

## Maternal and Congenital Syphilis: Case Definitions

Julia Vaiderrama; PAHO. Marco Antonio Urquia Bautista; Secretary of Health, Honduras. Guillermo Galvan Orlich; Rodrigo Siman Siri; Ministry of Health and Social Welfare, El Salvador. María Luz Osimani; Hilda Abreu; Libia Cuevas Messano; Walter Pedreira; Adelina Braselli; Ministry of Public Health, Uruguay. Maria Goretti P. Fonseca Medeiros; Luiza Harunari Matida; Valeria Saraceni; Valdir Pinto; Eduardo C. de Oliveira; Ministry of Health, Brazil. Mary L. Kamb; Centers for Disease Control and Prevention, USA. Angel Almanzar; Ydelsi Hernandez; Ministry of Health, Dominican Republic.

### Introduction

Sexually transmitted infections (STI) are among the main causes of disease in the world, with economical, social, and health consequences that have a negative impact in many countries. Their complications affect mainly women and children. In the case of syphilis (caused by *Treponema pallidum*), it can affect the mother, and be further transmitted to the fetus. It is estimated that two thirds of these pregnancies result in congenital syphilis or miscarriage,<sup>1</sup> complications that could be entirely preventable with accessible and low cost technology.

The World Bank World Development Report (1993)<sup>2</sup> established that the detection and prenatal treatment of syphilis is one of the most cost effective interventions available. Based on several studies and on a theoretical population of Sub-Saharan Africa, in which there were 20,000 annual pregnancies with a positive serological Rapid Plasma Reagin (RPR) prevalence (with a titer greater than 1:8) of 4%, the estimated cost per averted case of congenital syphilis (stillbirth, under weight, and other adverse results of congenital syphilis) would range between 44 and 318 US dollars. The cost for Disability Adjusted Life Years (DALY) would be between 4 and 18.7 US dollars. For comparative purposes, the cost per case of HIV averted in a pregnant woman would be 506 US dollars while the cost for DALY saved would be about 19.2 US dollars.<sup>3</sup>

Internationally, the ambitious agenda based on the Millennium Development Goals (MDGs) presents a great opportunity to promote the elimination of congenital syphilis. The following MDGs are closely related to the elimination of congenital syphilis: promote equality among genders and autonomy of women (MDG-3), reduce infant mortality (MDG-4), improve maternal health (MDG-5), and combat HIV/AIDS and other diseases (MDG-6).

### Background

In 1994, the XXIV Pan American Sanitary Conference called for the development of a regional plan for the elimination of maternal and congenital syphilis as a public health problem in the Americas. The implementation of this plan would require a multi-programatic approach with the participation, at national and local levels, of the following programs: Women and Child Health, Sexual and Reproductive Health, STI/HIV/AIDS, the health services network, and laboratory services.

In 1995, during the 116<sup>th</sup> Session of the Executive Committee of Pan American Health Organization (PAHO), an Action Plan for the Elimination of Congenital Syphilis was outlined.<sup>4</sup> Since then, several countries have implemented scattered activities, but no systematic effort involving the region has been adopted. Because of this, in 2003, PAHO reactivated the initiative and the countries' mandate. To address this issue as well as to strengthen regional capacity, the HIV/AIDS Unit at PAHO has

included the elimination of congenital syphilis as part of its 2004-2005 work plan.

The objective of the Elimination of Congenital Syphilis (ECS) as a public health problem, as defined in this Action Plan, was to reduce the incidence of congenital syphilis to less than or equal to 0.5 cases per 1,000 newborns (including stillborn infants). In order to achieve this objective, it would be necessary to detect and treat more than 95% of the infected pregnant women and to reduce the prevalence of syphilis during pregnancy to less than 1.0%.<sup>4</sup> In 1995, the case definition of congenital syphilis was "each birth product (i.e., stillbirth or live birth) of a woman, with serological evidence of syphilis who was not adequately treated during pregnancy".<sup>4</sup> Up to now, there are no other parameters to measure the progress toward the ECS and although these have not been verified in the field, it does make sense to direct the interventions and the planning, monitoring, and evaluation activities to pregnant woman rather than toward the newborn.

Currently, 10 years after the 116<sup>th</sup> Session of the Executive Committee, PAHO continues to use the term "elimination" to provide visibility to the initiative, promote its implementation, and sensitize decision makers and health professionals. Despite this, to ensure the sustainability of the actions, PAHO intends to maintain an integrated approach from the very beginning.

