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**Our Issues, Our Drugs,
Our Patients**

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Elimination of Congenital Syphilis in South Africa – **Where are we and what needs to be done?**

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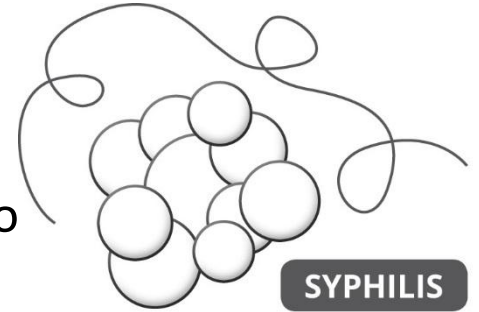
(Project Manager: Knowledge Management and Communication
- Implementation Science, Wits RHI)



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Syphilis – background

- **Syphilis:** a chronic bacterial disease that is contracted primarily by infection during **sexual intercourse**, but also **vertically from mother to infant**.
- The disease is caused by the **organism**, *Treponema pallidum*.
- When transmitted from mother to infant results in congenital syphilis, can cause spontaneous **abortion**, **stillbirth** or **perinatal death**.
- This highly contagious disease is spread primarily by sexual activity has also been found to facilitate HIV transmission.
- Primary syphilis is characterized by painless sores but the vast majority of those sores go unrecognized. The infected person is often unaware of the disease and unknowingly passes it on to his or her sexual partner



Syphilis and pregnancy

Left untreated, syphilis has a dramatic impact on pregnancy outcome. 49% to 67% of pregnant women with active syphilis have adverse pregnancy outcomes, including^{1,2}:

- stillbirth,
- low birth weight (LBW),
- preterm birth,
- congenital infection in a proportion of surviving infants,
- among deliveries of women with untreated syphilis, around one third will result in stillbirth or infant death and another third in congenital syphilis, while only one third of infants will be uninfected³.



1. Hira SK, Bhat GJ, Chikamata DM, et al. Syphilis intervention in pregnancy: Zambian demonstration project. *Genitourin Med* 1990; 66:159–164.
2. Schulz KF, Cates W Jr, O'Mara PR. Pregnancy loss, infant death, and suffering: Legacy of syphilis and gonorrhoea in Africa. *Genitourin Med* 1987; 63:320–325.)
3. Ingraham NR. The value of penicillin alone in the prevention and treatment of congenital syphilis. *Acta Dermatol Venereol* 1951;31 (Suppl 24):60–88.

