number and percentage of pregnant women screened positive for Chagas disease	5,561 (2.3%)	4,261 (1.9%)	293 (0.3%)	430 (4.4%)	408 (3.9%)
Number and percentage of exposed newborns screened for Chagas disease	2,211 (40%)	2,032 (48%)	–	–	–
Number and percentage of exposed newborns screened positive for Chagas disease	107 (4.8%)	87 (4.3%)	23 (8.0%)	28 (6.5%)	12 (2.9%)
Number and percentage of newborns screened positive for Chagas disease who were adequately treated	–	–	7 (30%)	28 (100%)	12 (100%)

Sources: *For Argentina:* Argentina, Ministerio de Salud. Dirección Nacional de Epidemiología y Análisis de la Situación de Salud. Boletín Integrado de Vigilancia, N° 391– SE 51; 2017. Available from: https://www.argentina.gob.ar/sites/default/files/biv_n391-se51.pdf. *For Chile:* Gobierno de Chile, Ministerio de Salud. Informe Estrategia Integrada de Prevención y Control de la Enfermedad de Chagas, 2017. Available from: https://diprece.minsal.cl/ wp-content/uploads/2018/10/FOLLETO_PROGRAMA-CHAGAS.pdf. *For Paraguay:* Paraguay, Ministerio de Salud Pública y Bienestar Social. Servicio Nacional de Erradicación del Paludismo. Memoria Anual Institucional 2017; 2017. Available from: https://www. mspbs.gov.py/senepa.

* For Chile, this number does not refer to the estimated number of live births, but to the number of pregnant women attending prenatal care.

CONCLUSIONS AND RECOMMENDATIONS

Efforts to eliminate MTCT of HIV and syphilis in the Americas continue. Based on the advantages of integrating and enhancing synergies within the health systems, expanding EMTCT efforts to hepatitis B and Chagas disease will lead to improved quality of care of pregnant women and their offspring, increased access to health services, and ultimately greater equity and health benefits among populations in the Region.

The data presented show continuous but decelerating progress in the elimination of MTCT of HIV and syphilis. The reported increases in syphilis prevalence among pregnant women and other populations in the Region indicate the need to expand sexual and reproductive health services for all populations, which will ultimately support the EMTCT of congenital syphilis. High vaccination coverage for HBV among children and the expansion of the birth dose in recent decades have led to progress in achieving the target for elimination of mother-to-child and early childhood transmission of HBV. Some countries in recent years faced increasing challenges to sustain high coverages, highlighting the need to prioritize vaccination efforts and support health systems that are resilient to political, environmental, and financial challenges. In 2016, the Americas had an estimated HBsAg prevalence among 5-year-old children of 0.1%, meeting, as a Region, the 2020 impact target. Individually, several countries may also have achieved the impact target. For most countries, however, the challenge of continue increasing and sustaining high hepatitis B immunization coverages (third dose and hepatitis B birth dose) remains. Policies to support the introduction and universal scale-up of the timely administration of birth-dose vaccination are crucial.

Regarding congenital Chagas disease, a few countries now have national policies for screening of pregnant women. Advocacy, political support, and programmatic efforts will be needed to control and eliminate MTCT transmission of *T. cruzi* including the implementation of information systems to monitor interventions.

Monitoring regional progress of the EMTCT Plus initiative depends on the quality, representativeness, and coverage of national surveillance systems. Limitations of the data include underreporting of the number of perinatal HIV, congenital syphilis and Chagas disease cases, underrecording of seropositive pregnant women and subsequent treatment, and non-use of standardized case definitions for congenital syphilis. Due to the recent inclusion into the EMTCT initiative of hepatitis B and congenital Chagas disease, countries are still adapting and revising their information systems to be able to monitor key programmatic and impact indicators.

Special attention must be given to the fact that national data in this report conceal inequities in the access to services at subnational and local levels and by specific vulnerable populations, such as women living in conditions of poverty, indigenous groups, sex workers, etc. Detailed analyses are necessary and, to the extent possible, data should be disaggregated by locality, age of the pregnant woman, socioeconomic level, and ethnic group, so that countries can understand gaps and take appropriate actions to improve access to adequate services.

Political commitment to the EMTCT Plus targets and its objectives is necessary to assure that future generations are free of HIV, syphilis, Chagas disease, and hepatitis B. Based on the experience of the first years of the EMTCT initiative and considering the current situation, an intensified and integrated response is required. PAHO/WHO, in collaboration with key partners such as UNICEF and UNAIDS, will support technical cooperation with countries, particularly those with major gaps and programmatic challenges to strengthen their efforts toward triple (HIV, syphilis, and hepatitis B) and quadruple EMTCT of HIV, syphilis, Chagas disease, and hepatitis B.