In addition, to emphasize the overlapping with the prevention of mother to child transmission of HIV activities, the phrase, "prevention of mother to child transmission of syphilis," is being used.

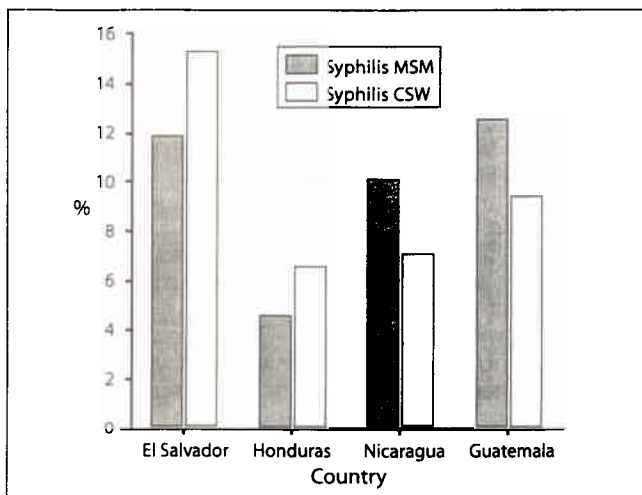
### Syphilis in Latin America and the Caribbean

According to WHO estimates in 1999, the number of new cases of syphilis in the world was 12 million. In Latin America and the Caribbean, new cases were estimated to be three million.<sup>5</sup>

In Latin America and the Caribbean (LAC), syphilis affects sexually active people and presents high prevalence within vulnerable groups. In this sense, in Central America the Project Action AIDS of Central America (PASCA, due to its acronyms in Spanish) study (2003) determined syphilis prevalence in men who have sex with men (MSM), which ranged between 5% in Honduras and 13.3% in Guatemala; and in commercial sex workers (CSW) it ranged between 6.8% in Honduras and 15.3% in El Salvador. In South America, in drug users, in Argentina and Uruguay, the prevalence of syphilis was estimated to be between 4.2% and 4.1%, respectively.<sup>6</sup>

In 2003, reports were received from the countries with information on the prevalence of syphilis in pregnant women,

Figure 1. Prevalence of syphilis in men who have sex with men and in commercial sex workers (Multi-center study PASCA, 2002-03).



which fluctuated between 0.4% in Panama and 6.2% in El Salvador.

The incidence of congenital syphilis reported by the countries ranged between 0.0 cases per 1,000 live births in Cuba and 4.0 cases per 1,000 live births in Brazil. The sources of these data are facility-based screening programs, and a field study in the case of Brazil.

In LAC, PAHO estimates 330,000 pregnant women who test positive for syphilis do not receive treatment during their antenatal care visits. Although the stage of the disease is a determining factor, it is estimated that out of these pregnancies, 110,000 children are born with congenital syphilis and a similar number of pregnancies will result in fetal loss<sup>1</sup> (which could also be stillbirth).

Some of the key factors in this region that are identified as contributing to the persistence of congenital syphilis as a major public health problem include: the lack of perception by health care providers that congenital and maternal syphilis lead to severe health consequences, barriers to access antenatal care services, limited demand for syphilis screening tests among health service users, and stigma and discrimination related to sexually transmitted infections, especially syphilis.

**Case Definitions:**

In May 2004, an experts meeting took place in the Dominican Republic, with a view to preparing the frame of reference for the "Elimination of congenital syphilis in Latin America and the Caribbean." The conclusions of this meeting served as the basis for the development of the document: "Elimination of Congenital Syphilis in Latin America and the Caribbean: Framework for its implementation". Among its contents, the document presents recommendations for surveillance. The case definitions recommended by PAHO for the implementation of congenital syphilis elimination/prevention are the following:

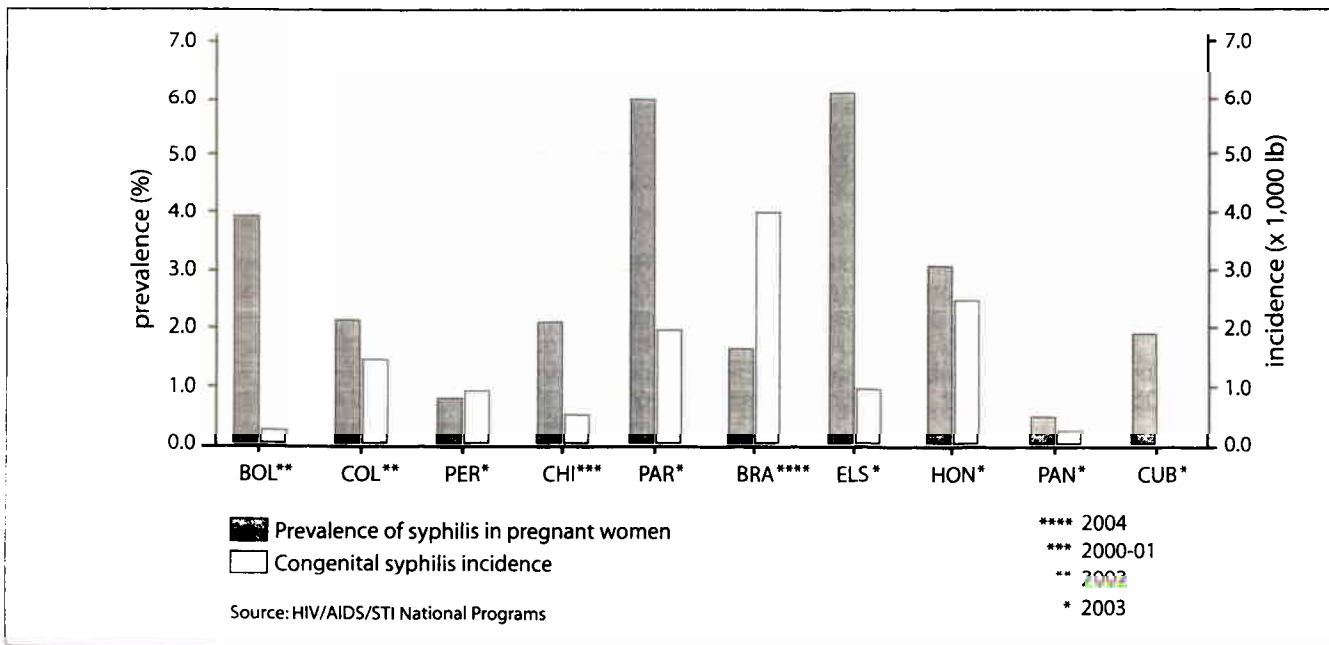
**Case definitions recommended by PAHO  
MATERNAL SYPHILIS**

**Justification for Surveillance**

The fundamental principle of congenital syphilis prevention/elimination consists in detecting and treating the infection in pregnant women in order to prevent mother-to-child transmission of syphilis. All efforts to prevent congenital syphilis should be made at this stage; the detection and the adequate treatment of the pregnant woman should be carried out before the 20<sup>th</sup> week of pregnancy and at the very least 30 days before delivery.

Furthermore, surveillance helps in identifying the cases

Figure 2. Prevalence of maternal syphilis (%) and incidence of congenital syphilis (x 1,000 lb), in several countries in the region, 2000-2004.



of maternal syphilis and to evaluate barriers that may have caused the failure of prevention activities. Surveillance of sexual contact(s) is very important to avoid re-infection. An inter-programmatic approach for detection, treatment, and surveillance activities is needed.

### Recommended Case Definition

"Any pregnant woman regardless of gestation, either puerperal or who has had a recent abortion, who has clinical evidence (genital ulcer or with signs compatible with secondary syphilis) or who has reactive treponemal (including rapid treponemal tests) or nontreponemal tests, and who has not received adequate treatment (carried out before the 20<sup>th</sup> week of pregnancy and at the very least 30 days before delivery) for syphilis during the current pregnancy."

### Clinical description

The first clinical manifestation of syphilis is usually a local lesion at the site of entry. The lesion starts as a dull red macule which rapidly becomes papular and eventually ulcerates. Although primary infections classically present with a painless ulcer (chancere), many primary infections are completely asymptomatic as the chancere may be hidden in the rectum, vagina, cervix, or oropharynx. Local lymph nodes are typically painless, rubbery, non-tender, small to moderate in size, and non-suppurative. Without specific treatment, after four to six weeks the chancere, associated with primary infection, will disappear. At this stage the *T. pallidum*, disseminates throughout the body. Common symptoms in this stage include sore throat, malaise, headache, weight loss, variable fever, and musculo-skeletal pain. In 75% or more of untreated cases, a skin rash will occur.

The classic rash of secondary syphilis begins as a faint, rose-pink macular eruption on the trunk and flexor surfaces of the upper limbs, gradually becoming dull red and macular as it involves the rest of the body. Characteristically, the rash involves the palms of the hands and the soles of the feet and is not itchy or painful. It may also be accompanied by lymphadenopathy. Many variations of the rash of secondary syphilis have been observed, and thus syphilis has been called "the great imitator." Secondary manifestations of syphilis disappear spontaneously with time. Approximately a third of untreated secondary syphilis cases will continue clinically latent for weeks or years. In the first years of its latency, the infectious lesions of the skin and mucous membranes can recur. Syphilis infections can be transmitted to sex partners or unborn children (or occasionally to blood recipients) during the primary and secondary phases.