Syphilis and pregnancy

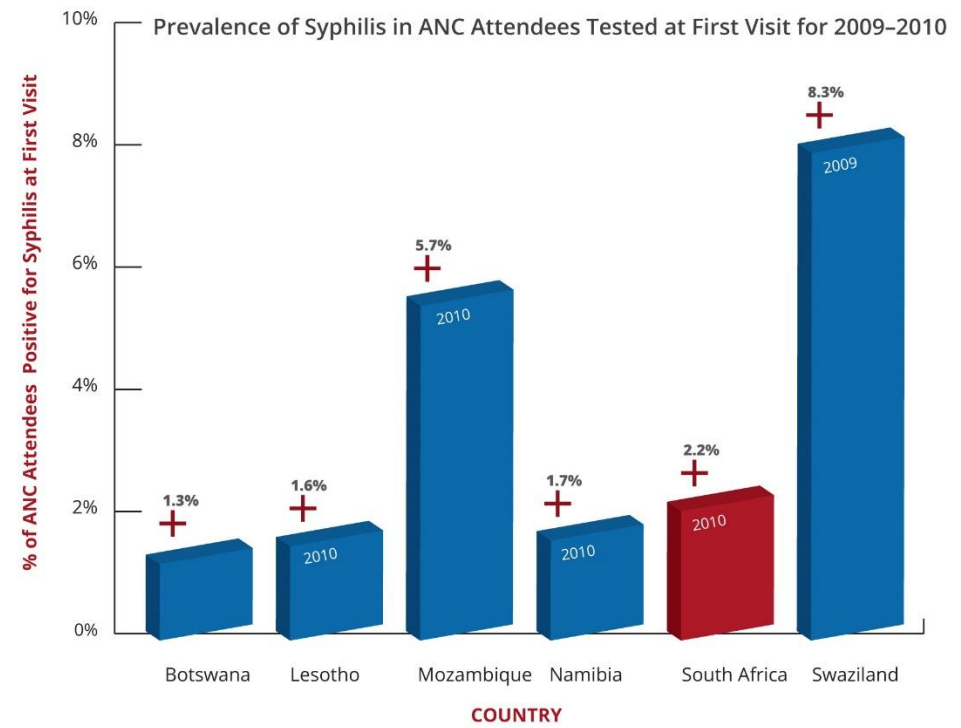
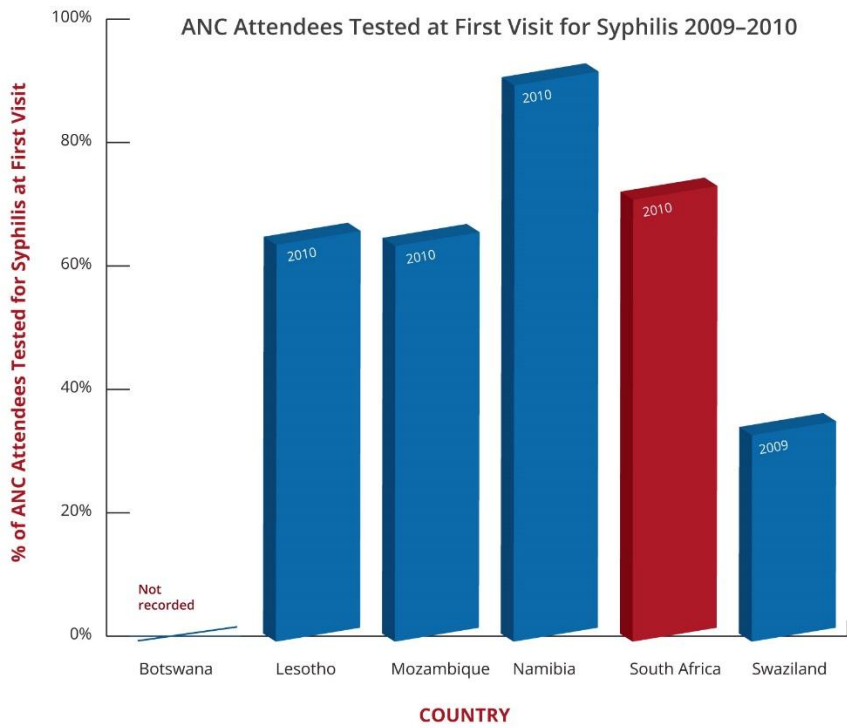
In an African study, 16% of all adverse pregnancy outcomes could be attributed to congenital transmission of syphilis⁶.



- Data from developing countries confirm that maternal syphilis still remains an extremely important cause of perinatal morbidity and mortality⁶.
- The most significant consequence of untreated syphilis in resource poor settings is stillbirth at a rate of 51% among unscreened woman⁶.
- The impact of untreated syphilis in pregnancy at the population level may be considerable.

6. Watson-Jones D, Changalucha J, Gumodoka B, et al. Syphilis in pregnancy in Tanzania. I. Impact of maternal syphilis on outcome of pregnancy. J Infect Dis 2002; 186:940–947.

