

ELIMINATING CONGENITAL SYPHILIS

A Global Health Priority

Every year, at least half a million infants are born with congenital syphilis. In addition, maternal syphilis causes another half million stillbirths and miscarriages annually. Yet, with the development of reliable and simple tests the disease could be easily screened and treated at little cost by giving infected women a single dose of penicillin early in pregnancy. The time is ripe for a global effort to eliminate congenital syphilis.

The successful implementation of a programme to eliminate congenital syphilis as a public health problem would contribute to three of the United Nations Millennium Development Goals:

Goal 4: Reduce child mortality.

Goal 5: Improve maternal health.

Goal 6: Combat HIV/AIDS, malaria
and other diseases.

What is congenital syphilis?

Syphilis is a sexually transmitted infection (STI), caused by the bacterium *Treponema pallidum*. If it is not treated in its early stages, the disease can become chronic, spreading through the body and causing irreversible damage to the cardiovascular and nervous systems. At any stage of the disease, if a woman with syphilis becomes pregnant, *Treponema pallidum* may be transmitted to her unborn child, via the placenta, causing miscarriage, stillbirth, or congenital syphilis in the child at birth.

Not all infants born to infected women will be infected. The risk is higher during the early stages of infection. It is estimated that in women with syphilis of a few years' duration, about half of the pregnancies will be affected, with one-half of the affected pregnancies ending in stillbirth (including miscarriages), and the other half in perinatal death or serious neonatal infection (congenital syphilis).

A public health problem

The true global burden of congenital syphilis is difficult to determine. Few countries have statistics on the numbers of infected infants or the proportion of pregnant women with syphilis. Furthermore, the few data that exist do not give a full picture because only 68% of women in developing countries receive antenatal care (ANC) and, of these, about half do not attend until after the first trimester (1). In addition, many affected pregnancies end in miscarriage in the first or second trimester, before women are screened for syphilis (2).

Despite the paucity of data, it is still possible to estimate the size of the problem. For example, it is estimated that in sub-Saharan Africa 2 million women with syphilis are pregnant each year. In an estimated 80% of them the infection remains undetected during pregnancy (3). Syphilis is responsible for 21% of perinatal deaths in Zimbabwe, ahead of any other cause (4). In some African countries, the combined loss of life due to syphilis-related stillbirths and infant deaths is thought to be equivalent to the loss from mother-to-child transmission of human immunodeficiency virus (HIV). In a study in Bolivia, 26% of mothers with stillbirths were found to be infected with syphilis, and 15% of children born to mothers who tested positive for syphilis had congenital infection (3). Globally, the number of deaths (fetal and neonatal) attributed to syphilis is conservatively estimated to be over 500,000 (4).

Congenital syphilis represents a significant financial and emotional burden to individuals and communities in many developing countries.

What can be done?

Congenital syphilis can be prevented by testing women for syphilis early in pregnancy, treating those who are seropositive, and preventing reinfection. Treating the mother with a single dose of penicillin is nearly always effective in preventing or treating infection in the fetus (2).

Thus, congenital syphilis can be eliminated as a public health problem by strengthening antenatal care programmes to ensure two things:

- Early antenatal care for all women, with universal syphilis screening and prompt treatment.
- Ensuring against reinfection by treating all sexual partners, promoting condom use during pregnancy and counseling all women on how to prevent infection.

Why are screening programmes not being implemented?

Although WHO has recommended routine testing of pregnant women for syphilis for many years (5), and while most countries have a policy of such screening, the implementation of programmes has often proved difficult for a number of reasons:

- Lack of awareness on the part of service providers of the extent of the problem in the community.
- Lack of training and logistical support for service providers.
- Many antenatal care providers are uncomfortable with counseling on STI risk reduction and condom use, and they have not been trained in these areas.
- The classical tests for syphilis are difficult to perform, are not suitable for many primary care settings, and results are not immediately available. They are therefore not being used widely; their use being largely limited to referral laboratories.

- There has been a lack of emphasis on the importance of the disease during pregnancy and, hence, little demand for services.
- Lack of research on the prevalence and effects of maternal syphilis has meant that the scale of the problem has often not been appreciated. The causes of miscarriages are often not investigated.
- In some communities, concern about stigma and possible breaches of confidentiality has inhibited demand for services.
- Many women do not receive any antenatal care during pregnancy. Even among women who do attend antenatal care services, many do not do so until the second or third trimester of pregnancy by which time it is often too late to prevent the transmission of the infection to the fetus.

