2010 Situation Analysis

Elimination of Mother-to-child Transmission of HIV and Congenital Syphilis in the Americas

Pan American Health Organization

Regional Office of the World Health Organization

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Latin American Center for Perinatology
Women and Reproductive Health - CLAP/WR

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Table of contents

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Background

In the Americas, each year an estimated 5,000 (3,200–6,900) children become infected with HIV and between 164,000 and 344,000 are born with congenital syphilis (CS)—both highly preventable infections with serious health consequences if left untreated.

Based on UNAIDS estimates in 2010, 5,000 children were infected with HIV in the Americas, the majority through mother-to-child transmission (MTCT); 4,700 (3,000–6,500) in Latin America and the Caribbean. In 2010 in the Americas, an estimated 58,000 (44,000–74,000) children under the age of 15 had HIV, of which 57,000 (43,000–72,000) were from Latin America and the Caribbean. In the same year, estimated numbers of deaths of children under the age of 15 in the Americas were 3,600 (2,100–5,100); 3,400 (1,900–4,800) in Latin America and the Caribbean.

Using data for the period 1997 to 2003, the World Health Organization estimated—that of the more than 2 million annual cases of gestational syphilis around the world, up to 25% occurred in Latin America and the Caribbean, where the prevalence of gestational syphilis was estimated at 3.9%—above the world average of 1.8%.[2] This translated to an estimated 460,000 annual cases of gestational syphilis—of which it is unknown how many were diagnosed and treated—and between 164,000 and 344,000 annual cases of congenital syphilis.[3] In addition, each year more than 100,000 pregnancies result in fetal death or spontaneous abortion due to gestational or maternal syphilis. Based on country reports in 2006, of the six Latin American and Caribbean (LAC) countries with available information on the prevalence of gestational syphilis, this prevalence varied from 0.08% in Chile to 5.19% in Paraguay. According to country data from the same year, the incidence of congenital syphilis varied from 0 cases per 1,000 live births in Cuba to 1.6 cases per 1,000 live births in Brazil.[3]

Efforts to eliminate congenital syphilis in LAC were initiated in 1991 by the Pan American Health Organization. In 1995, PAHO's Directing Council approved the Regional Plan of Action for the Elimination of Congenital Syphilis in the Americas.[4] Its main goal was to eliminate congenital syphilis as a public health problem by the year 2000 by reducing the incidence of congenital syphilis to less than 0.5 cases per 1,000 live births, including stillbirths. In 2006, UNICEF and PAHO created a partnership with Central American countries and the Dominican Republic that contributed to joint action focused on the elimination of mother-to-child transmission of HIV and congenital syphilis.

In November 2009, PAHO and UNICEF launched the Regional Initiative for the Elimination of Mother-to-Child Transmission of HIV and Syphilis in Latin America and the Caribbean.[5] The Elimination Initiative (EI) was endorsed by key regional mechanisms including the Chief Medical Officers of the Caribbean and the CARICOM Caucus of Ministers. Joint prevention of mother-to-child transmission (PMTCT) of HIV and syphilis has been included as a priority in the Strategic Regional Health Plan of Central America for 2010–2015 by the Executive Secretariat of the Council of Ministers of Health of Central America and the Dominican Republic (COMISCA). In 2010, the Ministers of Health of the Andean Region (REMSA) endorsed the prioritization and facilitation of the Regional Initiative.[6] The EI is articulated with the Global Plan Towards the Elimination of New HIV Infections among Children by 2015 and Keeping Their Mothers Alive.[7]

In September 2010, PAHO Member States approved the Strategy and Plan of Action for the Elimination of Mother-to-Child Transmission of HIV and Congenital Syphilis by Resolution 50/12 at the 50th Directing Council Meeting[8] aimed at:

- reducing mother-to-child transmission of HIV to 2% or less,
- reducing the incidence of pediatric HIV cases to 0.3 or less per 1,000 live births, and
- reducing the incidence of congenital syphilis to 0.5 cases[i] or less per 1,000 births by 2015.

This report describes the current status of progress in the Region towards the Elimination Initiative goals, highlights gaps and challenges, and presents recommendations for future action to achieve these goals.

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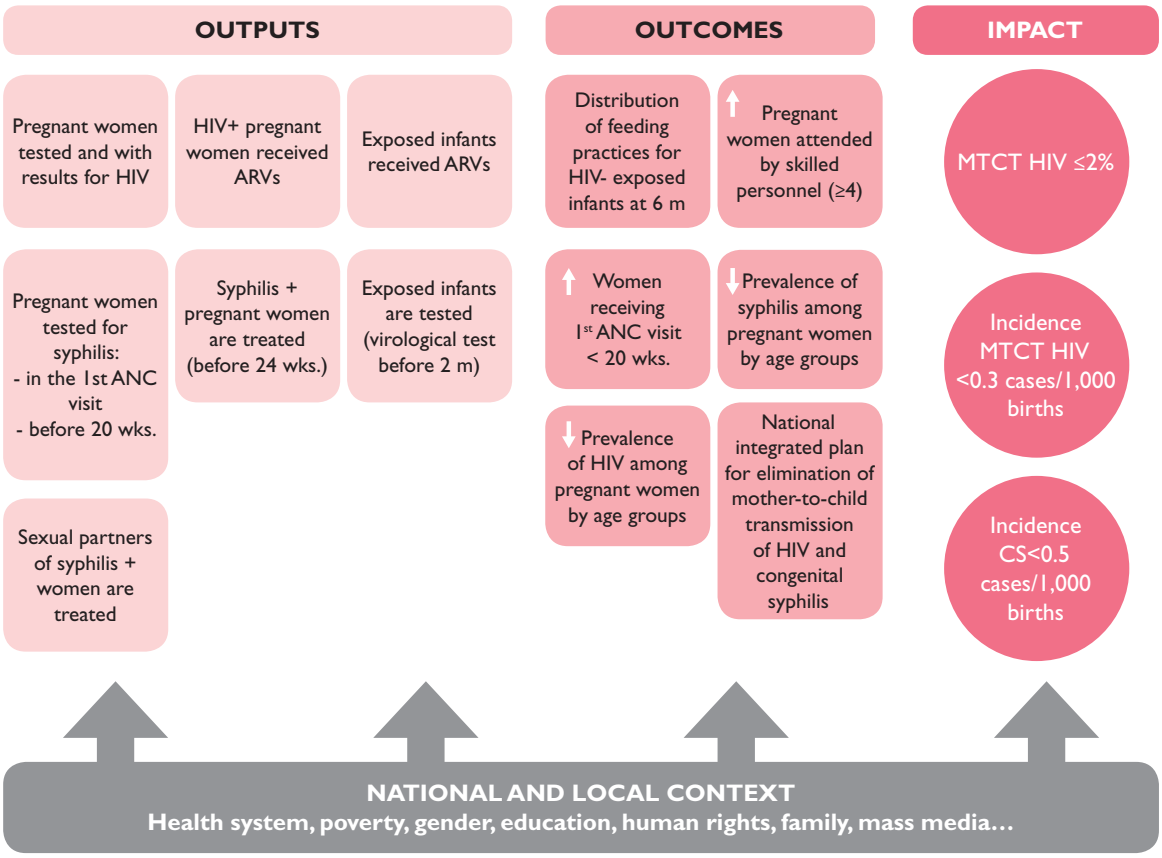
i. Including stillbirths.

Data sources and methods

The Elimination Initiative has an established monitoring framework in connection with and integrated with international reporting mechanisms, such as those for UNGASS as well as those for monitoring progress towards universal access to HIV services in the health sector. This framework includes indicators for measuring progress at the country level on a set of key events (Figure 1).[9]

The main sources for this report include data submitted by countries to the World Health Organization to inform the monitoring of the Elimination Initiative, data on the health sector's progress towards universal access, UNGASS data reported to UNAIDS, PAHO's Regional Core Health Data Initiative, published country epidemiologic bulletins, and demographic and health surveys and other published country reports. The data used were reported by 32 Member States.

Map of selected monitoring events for the Elimination Initiative **Figure 1**



Source: Alonso González M. Regional Initiative for the Elimination of Mother-to-Child Transmission of HIV and Congenital Syphilis in Latin America and the Caribbean: Regional Monitoring Strategy. Washington, DC: Pan American Health Organization; 2010.

In addition to the indicators included in the regional monitoring strategy, a group of primary prevention indicators are included in this report (Table 1).

Table 1 Primary prevention indicators

Indicator	Source
1. Unmet need for family planning	Nationally representative household surveys such as United Nations Population Division surveys,[10] demographic and health surveys,[11] and reproductive health surveys[12]
2. Pregnancy among adolescents aged 15-19 by socioeconomic and education indicators	Nationally representative household surveys such as demographic and health surveys and reproductive health surveys
3. Percentage of young women and men aged 15-24 who correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission 4. Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15 5. Percentage of women and men aged 15-49 who have had sexual intercourse with more than one partner in the last 12 months and percentage among them who used a condom during their most recent sexual intercourse	Nationally representative household surveys and data from UNGASS country reports[13]

The United Nations Population Division defines unmet need for family planning as the number of women with an unmet need for family planning expressed as a percentage of women of reproductive age who are married or in a union. Women with an unmet need are those who are fecund and sexually active but are not using any method of contraception, and report not wanting any more children or wanting to delay the birth of their next child.[14]

Worth noting is that the indicators based on demographic and health surveys and reproductive health surveys may not be available for all countries and that, if available, they may not be recent. Also, while definitions of indicators may be standardized, variations in survey methodology may hinder comparisons among countries.

The estimated number of pregnant women is the denominator for HIV testing among pregnant women. There were two data sources for this indicator: country-reported estimated numbers of pregnant women and estimated numbers of live births based on United Nations Population Division estimates.[ii,10]

The denominators for antiretroviral (ARV) prophylaxis among pregnant women and HIV-exposed infants are based on estimates developed by UNAIDS and WHO in collaboration with the countries of the Region using a software package called Spectrum. In the context of concentrated epidemics, these denominators present a wide range of uncertainty.

ii. For countries where the UN Population Division estimates were not available, the United States Census Bureau International Data Base was used. Available at: http://www.census.gov/population/international/data/idb/informationGateway.php

Implementing the Elimination Initiative

Achievement of the elimination targets requires the existence of comprehensive policies, guidelines, and integrated service delivery to ensure full access to the necessary range of services, including sexual and reproductive health care, antenatal care (ANC), and HIV and syphilis testing, treatment, and care. The Region appears to be on track with regards to implementing strategies or plans of action in support of the Elimination Initiative and presenting up-to-date guidelines; 22 countries have plans and 26 have updated guidelines in compliance with WHO recommendations (Table 2).

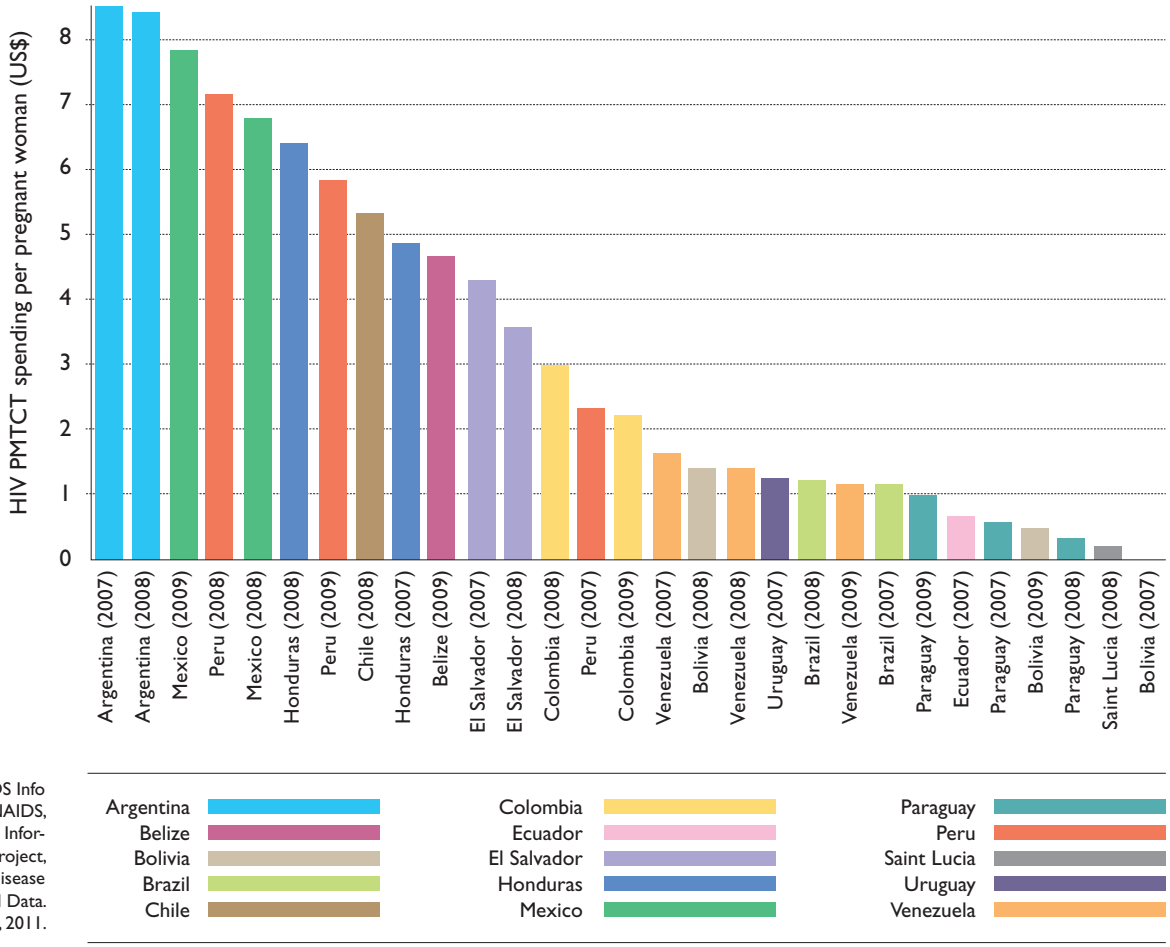
Countries that report having plans and guidelines for the Elimination Initiative **Table 2**

Operational and/or Strategic Plans		Up-to-Date Guidelines*	
Antigua and Barbuda	Guatemala	Argentina	Guatemala
Argentina	Guyana	Barbados	Guyana
Barbados	Haiti	Belize	Haiti
Belize	Honduras	Bolivia	Honduras
Bolivia	Jamaica	Brazil	Jamaica
Brazil	Panama	Canada	Mexico
Colombia	Peru	Chile	Panama
Costa Rica	St. Lucia	Colombia	Paraguay
Cuba	Suriname	Costa Rica	Peru
Dominican Republic	Trinidad and Tobago	Cuba	Suriname
El Salvador	Uruguay	Dominican Republic	United States of America
		Ecuador	Uruguay
		El Salvador	Venezuela

* Up-to-date guidelines refer to guidelines that reflect the latest WHO 2010 recommendations

Domestic investment from public and international funding sources in PMTCT programs (not including operating costs of prenatal care) varies within countries (Figure 2), and the investment across countries is not proportional to the estimated number of pregnant women or to the burden of HIV among pregnant women. While there are limited data on financial investments, average domestic spending per pregnant woman for prevention of MTCT of HIV was US$ 4 to US$ 5 for 2008 and 2009 among only 11 reporting countries.[15] Individualized costs by country for diagnosis and treatment for syphilis are not available and are generally included in operational prenatal care costs. Additional data and analysis are required to properly identify financial gaps and main sources of financial support and to assess the efficiency, effectiveness, and financial sustainability of programs. In collaboration with other partners, PAHO has developed a costing tool that will assist countries in estimating the required investment to achieve elimination goals for HIV and congenital syphilis (available in English and Spanish at www.paho.org/iniciativadeeliminacion[iii]). Field testing of the tool has been conducted in the Dominican Republic, Colombia, and El Salvador.