ANNEX
ADDITIONAL TABLES

Table 1. Key policies and programmatic elements related to the EMTCT Plus to achieve elimination targets, by country in the Region of the Americas, 2017

Countries	Plan for the elimination of perinatal HBV[a]	Universal HBV screening in antenatal care[b]	Universal birth dose (in first 24 hours) of HBV vaccine[b]	Rapid tests to screen for syphilis during prenatal care[c]	Surveillance system for congenital syphilis[c]	Stillbirths due to syphilis included in congenital syphilis case definition[c]
North America						
Canada	Yes	Yes	Yes[d]	...	Yes	Yes
Mexico	No	...	Yes	Yes	Yes	No
United States of America	Yes	Yes	Yes	...	Yes	Yes
Central America						
Costa Rica	...	Yes	Yes	Yes	Yes	Yes
El Salvador	No	No	Yes	No	Yes	Yes
Guatemala	No	No	Yes	Yes	Yes	No
Honduras	No	No	Yes	No	Yes	No
Nicaragua	...	...	No	No	Yes	Yes
Panama	No	Yes	Yes	Yes	Yes	Yes
Andean Region						
Bolivia (Plurinational State of)	...	...	No	No	...	...
Colombia	Yes	Yes	Yes	Yes	Yes	Yes
Ecuador	No	Yes	Yes	No	No	...
Peru	Yes	Yes	Yes	Yes	Yes	Yes
Venezuela (Bolivarian Republic of)	No	No	Yes	No	Yes	...
Southern Cone and Brazil						
Argentina	Yes	Yes	Yes	No	Yes	Yes
Brazil	Yes	Yes	Yes	Yes	Yes	Yes
Chile	No	Yes	Pos. Mothers[e]	No	Yes	No
Paraguay	Yes	No	Yes	Yes	Yes	Yes
Uruguay	...	Yes	Pos. Mothers[e]	Yes	Yes	Yes
Caribbean						
Anguilla	No	Yes	No	No[f]	Yes	Yes[f]
Antigua and Barbuda	No	Yes	No	No	Yes	Yes
Aruba	...	...	No	Yes[g]	...	...
Bahamas (The)	No	Yes	No	Yes	Yes	...
Barbados	No	...	No	No	Yes	Yes

(continuation, table 1)

Countries	Plan for the elimination of perinatal HBV[a]	Universal HBV screening in antenatal care[b]	Universal birth dose (in first 24 hours) of HBV vaccine[b]	Rapid tests to screen for syphilis during prenatal care[c]	Surveillance system for congenital syphilis[c]	Stillbirths due to syphilis included in congenital syphilis case definition[c]
Belize	No	Yes	Yes[g]	...	Yes	...
Bermuda	Yes	Yes	Pos. Mothers[e]	No[f]	Yes	Yes[f]
Bonaire	...	...	No	...	...	...
Cayman Islands	...	Yes	Yes[g]	No[f]	Yes	No[f]
Cuba	Yes	Yes	Yes	No	Yes	Yes
Curaçao	...		No	...	...	...
Dominica	...	Yes	Yes	No	Yes	Yes[f]
Dominican Republic	...	...	Yes	No	No	...
French Guiana	...	...	...	...	...	...
Grenada	Yes	Yes	Yes	No[f]	Yes	No[f]
Guadeloupe	...	...	...	...	...	...
Guyana	...	Yes	Pos. Mothers[e]	Yes	Yes	Yes
Haiti	No	No	No	Yes	...	...
Jamaica	No	No	No	Yes	Yes	Yes
Martinique	...	...	...	...	...	...
Montserrat	...	...	Yes	Yes[f]	Yes	Yes[f]
Puerto Rico	...	...	...	...	Yes	Yes
Saba	...	...	No	...	Yes	...
Saint Kitts and Nevis	...	...	Yes	No[f]	Yes	Yes
Saint Lucia	...	...	Pos. Mothers[e]	No[f]	Yes	Yes
Saint Vincent and the Grenadines	No	...	Yes	Nof	Yes	Yes
Sint Eustatius	...	...	No	No[g]	Yes	...
Sint Maarten	...	...	No	...	...	...
Suriname	...	Yes	Yes	No	...	...
Trinidad and Tobago	...	...	No	No[g]	...	Yes
Turks and Caicos Islands	Yes	Yes	Pos. Mothers[e]	No[f]	Yes	No[f]
Virgin Islands (UK)	Yes	Yes	Yes	No[f]	Yes	Yes[f]
Virgin Islands (US)	...	...	...	...	Yes	Yes