New tests make on-site testing feasible

Simple and effective screening tests for syphilis are now available. These can be used even at the lowest levels of health care service delivery. A simple strip of paper, impregnated with Treponemal antigen, is used to test blood obtained by finger prick. Results are available in just a few minutes.

These point-of-care diagnostic tests are accurate, affordable and simple to perform. Unlike earlier diagnostic tests, they do not require access to a laboratory or a refrigerator. These tests have the potential to change the whole approach to syphilis testing even in isolated clinics. Because the results are available immediately, women can be tested and receive treatment at the same visit. The new tests cost a mere US\$ 0.93–1.44 per woman screened (6). Although this is more costly than the previous standard tests, the new tests are in fact more cost-effective because more women can be tested and treated in a timely manner thus preventing more cases of congenital syphilis. It is estimated that the new rapid Treponemal-based tests cost only US\$ 7 for each case of congenital syphilis averted (7).

Strengthening antenatal care services

Effective screening of pregnant women for syphilis can only be done within a well functioning antenatal care service. Recent WHO studies have shown that pregnancy outcome is not dependent upon the number of antenatal care visits, but rather on their quality (8). Women need to be encouraged to come for care and testing early in pregnancy. Improvement in the quality and content of services would be an incentive for women to present early in pregnancy for antenatal care. Such early attendance will then bring multiple benefits to women and their children.

On a broader front, links with other programmes dealing with sexually transmitted infections (e.g. control of syphilis in the general population) and HIV, (e.g. prevention of mother-to-child transmission, PMTCT), can lead to a more efficient delivery of services. Reaching women with syphilis through antenatal care benefits the infected women themselves and offers an opportunity also to reach their partners, through partner

notification strategies which will contribute towards the reduction of syphilis in the general population.

Opportunities for synergy

The current widespread scale-up of PMTCT of HIV in antenatal clinics offers a golden opportunity to promote early attendance and routine testing for both syphilis and HIV. Resources used to develop appropriate infrastructure for either can benefit both HIV and syphilis prevention programmes. The increasing availability of HIV and syphilis testing can be used to generate interest and enthusiasm for an integrated package of antenatal interventions, with multiple benefits for women, their children and society as a whole.

Time to act

It is possible to eliminate congenital syphilis as a public health problem. Countries need to examine their current policies related to antenatal care, and to assess their current situation in terms of coverage. They need to analyze why women do not come for care early in pregnancy and take steps to overcome all the barriers identified.

To draw attention to the importance of the problem of congenital syphilis, and to take advantage of the opportunities presented by current interest in strengthening antenatal care programmes through the Making Pregnancy Safer initiative, WHO has intensified its work with selected countries to reduce their rates of congenital syphilis by 90% by 2015. These efforts will generate knowledge that can then be used to help other countries develop and implement strategies for the elimination of congenital syphilis as a public health problem.

**To tackle the problem, countries need
technical support, adequate funding, and political commitment to address the
practical aspects of an elimination programme.**

References

1. Antenatal care in developing countries: promises, achievements and missed opportunities. Geneva, World Health Organization, 2003.
2. Berman SM. Maternal syphilis: patho-physiology and treatment. Bulletin of the World Health Organization, 2004, 82:433-438.
3. Deperthes BD, Meheus A, O'Reilly K, Broutet N. Maternal and congenital syphilis programmes: case studies in Bolivia, Kenya and South Africa. Bulletin of the World Health Organization, 2004, 82:410-416.
4. Aiken CG. The causes of perinatal mortality in Bulawayo, Zimbabwe. Central African Journal of Medicine, 1992, 38:263-281.
5. Hira SK. Guidelines for prevention of adverse outcomes of pregnancy due to syphilis. World Health Organization, 1991.

6. Terris-Prestholt F et al. Is antenatal syphilis screening still cost-effective in sub-Saharan Africa? *Sexually Transmitted Infections*, 2003, 79:375-381.
7. Bronzan R et al. On-site rapid antenatal syphilis screening with an immunochromatographic strip improves case detection and treatment in rural South African clinics. *Bulletin of the World Health Organization* (submitted, 2005).
8. Villar J for the Antenatal Care Trials Research Group. WHO antenatal care randomized trial for the evaluation of a new model of antenatal care. *The Lancet*, 2001, 357:1551-1564.

For more information, please contact:

World Health Organization
Department of Reproductive Health and Research
1211 Geneva 27
Switzerland

Email: reproductivehealth@who.int
Web site: <http://www.who.int/reproductive-health/stis/syphilis.html>
www.who.int/reproductive-health