Figure 2 Average PMTCT domestic spending per pregnant woman, 2007–2009



Source: (1) UNAIDS. AIDS Info Database. Geneva, UNAIDS, 2011. (2) PAHO. Health Information and Analysis Project, Health Surveillance and Disease Prevention and Control Data. Washington, DC, 2011.

iii. The direct link is http://new.paho.org/hq/index.php?option=com_content&task=view&id=5874&Itemid=4204.

Access to prenatal care

Investment in skilled human resources, such as skilled attendants during antenatal care and delivery, is an essential component of the Elimination Initiative. While data on the availability and capacity of human resources are limited, the majority of countries report 80% coverage or greater, with a median of 97% of pregnant women having at least one visit with a skilled antenatal care attendant (Table 3). Although access to antenatal care appears high in the Region, a closer look at indicators providing information about the timeliness and quality of ANC indicates that early access is not always the case even in countries reporting high frequencies of at least one antenatal care visit. In the Americas, the median regional percentage of antenatal care visits attended by trained personnel during the first trimester of pregnancy is 73%, with a low of 19%. For example, Argentina, the Bahamas, Belize, Dominica, Ecuador, El Salvador, French Guiana, Grenada, Guatemala, Jamaica, Paraguay, St. Vincent and the Grenadines, St. Kitts and Nevis, Trinidad and Tobago, and Venezuela have coverage under 60% for "antenatal care attended by trained personnel during first trimester" and "at least four antenatal care visits" but report better than 80% coverage for at least one ANC visit.

There are also variations and gaps across countries in skilled attendance during delivery; coverage in this area ranges from 26% to 100%, with 50% of countries at 99% or above. The countries with the lowest percentages are Haiti (26%), French Guiana (49%), Guatemala (51%), Honduras (67%), Bolivia (65%), and Ecuador (71%).

Limited information exists on the quality of services provided to pregnant women throughout the region, but proxy analyses suggest that the quality of such services varies across countries. If we use maternal mortality as an indicator of quality of prenatal care and care at delivery, the number of maternal deaths per 100,000 live births is highest in Haiti, followed by Guyana, Bolivia, Ecuador, El Salvador, Guatemala, Honduras, the Dominican Republic, Nicaragua, and Suriname, despite high coverage of antenatal care and skilled attendance at delivery in Guyana, Nicaragua, the Dominican Republic, and Suriname.

Table 3

Percentage of pregnant women attended by trained personnel, by frequency and timing of prenatal visits, skilled attendance during delivery, and maternal mortality

	Year of data	Attended by trained personnel at least once	Attended by trained personnel four or more times	Attended by trained personnel during first trimester	Skilled attendance during delivery	Country-reported maternal mortality ratio per 100,000 live births	Estimated WHO maternal mortality ratio per 100,000 live births*
North America							
Canada	2009	100.0[h]	NA	99.0[h]	100.0	6.5[c]	12 (7–20)
Mexico	2009	91.1	83.9	93.0	97.4	62.2	85 (74–95)
United States of America	2008	98.4	96.3	82.8	99.3	12.7[c]	24 (20–27)
Central America							
Costa Rica	2010	94.0	87.0	91.7d	100.0	NA	44 (24–82)
El Salvador	2010	80.3	NA	50.7	84.9a	83.7	110 (71–170)
Guatemala	2010	93.2	NA	60.4	49.0[a]	139.0[c]	110 (56–190)
Honduras	2006	91.7	NA	69.0	66.9	NA	110 (71–180)
Nicaragua	2010	91.6	79.9	70.2[d]	91.7	NA	100 (57–180)
Panama	2010	94.3	NA	76.9	94.2	NA	71 (58–84)

Table 3 (Cont.)

	Year of data	Attended by trained personnel at least once	Attended by trained personnel four or more times	Attended by trained personnel during first trimester	Skilled attendance during delivery	Country-reported maternal mortality ratio per 100,000 live births	Estimated WHO maternal mortality ratio per 100,000 live births*
Andean countries							
Bolivia	2008	79.1[g]	72.1	61.8	65.0	NA	180 (120–80)
Colombia	2010	96.8	88.6	77.0	95.0	75.6[c]	85 (74–94)
Ecuador	2009	84.1[c]	57.5[f]	64.6[f]	71.4[b]	96.3	140 (81–230)
Peru	2010	97.7	92.2	73.0	94.7	93.0[d]	98 (62–160)
Venezuela	2005	NA	NA	27.9	95.0	62.9[b]	68 (59–75)
Southern Cone and Brazil							
Argentina	2009	88.4[e]	NA	34.6[e]	97.8	55.0	70 (61–77)
Brazil	2009	97.1[i]	89.5	NA	98.9	72.3	58 (38–87)
Chile	2010	95.7[b]	NA	80.1	99.8[a]	16.6[a]	26 (15–43)
Paraguay	2010	93.3	67.8	29.3	93.1[b]	125.3[a]	95 (57–150)
Uruguay	2010	97.4	91.8	71.4	99.9	NA	27 (22–33)
Caribbean							
Anguilla	2010	100.0	100.0	100.0	100.0	NA	NA
Antigua and Barbuda	2010	100.0	100.0	100.0[a]	100.0	NA	NA
Aruba	2010	100.0[a]	NA	NA	100.0	NA	NA
Bahamas	2009	94.0	86.0	45.0	99.0	NA	49 (38–57)
Barbados	2010	100.0	NA	100.0[b]	100.0	NA	64 (55–72)
Belize	2010	91.6	NA	26.1	94.0	NA	94 (56–140)
Bermuda	2010	99.5	99.0	99.0	99.2	NA	NA
Cayman Islands	2010	97.8	96.7	83.4	100.0	NA	NA
Cuba	2010	100.0	100.0	93.9	100.0	43.1	53 (36–76)
Dominica	2010	100.0	NA	28.0	100.0	NA	NA
Dominican Republic	2010	98.9[c]	94.5[c]	81.9[c]	100.0	125.9	100 (62–170)
French Guinea	2009	98.3	55.2	48.2	99.2	NA	NA
Grenada	2010	100.0	NA	19.1[b]	100.0	NA	NA
Guadeloupe	2008	97.2[d]	NA	88.5	99.3	NA	NA
Guyana	2009	95.7	94.8	65.5[j]	95.8	NA	270 (180–410)
Haiti	2005	84.5	NA	NA	26.1	NA	300 (180–520)
Jamaica	2010	98.0[h]	NA	25.7	90.1	146	89 (60–120)
Martinique	2008	97.2	NA	82.5[d]	99.9	NA	NA
Montserrat	2010	100.0[a]	NA	80.0[h]	100.0	NA	NA
Netherlands Antilles		NA	NA	NA	NA	NA	NA
Puerto Rico	2008	98.6	98.6	74.0	98.6	NA	18 (12–26)
St. Kitts and Nevis	2010	100.0[c]	NA	43.0[e]	100.0	NA	NA
St. Lucia	2009	99.0	99.0	100.0	100.0[b]	NA	NA
St. Vincent and the Grenadines	2010	97.5[b]	NA	25.0[e]	98.3	NA	NA
Suriname	2010	99.4	NA	90.0	90.0	NA	100 (86–110)
Trinidad and Tobago	2006	97.1	NA	24.7	99.7	NA	55 (35–82)
Turks and Caicos Islands	2010	96.8[a]	NA	NA	100.0	NA	NA
Virgin Islands (UK)	2010	100.0	91.7[b]	100.0	100.0	NA	NA
Virgin Islands (US)	2008	98.3	NA	65.7	99.3	NA	NA

Source: PAHO. Health Information and Analysis Project. Regional Core Health Data Initiative. Washington, DC, 2011.
Note: The latest reported data are from (a) 2009, (b) 2008, (c) 2007, (d) 2006, (e) 2005, (f) 2004, (g) 2003, (h) 2002, (i) 2001, and (j) 1999.
*WHO estimated figures for 2008.
NA: Data not available

There are inequities with regards to availability of skilled human resources and access to care according to socioeconomic status, area of residence (urban-rural), and ethnicity, with coverage lower in the most disadvantaged and rural populations (Table 4). As shown in Table 4, country level data on skilled birth attendance consistently show that birth attendance by doctors and other health professionals are systematically distributed towards the groups with the highest wealth and education and towards urban residents. In these studies, the main problems stated by over half of the pregnant women in the lowest wealth index category are "having to take transport," "distance to health facility," and "getting money for treatment," while less than one third of those in the highest wealth index category report any of these problems.

Table 4

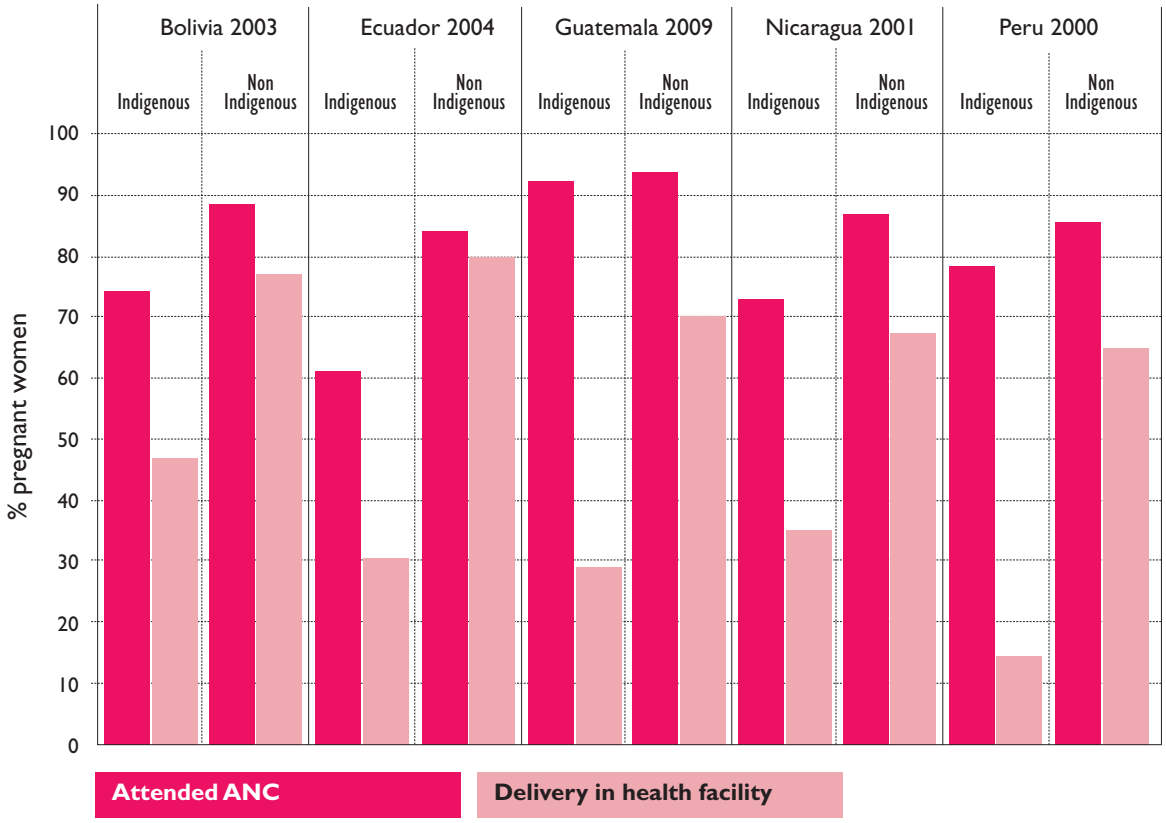
Assistance during delivery, by household wealth index, urban-rural residence, and educational level in selected countries (2005–2010)

	Household wealth index		Residence		Highest educational level		
	Lowest	Highest	Urban	Rural	No education	Primary	Secondary or higher
Bolivia (2008)							
Doctor/other health professional	39.4	98.8	89.7	52.6	74.2	86.9	95.7
Traditional birth attendant	6.7	0	1.7	6	0	0	0
Colombia (2010)							
Doctor/other health professional	85.8	99.4	98.5	87.7	74.7	93.4	98.3
Traditional birth attendant	7.5	0.3	0.7	6.4	0	0	0
Dominican Republic (2007)							
Doctor/other health professional	89.6	97.9	95.6	93.8	75.7	89.3	97
Traditional birth attendant	7.7	1.5	3	4.4	17.9	9.6	2.3
Haiti (2005–2006)							
Doctor/other health professional	7.8	70.5	48.6	16.8	73.3	86.5	96.1
Traditional birth attendant	82.3	24.2	43.8	74.4	0.7	0.5	0.4
Honduras (2005–2006)							
Doctor/other health professional	37.5	98.3	90.7	54	80.1	91.8	97.1
Traditional birth attendant	51.2	1.5	7.5	38.6	0.4	0.1	0.1

Source: Macro International. MEASURE DHS STATcompiler [Internet]. [cited November1 2011]. Available from http://www.measuredhs.com, 2011.
Note: In each case, data are for births in the 3 years preceding the study.