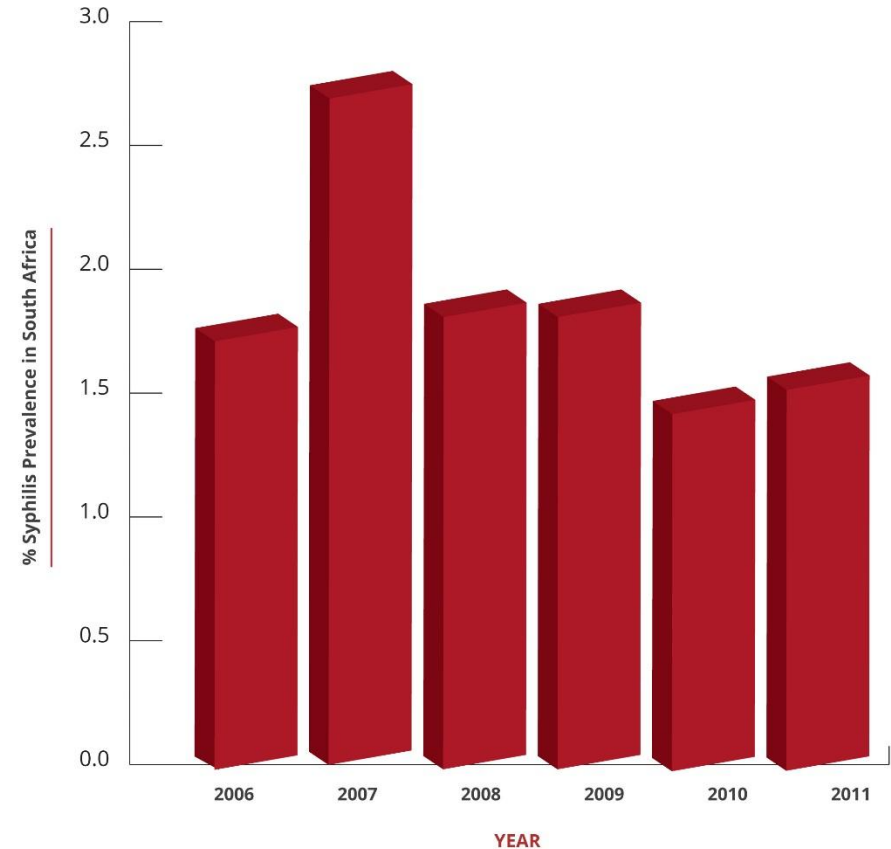
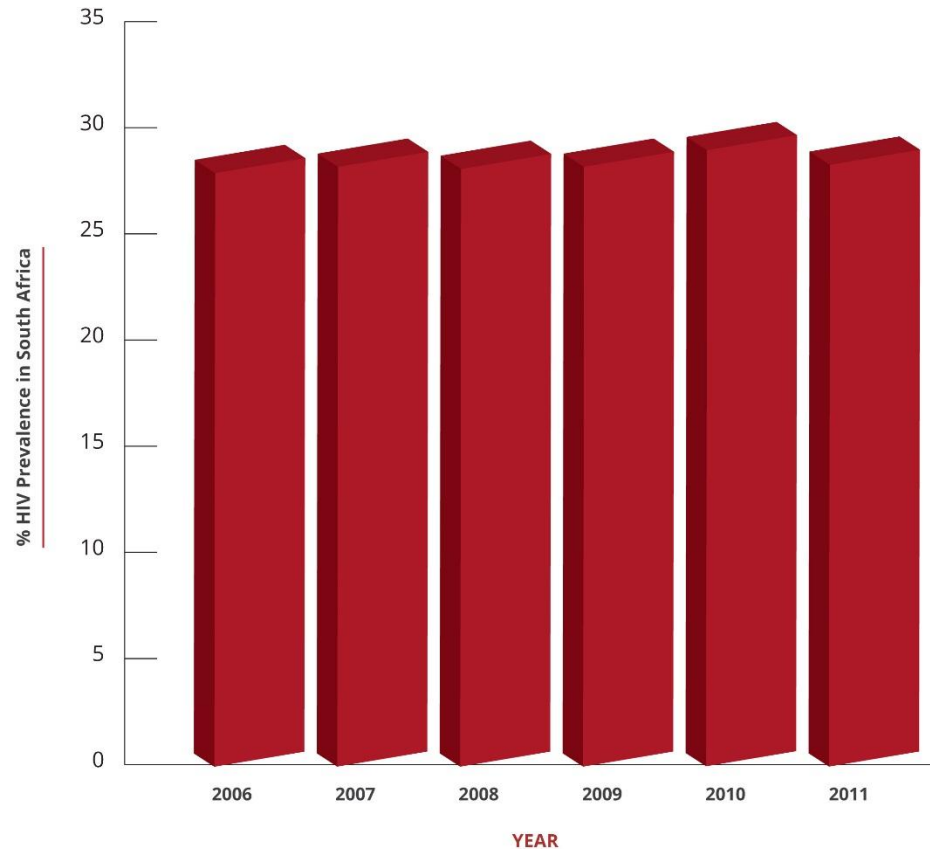
Syphilis testing and prevalence in Southern African countries^{8,9}