At any time, the central nervous system or other organs can be affected, for example in the form of acute syphilitic meningoencephalitis in the secondary or early latent syphilis stage; or later in the form of meningovascular syphilis; and finally, in the form of paresis or tabes dorsalis or other manifestations. Occasionally, latent infections persist throughout life.

### Laboratory Diagnostic Criteria

The confirmation of the syphilitic infection can only be obtained with two tests, a nontreponemal and a treponemal. However, in order to have a very sensitive case definition, a positive/reactive outcome of any test (treponemal or non-treponemal) can be considered as syphilis.

The most frequently used test in the Region are: a) nontreponemal, Venereal Disease Research Laboratory (VDRL) and rapid plasma reagin (RPR); b) treponemal tests, microhaemagglutination assay for antibodies to *T. pallidum* (MHA-TP), *T. pallidum* haemagglutination assay (TPHA), *T. pallidum* particle agglutination (TP-PA) and the rapid test (diagnostic technique that uses whole blood on strips and is based on the utilization of treponemal proteins as antigens with a reading time of 1-3 minutes).

### Epidemiological Criteria

If there is no clinical evidence of infection and no available diagnostic test, a careful risk assessment should be carried out in the pregnant woman, taking into account the vulnerability and the behavior of the couple. Health service providers should be empowered to make decisions on whether to treat pregnant women without clinical or serological evidence of the infection.

### Recommended Types of Surveillance

Maternal syphilis should be considered a notifiable disease. Syphilis screening should be recommended as part of routine antenatal care that is integrated into primary health care, and laboratory services.

Syphilis surveillance in pregnant women is based on passive routinely collected data. Ideally, surveillance should cover the entire country and not just the areas of higher prevalence. Maternal and congenital syphilis surveillance should be integrated within the country surveillance system, and especially with the prevention of mother to child transmission of HIV surveillance and programs that promote safe motherhood.

In addition, PAHO recommends maternal syphilis surveillance should be carried out jointly with HIV surveillance. Thus, in areas where sentinel surveillance of HIV in pregnant women is being carried out, syphilis should always be included. Nevertheless, it has to be assessed if the areas with higher prevalence of HIV and syphilis are overlapping.

### Minimum Recommended Data

The notification system should include information on:

- Place and date of registration.
- Name, age, and address of the health service user.
- Time of the diagnosis: prenatal (1st, 2nd, 3rd trimester of pregnancy), childbirth, abortion, puerperium.
- Estimated gestational age at time of the diagnosis
- Type of diagnosis performed (laboratory and/or clinical).

### Recommended Analysis and Presentation of the Data

Because it is a defined, effective, and measurable intervention, prevention of congenital syphilis represents an opportunity to demonstrate the achievement of the objectives at health units, provinces/departments, and country levels. The number of pregnant women with positive serology for syphilis, by age/month/geographical area should be available.

**Maps:** At peripheral, intermediate and central levels, information on antenatal care coverage should be available. In order to provide a situational image, it is recommended to elaborate a map with the localities in which the following indicators would appear: estimated prevalence of syphilis in pregnant women, antenatal care coverage, screening and adequate treatment rates.

## Special Aspects

- On many occasions congenital syphilis is difficult to diagnose; therefore, studying the mother is very important.

The case definitions recommended by PAHO presented before are very sensitive, and this is needed so that treatment will not be overlooked, since syphilis screening in pregnant women, until now, is not a systematic activity in many antenatal care services.

Most of the countries have established congenital syphilis as notifiable disease. However, this has certain limitations due to the contextual situation in the Region, as it is very difficult for stillbirths or abortions to be notified. On the other hand, there are few countries that have established maternal syphilis as a notifiable disease. The detection of syphilis in pregnant women implies their attendance at antenatal care services and the availability of treponemal (including rapid tests) or nontreponemal (RPR or VDRL test) tests in order to determine their serological status. Registration and notification requires the effort and the will of the professionals in charge. This easy intervention would provide evidence that pregnant women are being screened for syphilis, which is a first step leading to the administration of adequate treatment. Adequate treatment during pregnancy is defined as treatment "provided to the pregnant woman at least 30 days (a month) before delivery (that is, penicillin treatment five weeks before delivery is considered adequate; treatment with penicillin three weeks before delivery is considered inadequate)."