Ethnic group inequalities in access to antenatal care persist in the Region. As shown by data from Bolivia, Ecuador, Guatemala, Nicaragua, and Peru, indigenous women have consistently lower access to antenatal care and delivery by a skilled health attendant (Figure 3). Although data are limited on how quality of health care varies among ethnic groups, a few studies in Brazil have shown that quality scores were higher among white women than among black women. Results indicated that, in this case, these differences seemed to be due to attendance patterns rather than discrimination.[16] As a consequence of competing priorities in contexts of poverty, women may not seek prenatal care, HIV testing, or syphilis testing and may not adhere to treatments due to the need to prioritize child care or paid work over care seeking. Even when women reach a health facility, antenatal care may be provided through a complex, time-consuming series of encounters that place an additional burden on them to navigate through a long and costly process. Efforts should be made to increase early access to antenatal care, particularly for women in socially disadvantaged groups.

Figure 3 Percentages of pregnant indigenous and non-indigenous women who attended antenatal care and delivered in a health facility in Bolivia, Ecuador, Guatemala, Nicaragua, and Peru (2000–2009)



Source: CEPAL. Salud materno infantil de pueblos indígenas y afrodescendientes de América Latina: una relectura desde el enfoque de derechos. Santiago de Chile, 2010 Comisión Económica para América Latina y el Caribe.

There is scarce information on the organization of health services, but some studies have indicated that areas of concern are limited availability of supplies (HIV and syphilis tests and reagents, kits for cesarean sections) and medications (antiretrovirals, penicillin), excessively centralized laboratory services, and lack of coordination (including referral and counterreferral) between obstetric and HIV care providers.[17, 18, 19]

In summary, high levels of access to ANC in most countries tend to indicate the feasibility of reaching the Elimination Initiative goals. Greater efforts are needed to address barriers to early access to antenatal care, overcome quality issues in the organization and provision of services, and eliminate geographic, social, economic, and cultural inequalities in access to and provision of services among pregnant women. Finally, there is a need for regular monitoring of antenatal care attendance and quality of care with an equity lens in order to assess how different social groups are benefiting from improvements in health care.

Surveillance and health information systems for the Elimination Initiative

Data gaps persist throughout the Region: 16 of 48 countries and territories have not reported any information on key indicators via universal access reporting to PAHO/WHO for 2010. Only 22 (46%) countries and territories reported data on the number of infants with HIV; 23 (48%) reported data on syphilis testing among pregnant women; 26 (54%) reported data on the number of pregnant women with HIV who receive ARVs; and 21 (44%) reported data on the number of congenital syphilis cases. Critical indicators for which fewer than 50% of countries have reported data are syphilis testing in pregnant women, pregnant women with syphilis who have been treated, infants exposed to HIV, infants infected with HIV, and infants with indeterminate results, including lost to follow-up. With regards to data quality, barriers to access, losses to follow-up, and subnotification (especially for infants), both for HIV and for syphilis, remain important challenges for the Region. Indicators of male involvement, such as syphilis testing and treatment among partners of pregnant women, are also poorly collected and reported.

Monitoring of HIV-exposed infants and positive cases among children can be achieved through HIV case-based surveillance, [iv] currently being strengthened in several countries in the Region. Many countries have primary information systems based on SIP (the Perinatal Information System developed by PAHO/CLAP). This tool has recently been updated to include HIV information and produce automatic reports. These "one-click SIP reports" allow real-time information to be retrieved in a simpler manner. In addition, seven countries (El Salvador, Nicaragua, Honduras, Uruguay, Argentina, Panama, and Paraguay) have carried out or are in the process of carrying out studies to determine the prevalence of maternal syphilis and the estimated incidence of congenital syphilis.

iv. HIV case-based surveillance refers to reporting of all HIV diagnoses and of key sentinel events of an HIV case throughout the history of the disease. Reporting of HIV-positive pregnant women and HIV-exposed infants will support appropriate follow-up, diagnosis, and identification of HIV cases among children and establish HIV mother-to-child transmission rates.

Case 1: Perinatal Information System in Uruguay

In Uruguay, the Perinatal Information System (SIP) has been key in monitoring the response to congenital syphilis. In 2008, a study conducted in the Pereira Rosell Hospital revealed an increase in the prevalence of pregnant women with a positive VDRL result (from 1.30% in 2003 to 3% in 2007), as well as an increase in the prevalence of newborns with positive serology (from 1.4% to 2.1%). Subsequent studies showed significant underreporting of congenital syphilis cases. Of a total of 58 newborns with positive serology identified in the Pereira Rosell Hospital between October 2007 and January 2008, only 44.6% were reported to the Epidemiological Surveillance Department of the Ministry of Health. A recent review of the SIP in Uruguay showed coverage of 86% of all live births in the country registered in the system. This analysis revealed weaknesses in the recording of maternal and newborn syphilis testing results (Table 5). Recommendations and next steps from this study included the adoption of the improved 2010 SIP version and the development of a plan for monitoring the quality of services and of surveillance activities based on information from SIP.[20]

Table 5 Percentage of clinical records without result of maternal and newborn syphilis testing, Uruguay, 1999–2008

	1999			2004			2008		
% with no data on syphilis test results	**Public sector**	**Private sector**	**Total**	**Public sector**	**Private sector**	**Total**	**Public sector**	**Private sector**	**Total**
Newborns	29.0	14.9	22.7	43.9	13.0	31.2	45.0	24.0	33.0
Pregnant women	6.0	8.5	7.1	6.6	6.5	6.6	9.9	9.8	7.4

Source: López Gómez A, Benia W, Alemán A, Vázquez J. Una década de sífilis gestacional y congénita en Uruguay 2000–2009. Montevideo: Centro Latinoamericano de Perinatología, Salud de la Mujer y Reproductiva; 2011.

Service delivery

Primary prevention of HIV and syphilis

Among persons of reproductive age, key services for prevention of HIV and other sexually transmitted infections (STIs) include health education on safer sex, family planning information and services including commodities and counseling. Gaps in HIV prevention knowledge exist in all subregions. While there is earlier initiation of sexual intercourse there is also better knowledge of how to prevent HIV transmission in the Southern Cone, Brazil, and the Caribbean than in Central America and the Andean countries. The Caribbean has the highest unmet need for family planning.

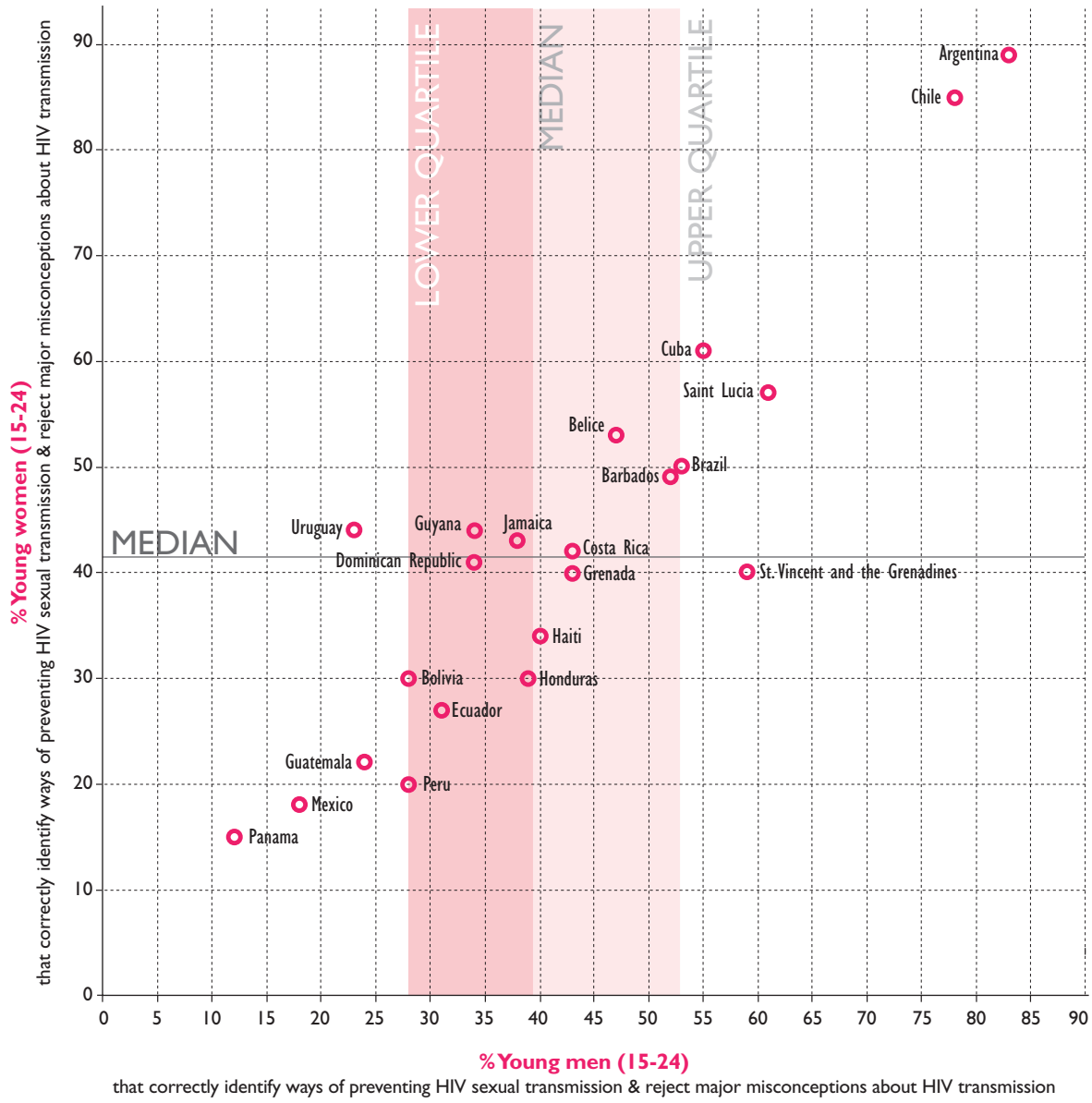
Knowledge of HIV transmission and prevention among young people

In the majority of countries in the Region of the Americas for which data are available, less than half of young people aged 15 to 24 know how to prevent sexual transmission of HIV and reject major misconceptions about HIV transmission (Figure 4). Median values are low (around 40%) for both males and females. In Nicaragua, Suriname, and El Salvador, data are available for females only. Argentina, Chile, and Nicaragua are the only countries with available data in which more than 80% of this population group accurately identifies how to prevent the sexual transmission of HIV. At the subregional level, knowledge about HIV prevention appears highest in the Southern Cone and Brazil (with median values of 67%), followed by the Caribbean (median of 50%), Central America (median of 33%), and the Andean countries (median of 24%).

Information on underlying study methodology is not available, so the data just described are subject to variation and should be considered with caution.

Figure 4

Percentage of young people aged 15–24 who both correctly identify ways of preventing the sexual transmission of HIV and reject major misconceptions about HIV transmission, by sex (2007–2009)



Source: UNAIDS. AIDS Info Database [Internet]. Geneva, 2011.
Note: Data are from 2007 to 2009. Several data discrepancies exist when comparing country data from 2007 and 2009. For example, the percentage of young women in Honduras was 89% in 2007 and 30% in 2009. In Uruguay, data from 2007 are 54% male, 48% female, and 50% total, which is much higher than in 2009. In Argentina, the percentage total in 2007 was 86%. In Nicaragua, El Salvador, and Suriname, data were for females only and are not presented.

Sexual initiation before age 15

Rates of early sexual initiation (before age 15) remain high, ranging from 8% to over 50%. In the Caribbean and Southern Cone, including Brazil, median rates are 22% and 27%, respectively (Table 6). The highest percentage is in Paraguay, where 64% of women have had sexual relations before age 15, followed by Uruguay at 30% and Brazil at 29%. In the Caribbean, sexual initiation before the age of 15 among men is higher than 50% in the Bahamas and Jamaica, and the Bahamas has the highest percentage of women starting sexual relations by age 15.

Adolescent pregnancy

It is estimated that each year, adolescent women account for 18% of all births in Latin America and the Caribbean. Among countries with available data, 12% to 25% of adolescent women age 15 to 19 are pregnant or have children. LAC data show that the prevalence of adolescent pregnancy increases rapidly with age: at age 15, the prevalence ranges from 2% to 8%, while 20% to 50% of female adolescents are mothers or are pregnant with their first child by age 19 (Table 7). Although fertility among adolescents in the region has decreased, especially in the middle and upper socioeconomic groups, the rate of decline is lower than that seen among adult women. In half of the countries of the Americas in 2009, the fertility rate among teenagers was over 60 live births per 1,000 women between the ages of 15 and 19; rates varied from 12 in Canada, 30 in the Bahamas, and 33 in Trinidad and Tobago to 107 in the Dominican Republic and 110 in Nicaragua.[21]

Source: UNAIDS. AIDS Info Database [Internet]. Geneva, 2011. The source for Canada is Rotermann M. Trends in teen sexual behaviour and condom use. Health Reports 19, 2008. The source for the United States is Abma J, et al. Teenagers in the United States: sexual activity, contraceptive use, and childbearing, National Survey of Family Growth 2006–2008. Vital and Health Statistics 23, 2010.
Note: Data are from 2009 except as indicated by asterisks. *Data from 2007. **Data for Canada are from 2005. ***Data for U.S. are from 2006–2008. Percentages for subregions are medians.
NA: Data not available.

Percentage of young women and men aged 15–24 who have had sexual intercourse before the age of 15 (2005–2009)

Table 6

	Young men	Young women	Both
North America	**8**	**8**	**8**
Canada **	8	8	8
Mexico	4*	4*	4*
United States of America ***	14	11	13
Central America	**19**	**11**	**14**
Costa Rica	15*	7*	11*
El Salvador	54*	11*	27*
Guatemala	16	8	11
Honduras	19	11	13
Nicaragua	NA	14*	14*
Panama	30*	21*	24*
Andean Countries	**13**	**7**	**8**
Bolivia	13	7	8
Colombia	NA	NA	NA
Ecuador	NA	10*	NA
Peru	12	7	8
Venezuela	NA	NA	NA
Southern Cone and Brazil	**34**	**29**	**27**
Argentina	27*	19*	19
Brazil	41	29	35
Chile	13	8	11
Paraguay	NA	64	NA
Uruguay	44	30	37
Caribbean	**32**	**15**	**22**
Anguilla	NA	NA	NA
Antigua and Barbuda	NA	NA	25
Aruba	NA	NA	NA
Bahamas	70	41	58
Barbados	22	20	20
Belize	11	5	8
Bermuda	NA	NA	NA
Cayman Islands	NA	NA	NA
Cuba	32	15	24
Dominica	NA	NA	NA
Dominican Republic	24	15	19
French Guiana	NA	NA	NA
Grenada	32*	20*	25*
Guadeloupe	NA	NA	NA
Guyana	19	10	14
Haiti	43*	15*	23*
Jamaica	57	16	36
Martinique	NA	NA	NA
Montserrat	NA	NA	NA
Netherlands Antilles	NA	NA	NA
Puerto Rico	NA	NA	NA
St. Kitts and Nevis	36*	10*	22*
St. Lucia	32*	20*	26*
St. Vincent and the Grenadines	31*	14*	22*
Suriname	NA	9	8*
Trinidad and Tobago	NA	NA	12*
Turks and Caicos Islands	NA	NA	NA
Virgin Islands (UK)	NA	NA	NA
Virgin Islands (U.S.)	NA	NA	NA

In the U.S., the birth rate among adolescents declined one third between 1991 and 2005, from 61.8 to 40.5 per 1,000 females aged 15–19 years. However, this long-term decline was interrupted in 2005–2007, when the adolescent birth rate increased 5%. Preliminary 2008 data indicate that the adolescent birth rate declined 2% during 2007–2008 and that rates decreased among all racial and ethnic groups. The decline for Hispanic adolescents brought their rate to the lowest ever reported for Hispanics, 77.4 per 1,000 female adolescents in 2008. Even with the apparent resumption of the decline in adolescent childbearing in 2008, the rate for the United States remains substantially higher than that for other industrialized countries.[22]

Inequities are seen for adolescent women living in poverty and with lower educational attainment. The data presented in Table 7 show that pregnancy in adolescence is three to four times more frequent in households in the lowest wealth index category than in households in the highest category. Socioeconomic differences are even greater when adolescent women with no education are compared to those with a secondary or higher education.