[a] Source: PAHO/WHO, Country Response Profile on Hepatitis B and C 2016/17. PAHO. Hepatitis B and C in the spotlight: a public health response in the Americas, 2016 and 2017.
[b] Source: Pan American Health Organization. Country reports submitted through PAHO-WHO/UNICEF Joint Reporting Form on Immunization (JRF). Washington DC: PAHO, 2018.
[C] Source: UNAIDS/WHO 2017 Global AIDS Monitoring Online Reporting Tool.
[d] Partially implemented. Each province in Canada decides which vaccination policy is implemented within the National Advisory Committee on Immunization (NACI) recommendations.
[e] Countries that have birth dose of the hepatitis vaccine administered only to newborns of hepatitis B positive mothers.
[f] Source: Country reports on the elimination of MTCT of HIV and syphilis submitted to PAHO, 2015-2016.
[g] Source: Direct communication to PAHO.

Table 2. Estimated total live births and coverage of sexual and reproductive health and maternal and child health services, by country in the Americas, 2017 (unless otherwise specified)

Countries	Estimated number of live births (thousands)	Estimated unmet need for family planning (%)	Estimated proportion of pregnant women with access to at least four prenatal care visits (%)	Estimated proportion of hospital births (%)
North America				
Canada	388.17	10	99 (2007)	95.2 (2016)
Mexico	2302.24	14	89.5 (2016)	92.7 (2016)
United States of America	4084.31	12	92 (2015)	98.5 (2015)
Central America				
Costa Rica	68.95	9	76.6 (2016)*	93.2 (2016)
El Salvador	117.25	16	82	99
Guatemala	421.76	25	43 (2014)	69.2 (2016)
Honduras	198.71	20	89 (2012)	74
Nicaragua	118.80	11	63	89.6
Panama	78.75	20	88 (2013)	90.9 (2016)
Andean Region				
Bolivia (Plurinational State of)	254.01	37	85.3	71.3
Colombia	732.10	15	89.8 (2015)	98.9 (2015)
Ecuador	330.39	15	79.5 (2013)	96.4 (2016)
Peru	608.76	29	88.9	93
Venezuela (Bolivarian Republic of)	599.05	18	83.8	95.4
Southern Cone and Brazil				
Argentina	751.21	13	90 (2012)	99.6 (2016)
Brazil	2911.31	12	91 (2016)	98 (2016)
Chile	237.14	15	...	98.1 (2016)
Paraguay	141.36	15	77.7 (2016)	97.6 (2016)
Uruguay	48.15	11	96.5	99.7
Caribbean				
Anguilla	0.21	...	100 (2012)	100
Antigua and Barbuda	1.49	17	83.3	100
Aruba	1.43	...	100 (2015)	...
Bahamas (The)	5.58	14	83 (2014)	99 (2016)
Barbados	3.41	19	97.5 (2016)	99 (2016)

(continuation, table 2)

Countries	Estimated number of live births (thousands)	Estimated unmet need for family planning (%)	Estimated proportion of pregnant women with access to at least four prenatal care visits (%)	Estimated proportion of hospital births (%)
Belize	8.37	22	83 (2013)	92.2
Bermuda	0.80	...	95	99.3
Bonaire	...	...	100 (2014)	100 (2014)
Cayman Islands	0.70	...	97	100
Cuba	123.32	10	98 (2016)	99.9
Curaçao	2.06	...	...	99.2
Dominica	1.11	...	84.7	97
Dominican Republic	213.48	13	98 (2014)	98 (2014)
French Guiana	6.71	...	84.5 (2016)	99.3 (2016)
Grenada	1.73	17	67	98.9
Guadeloupe	4.89	23	...	100 (2016)
Guyana	15.84	29	95 (2013)	90 (2015)
Haiti	261.57	36	67 (2012)	50 (2013)
Jamaica	47.49	14	87 (2008)	97.6 (2016)
Martinique	4.24	21	98.5 (2016)	99.2 (2016)
Montserrat	0.06	...	100	100
Puerto Rico	38.77	16	97.9 (2016)	99.2 (2016)
Saba	...	...	100 (2014)	...
Saint Kitts and Nevis	0.69	...	...	100 (2014)
Saint Lucia	2.20	19	99 (2009)	99
Saint Vincent and the Grenadines	1.35	16	99 (2009)	98.6 (2016)
Sint Eustatius	...	...	100 (2014)	...
Sint Maarten	0.55	...	75	100
Suriname	10.13	20	67 (2010)	80 (2015)
Trinidad and Tobago	18.12	25	100	100
Turks and Caicos Islands	0.80	...	58.9	100
Virgin Islands (UK)	0.39	...	100	100
Virgin Islands (US)	1.03	17	50.6 (2015)	98.5 (2010)

Source: PAHO. Health situation in the Americas: basic indicators 2018. Washington, DC: PAHO; 2018. Available from: http://iris.paho.org/xmlui/handle/123456789/49511.