8. Guimarães NH, Lopes A, Castro R, Pereira F; Prevalence of human immunodeficiency virus, hepatitis C virus, hepatitis B virus and syphilis among individuals attending anonymous testing for HIV in Luanda, Angola. *South African Medical Journal* 2013 Jan 24;103(3):186-8. doi: 10.7196/samj.6097. <http://www.ncbi.nlm.nih.gov/pubmed/23472697>

9. Kleutsch L, Harvey SA, Waverly R; Rapid syphilis tests in Tanzania:A long road to adoption. *Case Study* 2009. Bethesda MD: Center for human services. http://www.chs-urc.org/chsprojects/Gates/TZ_Syphilis_case_study_final.pdf
(graphic: WitsRHI)

Syphilis prevalence in South Africa has not been declining¹⁰

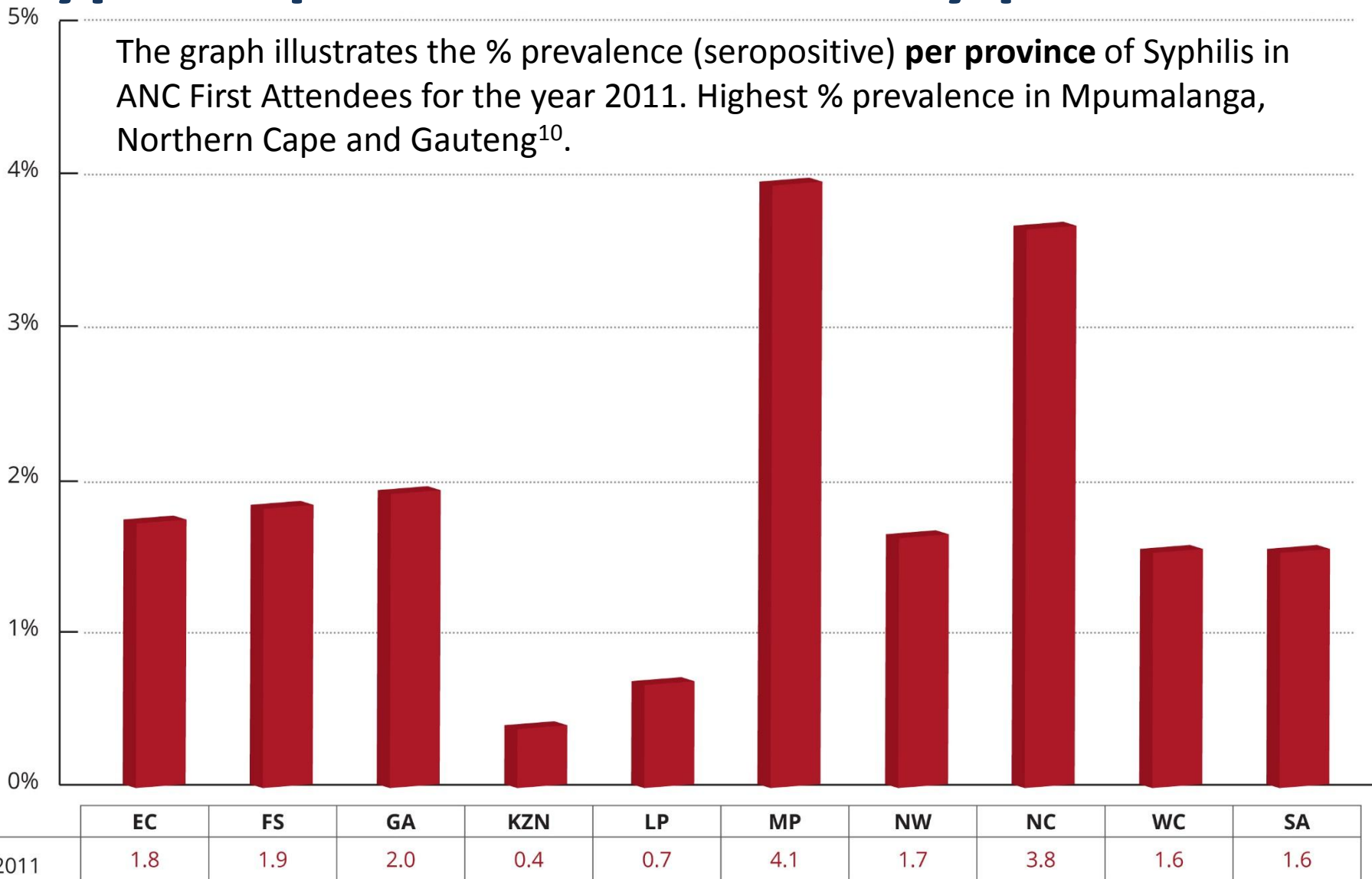


10. NDoH. The National Antenatal Sentinel HIV and Syphilis Prevalence Survey, South Africa, 2011, National Department of Health. (graphic: WitsRHI)