Table 7 Pregnancy among adolescent women aged 15–19 in selected countries, by socioeconomic and education indicators

	Year	% of adolescent women (15-19) pregnant or with children					% pregnant or with children among 15-year-olds	% pregnant or with children among 19-year-olds
		Total % adolescent women pregnant or with children	% in lowest household wealth index	% in highest household wealth index	% among those with no education	% among those with secondary or higher education		
Central America								
El Salvador	2008	22.8	NA	NA	48.4	16.7	8.3	42.0
Guatemala	2008	21.8	NA	NA	44.1	13.0	6.6	36.8
Honduras	2005–2006	21.5	31.3	9.6	46.3	10.5	5.4	40.2
Nicaragua	2006	25.2	NA	NA	64.2	16.3	7.3	49.4
Panama	2009	19.8	27.0	1.0	43.7	11.1	NA	NA
Andean Countries								
Bolivia	2008	17.9	31.3	7.8	51.7	12.2	5.1	37.0
Colombia	2010	19.5	29.5	7.4	55.0	28.4	5.2	38.4
Southern Cone								
Paraguay	2008	11.6	NA	NA	33.3	7.8	1.6	23.7
Caribbean								
Dominican Republic	2007	22.8	36.9	7.8	51.3	14.7	6.6	39.3
Haiti	2005–2006	14.0	21.5	7.1	30.0	8.7	1.6	29.1
Jamaica	2008	13.7	NA	NA	NA	13.9	4.0	28.9

Source: Macro International. MEASURE DHS STATcompiler [Internet]. Avilable from: (http://www.measuredhs.com), 2011. For Panama, the source is De León Richardson RG, ed. Encuesta nacional de salud sexual y reproductiva. ENASSER 2009. Panamá: Instituto Conmemorativo Gorgas de Estudios de la Salud; 2010. Available from: http://www.gorgas.gob.pa/images/ENASSER%202009.pdf.
NA: Data not available.

Unmet need for family planning

Despite a decreasing trend, levels of unmet contraceptive need remain significant, ranging from a low of 6.6% in North America to a much higher figure of 20.3% in the Caribbean (Table 8). At the country level, unmet need for family planning is higher than 20% in Haiti, Guatemala, Belize, and Bolivia (Table 9).

Unmet need is higher among young women. In Latin America and the Caribbean, adolescents who want to avoid pregnancy are more than twice as likely as similar women aged 20–49 to have an unmet need for modern contraception (48% vs. 22%).[23]

Unmet need for family planning in the Americas, 1990–2009 **Table 8**

	1990	1995	2000	2005	2009
North America	6.0	6.1	6.3	6.5	6.6
Latin America and the Caribbean	15.8	12.5	10.3	9.8	9.9
Central America	21.4	16.7	12.2	12.6	13.2
South America	13.1	9.9	8.6	7.7	7.5
Caribbean	19.5	22.4	20.4	20.0	20.3

Source: UN Population Division. World Contraceptive Use 2011. New York: United Nations, Department of Economic and Social Affairs; 2011.
Note: Values are percentages.

Unmet need for family planning in selected countries in the Americas (2005–2010) **Table 9**

	Year(s)	Age	% unmet need
North America			
Mexico	2006	15–49	12.0*
United States	2006–2008	15–44	6.6*
Central America			
El Salvador	2008	15–44	3.4***
Guatemala	2008	15–49	20.8***
Honduras	2005–2006	15–49	16.9**
Nicaragua	2006–2007	15–49	7.5***
Panama	2009	15–49	27.4[a]
Andean countries			
Bolivia	2008	15–49	20.2**
Colombia	2010	15–49	7.0**
Ecuador	2004	15–49	7.4***
Peru	2009	15–49	7.2*
Southern Cone and Brazil			
Brazil	2006	15–49	6.0*
Paraguay	2008	15–44	4.7***
Caribbean			
Belize	2006	15–49	20.8*
Dominican Republic	2007	15–49	11.4**
Haiti	2005–2006	15–49	37.5**
Jamaica	2008	15–49	7.2***

Source: *UN Population Division. World Contraceptive Use 2011. New York: United Nations, Department of Economic and Social Affairs; 2011.
**Macro International. MEASURE DHS STATcompiler [Internet[. Available from: http://www.measuredhs.com. 2011.
***Centers for Disease Control and Prevention. Reproductive Health Surveys. Available from: http://www.cdc.gov/reproductivehealth/surveys/index.htm.
a. De León Richardson RG, ed. Encuesta nacional de salud sexual y reproductiva. ENASSER 2009. Panamá: Instituto Conmemorativo Gorgas de Estudios de la Salud; 2010. Available from: http://www.gorgas.gob.pa/images/ENASSER%202009.pdf.

High-risk sexual relations and condom use

High-risk sex behaviors include nonuse of condoms and having sex with more than one partner. In all countries and subregions for which data are available, sexual relations among people aged 15 to 49 with more than one partner in the last 12 months are more frequent among men than among women (Table 10); they are also more frequent in the Southern Cone and Brazil (median of 15%) and in the Caribbean (17%) than in the Andean countries (5%) and Central America (4%). Within this group, condom use is higher among men than among women in all countries and subregions with available data. Among those having had more than one partner, more than 50% of women in El Salvador, Uruguay, Belize, Jamaica, and Suriname and more than 50% of men in Guatemala, Peru, Chile, Uruguay, Belize, Guyana, and Jamaica report having used a condom during their most recent sexual intercourse; at the subregional level, condom use is higher in the Andean countries (64%) than in the Caribbean (54%), the Southern Cone and Brazil (50%), and Central America (36%).

Table 10 Percentage of women and men aged 15–49 who have had sexual intercourse with more than one partner in the last 12 months and percentage that used a condom during their last sexual intercourse (Reported 2007–2009)

	% with more than one partner			% that used a condom during their most recent sexual intercourse		
	Men	Women	Both	Men	Women	Both
North America	**NA**	**NA**	**NA**	**NA**	**NA**	**NA**
Canada	NA	NA	13*	23*	16*	19*
Mexico	9*	NA	NA	20*	NA	NA
United States of America	17*	10*	NA	42*	32*	NA
Central America	**19**	**2**	**4**	**44**	**24**	**36**
Costa Rica	37*	35*	39*	15*	11*	13*
El Salvador	NA	NA	NA	NA	81	NA
Guatemala	12	1	4	63	24	58
Honduras	19	1	4	38*	27	38*
Nicaragua	NA	2	2*	NA	19	NA
Panama	45	41	42	25	9	14
Andean countries	**13**	**2**	**5**	**54**	**28**	**64**
Bolivia	12	0*	0*	35	NA	NA
Colombia	NA	3	NA	NA	31	NA
Ecuador	NA	NA	NA	NA	NA	NA
Peru	14	1	5	72	25	64
Venezuela	NA	NA	NA	NA	NA	NA
Southern Cone and Brazil	**23**	**9**	**17**	**55**	**36**	**50**
Argentina	NA	NA	NA	48*	44*	46*
Brazil	76	57	66	43	34	39
Chile	21	7	13	55	38	50
Paraguay	NA	6	NA	NA	5	NA
Uruguay	23*	11*	17*	69*	65*	68*

Table 10 (Cont.)

	% with more than one partner			% that used a condom during their most recent sexual intercourse		
	Men	Women	Both	Men	Women	Both
Caribbean	**27**	**5**	**17**	**48**	**44**	**54**
Anguilla	NA	NA	NA	NA	NA	NA
Antigua and Barbuda	NA	NA	55*	NA	NA	87*
Aruba	NA	NA	NA	NA	NA	NA
Bahamas	NA	NA	NA	NA	NA	NA
Barbados	NA	NA	NA	NA	NA	NA
Belize	15	5	9	66	56	63
Bermuda	NA	NA	NA	NA	NA	NA
Cayman Islands	NA	NA	NA	NA	NA	NA
Cuba	34	12	23	48	38	45
Dominica	NA	NA	NA	NA	NA	NA
Dominican Republic	30*	4*	17*	45*	35*	44*
French Guiana	NA	NA	NA	NA	NA	NA
Grenada	30*	13*	21*	68*	52*	NA
Guadeloupe	NA	NA	NA	NA	NA	NA
Guyana	10	1	5	65	48	63
Haiti	23	1	11	34	21	34
Jamaica	62	17	39	65	52	62
Martinique	NA	NA	NA	NA	NA	NA
Montserrat	NA	NA	NA	NA	NA	NA
Netherlands Antilles	NA	NA	NA	NA	NA	NA
Puerto Rico	NA	NA	NA	NA	NA	NA
St. Kitts and Nevis	53*	19*	35	NA	NA	67
St. Lucia	42*	25*	35*	48*	39*	45*
St. Vincent and the Grenadines	24	10	17	62*	52*	59*
Suriname	NA	1	3*	NA	80	49*
Trinidad and Tobago	94*	79*	85*	NA	NA	NA
Turks and Caicos Islands	NA	NA	NA	NA	NA	NA
Virgin Islands (UK)	NA	NA	NA	NA	NA	NA
Virgin Islands (U.S.)	NA	NA	NA	NA	NA	NA

Source: UNAIDS. AIDS Info Database. Geneva, 2011. Data were reported in 2009 except as indicated by an asterisk. *Data reported in 2007.
Note: Subregional values are median percentages
NA: Data not available.

The data above are based on population surveys. The quality and methodology of these studies vary, and thus individual results must be interpreted with caution. Nevertheless, overall assumptions on the situation in the Region with respect to sexual health and HIV prevention can be drawn from the above-described data. Overall, knowledge related to HIV transmission and prevention remains inadequate and is a barrier to adequate health in adolescents. Provision of information to young people needs to be improved and expanded using a variety of methods. By age 19, one out of every two to four female adolescents has given birth or is pregnant. Despite improvements over the last few decades, unmet need persists.

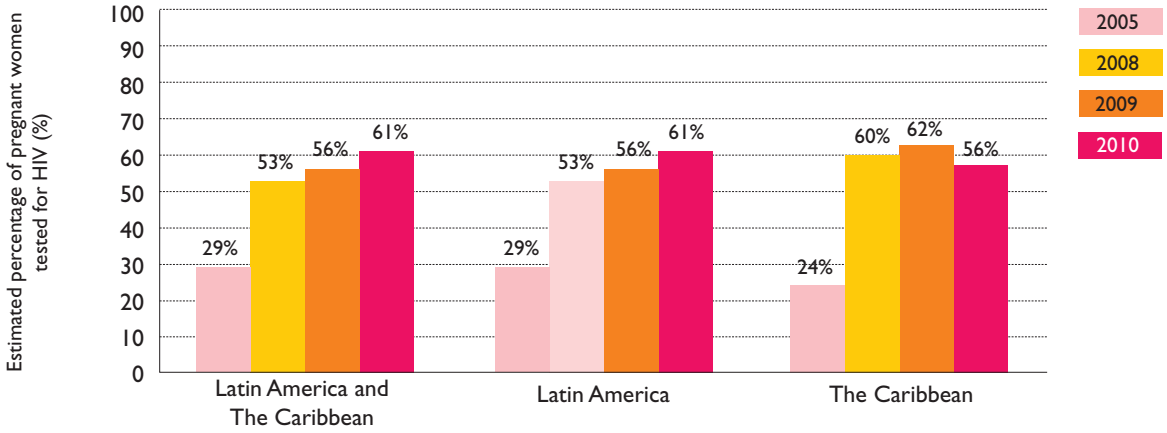
Meeting the contraceptive needs of sexually active women (both HIV positive and HIV negative) would help reduce unintended pregnancies, thereby contributing to reductions in risk of HIV transmission from mother to child and to improvements in the status of women overall. While condom use prevents both unintended pregnancies and HIV transmission, other contraceptives will prevent only unintended pregnancies.

The data described here highlight the regional need to strengthen prevention interventions to reduce HIV/STI transmission among young persons, in particular women and those in situations of vulnerability such as members of specific ethnic groups. Young people report multiple risk behaviors for HIV infection, including early sexual activity (Table 6 and Table 7), but data on HIV testing among adolescents in the Region are lacking. In a recent survey undertaken in 12 Latin American countries, Costa Rica, Guatemala, Bolivia, and Argentina reported that HIV voluntary counseling and testing services are provided for adolescents,[24] but information regarding parental consent is not readily available. Youth are a key target for HIV prevention and care and avail themselves readily of youth-focused voluntary HIV testing and counseling services.[25] Barriers to HIV testing such as the need of parental consent, confidentiality issues, and lack of the human resources necessary to provide nonjudgmental risk counseling need to be considered as part of sexual and reproductive health services targeting young people.

Testing for HIV and syphilis

Regional HIV testing coverage during pregnancy in Latin America and the Caribbean increased more than 100% from 2005 (29%) to 2010 (61%) (Figure 5). In 2010, the subregional breakdown of HIV testing during pregnancy was 56% in the Caribbean, 46% in Central America, 64% in the Andean countries, and 79% in the Southern Cone and Brazil. Country level data for 2010 are presented in Table 11. The prevalence of HIV testing among pregnant women has increased in Latin America over the last few years, and the same is true for the Caribbean with the exception of 2010. Significantly, Haiti and the Dominican Republic have reported a decrease from 2009 to 2010 of approximately 40,000 in the number of pregnant women tested for HIV.