* Public sector only.

Table 3. Epidemiological data and coverage services related to the prevention of mother-to-child transmission of HIV, by country in the Americas, 2017 (unless otherwise specified)

Countries	Reported HIV prevalence among pregnant women (%)	Reported HIV testing coverage among pregnant women (%)	Antiretroviral therapy for pregnant women estimated (%)	Antiretroviral therapy for pregnant women reported (%)	Reported number of exposed children tested in first two months (n)	Reported number of HIV infected children (n)	Estimated mother-to -child transmission rate of HIV (%)[a]	Reported mother-to-child transmission rate of HIV (%)
North America								
Canada	...	>95 (2010)	...	>95 (2016)	...	...	...	1.1 (2013)
Mexico	...	53 (2014)	49	56.5	...	...	15	11.8 (2016)
United States of America	...	>95 (2008)	...	...	...	...	...	...
Central America								
Costa Rica	0.09	74	71	>95	52	2	11	3.8
El Salvador	0.17	84	35	55 (2014)	128	7	18	5.5[a]
Guatemala	0.18	53	21	21	191	264[a]	23	23.2[a]
Honduras	0.15	87	53	83	200	2	17	0.9
Nicaragua	0.06	>95	88	>95	95	3	6	2.7
Panama	0.31	74	55	>95	181	6	13	...
Andean Region								
Bolivia (Plurinational State of)	0.16	>95	90	63 (2014)	...	...	9	...
Colombia	...	89 (2016)	66	66 (2016)	630 (2016)	10 (2016)	...	13.5[a]
Ecuador	0.17	58	63	72	...	...	12	4.2
Peru	0.16	>95	84	83	734	29	8	3.7
Venezuela (Bolivarian Republic of)	...	23 (2015)	...	28 (2013)	...	...	...	...
Southern Cone and Brazil								
Argentina	0.34 (2015)	>95 (2015)	90	90	1138	42	5	3.1
Brazil	...	83 (2011)	85	72 (2016)	...	...	8	2.5 (2016)
Chile	0.11 (2016)	>95 (2016)	95	>95 (2016)	239 (2016)	4 (2016)	4	1.7 (2016)
Paraguay	0.22	93	61	...	...	...	14	...
Uruguay	0.27 (2016)	>95 (2016)	95	>95 (2016)	130 (2016)	2 (2016)	4	1.5
Caribbean								
Anguilla	...	>95	...	NA	0	0	...	NA
Antigua and Barbuda	0.5	>95	...	>95	4	0	...	0
Aruba	...	...	...	...	...	...	...	...
Bahamas (The)	1.1 (2016)	>95 (2016)	...	>95	51	1	...	2
Barbados	0.36	43	...	94	14	0	...	0

(continuation, table 3)

Countries	Reported HIV prevalence among pregnant women (%)	Reported HIV testing coverage among pregnant women (%)	Antiretroviral therapy for pregnant women estimated (%)	Antiretroviral therapy for pregnant women reported (%)	Reported number of exposed children tested in first two months (n)	Reported number of HIV infected children (n)	Estimated mother-to -child transmission rate of HIV (%)[a]	Reported mother-to-child transmission rate of HIV (%)
Belize	0.78 (2013)	91 (2013)	41	>95 (2016)	...	...	20	NA (2016)[a]
Bermuda	...	>95 (2016)	...	NA (2016)	0 (2016)	0 (2016)	...	NA (2016)
Bonaire	...	...	...	...	...	...	...	0 (2014)
Cayman Islands	...	>95 (2016)	...	NA (2016)	0 (2016)	0 (2016)	...	NA (2016)
Cuba	0.13	>95	95	>95	151	0	5	0
Curaçao	...	...	...	...	...	...	...	...
Dominica	0.22 (2015)	78 (2015)	...	>95	3	0	...	0
Dominican Republic	2.37 (2015)	42 (2015)	95	85	679	30[a]	7	4.4 (2016)
French Guiana	...	...	...	...	...	...	...	...
Grenada	0.56 (2015)	>95 (2015)	...	>95	5	1	...	8.3
Guadeloupe	...	...	...	...	...	...	...	...
Guyana	2.3 (2015)	80 (2015)	64	...	...	...	14	...
Haiti	2.37	70	70	...	...	...	15	...
Jamaica	1.37 (2015)	89 (2015)	95	90 (2015)	...	...	5	...
Martinique	...	...	...	...	...	...	...	...
Montserrat	...	>95	...	NA	0	0	...	NA
Puerto Rico	...	...	...	...	...	...	...	0 (2013)
Saba	...	>95 (2014)	...	...	...	...	...	0 (2014)[b]
Saint Kitts and Nevis	0.15	>95	...	>95	0	0	...	0
Saint Lucia	0.21	>95	...	>95	3	0	...	0
Saint Vincent and the Grenadines	0.77	>95	...	>95	7	0	...	0
Sint Eustatius	...	>95 (2013)	...	...	...	...	...	0 (2013)
Sint Maarten	...	...	...	...	...	...	...	...
Suriname	...	84 (2010)	76	92 (2015)	...	...	9	1.8 (2014)
Trinidad and Tobago	1.15	60	81	80	112	8a	6	0 (2015)
Turks and Caicos Islands	...	>95 (2015)	...	NA (2015)	0 (2015)	0 (2015)	...	NA (2015)
Virgin Islands (UK)	...	>95 (2015)	...	NA (2015)	0 (2015)	0 (2015)	...	NA (2015)
Virgin Islands (US)	...	...	...	...	...	...	...	0 (2013)