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Syphilis prevalence varies by province



10. NDoH. The National Antenatal Sentinel HIV and Syphilis Prevalence Survey, South Africa, 2011, National Department of Health. (graphic: WitsRHI)



Screening and treatment:

SA current STI guidelines¹¹

Initial Screening: perform syphilis serology through Rapid Plasmin Reagin (RPR) measures. RPR measure can be used to determine:

- if the patient's syphilis disease is active or not,
- re-infection and
- successful response to treatment (4 fold titre reduction).

There is a change of **false positives** with this test as a result of connective tissue disorders or low titres < 1.8. Positive RPR test must be followed up a treponemal specific confirmatory test.

Confirmatory Test: these are treponemal specific tests and include:

- *Treponema pallidum* haemagglutination (TPHA) assay or,
- *Treponema pallidum* agglutination (TPPA) assay or,
- Fluorescent Treponema; Antibody (FTA) assay or,
- *Treponema pallidum* ELISA or, (e) Rapid treponemal antibody test

Reverse algorithm: screening can also start with a specific treponemal test followed by a RPR for patients with a positive treponemal test.

(11. NDoH. Sexually transmitted infections management guidelines. In: Health NDoH, editor. South Africa 2015.)



Current practice



- Maternity guidelines recommend screening at first visit
- Testing predominantly done off site
- Blood taken by nurse
- Transported to laboratory (distance varies) for RPR testing
- Paper copies of results sent back to clinic
- 3 weekly doses of 2.4 MU benzathine penicillin for positive RPR (titre not specified)
- Completion at least one month prior to delivery



Screening and treatment:

SA current STI guidelines¹¹



ALL PREGNANT WOMEN to be tested for syphilis at the first antenatal visit.

No test or results at delivery

Blood should be taken for syphilis serology.

NEGATIVE?

RETEST at 32 WEEKS

POSITIVE?

Treatment: 3 injections over 3 weeks (once per week) - closely follow up compliance of your patient.

NO-SHOW for follow-up treatment?

Trace her if possible.

Neonates are the most vulnerable group: They rely on the responsibility of the mother and father, and on your support.

Syphilis screening among pregnant women does not replace history taking, physical examination and syndromic treatment of symptomatic STIs!