Figure 5 Regional percentages of pregnant women who received an HIV test in low- and middle-income countries, 2005, 2008, 2009, and 2010

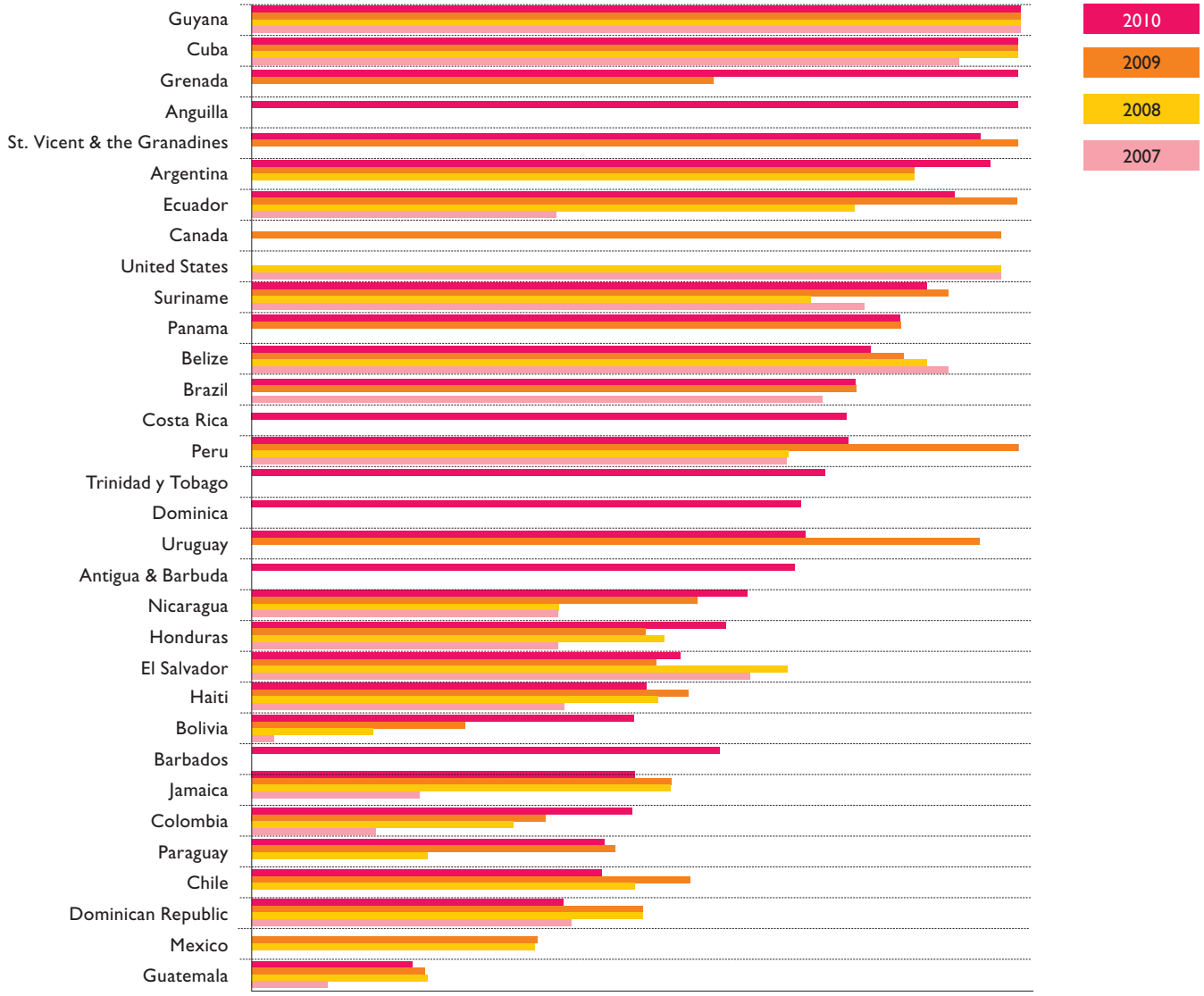


Source: WHO/UNAIDS/UNICEF. Global Response to HIV/AIDS. Epidemic update and progress towards universal Access 2011. Geneva. 2011.

While HIV testing coverage has increased in most countries in Latin America (Figure 6), inequalities persist. Testing rates among women from remote rural and indigenous areas are several times lower than rates among their urban counterparts. For example, disaggregated data from the 2009 Panama national reproductive health survey show that 92% of women in urban areas of the country were tested for HIV during pregnancy, compared to 71% and 23% of women in rural and indigenous areas, respectively.[26]

Trends in the percentage of pregnant women tested for HIV in Latin America and the Caribbean (2007–2010)

Figure 6



Source: For the numerator and country-reported denominator, unless otherwise specified, the source is country universal access to HIV progress reports, 2011. Reported country coverage for Canada is for Alberta and Ontario only. The source is Public Health Agency of Canada. HIV/AIDS Epi Updates, July 2010, Surveillance and Risk Assessment Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada. The source for the U.S. is Centers for Disease Control and Prevention. Enhanced perinatal surveillance—15 areas, 2005–2008. HIV Surveill Suppl Rep. 2011;16:27. Data for Chile and Jamaica include only women in the public health sector.

In some countries, it is difficult to obtain data on HIV testing from the private health sector. If reports of national coverage for HIV-tested pregnant women are based on the public sector surveillance system, then national coverage for HIV testing will appear artificially low, as is the case in Chile, Barbados and Jamaica. While national 2010 HIV testing figures for the U.S. and Canada are not available, reported subnational coverage for previous years was over 95%.

Countries are making efforts to increase HIV testing. For example, testing algorithms are being simplified, and rapid tests for HIV are being expanded, mainly in hard-to-reach populations. However, missed opportunities persist[27,28]: stock outs, lack of trained personnel with a client approach to counseling and behavior change,[29] complex pre-testing counseling requirements, fear of gender-based violence, and difficulties in accessing ANC are all reported barriers to universal HIV and syphilis testing among pregnant women.[30,31,32]

Table 11 Estimated and reported coverage of HIV testing during pregnancy (2010)

	Estimated number of births (standard UN denominator)	Reported number of pregnant women tested for HIV	Testing coverage % (using standard UN denominator)	Reported country testing coverage %	Reported country denominator
North America					
Canada	383,146	NA	NA	97–98[a]	NA
Mexico	2,216,711	NA	NA	37[b]	NA
United States of America	4,300,620	NA	NA	97.6[c]	NA
Central America					
Costa Rica	73,282	56,940	78	78	NA
El Salvador	125,822	70,617	56	91	77,361*
Guatemala	466,567	98,233	21	43	229,251*
Honduras	203,430	125,920	62	60	209,644
Nicaragua	138,358	89,712	65	56	159,539
Panama	69,969	59,334	85	75	79,183
Andean countries					
Bolivia	263,060	131,723	50	41**	319,424
Colombia	913,891	452,098	49	49**	928,306
Ecuador	298,908	274,573	92	77**	357,209
Peru	593,917	462,081	78	77**	601,000
Venezuela	598,480	NA	NA	NA	NA
Southern Cone and Brazil					
Argentina	693,519	670,802	>95	90	745,336
Brazil	3,022,823	2,381,280¥	79	NA	2,958,000
Chile	245,497	112,647[d]	46[d]	NA**	NA
Paraguay	156,431	72,497	46	53	137,508
Uruguay	49,750	35,953	72	87	41,213

Table 11 (Cont.)

	Estimated number of births (standard UN denominator)	Reported number of pregnant women tested for HIV	Testing coverage % (using standard UN denominator)	Reported country testing coverage %	Reported country denominator
Caribbean					
Anguilla	200	240	>95	100	240
Antigua and Barbuda	1,400	999	71	100	999
Aruba	1,300	NA	NA	NA	NA
Bahamas	5,291	NA	NA	NA	NA
Barbados	2,968	1,808	61	60	3,000
Belize	7,650	6,178	81	93	NA
Bermuda	800	NA	NA	NA	NA
Cayman Islands	600	NA	NA	NA	NA
Cuba	111,617	124,499	>95	100	124,499
Dominica	1,222	876	72	93	941
Dominican Republic	216,361	89,251	41	26	339,897
French Guiana	5,600	NA	NA	NA	NA
Grenada	2,031	2,056	>95	NA	NA
Guadeloupe	6,500	NA	NA	NA	NA
Guyana	13,624	14,571	95	96	15,113
Haiti	266,456	137,044	51	NA	NA
Jamaica	50,568	25,235[d]	50[d]	NA	NA
Martinique	4,900	NA	NA	NA	NA
Montserrat	100	NA	NA	NA	NA
Netherlands Antilles	3,200	NA	NA	NA	NA
Puerto Rico	52,100	NA	NA	NA	NA
St. Kitts and Nevis	700	NA	NA	NA	NA
St. Lucia	3,067	NA	NA	NA	NA
St. Vincent and the Grenadines	1,864	2,635	>95	NA	NA
Suriname	9,653	8,511	88	84	10,097
Trinidad and Tobago	19,753	15,094	76	75	20,000
Turks and Caicos Islands	500	NA	NA	NA	NA
Virgin Islands (UK)	400	NA	NA	NA	NA
Virgin Islands (U.S.)	1,300	NA	NA	NA	NA

Source: For the numerator and country-reported denominator, unless otherwise specified, the source is country universal access to HIV progress reports from 2011. Data on HIV testing are from 2010 unless mentioned otherwise. Sources for the estimated number of births for 2010 are (1) UN Population Division. World Population Prospects: The 2010 Revision. Available from: http://esa.un.org/unpd/wpp/index.htm. (2) U.S. Census Bureau. United States Census Bureau International Data Base. Available from: http://www.census.gov/population/international/data/idb/informationGateway.php (for Anguilla, Antigua and Barbuda, Aruba, Bermuda, Cayman Islands, Dominica, French Guiana, Guadeloupe, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, St. Kitts and Nevis, Turks and Caicos Islands, Virgin Islands [UK], and Virgin Islands [U.S.]).

a Reported country coverage for Canada is from 2006 for Alberta and 2009 for Ontario. The source is Public Health Agency of Canada. HIV/AIDS Epi Updates, July 2010, Surveillance and Risk Assessment Division, Centre for Communicable Diseases and Infection Control, Public Health Agency of Canada, 2010.

b Data for Mexico are from 2009.

c Data for the U.S. are for 2008. The source is Centers for Disease Control and Prevention. Enhanced perinatal surveillance—15 areas, 2005–2008. HIV Surveill Suppl Rep. 2011;16:27.

d Data for Chile and Jamaica include only women in the public health sector.

* Reported pregnant women who accessed ANC.

** Bolivia, Colombia, Ecuador, Peru, and Chile, in an Elimination Initiative subregional Andean meeting, reported 45%, 55%, 85%, 80%, and 72% HIV testing coverage, respectively.

¥ Data reported in 2008.

NA: Data not reported.

Syphilis testing

Regional syphilis testing coverage in Latin America and the Caribbean among women who received antenatal care in 2010 was 61% (based on data from 26 countries, including high-income countries). Among reporting countries, coverage rates were highest in the Caribbean and the Southern Cone, including Brazil, at 82% and 76%, respectively, followed by the Andean region, with an average of 78%, and Central America, at 36%. In the Caribbean, 9 of 11 reporting countries have syphilis testing coverage between 95% and 100%; the exceptions are Jamaica, at 73%, and Haiti, at 68%. In Latin America, Argentina, Chile, Colombia, Costa Rica, Uruguay, and Venezuela have reported coverage rates above 80% (Figure 7).

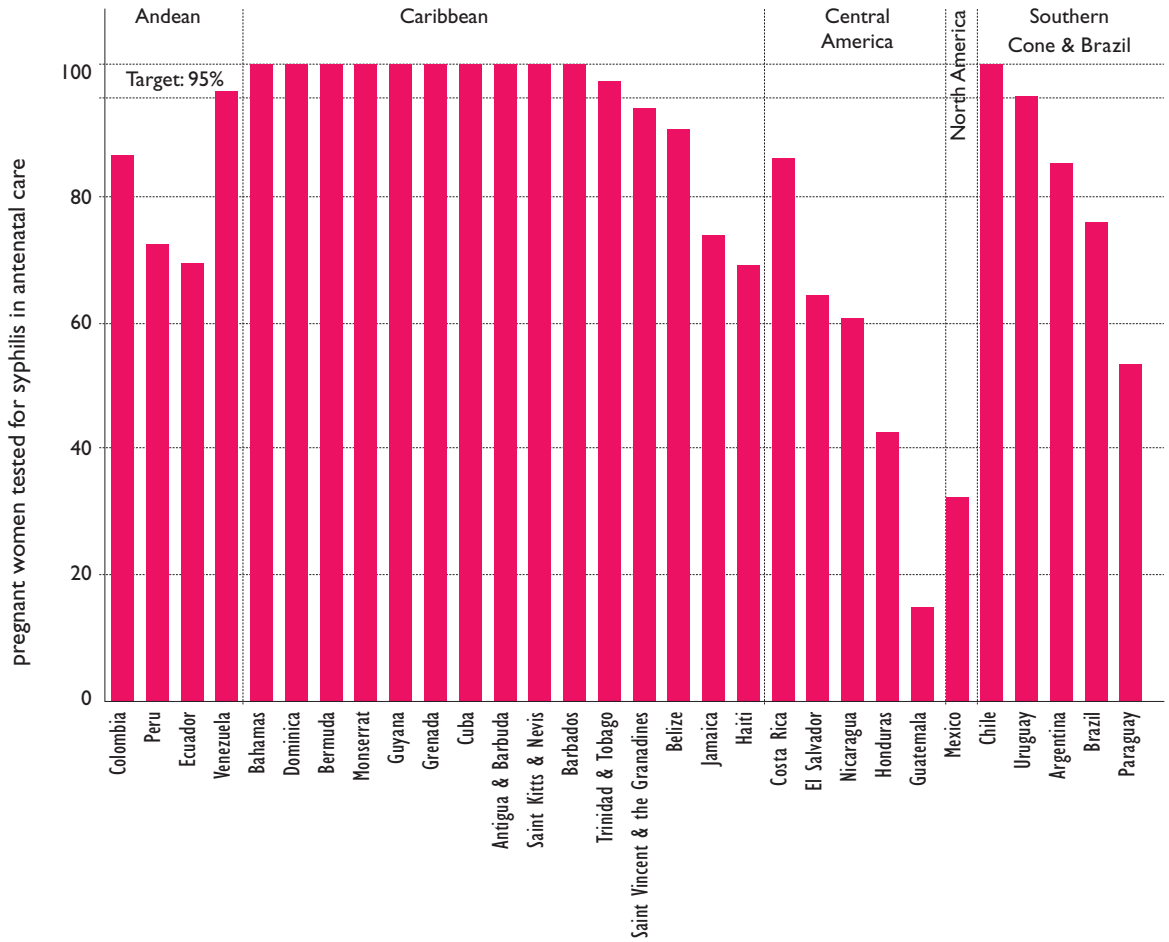
Many countries are providing universal testing for HIV and syphilis to pregnant women. Of note is that data from all pregnant women are used in determining HIV testing coverage rates, while only data from the subset of women receiving prenatal care are used in determining syphilis testing coverage. In most countries information on the timing of syphilis testing is not available on a routine basis; some rely on surveys conducted periodically every 4–6 years, and some have only subnational data. It is desirable to have syphilis testing information based on gestational age. Whatever the source, information on timely syphilis testing among pregnant women is important to monitor progress towards universal access to testing and elimination, including possible assessments of surveillance system quality.