Source: UNAIDS/WHO 2017 Global AIDS Monitoring Online Reporting Tool. • PAHO Country reports on the elimination of MTCT of HIV and syphilis, 2015–2018.

[a] Spectrum modeled estimate value.

[b] Direct communication to PAHO.

NA: No seropositive cases to be treated.

Table 4. Epidemiological data and coverage services related to the prevention of mother-to-child transmission of syphilis, in the Americas, 2017 (unless otherwise specified)

Countries	Reported prevalence of syphilis among pregnant women (%)	Reported syphilis testing coverage during pregnancy (%)	Reported adequate syphilis treatment coverage during pregnancy (%)	Reported number of congenital syphilis cases	Reported incidence rate of congenital syphilis per 1,000 live births	Estimated prevalence of syphilis among pregnant women (%), 2016[a]	Estimated incidence rate of congenital syphilis per 1,000 live births, 2016[a]	Estimated number of congenital syphilis cases, 2016[a]
North America								
Canada	...	...	>95 (2014)b	6 (2015)	0.01 (2015)	0.01	0.005	1
Mexico	0.2	51	...	204	0.09	0.24	1.29	2,992
United States of America	...	85 (2013)[b]	...	918[c]	0.02[c]	0.14	0.19	777
Central America								
Costa Rica	0.9	76	58	68	0.91	0.66	3.89	270
El Salvador	0.06	81	58	19	0.17	0.18	1.29	151
Guatemala	0.1	37	>95 (2014)	36	0.09	1.13	4.03	1,692
Honduras	0.2	69	>95 (2014)	124	0.89	0.07	0.25	49
Nicaragua	0.09	76	>95	4	0.03	0.07	0.16	19
Panama	1.8	93	84	399	5.3	2.75	15.17	1,195
Andean Region								
Bolivia (Plurinational State of)	0.9	>95	>95	...	...	0.93	1.88	475
Colombia	...	59	92	934	2.22	1.14	4.36	2,808
Ecuador	0.4	>95	...	...	...	1.95	9.13	3,018
Peru	0.3	82	89	195	0.35	0.25	0.85	518
Venezuela (Bolivarian Republic of)	2.79 (2015)	31 (2016)	...	28 (2013)	0.05 (2013)	2.29	16.43	9,868
Southern Cone and Brazil								
Argentina	2.7	83	82 (2015)[d]	801	1.91	1.80	6.73	5,066
Brazil	0.6	90 (2013)	90	24,666	6.78	1.70	5.42	15,921
Chile	0.2	>95	>95	26	0.1	0.29	0.62	148
Paraguay	1.9	93	67	320	2.88	3.24	18.18	2,562
Uruguay	0.7	>95	81	71	1.51	0.74	0.97	47
Caribbean								
Anguilla	0	>95	N/A	0	0	...	...	...
Antigua and Barbuda	0.8	>95	>95	0	0	0.94	0.76	1
Aruba	...	...	...	0 (2013)b	0 (2013)	0.93	1.12	1
Bahamas (The)	1 (2015)	85 (2015)	>95 (2016)	0 (2015)	0 (2015)	0.90	2.15	12
Barbados	0.6	>95	86	4	1.55	1.21	2.11	7

(continuation, table 4)