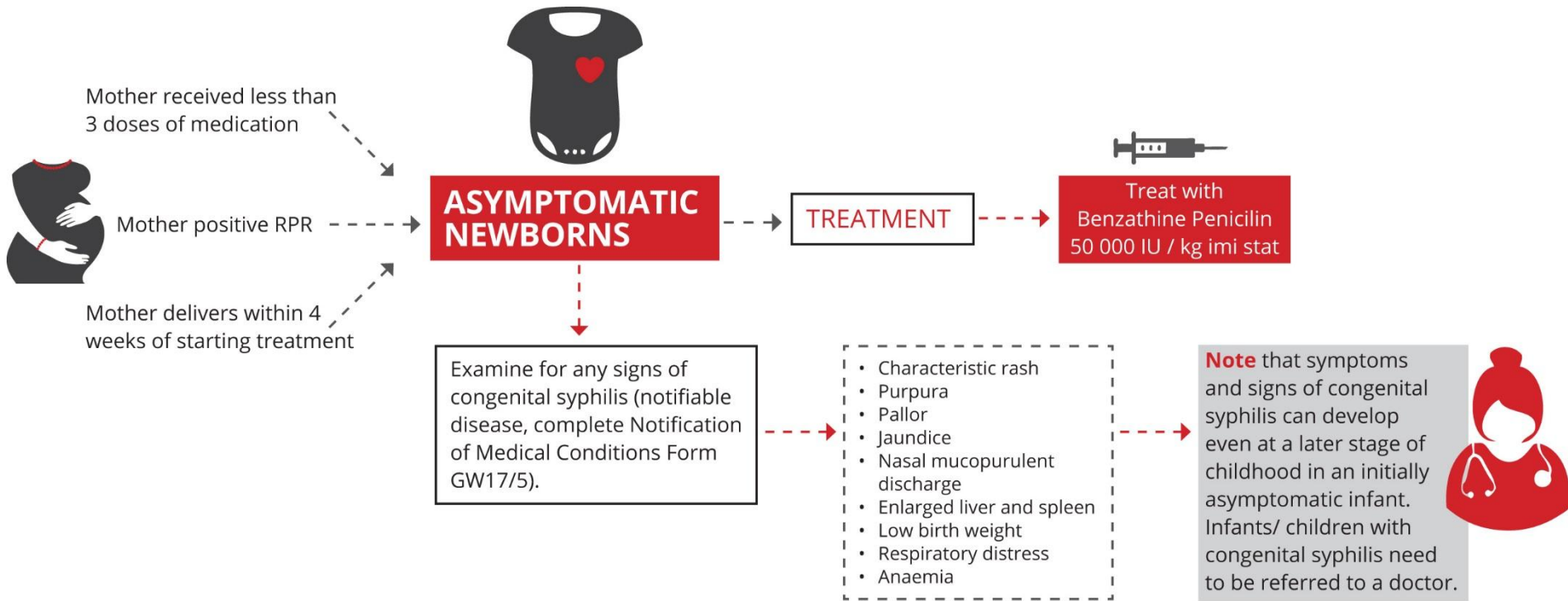
In addition to syphilis screening, each pregnant woman should be pre-counselled for HIV testing ("opt-out" strategy) and tested upon consent.

HIV positive pregnant women should be enrolled into PMTCT programmes when available.



(11. NDoH. Sexually transmitted infections management guidelines. In: Health NDoH, editor. South Africa 2015. graphic: WitsRHI)

Screening and treatment: SA current STI guidelines¹¹



(11. NDoH. Sexually transmitted infections management guidelines. In: Health NDoH, editor. South Africa2015. graphic: WitsRHl)

Screening and treatment:

SA current STI guidelines – **CHALLENGES**

Screening^{12,13}

- **Late Presentation of Women to ANC Services**
 - Only 10.7% present in the before 20 weeks
 - Affects women's ability to complete treatment before delivery
- **Inadequate Staff Training and Motivation**
 - Staff not adequately trained on syndromic management of STI's
 - Staff feel that there is little support and supervision and thus demotivated

Diagnosis^{12,13}

- **Delay in Test Results**
 - Lack of reliable transportation of samples between clinic and laboratory, hence samples are at risk of damage in transit or are spoiled in the clinic due to prolonged and incorrect storage
- **Inadequate Recording of Routine Data**
 - Such as gestational age and titre at diagnosis
 - Suboptimal recording makes performance monitoring challenging

12. Mullick S, Beksinska M, Msomi S. Treatment for syphilis in antenatal care: compliance with the three dose standard treatment regimen. Sexually transmitted infections. 2005;81(3):220-2.

13. Beksinska ME, Mullick S, Kunene B, Rees H, Deperthes b. A case study of antenatal syphilis screening in South Africa: successes and challenges. Sexually Transmitted Diseases. 2002;29(1):32-7.



Screening and treatment:

SA current STI guidelines – **CHALLENGES**

Treatment^{12,13}

- **Inadequate Counselling**
 - Treatment is administered with minimal discussion on transmission, prevention, importance of treatment compliance and partner notification
- **Incomplete Treatment**
 - 35.2% of women did not complete their treatment with 5.8% receiving 2 doses, 13.2% receiving 1 dose and 15.9% receiving no treatment
 - No system in place to track women and partners who do not complete treatment
- **Delayed Treatment**
 - Mean time to receive first dose after diagnosis is 34 days (SA guidelines = within 14 days)
 - 81% of women were treated after 14 days and 18% after 2 months
- **Stock Management**
 - Drugs, notification card, consumables are out of stock on occasion

12. Mullick S, Beksinska M, Msomi S. Treatment for syphilis in antenatal care: compliance with the three dose standard treatment regimen. Sexually transmitted infections. 2005;81(3):220-2.