Screening for syphilis is included in routine prenatal care in most countries, but the exam does not follow defined algorithms, and in many instances obtaining results in a timely manner may be challenging.

An effective strategy to improve detection of maternal syphilis is the use of rapid tests. When rapid test are used the recommended algorithm is to first use a rapid test as a screening tool to identify patients for presumptive treatment and then perform quantitative nontreponemal tests to determine whether the patient has an active infection as a confirmatory test. Given its simplicity and low cost, rapid testing is a very effective tool to control syphilis in primary health care settings. Rapid tests can also be used in combination with nontreponemal tests (rapid plasma reagin or VDRL) to confirm previously positive results to these non treponemal tests. Some countries in the Region, including Brazil, Uruguay, Argentina, Ecuador, Nicaragua, and Guatemala, are in the process of implementing rapid testing for maternal syphilis.

Percentage of pregnant women tested for syphilis among those receiving antenatal care, by subregion, 2010

Figure 7



Source: Country universal access to HIV progress reports, 2011.
Note: Data for the Bahamas, Bermuda, Costa Rica, El Salvador, Mexico, St. Kitts and Nevis, St. Vincent and the Grenadines, and Montserrat are for 2009. Data for Brazil and Dominica are for 2006 and 2008, respectively. Data for El Salvador refer to women tested before 20 weeks of gestational age.

Table 12

Prevalence of HIV and gestational syphilis among young and pregnant women in the Americas (2009–2010)

	Estimated prevalence (%) of HIV among young women (15 to 24) (2009) (1)	Reported prevalence (%) of HIV among pregnant women receiving ANC (2010) (2)	Reported prevalence (%) of gestational syphilis among women receiving ANC (2010) (2)
North America			
Canada	0.1 (<0.1–0.2)	NA	NA
Mexico	0.1 (0.1–0.2)	0.03*	0.3[b,e]
United States of America	0.2 (0.1-0.3)	NA	NA
Central America			
Costa Rica	0.1 (0.1–0.2)	0.03	1.4[b]
El Salvador	0.3 (0.1–0.5)	0.24	0.47[b,e]
Guatemala	0.3 (0.2–0.6)	0.3	0.65[c]
Honduras	0.2 (0.1–0.4)	0.56	1.5
Nicaragua	0.1 (0.1–0.1)	0.1	0.5
Panama	0.3 (0.1–0.5)	0.3	NA
Andean countries			
Bolivia	0.1 (<0.1–0.1)	0.16[b,f]	NA
Colombia	0.1 (0.1–0.3)	0.22[b]	0.6
Ecuador	0.2 (0.1–0.3)	0.17	0.1
Peru	0.1 (0.1–0.2)	0.13	0.3
Venezuela	NA	NA	1.9
Southern Cone and Brazil			
Argentina	0.2 (0.1–0.3)	0.39	1.3
Brazil	… (0.1–0.4)	0.41[a]	1.6[a]
Chile	0.1 (0.1–0.3)	0.02b	0.2
Paraguay	0.1 (0.1–0.2)	0.34	4.5
Uruguay	0.2 (0.1–0.3)	0.8[e]	1.3
Caribbean			
Anguilla	NA	0.0	NA
Antigua and Barbuda	NA	0.6f	0.5
Bahamas	3.1 (0.8–6.6)	0.8 *[f]	NA
Barbados	1.1 (0.8–1.4)	0.31[b,e]	0.4
Belize	1.8 (1.4–2.7)	1b	1.4
Cuba	0.1 (<0.1–0.1)	0.02*	0.03
Dominica	NA	NA	NA
Dominican Republic	0.7 (0.4–0.9)	1.5	0.5
Grenada	NA	0.05	3.7
Guadeloupe	NA	0.53[b]	NA
Guyana	0.8 (0.2–1.5)	0.88	0.2
Haiti	1.3 (1.0–1.8)	2.5*	4.7
Jamaica	0.7 (0.3–1.4)	1.2[b]	1.6
St. Vincent and the Grenadines	NA	0.6[b]	NA
Suriname	0.4 (0.2–0.7)	1[b]	NA
Trinidad and Tobago	0.7 (0.3–1.2)	1.39[d]	0.1[e]

Source: (1) UNAIDS. Global Report: UNAIDS Report on the Global AIDS Epidemic 2010. Geneva, 2011. (2) PAHO, UNICEF. Regional Elimination Initiative: Data Reported by Countries. Washington, DC: Pan American Health Organization; 2011. The source for El Salvador syphilis prevalence is PAHO, Ministerio de Salud de El Salvador, CLAP. Diagnóstico situacional de sífilis materna y sífilis congénita en las 28 maternidades de la red de establecimiento del Ministerio de Salud en El Salvador, durante el Periodo enero a diciembre de 2009, según Sistema Informático Perinatal. San Salvador, 2010. The source for Argentina is Ministerio de Salud, UNICEF, OPS. Estudio seroprevalencia de VIH y sífilis en mujeres puérperas. Buenos Aires, 2011. The source for Guatemala is Huamán Zevallos B. Situación de la sífilis materna y sífilis congénita en los servicios de salud de Guatemala. Guatemala City: Ministerios de Salud Pública y Asistencia Social; 2011.

*The source is the 2010 country UNGASS report. / **a** Data for Brazil are from a survey conducted in 2004–2006 among women in labor. / **b** Data for 2009. / **c** Guatemala's 2011 universal access report indicates a syphilis prevalence of 4%. / **d** Data for 2008. / **e** Only public sector data. / **f** Pregnant women 15–24 years of age.

Note: For Uruguay, HIV prevalence data among pregnant women data are from one hospital (CHPR) in Montevideo. For Barbados, HIV prevalence data among pregnant women are from one hospital (QEH) and ANC clinics from the public sector. Guadeloupe data are from a survey in one hospital and INSEE. For Costa Rica, HIV prevalence is from a survey among 2901 pregnant women from 90 areas of health, and syphilis prevalence is from one hospital (HSJDD) in San Jose. For Colombia, HIV prevalence data among pregnant women are from a sentinel surveillance study. Recent data for Colombia show a prevalence of syphilis among pregnant women of 1.7% (from an Elimination Initiative subregional Andean meeting). For the Dominican Republic, HIV and syphilis prevalence among pregnant women are from a 2007 sentinel surveillance study. Data are not available for Aruba, Bermuda, Cayman Islands, French Guiana, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, St. Kitts and Nevis, St. Lucia, Turks and Caicos Islands, Virgin Islands (UK), or Virgin Islands (U.S.).

NA: Data not available.

Prevalence of HIV and gestational syphilis

Estimated HIV prevalence rates among young women are higher in the Caribbean than in Latin America, and rates are particularly high in the Bahamas, Belize, Haiti, Barbados, Guyana, the Dominican Republic, Jamaica, and Trinidad and Tobago. All Latin American countries for which estimated data are available have rates of 3% or less. The reported prevalence of HIV among pregnant women is highest in Haiti, the Dominican Republic, Trinidad and Tobago, and Jamaica (Table 12). Few countries carry out sentinel surveillance among pregnant women, so most countries with high HIV testing coverage rely on programmatic data to estimate and report HIV prevalence among these women.

Based on reported data from 2010, also mostly from routine program activity, the prevalence of gestational syphilis among women receiving prenatal care in the 23 countries reporting data is highest in Paraguay and Haiti, at more than 4%. Although some countries did not report national prevalence data, there are data showing a high prevalence of gestational syphilis in Bolivia. Studies from that country have reported prevalence levels of active syphilis of 3.8% among 8,892 pregnant women in 2004–2005[33]; 3.2% among 1,594 pregnant women in three maternity hospitals in La Paz, Chuquisaca, and Cochabamba in 2004[34]; and 4.5% in pregnant women in Cochabamba in 2003. Subnational geographic variations are typical; in Brazil, for example, the prevalence of gestational syphilis in 2005 varied from 1.1% in Goiania to 4.4% in Rio de Janeiro.[35]

Case 2:
Surveillance of HIV and syphilis prevalence among pregnant women in Argentina

In an effort to strengthen information systems throughout Argentina, experts from the country's Ministry of Health developed a baseline study with three main objectives: to determine the national HIV and syphilis prevalence among pregnant women, to compare the information from this study with routine information systems and quantify information gaps, and to assess the quality of antenatal care with regards to HIV and syphilis. In 2010–2011, Argentina conducted a national study among 6,723 puerperal women attending 23 public hospitals. Of these women, 49% sought their first prenatal care visit during the first trimester, 36% during the second trimester, and 7% during the third trimester; 3% did not receive prenatal care, and data were unavailable for 5%. A total of 85% and 87% of women, respectively, received HIV and syphilis testing during antenatal care; corresponding national prevalence of HIV and syphilis was 0.44% and 1.32% respectively (nontreponemal tests were confirmed by treponemal testing). Of the 24 women with HIV, 11 were diagnosed before their current pregnancy, 12 were diagnosed during their current pregnancy, and 1 was diagnosed during the peripartum period; 22 received antiretrovirals for PMTCT. One woman had HIV-syphilis co-infection. Among all women with syphilis at puerperium, 33.5% started their pregnancy without syphilis (i.e., had an initial negative test during pregnancy and were infected during pregnancy). Of those women with syphilis during pregnancy, 22% had not received treatment. Among woman diagnosed with syphilis during puerperium, 13.5% had an abortion or a stillbirth. Among women who did not undergo HIV testing during antenatal care, 46% had at least one antenatal care encounter and 15% had five or more encounters with health professionals. These results show an adequate level of control and prenatal diagnosis, but a high percentage of syphilis seroconversion during pregnancy and a high percentage of women not treated for syphilis. Missed opportunities for HIV testing persist and should be further analyzed. This study demonstrates the need to strengthen the prevention and treatment of syphilis among pregnant woman and their partners as well as the need to identify barriers and missed opportunities for HIV testing.[37]

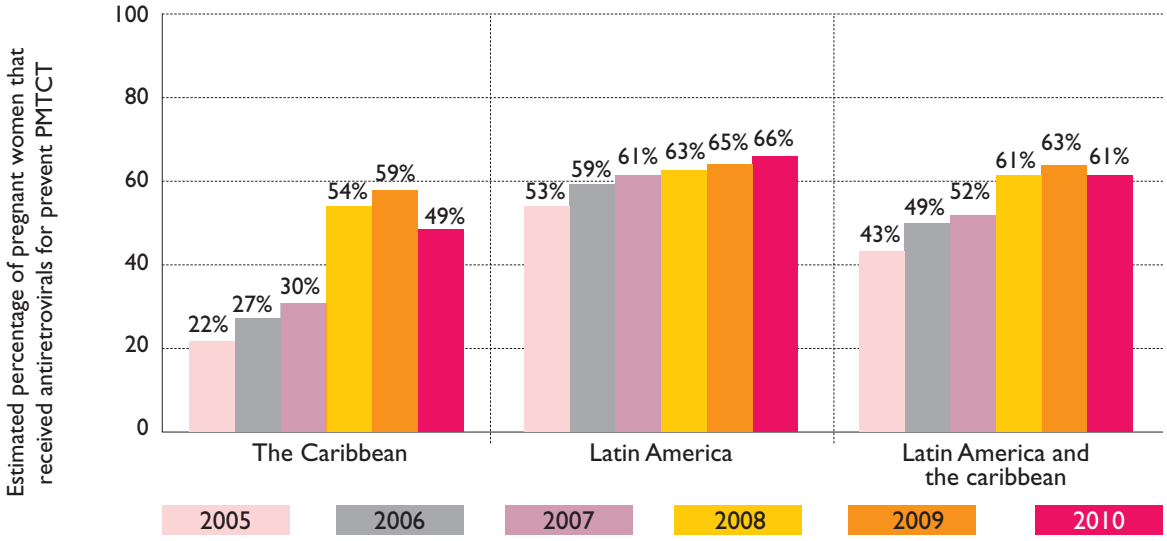
Provision of antiretroviral drugs to pregnant women with HIV

Latin America and the Caribbean have greatly progressed in the provision of ARV to pregnant women. ARV coverage among HIV-positive pregnant women in LAC increased from approximately 50% in 2005 to 61% (48%–94%) in 2010. As published in the *Progress report 2011: Global HIV/AIDS response* by WHO, UNAIDS and UNICEF, when only efficacious regimes are considered, regional figures are slightly lower at 59% (46%-90%). The slight decreases seen in regional figures relative to 2009 are mainly due to a decrease in the Caribbean region in 2010 (Figure 8). Explanations for this decrease are related to Haiti's natural disasters and cholera epidemics, but more in-depth analysis and studies should be conducted to fully understand what is occurring in this subregion.

In the context of concentrated epidemics, there is a significant amount of uncertainty in available modeling tools (such as EPP/Spectrum) regarding the number of HIV-positive pregnant women. Thus, this indicator has excessively wide uncertainty bounds that preclude the use of point estimates for the majority of countries in the Region. Despite this limitation, according to the abovementioned report, four low- and middle-income countries in the Region achieved universal access in 2010 with respect to ARV provision to HIV-positive pregnant women for PMTCT: Argentina, Brazil, Ecuador, and Honduras.[I] Among these countries, HIV testing rates are greater than 95% in Argentina, Brazil, and Ecuador, supporting the estimated PMTCT coverage value just noted.

Other countries with over 80% estimated coverage of ARVs for HIV-positive pregnant women (used as the cutoff for universal access) are Cuba, the United States, Canada, Barbados, Dominica, Guyana, Uruguay, and Antigua and Barbuda.[v]

Figure 8 Percentage of pregnant women with HIV receiving antiretrovirals for preventing mother-to-child transmission of HIV, 2005–2010



Source: WHO/UNAIDS/UNICEF. Country universal access to HIV prevention, care, and treatment progress reports, 2011. Note: Slightly different figures are published in the WHO/UNAIDS /UNICEF 2011 Global HIV/AIDS response due to exclusion of single dose nevirapine, and additional assumptions for countries that have not provided disaggregated data by ARV regimen. Latin America and the Caribbean regional coverage without single dose nevirapine is 59% and in the Caribbean is 46%.

v. These additional countries have not been included in the abovementioned Global WHO/UNAIDS/UNICEF report because they may not be low and middle income countries or they may have need estimates under 100 HIV positive pregnant women.