Countries	Reported prevalence of syphilis among pregnant women (%)	Reported syphilis testing coverage during pregnancy (%)	Reported adequate syphilis treatment coverage during pregnancy (%)	Reported number of congenital syphilis cases	Reported incidence rate of congenital syphilis per 1,000 live births	Estimated prevalence of syphilis among pregnant women (%), 2016[a]	Estimated incidence rate of congenital syphilis per 1,000 live births, 2016[a]	Estimated number of congenital syphilis cases, 2016[a]
Belize	...	93 (2013)	91 (2013)	0 (2013)[b]	0 (2013)	0.52	1.72	14
Bermuda	...	>95 (2016)	N/A (2016)	0 (2016)	0 (2016)	...	...	...
Bonaire	...	>95 (2014)[b]	>95 (2014)[b]	...	...	0.93[e]	3.36[e]	6[e]
Cayman Islands	0 (2016)	>95 (2016)	N/A (2016)	0 (2016)	0 (2016)	0.11	0.07	0
Cuba	0.4	>95	>95	3	0.02	0.55	0.22	27
Curaçao	...	...	...	...	...	0.93[e]	3.36[e]	6[e]
Dominica	0.2	89	>95	0 (2016)	0 (2016)	0.44	0.21	12
Dominican Republic	1.6	42	54	16 (2013)	0.07 (2013)	1.10	8.16	1,751
French Guiana	...	...	...	...	...	0.93	3.28	21
Grenada	2.6 (2015)	76 (2016)	>95 (2016)	0 (2016)	0 (2016)	1.99	5.58	11
Guadeloupe	...	...	...	...	...	0.93	2.09	10
Guyana	0.1 (2015)	87 (2014)	...	0 (2015)	0 (2015)	0.32	1.25	19
Haiti	3	92 (2016)	90	...	...	2.01	5.93	1,555
Jamaica	1.5 (2016)	90 (2016)	71 (2016)	7 (2016)	0.23 (2016)	1.07	4.27	204
Martinique	...	...	...	...	...	0.93	3.49	15
Montserrat	0	>95	N/A	0	0	0.00	0	0
Puerto Rico	...	...	...	4 (2016)[b]	...	0.93	1.11	43
Saba	0 (2014)	>95 (2014)[b]	...	0 (2014)	0 (2014)	0.93[e]	3.36[e]	6[e]
Saint Kitts and Nevis	0	>95	N/A	0	0	0.12	0.29	0
Saint Lucia	2.5	>95	89	6	3.21	2.48	10.39	22
Saint Vincent and the Grenadines	0	>95	>95	0	0	1.27	3.77	6
Sint Eustatius	...	>95 (2013)[b]	N/A (2013)	0 (2013)	0 (2013)	0.93[e]	3.36[e]	6[e]
Sint Maarten	...	...	...	...	...	0.93[e]	3.36[e]	6[e]
Suriname	...	...	...	...	...	0.01	0.05	0
Trinidad and Tobago	0.1	>95	>95	0	0	0.26	0.95	17
Turks and Caicos Islands	1.5 (2015)	>95 (2016)	75 (2015)	1 (2015)	1.8 (2015)	0.49	1.45	0
Virgin Islands (UK)	0 (2015)	>95 (2015)	N/A (2015)	0 (2015)	0 (2015)	...	...	...
Virgin Islands (US)	...	...	...	0	...	...	...	...

Source: UNAIDS/WHO 2017 Global AIDS Monitoring Online Reporting Tool. • PAHO Country reports on the elimination of MTCT, 2015–2018.

[a] Korenromp EL, Rowley J, Alonso M, Mello MB, Wijesooriya NS, et al. (2019) Global burden of maternal and congenital syphilis and associated adverse birth outcomes — Estimates for 2016 and progress since 2012. PLOS ONE 14(2): e0211720. https://doi.org/10.1371/journal.pone.0211720.

[b] Direct communication to PAHO.

[c] Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance, 2017. Atlanta.

[d] Public sector only.

[e] Estimates combined for Bonaire, Curacao, Saba, Sint Eustatius, and Sint Maarten.

N/A: No seropositive cases to be treated.

Table 5. Epidemiological data and coverage services related to the prevention of hepatitis B infection in children, by country in the Americas, 2017 (unless otherwise specified)