Current emphasis on programs for the prevention of mother to child transmission of HIV should be taken into consideration, because they provide infrastructure and represent an opportunity for the elimination/prevention of congenital syphilis.

In order to support the elimination/prevention of congenital syphilis, PAHO has elaborated two documents:

### - Elimination of Congenital Syphilis in Latin America and the Caribbean. Framework for its Implementation

This document is directed to program managers and health professionals of HIV/AIDS/STI programs, providers and planners in the areas of sexual and reproductive health, and maternal and child health. It presents recommendations that allow the implementation of the Regional Program for the Elimination of Congenital Syphilis and the elaboration of national elimination plans. These recommendations can be adopted/adapted according to different contexts. Four strategies for the implementation of the program are presented: attainment of political commitment, development of partnerships and integration with other programs; establishment or strengthening of congenital syphilis surveillance systems, improvement of detection procedures and provision of adequate treatment for maternal and congenital syphilis. The

last part of the document is dedicated to the monitoring and evaluation of the program. The digital version of this document is available on the website:

[www.paho.org/Spanish/AD/FCH/AI/EliminaSifilisLAC.pdf](http://www.paho.org/Spanish/AD/FCH/AI/EliminaSifilisLAC.pdf)

### - Methodology for Syphilis Subnotification Studies in Pregnant Women

Among the factors influencing the persistence of congenital syphilis is the notoriously little understanding of the magnitude of the problem due to limitations of the data produced (as underreporting and subnotification). This document aims to support health professionals, at the service and management level, in improving information systems and supporting advocacy activities. The objective of the document is to support underreporting and subnotification studies of maternal syphilis. The digital version of this document is available in the website: [www.paho.org/Spanish/AD/FCH/AI/SubnotSifilisEmbarazo.pdf](http://www.paho.org/Spanish/AD/FCH/AI/SubnotSifilisEmbarazo.pdf)

**It is important to promote this initiative and to prevent deaths in children and complications of the syphilis in the fetus. The elimination of congenital syphilis is a measurable and attainable objective with few means and some will. All those professionals of health services, information systems, public health, laboratory, and health managers who work on jointly and with clear objectives will make it possible to ensure the success of this initiative.**

### References:

1. Pan American Health Organization, HIV/AIDS Unit HIV/AIDS. Congenital syphilis Fact sheet. Washington, D.C., February, 2004. URL: [http://www.paho.org/Spanish/AD/FCH/AI/sifilis\\_cong\\_hi.pdf](http://www.paho.org/Spanish/AD/FCH/AI/sifilis_cong_hi.pdf). Accessed: May 1, 2004.
2. World Bank. World Development Report 1993: Investing in health. New York: World Bank, 1993.
3. Peeling RW, Mabel D, Fitzgerald DW, Watson-Jones D. Avoiding HIV and dying of syphilis. *The Lancet*. 2004; 365:1561-1563.
4. Pan American Health Organization. Resolution: 116th Meeting of the Executive Comité; XXXVIII Meeting of the Directing Council of WHO for The Americas. Washington, D.C.: OPS; 1995. (Official Document CD38/15).
5. World Health Organization. Global prevalence and incidence of selected curable sexually transmitted diseases: Overview and estimates. Geneva: WHO; 2001. (WHO/CDS/CSR/EDC/2001.10). URL: <http://www.who.int/hiv/pub/sti/pub7/en/>. Accessed: September 10th, 2004.
6. Valderrama J, Zacarías F, Mazin R. Sífilis materna y congénita en América Latina: un problema grave de solución sencilla. *Revista Panamericana de Salud Pública*. 2004;16(3):211-217.

### Editor notes:

The Epidemiological Bulletin is published by the Area of Analysis and Health Information Systems (AIS), Pan American Health Organization, Regional Office of the World Health Organization. Address: 525 Twenty-third Street, N.W., Washington, DC.20037, U.S.A. Telephone: (202) 974.3702. Fax: (202) 974.3674. <http://www.paho.org>. The texts and the images can be reproduced freely provided that 1) the author/image is cited correctly; 2) the text is accompanied by the credit "Reprinted of the Epidemiological Bulletin of the Pan American Health Organization. Pan American Health Organization, Regional Office of the World Health Organization."; 3) A copy of the printed matter is sent to the editor.

Some articles that appear in the Epidemiological Bulletin reflect the standpoints of the author and not necessarily represent the official standpoint of PAHO/WHO.