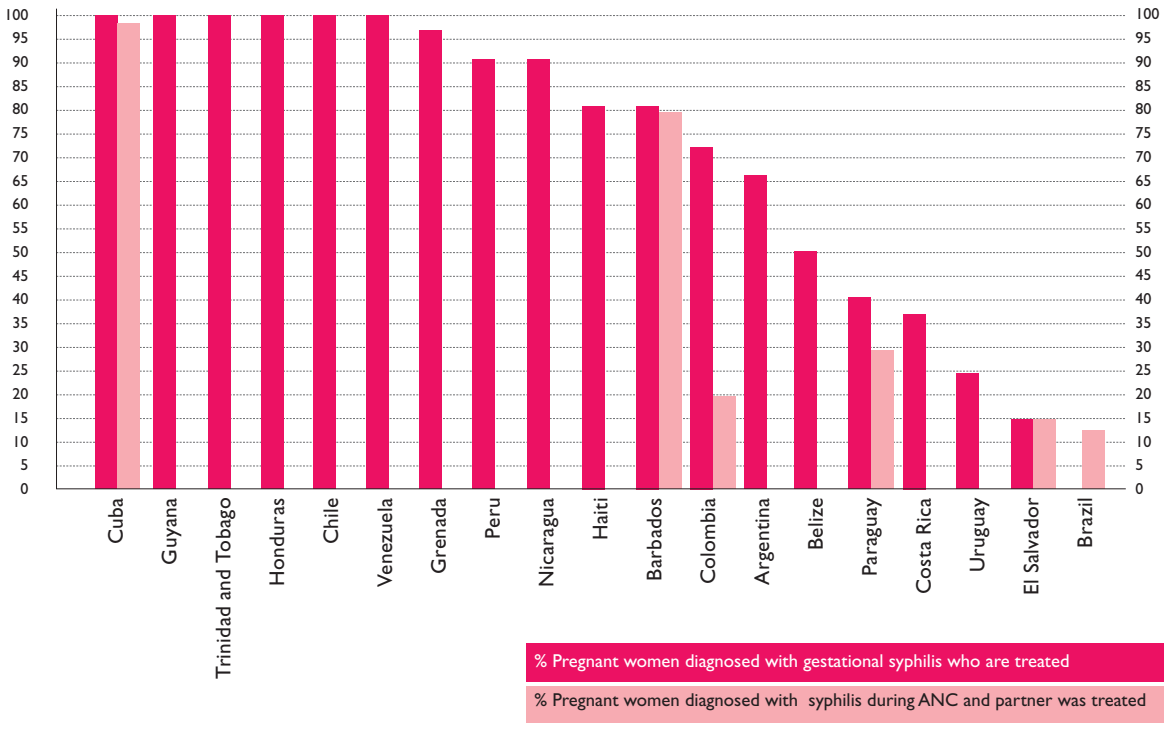
Out of 27 countries with available disaggregated data on the type of ARV regime used for PMTCT, five countries reported the use of nevirapine: Jamaica, Trinidad and Tobago, Guyana, Haiti, and Dominican Republic (ranging from 0.6% of all ARV regimens in Trinidad and Tobago to 30% in Guyana). Region-wide, nevirapine use has been substituted with more efficacious regimens recommended internationally; currently nevirapine represents only 1.6% of all reported ARV regimens used for PMTCT in Latin America and the Caribbean.

Treatment for syphilis

Treatment of pregnant women with syphilis and their partners is one of the least reported indicators. Eighteen countries have reported the number and percentage of women with gestational syphilis who received treatment in 2010 (Figure 9), but only 10 countries have reported the number of sexual partners of pregnant women who were tested and treated for syphilis. Diagnosis and treatment of partners is a crucial factor in eliminating congenital syphilis, and information systems should be strengthened so that progress toward adhering to this public health recommendation can be monitored.

Percentage of pregnant women diagnosed with gestational syphilis who are appropriately treated and percentage whose partners receive treatment (2010)

Figure 9



Source: PAHO, UNICEF. Regional Elimination Initiative: Data Reported by Countries. Washington, DC: Pan American Health Organization; 2011.
Note: Anguilla and Guadeloupe reported 0 cases for either indicator. Values for Costa Rica correspond to data from one major hospital (HSJDD) in San Jose. Data for Uruguay correspond to 2009.

Although benzathine penicillin treatment is known to be effective in preventing congenital syphilis, fear of adverse reactions and death is a barrier to its use. There are no proven alternatives to penicillin for the treatment of congenital syphilis, syphilis in pregnant women, or in patients with HIV. When allergy to penicillin exists it is recommended to proceed with desensitization protocols. Some countries, for example Peru, include the necessary tests and training as part of the national treatment algorithm. Although more patients report being allergic to penicillin than to any other drug, studies show that approximately 85% to 90% of these patients are not allergic to penicillin. Moreover, the prevalence of IgE-mediated allergy to penicillin (the type of allergy associated with anaphylaxis) has been declining in the past two decades, as shown by the number of positive results from sensitivity tests.[38] With the aim of helping countries improve treatment management, PAHO/CLAP/SMR is developing a systematic literature review to assess the safety of benzathine penicillin in preventing congenital syphilis in pregnant women.

Prevention and care for exposed infants

There have been improvements in the reporting of provision of ARVs to infants exposed to HIV, with 21 countries reporting such data in 2010. In Latin America and the Caribbean, regional coverage was 55% (43%–84%), increasing from 39% (30%–61%) in 2005. Coverage was 70% (52%->95%) for Latin America and 18% (15%-23%) for the Caribbean.

Access to virological testing, while increasing, is still low in most countries. In Latin America and the Caribbean, 23% (20%–39%) of infants underwent virological testing within 2 months in 2010, 22% in Latin America and 28% in the Caribbean. Only 14 countries had available information, and in all except one fewer than 75% of identified exposed infants had undergone virological testing by 2 months of age (Table 13). Although there has been an increase in the percentage of infants exposed to HIV who receive ARV prophylaxis and who are tested in a timely manner, coverage in many countries is still low.

Care provided to infants exposed to HIV (2010) — Table 13

	Reported number of exposed infants receiving ARVs	Estimated % of exposed infants receiving ARVs	Reported number of exposed infants undergoing a virological test by 2 months of age	Estimated % of exposed infants undergoing a virological test by 2 months of age
Central America and Mexico				
Costa Rica	30	...(15–29)	35	...(17–34)
El Salvador	102	...(8–50)	108	...(8–53)
Guatemala	159**	...(3–47)	NA	NA
Honduras	202	...(34–82)	328	...(56–>95)
Mexico	58**	...(4–15)	NA	NA
Nicaragua	87	...(28–>95)	58	...(18–>95)
Panama	151	...(25–>95)	93	...(16–63)
Andean countries				
Bolivia	151	...(79–>95)	151	...(79–>95)
Colombia	338	...(18–45)	168	...(9–22)
Ecuador	403	...(66–>95)	5*	...(1–6)
Peru	466	...(17–>95)	NA	NA
Venezuela	274*	...(6–12)	NA	NA
Southern Cone and Brazil				
Argentina	2,549	...(>95–>95)	NA	NA
Brazil	7,250	...(89–>95)	2,306**	...(28–53)
Paraguay	165	...(28–>95)	82	...(14–67)
Uruguay	72*	...(23–>95)	72*	...(23–>95)
Caribbean				
Belize	53	...(35–62)	54	...(36–64)
Cuba	66	...(93–>95)	66	...(93–>95)
Dominica	1*	NA	1*	NA
Dominican Republic	935	...(49–>95)	132	...(7–15)
Grenada	1	NA	NA	NA
Guyana	188	...(>95–>95)	52	...(31–>95)
Haiti	1,621	31 (26–38)	1,103***	21 (18–26)
Jamaica	377****	...(45–>95)	NA	NA
St. Vincent and the Grenadines	15*	NA	14*	NA
Suriname	73*	(16–>95)	9*	...(2–15)

Source: WHO/UNAIDS/ UNICEF. Country universal access to HIV prevention, care, and treatment progress reports, 2010–2011.
*Data for 2009.
**Data for 2008.
*** Data reported for June 2010 - December 2010
****Data not available from private sector and/or semipublic sector
Note: For the following countries, no data were available at the time of the preparation of this table: Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, Cayman Islands, Chile, French Guiana, Guadeloupe, Martinique, Montserrat, Netherlands Antilles, Puerto Rico, St. Kitts and Nevis, St. Lucia, Trinidad and Tobago, Turks and Caicos Islands, Virgin Islands (UK), and Virgin Islands (U.S.).
NA: Data not available.

Eighteen countries have reported data on feeding practices among infants exposed to HIV (Table 14). Countries are rarely able to report linking the data to DTP3 visits; rather, data are linked to other types of visits occurring before infants are 6 months of age. Among reporting countries, the majority of infants receive replacement feeding. Almost all countries report policies for provision of free-of-charge milk substitutes to all HIV-positive pregnant women for approximately 6 to 12 months. Haiti is the only country that recommends exclusive breastfeeding and, if possible, under ARV coverage. Given the significant impact of breastfeeding on HIV MTCT, it is essential to ensure through appropriate monitoring that service providers outside the public health system are compliant with national policies for free-of-charge replacement feeding.

Table 14 Feeding practices among infants exposed to HIV who had a DTP3 visit and whose feeding practices were recorded (2010)

	Number with feeding practices recorded*	Number (%) exclusively breastfed	Number (%) receiving replacement feeding	Number (%) receiving mixed feeding	Number with feeding not assessed or not recorded
Central America					
Costa Rica	35	0	35 (100)	0	0
El Salvador	NA	0	108	0	0
Honduras	205	2 (1.0)	199 (97.1)	4 (2.0)	0
Nicaragua	90	5 (5.6)	85 (94.4)	0	0
Panama	162	0	162 (100)	0	0
Andean countries					
Bolivia	151	0	151 (100)	0	0
Colombia	367	NA	218	15	134
Ecuador	403	0	403 (100)	0	0
Peru	NA	NA	475	NA	NA
Southern Cone and Brazil					
Argentina	2,549	0	2,549 (100)	0	0
Paraguay	165	6 (3.6)	152 (92.1)	6 (3.6)	1
Uruguay	72	NA	72 (100)	NA	NA
Caribbean					
Antigua and Barbuda	8	0	8 (100)	0	0
Barbados	NA	0	23	0	0
Belize	54	0	54 (100)	0	0
Cuba	66	0	66 (100)	0	0
Dominica	2	0	2 (100)	0	0
Dominican Republic	NA	NA	940	NA	NA
Grenada	1	0	1 (100)	0	0
Guyana	NA	0	218	NA	NA
Jamaica	336	0	331 (98.5)	5 (1.5)	0
St. Vincent and the Grenadines	14	0	14 (100)	0	NA

Source: WHO/UNAIDS/ UNICEF. Country universal access to HIV prevention, care, and treatment progress reports, 2011.
*Most of the countries reporting data did not collect the data at a DTP3 visit. The exact moment of data collection is unknown.
NA: Data not available

Impact of mother-to-child transmission of HIV and congenital syphilis

Assessing the impact of mother-to-child transmission of HIV and congenital syphilis is challenging in the context of information systems that may not have national-level coverage and are subject to underreporting, data lost to follow-up, and barriers to access of vulnerable populations for which information on HIV status is not available. In this context, countries are investing a great deal to improve monitoring systems and HIV case-based surveillance, such as in the Caribbean.

Reporting countries with available data for 2010 on key HIV and syphilis indicators, such as HIV and syphilis testing among pregnant women and their related impact indicators (reported HIV MTCT rate and congenital syphilis incidence rate), were included in this assessment. HIV testing and syphilis testing coverage of 80% or above was used as the criterion for assessing the related impact indicators. According to the data, five Member States may have achieved the target MTCT rate of 2% or less (Table 15).

Reported HIV mother-to-child transmission rate, 2009–2010 **Table 15**

May Have Achieved Target Reported HIV MTCT Rate of ≤2%*	Reported HIV MTCT Rate of >2% - ≤7%
Anguilla, Antigua and Barbuda, Canada, Cuba, and the United States**	Argentina, Suriname, Bahamas, Chile,*** Uruguay, Brazil, and Guyana

*This analysis is based on reported country figures taking into account the completeness of the data. Definitive statements about country target achievement will require further examination and consideration of data quality.
**For 15 enhanced perinatal surveillance reporting areas in 2008, the U.S. reports a 2% MTCT rate and 37% of infants with indeterminate results.
***Chile has recently reported MTCT rates close to 2%. Given the difficulty to report HIV testing figures for the private sector, Chile's HIV testing coverage is artificially low.

Similarly, several countries and territories may have achieved the impact target for congenital syphilis (Table 16).

Reported incidence of congenital syphilis, 2009 **Table 16**

May Have Achieved Target Congenital Syphilis Incidence of ≤0.5/1,000 Live Births	Congenital Syphilis Incidence of >0.5–≤0.7/1,000 Live Births
Anguilla, Antigua and Barbuda, Bahamas, Barbados, Cuba, Guyana, Chile, Canada,* United States,* Guadeloupe,* and Panama*	Peru and Jamaica

*While not providing data on coverage of syphilis testing among pregnant women, these countries may have also achieved the target given that they report an incidence of congenital syphilis under 0.5 per 1,000 live births.

Improving data validity and coverage is a key parameter in appropriately monitoring progress towards the goals. While nationally countries may have achieved the proposed targets, pockets of populations with higher rates may still exist. Countries should monitor these indicators subnationally in order to prevent inequities among vulnerable populations.

With regards to reducing the incidence of pediatric HIV cases, all of the countries listed in Table 15 except the Bahamas, Suriname, and Guyana appear to have achieved the target incidence rate of 0.3 per 1,000 live births.[vi] In 2012 PAHO, UNAIDS, and UNICEF will pilot a certification process for elimination in selected countries.

In addition, based on a new modeling tool developed by UNAIDS, the HIV mother-to-child transmission rate in Latin America and the Caribbean for 2010 has been estimated at 15% [4%-22%], while the estimated rate excluding breastfeeding is 10%. This emphasizes the importance of HIV testing among pregnant women even late in pregnancy or during labor.