13. Beksinska ME, Mullick S, Kunene B, Rees H, Deperthes b. A case study of antenatal syphilis screening in South Africa: successes and challenges. Sexually Transmitted Diseases. 2002;29(1):32-7.



% Women attending ANC

In a study conducted in Gauteng and the Northern Cape:

- Only 71% of women were screened for syphilis at the first antenatal visit and the proportion of women screened before the third trimester was 71.7%.⁷
- The study found lower than anticipated testing rates at the first antenatal visit.
- Almost 29% of women presented for their first ANC visit in the third trimester - limiting the opportunity to provide effective prevention against syphilis transmission.⁷



Mothers who are not booked for ANC are more likely to have higher rates of syphilis.

7. Dinh T-H, Kamb ML, Msimang V, Likibi M, Molebatsi T, Goldman T, et al. Integration of preventing mother-to-child transmission of HIV and syphilis testing and treatment in antenatal care services in the Northern Cape and Gauteng provinces, South Africa. Sexually transmitted diseases. 2013;40(11):846-51.

WHO Strategy:

GOAL - global elimination of syphilis as a public health problem

Pillar 1: Ensure advocacy and sustained political commitment for a successful health initiative

- Partnerships at international and national levels
- Raise awareness of syphilis in pregnancy and adverse outcomes, such as stillbirth
- Linking congenital syphilis elimination to other maternal and newborn health services – eg immunization services
- Incorporate clear messages on the benefits of early attendance for antenatal care into maternal and neonatal health-care and other relevant programmes
- Ensure that congenital syphilis is addressed and strategies implemented



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WHO Strategy:

GOAL - global elimination of syphilis as a public health problem

Pillar 2: Increase access to, and quality of, maternal and newborn health services

2A. Where maternal and newborn health-care services exist

- Increase the percentage of pregnant women attending maternal and newborn care facilities early in pregnancy
- Screened and adequately treated, partners of those infected are treated
- Decrease missed opportunities for screening women
- Increase access, and decrease barriers, to care
- Increase the quality of care regarding syphilis testing and treatment of pregnant women
- Improve community awareness of health services and treatment of STIs
- Establish partnerships with nongovernmental healthcare providers to ensure maximum coverage

2B. Where there are no maternal and newborn health-care services

- Minimum package of interventions for prevention
- Establish partnerships with NGOs
- Integrate syphilis activities with other disease-control/ disease-elimination programmes
- Mobilize communities, using advocacy and awareness raising programmes
- Implement an education programme targeting pregnant women



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WHO Strategy:

GOAL - global elimination of syphilis as a public health problem

Pillar 3: Screen and treat pregnant women and partners

- Provide effective diagnosis and treatment of all infected pregnant women and their partners
- Determine the best combination of on-site rapid diagnostic tests, together with same-day treatment
- Treat all patients who test positive with (at least) single dose treatment – 2.4 millions IU of benzathine benzylpenicillin, given intramuscularly
- Treat all infants born to infected mothers, and follow up every three months for the first year of life
- STI prevention and condom use, partner notification and treatment
- Diagnose and treat, or use syndromic approach and treat for genital ulcer disease

WHO Strategy:

GOAL - global elimination of syphilis as a public health problem

Pillar 4: Establish surveillance, monitoring and evaluation systems

- Establish baseline data and effective reporting
- Assign roles and responsibilities, to improve accountability for the elimination of congenital syphilis
- Develop or strengthen systems for monitoring progress
- Evaluate outcomes
- Evaluate sustainability
- Indicators for quality of care, coverage of screening and treatment and awareness



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Multiple areas of the program need strengthening

- Most women come late for ANC – encourage early ANC attendance
- Although screening coverage is high it is still not universal – who are we missing?
- Changing to on site testing/rapid testing/dual testing has the potential to reduce the number of visits made by women
- Improve quality of services: Treatment of mother and infant, counselling partner notification and integration with other services
- M&E and surveillance data required – syphilis testing now dropped from annual antenatal survey

Way forward

- National STI strategy and guidelines are currently under review and provide the opportunity to re-invigorate efforts towards elimination of congenital syphilis
- eMTCT efforts may also provide opportunities for improved screening for pregnant women and infants