Countries	Estimated prevalence of HBV among general population, (%)[a]	Reported coverage of birth dose of hepatitis B vaccine (24 hours) (%)	Reported coverage of the third dose of hepatitis B vaccine (one-year-old) (%)	Estimated prevalence of hepatitis B among children five years old (%)[a]
North America				
Canada	0.6 (0.4-1.1)[b]	Introduced subnationally	69	<0.1[b]
Mexico	0.1 (0.1-0.2)[b]	98 (2015)	93 (2016)	<0.1[b]
United States of America	0.3 (0.2-0.3)[b]	63	91	<0.1[b]
Central America				
Costa Rica	0.2 (0.1-0.2)[b]	87	97	<0.1[b]
El Salvador	1.0 (0.5-1.2)[b]	80	93 (2016)	0.2 (<0.1-0.2)[b]
Guatemala	0.6 (0.4-0.7)[b]	45	82	<0.1[b]
Honduras	1.3 (0.1-12.9)[c]	81	90	0.2 (0.02-2.8)[c]
Nicaragua	0.8 (0.4-0.9)[b]	Not introduced	100	<0.1[b]
Panama	1.3 (1.0-1.7)[c]	87	81	0.2 (0.1-0.3)[c]
Andean Region				
Bolivia (Plurinational State of)	0.6 (0.2-1.3)[c]	Not introduced	84	0.2 (0.08-0.5)[c]
Colombia	0.3 (0.1-2.2)[b]	81	92	<0.1 (<0.1-0.4)[b]
Ecuador	1.4 (0.2-11.4)[c]	61	83 (2016)	0.3 (0.04-3.0)[c]
Peru	0.3 (0.3-0.4)[b]	75	83	<0.1[b]
Venezuela (Bolivarian Republic of)	1.2 (1.1-1.8)[b]	74	66	0.2 (0.2-0.3)[b]
Southern Cone and Brazil				
Argentina	0.2 (0.1-0.3)[b]	82	86	<0.1[b]
Brazil	0.4 (0.2-0.6)[b]	82 (2016)	93	<0.1[b]
Chile	0.1 (<0.1-0.2)[b]	Pos. mothers[d]	93	<0.1[b]
Paraguay	1.8 (0.1-20.6)[c]	52	79	0.65 (0.05-8.9)c
Uruguay	1.0 (0.1-8.6)[c]	Pos. mothers[d]	95 (2016)	0.35 (0.03-3.2)[c]
Caribbean				
Anguilla	...	Not introduced	89	...
Antigua and Barbuda	1.2 (0.1-12.5)[c]	Not introduced	95	0.4 (0.04-4.0)[c]
Aruba	...	Not introduced	95	...
Bahamas (The)	1.0 (0.1-16.6)[c]	Not introduced	94	0.3 (0.01-6.3)[c]
Barbados	1.0 (0.1-12.1)[c]	Not introduced	90	0.3 (0.02-4.8)[c]

(continuation, table 5)

Countries	Estimated prevalence of HBV among general population, (%)[a]	Reported coverage of birth dose of hepatitis B vaccine (24 hours) (%)	Reported coverage of the third dose of hepatitis B vaccine (one-year-old) (%)	Estimated prevalence of hepatitis B among children five years old (%)[a]
Belize	1.4 (0.6-1.7)[b]	Introduced 2018[e]	88	0.1 (<0.1-0.1)[b]
Bermuda	...	Pos. mothers[d]	81	...
Bonaire	...	Not introduced	94 (2016)[e]	...
Cayman Islands	...	82[e]	87	
Cuba	0.6 (0.5-0.7)[b]	99	100	<0.1[b]
Curaçao	...	Not introduced	84 (2016)	...
Dominica	1.2 (0.2-8.3)[c]	71	91	0.4 (0.04-2.6)[c]
Dominican Republic	1.7 (1.1-2.0)[b]	82	81	0.2 (0.1-0.3)[b]
French Guiana	...	...	...	...
Grenada	1.4 (0.2-11.8)[c]	78	83	0.5 (0.06-4.3)[c]
Guadeloupe	...	...	...	...
Guyana	2.8 (0.2-32.7)[c]	Pos. mothers[d]	97	0.9 (0.06-14.7)[c]
Haiti	2.9 (2.7-4.1)[b]	Not introduced	59	1.2 (1.1-1.7)[b]
Jamaica	5.0 (2.4-5.7)[b]	Not introduced	93	0.7 (0.4-0.9)[b]
Martinique	...	...	...	...
Montserrat	...	100	100	...
Puerto Rico	...	...	...	...
Saba	...	Not introduced	100 (2013)[e]	...
Saint Kitts and Nevis	1.1 (0.1-7.9)[c]	97	98	0.4 (0.04-3.1)[c]
Saint Lucia	1.3 (0.2-9.6)[c]	Pos. mothers[d]	80	0.4 (0.05-3.2)[c]
Saint Vincent and the Grenadines	1.3 (0.2-9.8)[c]	98	100	0.4 (0.05-3.5)[c]
Sint Eustatius	...	Not introduced	97 (2014)[e]	...
Sint Maarten	...	Not introduced	94	...
Suriname	1.7 (0.2-14.9)[c]	80	81	0.4 (0.03-3.8)[c]
Trinidad and Tobago	1.3 (0.2-9.6)[c]	Not introduced	89	0.4 (0.05-3.5)[c]
Turks and Caicos Islands	...	Pos. mothers[d]	93	...
Virgin Islands (UK)	...	90	82	...
Virgin Islands (US)	...	...	...	...