The assumptions that have been used in the model are as follows:

- HIV incidence among women aged 15 to 49: 0.6%[13]
- CD4 count: 58% with CD4 above 350 cells/mm^3 and 42% with CD4 under 350 cells/mm^3
- Percentage of pregnant women with HIV not receiving any type of antiretroviral prophylaxis or treatment: 39%
- Percentage of pregnant women with HIV receiving antiretrovirals (61%) by regimen: single-dose nevirapine (1.6%), dual-dose AZT (2.7%), antiretroviral therapy (ART) initiated during pregnancy under option A or B (55.5%), or ART initiated before pregnancy (40.2%)
- Median duration of breastfeeding among puerperal women with HIV: 14 months

Reporting and follow-up of exposed children pose important challenges to health services and information systems. The percentage of infants born to women with HIV is largely unknown in many countries. For example, pregnant women may not receive antenatal care, they may not deliver in a health facility, and they may not be tested for HIV, all leading to underreporting of the number of exposed infants. Among infants identified as exposed to HIV, barriers to follow-up and the occurrence of death before a definitive diagnosis can be made add to problems in correctly identifying HIV-positive children. In the Latin American and Caribbean context, the strengthening of routine information systems (and adaptation, if needed) to appropriately monitor exposed and infected infants is an essential component of the Elimination Initiative, one that will permit an understanding of how efforts are achieving targeted results and inform corrections where needed.

In Canada, while the number of HIV-exposed infants has grown in the past decade in parallel to the increase in the number of persons in the country living with HIV, the number of HIV-infected infants has dramatically decreased. In 2001, of 168 infants known to have been exposed to HIV, 10.1% were confirmed as being infected. In 2008, 238 infants were exposed to HIV and 1.7% were confirmed as infected. Between 1984 and 2009, Afro-descendant children were the largest group of children exposed to HIV (48%); however, during the last 4 years of this period (2006–2009), mother-to-child transmission rates were highest in the Aboriginal group (over 6% confirmed positive, compared to less than 2% among Afro descendants and whites).[40]

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vi. Reducing the incidence of pediatric HIV cases to 0.3 per 1,000 live births or less requires reduction of the HIV MTCT rate as well as prevention of new HIV infections among people of reproductive age and unintended pregnancies among HIV-positive women.

In the United States, information for 2005–2008 is based on the enhanced perinatal surveillance system (EPS) in place in 15 areas of the country. The majority of HIV-infected pregnant women reported to the EPS were of an ethnicity other than White: 65% were black/African American, 23% were Hispanic/Latino, 1% were Asian, and less than 1% were American Indian/Alaska Native or Native Hawaiian/other Pacific Islander. Nine percent of the women were white. Most (90%) of the women had received some prenatal care; 7% had not received any prenatal care. Eighty-four percent of HIV-infected pregnant women received ARVs during the prenatal period, and 85% received ARVs during labor and delivery. In 2008, 1.7% of infants became infected with HIV and 62% did not; 37% were indeterminate. Mother to child transmission of HIV was 7% among Caucasians (with 39% indeterminate cases), 1% among African Americans and other Afro descendants (37% indeterminate), 1% among Hispanics (34% indeterminate), and 0% among Asians (33% indeterminate).[41]

Estimated exposed and positive infants born to women with HIV (2009)

Table 17

	Reported number of infants exposed to HIV	Reported number of children diagnosed with HIV	Reported number of exposed children lost to follow up or with indeterminate results
North America			
Canada	177	3	0
United States of America	1,811[a]	30[a]	663[a]
Central America			
Costa Rica	35	0	NA
El Salvador	124[a]	12[a]	NA
Honduras	382	19	NA
Nicaragua	53[a]	7[a]	0[a]
Panama	151	NA	NA
Andean countries			
Bolivia	151**	1	5
Colombia	369**	20¥	5¥
Ecuador	315	NA	NA
Peru	607	74	NA
Southern Cone and Brazil			
Argentina	2,981	149	NA
Brazil	NA	381[a]	NA
Chile	149	6	NA
Paraguay	164	5	17
Uruguay	72*	3	6
Caribbean			
Anguilla	2	0	0
Antigua and Barbuda	5	0	0
Barbados	27	0	4
Belize	53	5	17
Cuba	54	1	0
Dominica	NA	0	NA
Dominican Republic	132	13	NA
Guadeloupe	34	0	0
Guyana	186	11	NA
Jamaica	439	NA	NA
St. Vincent and the Grenadines	22	0	2
Suriname	95	4	67
Trinidad and Tobago	127	2	1

Source: PAHO, UNICEF. Regional Elimination Initiative: Data Reported by Countries. Washington, DC: Pan American Health Organization; 2011. The source for Canada is Public Health Agency of Canada. HIV and AIDS in Canada. Available from: www.phac-aspc.gc.ca/aids-sida/publication/index-eng.php#surveillance.
*Uruguay data are from one major public hospital (CHPR).
**Data are for 2010.
a Data are for 2008.
¥Recent data for Colombia (presented at an Elimination Initiative subregional Andean meeting) show that 7% of children are lost without definitive diagnosis and that the HIV mother-to-child transmission rate in 2009 was 4.8%.
Note: Data are not available for Aruba, Bahamas, Bermuda, Cayman Islands, French Guiana, Grenada, Guatemala, Haiti, Martinique, Mexico, Montserrat, Netherlands Antilles, Puerto Rico, St. Kitts and Nevis, St. Lucia, Turks and Caicos Islands, Venezuela, Virgin Islands (UK), and Virgin Islands (U.S.).
NA: Data not available

Table 18 Incidence and number of reported cases of congenital syphilis per 1,000 live births (2009)

	Incidence per 1,000 live births	Number of reported cases
North America		
Canada	NA	0–2[a]
Mexico	NA	168*
United States of America	0.1	427
Central America		
Costa Rica	1.0	74
El Salvador	0.2	21
Guatemala	NA	2*
Honduras	0.2	32
Panama	NA	32*
Andean countries		
Colombia	2.2	2,008
Ecuador	0.4	111
Peru	0.6	376
Southern Cone and Brazil		
Argentina	0.9	644
Brazil	1.7	5,117
Chile	0.3	64
Paraguay	2.5	390
Uruguay	5.3[b]	261
Caribbean		
Anguilla	0.0	0
Antigua and Barbuda	0.0	0
Barbados	0.3	1
Belize	0.8	6
Cuba	0.0	0
Guadeloupe	0.0	0
Guyana	0.0	0
Jamaica	0.1	4
St. Vincent and the Grenadines	0.0	0
Trinidad and Tobago	NA	45*

Source:: PAHO, UNICEF. Regional Elimination Initiative: Data Reported by Countries. Washington, DC: Pan American Health Organization; 2011. The source for Canada is Public Health Agency of Canada. 2004 Canadian Sexually Transmitted Infections Surveillance Report. CCDR 33S1:1–69, 2007. The source for the U.S. is Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2009. Atlanta: U.S. Department of Health and Human Services; 2010.
a Data for Canada are from 1995–2004. / **b**The incidence of congenital syphilis for Uruguay as reflected in other sources was 7.7 in 2008.[20] / *Data are from 2008.
Note: The rate was estimated by dividing the reported number of congenital syphilis cases by the number of estimated births. For the following countries, no data were available at the time of the preparation of this table: Aruba, Bahamas, Bermuda, Bolivia, Cayman Islands, Dominican Republic, Dominica, French Guiana, Grenada, Haiti, Martinique, Montserrat, Netherlands Antilles, Nicaragua, Puerto Rico, St. Kitts and Nevis, St. Lucia, Suriname, Turks and Caicos Islands, Venezuela, Virgin Islands (UK), and Virgin Islands (U.S.).
NA: Data not available

A total of 19 countries reported data on the number of infants diagnosed with congenital syphilis in 2009 (Table 18). The reported figures on the incidence of reported congenital syphilis need to be interpreted with caution and in the context of additional data regarding antenatal care coverage and the quality of the services provided (testing for syphilis, appropriate treatment, partner treatment, etc.). Experts suspect important degrees of subnotification in many countries. For example, a study conducted in Brazil in 2004–2005 revealed a syphilis prevalence in pregnant women of 1.6% and an estimated 12,000 congenital syphilis cases; by contrast, the reported number of congenital syphilis cases in 2005 was 5,710.[42] Case definitions in accordance with international recommendations, standardized protocols for active case finding, follow-up of suspected cases, and research on the causes of stillbirths all need to be promoted and applied in order to ensure greater validity of reported data as well as regional comparisons.

Among countries where estimated testing coverage for gestational syphilis is 80% or above, those with reported congenital syphilis rates lower than the required target are Anguilla, Antigua and Barbuda, the Bahamas, Barbados, Cuba, Guyana, and Chile. Additional countries that may have achieved the target but do not have data on testing for syphilis among pregnant women are Canada, the United States, Guadeloupe, and Panama.

Case 3:

Elimination of mother-to-child transmission of HIV and congenital syphilis in Cuba

Cuba has consistently high PMTCT coverage, and the country has reported having eliminated HIV among children.[43] Multiple reasons have been cited to explain this relative success: the existence of a solid and accessible maternal and child health program prior to the HIV epidemic, routine HIV testing during the first and third trimesters of pregnancy, provision of antiretrovirals starting at the 14th week of pregnancy (AZT from 1997 to 2008 and ART since October 2008), cesarean section if required, recommendation of breastfeeding cessation, and distribution of infant feeding substitutes—all of which are fully publicly subsidized and provided free of charge to all Cuban nationals.[44,45] Diagnosis and follow-up of children with HIV in Cuba are guided by a well-established protocol. All children born to women with HIV are seen at the Hospital of the Institute of Tropical Medicine Pedro Kourí in Havana; air or ground transportation for the child and up to two family members is provided by the Ministry of Public Health. Polymerase chain reaction (PCR) on filter paper with dried blood spots is performed, and the infant, if negative, is referred to healthy infant care through the neighborhood family doctor program. If the PCR results are positive, after confirmation the infant is referred to a treatment program.

Conclusions and recommendations

This is the first regional report that summarizes the most up-to-date information and current status of progress towards the goal of elimination of mother-to-child transmission of HIV and congenital syphilis in the Americas. Yearly monitoring and reporting of progress will permit comparisons to this 2010 baseline situation.

The majority of countries have advanced satisfactorily in the development of strategies and plans for the Elimination Initiative. Regional, subregional, and national efforts have been successful in strengthening legal and technical frameworks, and activities should now focus on full operationalization of strategies and plans, including long-term allocation of resources.

Promote the integration of HIV, sexual and reproductive health, pediatric, and family and community health services ensuring a gender perspective, social participation, communication, and information

1. Primary prevention is an area that still has major gaps, and greater efforts must be made to increase knowledge and safer sex among people of reproductive age, in particular young women; in addition, appropriate policies must be in place to reduce barriers to HIV testing in adolescents.
2. There are numerous inequities between groups. Young women and poor, rural, and indigenous populations are among those facing the greatest health gaps. Inequalities that preclude access to appropriate PMTCT programs should be addressed at country level and specific measures to overcome them should be implemented (with targeted communities involved in determining strategies to address gaps). Strengthening data disaggregation at the subnational and subpopulation levels will facilitate monitoring of progress.

Strengthen the capacity of health services with respect to the early detection, care, and treatment of HIV and syphilis in pregnant women and their partners and children

3. Access to antenatal care is high in the region, but the infrastructure and capacity of services to deliver high-quality care appear to be lagging. Countries must focus on major challenges such as increasing early prenatal care access testing and treatment as well as follow-up of pregnant women with HIV or syphilis.

4. Studies highlight how expanding services to partners of pregnant women can improve health outcomes among women and their children. Health promotion, testing, treatment, and follow-up of partners are essential. Services should be adapted and scaled up to ensure the involvement of men, which will promote gains in overall family and community health. Monitoring of such efforts is essential to document progress, modify strategies, and identify gaps in service provision.

5. Given the significant impact of breastfeeding on HIV MTCT, it is essential to ensure through monitoring that service providers inside and outside the public health system are compliant with national policies regarding free-of-charge replacement feeding.

Strengthen health systems

6. Improving services to achieve the goal of elimination requires the strengthening of health systems as a whole. It is important to review roles and responsibilities within existing structures and programs, such as maternal health and HIV programs, and effectively integrate efforts in a coordinated manner. This includes addressing organization of levels of care and referrals, using a primary health care perspective centered on the user, ensuring the availability and capacity of human resources, ensuring the availability of drugs and other commodities, simplifying patient flows, ensuring full integration of HIV services with sexual and reproductive health, and closing inequality gaps among young, rural, indigenous, and other vulnerable women.

7. A focus on strengthening laboratory components within the health system, including selection of algorithms, quality control, and laboratory information systems, is key in ensuring point of care access to testing and appropriate diagnosis and follow-up.

8. There is a need to build the capacity of human resources for health in terms of quantity; in order to reach out to all communities, however, it is even more important to consider quality. Issues related to human resources should not be assessed in isolation; there are specifics that should be highlighted with regards to prevention of mother-to-child transmission of HIV and congenital syphilis such as ensuring gender and cultural sensitivity and the capacity for communication and health promotion. Strategies for continuous education, mentoring, and supervision should also be considered.

Intensify HIV and syphilis surveillance and strategic information

9. Data reporting mechanisms are essentially established, but efforts are needed to ensure timeliness and effectiveness in reporting to PAHO, including additional investments in improving analysis and data quality at the country level.

10. Subnotification of HIV cases among infants and of congenital syphilis cases involves challenges such as implementation and scale up of HIV case-based surveillance and congenital syphilis case definitions and protocols for active case finding, investigation of suspected cases among children and stillbirths, and timely diagnosis of congenital syphilis cases. These barriers need to be addressed in order to improve case identification and notification and produce reliable data to measure progress. Case-based surveillance and use of tools such as SIP and online electronic systems (e.g., SUMEVE) are valid approaches to enhancing the quality of data and coverage information systems.

11. Additional data on financial investments, human resources, and high-quality provision of health services is desirable to reflect the level of sustainability, integration, and planning capacity across programs.

In conclusion, a significant number of countries may have achieved or are close to achieving the elimination targets for HIV and syphilis. A certification process, in development, will enable candidate countries to validate their progress in achieving elimination goals. Nevertheless, regionally, the estimated annual HIV transmission rate in Latin America and the Caribbean (15%) has not reached the goal of 2%, highlighting the need to increase HIV testing in pregnant women, provision of ARVs to mothers and infants, and early diagnosis of exposed infants. Despite regional progress, a few high-burden countries need rapidly scaled-up efforts to improve this situation. National authorities, international agencies, academia, civil society, and development partners need to continue working together in order to achieve targets nationally and eliminate pockets of inequities within national borders.

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