Congenital Syphilis
Frequently Asked Questions

1. What is Congenital Syphilis?

The causative agent of congenital syphilis is the spirochete, *Treponema pallidum*, which is passed from mother to child in-utero (vertical transmission). Mother-to-child transmission of syphilis occurs in up to 80% of cases in untreated mothers. Early congenital syphilis is defined as a condition affecting an infant or child (< 2 years) whose mother had untreated or inadequately treated syphilis at delivery, regardless of signs in the infant. . Late congenital syphilis is a condition that manifests from third year of life onwards following vertically acquired infection.

2. How is Congenital Syphilis transmitted?

Transplacental transmission from the infected mother to her unborn child may occur at any gestation; however, the risk of transmission to the fetus is highest in the third trimester of pregnancy. Therefore syphilis screening and treatment of the mother in the first months of gestation can prevent vertical transmission. Syphilis screening should happen at the first ante-natal visit and treatment needs to be given at least one month before delivery. Adverse pregnancy outcomes due to untreated maternal syphilis infection include: miscarriage, stillbirth, peri-natal death, non-immune hydrops faetalis and congenital syphilis in the newborn.

3. What are the signs and symptoms of Congenital Syphilis in humans?

The stage of maternal syphilis at transmission, gestational age of foetus, adequacy of maternal treatment and the immunological response of the foetus causes the varied manifestations of congenital syphilis. Approximately 30-40% of all infants who acquire syphilis while in-utero, die shortly before or after birth.

Case Definition of Early Congenital Syphilis: A condition affecting an infant or child (< 2 years) **whose mother had untreated or inadequately treated* syphilis at delivery**, **regardless of signs in the infant** OR
An infant or child who has a **reactive non-treponemal test for syphilis (RPR), AND any one of the following:**

- Any evidence of congenital syphilis on physical examination: hepatosplenomegaly, skin rash, jaundice, anaemia, mucosal lesions, nasal discharge
- Any evidence of congenital syphilis on x-ray of long bones: e.g. periostitis, tibial erosions
- An elevated cerebrospinal fluid (CSF) white cell count and protein (without other cause)
- A reactive cerebrospinal fluid (CSF) venereal disease research laboratory test (VDRL) test
- A reactive serum IgM antibody test (e.g. FTA-Abs IgM)

NB: An infected infant may be asymptomatic at birth and only develop signs 4-8 weeks after birth.

*__Inadequately treated mother__: Reactive non-treponemal test for syphilis (RPR) and insufficient penicillin dosing (i.e. **did not receive** at least **1 dose** of benzathine penicillin **more than 30 days before** delivery)

Syphilitic Stillbirth: A fetal death that occurs after a 20-week gestation or in which the fetus weighs greater than 500 g and the mother had untreated or inadequately treated syphilis at delivery.

4. How is Congenital Syphilis diagnosed?

The diagnosis of congenital syphilis depends on a combination of physical, serologic, radiographic, or direct microscopic evidence. The presence of maternal antibodies (non-treponemal and treponemal IgG) which

are passively transferred transplacentally to the fetus, makes the interpretation of reactive serological tests for syphilis in infants difficult. It is therefore necessary to compare infant's titres with maternal serological titres using the same non-treponemal test, and obtain maternal treatment history for syphilis during pregnancy. At birth: if congenital syphilis is suspected at delivery, confirmatory laboratory tests may be performed on placenta/ amniotic fluid/ autopsy material/ exudates from suspicious lesions/ body fluids e.g. nasal discharge, CSF. A presumptive serological diagnosis may also be made when:

a) Infant's non-treponemal (RPR) titer is higher (preferably four-fold higher) than that of mother when both blood samples are drawn at the time of delivery
b) Infant has a reactive non-treponemal serologic titre which is equal to or less than the maternal titre, if the mother has been untreated or inadequately treated for syphilis during pregnancy
c) Infant's non-treponemal titer persists or increases after birth when serial tests are performed
d) Infant's treponemal antibody (TPHA, TPPA, TPAb) titre remains positive at 12-18 months of age.
e) Infant has a reactive serum non-treponemal test and a reactive serum IgM antibody test (e.g. FTA-Abs IgM)

5. How is Congenital Syphilis treated?

WHO recommends that treatment of congenital syphilis in developing countries should be based on the following:

- Identifying maternal syphilis (by RPR) during pregnancy and/or at time of delivery
- Determining the quantitative RPR result of the infant
- Identifying whether a sero-reactive infant has clinical features compatible with early congenital syphilis.
- Determining whether an infected mother was adequately treated for syphilis during pregnancy i.e. received at least **1 dose** of benzathine penicillin **more than 30 days before** delivery.

Category	Treatment Protocol	Alternative Treatment
Symptomatic neonates	IV or IM aqueous crystalline penicillin G 50, 000 units/kg every 12 hours for the first 7 days of life, then every 8 hours after 7 days of life to complete 10-14 days of treatment	IM procaine penicillin 50, 000 units/kg as a single daily dose for 10days
Symptomatic Infants at least 4 weeks of age or older children	Aqueous crystalline penicillin G 50,000 units/kg/dose every 6 hours IV for 10-14 days	
Asymptomatic infants born to RPR positive mothers	Single IM dose Benzathine Penicillin G 50, 000 units/kg given	

6. How can Congenital Syphilis be prevented?

Prevention of congenital syphilis is relies on effective syphilis screening of pregnant mothers. Screening for syphilis should be conducted at the first prenatal visit, and it is beneficial to repeat the test at 32 weeks of pregnancy. An infected mother should receive at least 1 dose of benzathine penicillin at least 30 days before delivery. At delivery, women who for some reason do not have test results should be tested/retested. Women testing positive should be treated and informed of the importance of being tested for HIV infection.

7. Where can I find out more information

- **For Medical/clinical related queries: Contact the NICD Hotline:** +27 82 883 9920 (for use by healthcare professionals only)
- **For Laboratory related queries:** CHIVSTI at NICD +27 11 555 0468/0477 (for healthcare workers/ laboratory staff).