Source: The Polaris Observatory Collaborators. Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. Lancet Gastroenterol Hepatol. 2018;3(6):383-403 (available from: http://dx.doi.org/10.1016/S2468-1253(18)30056-6). • WHO Global and Country estimates of immunization coverage and chronic HBV infection, 2017. • Data reported by countries directly to PAHO. • Pan American Health Organization. Country reports submitted through PAHO-WHO/UNICEF Joint Reporting Form on Immunization (JRF). Washington DC: PAHO, 2018.

[a] The year of the data may refer to 2015 or 2016 depending on the source described. The numbers in parenthesis express the 95% uncertainty interval.

[b] The Polaris Observatory, Global prevalence, treatment, and prevention of hepatitis B virus infection in 2016: a modelling study. The Lancet Gastr & Hep, vol.3, n6, 2018. Available from http://dx.doi.org/10.1016/S2468-1253(18)30056-6.

[c] World Health Organization. Global and country estimates of immunization coverage and chronic HBV infection. Hepatitis B HBsAg estimates, a baseline towards the elimination targets, 2017. Available from http://whohbsagdashboard.com.

[d] The birth dose of hepatitis B vaccine is available to newborns of HBsAg-positive mothers.

[e] Data reported by countries directly to PAHO.

Table 6. Epidemiological data related to the prevention of mother-to-child transmission of Chagas disease, by country in the Americas, 2010

Countries	Estimated total number of Chagas disease-infected persons in the general population	Estimated number of Chagas disease-infected women in reproductive age (15-44 years old)	Estimated number of congenital Chagas disease cases	Estimated incidence rate of congenital Chagas disease per 1,000 live births
North America				
Canada	...	...	...	...
Mexico	876,458	185,600	1,788	0.89
United States of America	...	...	...	...
Central America				
Costa Rica	7,667	1,728	61	0.80
El Salvador	90,222	18,221	234	1.87
Guatemala	166,667	32,759	164	0.35
Honduras	73,333	16,149	257	1.26
Nicaragua	29,300	5,822	138	1.24
Panama	18,337	6,332	40	0.56
Andean Region				
Bolivia (Plurinational State of)	607,186	199,351	616	2.35
Colombia	437,960	116,221	1,046	1.14
Ecuador	199,872	62,898	696	3.17
Peru	127,282	28,132	232	0.38
Venezuela (Bolivarian Republic of)	193,339	40,223	665	1.10
Southern Cone and Brazil				
Argentina	1,505,235	211,102	1,457	2.10
Brazil	1,156,821	119,298	571	0.20
Chile	119,660	11,771	115	0.46
Paraguay	184,669	63,385	525	3.40
Uruguay	7,852	1,858	20	0.40
Caribbean				
Anguilla	...	...	...	...
Antigua and Barbuda	...	...	...	...
Aruba	...	...	...	...
Bahamas (The)	...	...	...	...
Barbados	...	...	...	...

(continuation, table 6)

Countries	Estimated total number of Chagas disease-infected persons in the general population	Estimated number of Chagas disease-infected women in reproductive age (15-44 years old)	Estimated number of congenital Chagas disease cases	Estimated incidence rate of congenital Chagas disease per 1,000 live births
Belize	1,040	272	25	3.33
Bermuda	...	...	...	...
Bonaire	...	...	...	...
Cayman Islands	...	...	...	...
Cuba	...	...	...	...
Curaçao	...	...	...	...
Dominica	...	...	...	...
Dominican Republic	...	...	...	...
French Guiana	*	*	*	*
Grenada	...	...	...	...
Guadeloupe	...	...	...	...
Guyana	*	*	*	*
Haiti	...	...	...	...
Jamaica	...	...	...	...
Martinique	...	...	...	...
Montserrat	...	...	...	...
Puerto Rico	...	...	...	...
Saba	...	...	...	...
Saint Kitts and Nevis	...	...	...	...
Saint Lucia	...	...	...	...
Saint Vincent and the Grenadines	...	...	...	...
Sint Eustatius	...	...	...	...
Sint Maarten	...	...	...	...
Suriname	12,600 *	3,818 *	18 *	0.75 *
Trinidad and Tobago	...	...	...	...
Turks and Caicos Islands	...	...	...	...
Virgin Islands (UK)	...	...	...	...
Virgin Islands (US)	...	...	...	...

Source: World Health Organization. Chagas disease in Latin America: an epidemiological update based on 2010 estimates. Weekly Epidemiological Record. 2015;6(90):33-44.

Note: Countries considered non-endemic for Chagas disease were not included in the analysis.

*Combined estimates for French Guiana, Guyana, and Suriname.

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

525 Twenty-third Street, NW
Washington, DC 20037, USA
Tel: +1 (202) 974 –3000
www.paho.org

unicef

UNICEF Latin America and Caribbean
Regional Office.
Building 102, Alberto Tejada Street,
Panama, Republic of Panama.
Tel: +507 301 7370
https://www.unicef.org

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