

**An investigation of antenatal screening and
management of syphilis in two districts in the North
West Province.**

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DECLARATION

I Mmaphoko Patricia Chueu, hereby declare that the work on which this dissertation is based is original except where acknowledgment indicates otherwise and that neither the whole work or part of it has been, is being, or is to be submitted for another degree at this or any other university.

Signed:

Signed by candidate

March 2005.

DEDICATION

This work is dedicated to the mothers and babies of our province with a hope for quality maternal and child health.

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ABBREVIATIONS

STI : Sexually Transmitted Infection

STD : Sexually Transmitted disease

IUGR : Intrauterine growth restriction

HIV/AIDS : Human Immunodeficiency virus/ Acquired Immune Deficiency Syndrome

WHO :World Health Organization

RPR : Rapid Plasma Reagin

TPHA : Treponema pallidum haemagglutination assay

VDRL : Venereal Disease Research Laboratory

FTA-ABS test : Fluorescent treponema antibody absorption test

MHA TP : Microhaemagglutination treponemal test

HATTS : Haemagglutination assay test

PPIP : Perinatal problem identification program

NWP : North West Province

GA: Gestational Age

EXECUTIVE SUMMARY

Introduction:

Syphilis is a common sexually transmitted disease in South Africa and infection acquired during pregnancy is associated with an increased rate of miscarriage, stillbirth, preterm labour, intra uterine growth restriction (IUGR), neonatal death and congenital syphilis in the newborn. This study was undertaken in the Potchefstroom and Wolmaranstad Districts of the North West Province and was aimed at contributing to reducing perinatal mortality and morbidity within these districts.

The objectives of this study were:

- To determine the prevalence of syphilis amongst women attending antenatal and/or delivery care in the two selected districts.
- To evaluate the effectiveness of antenatal screening and management of syphilis
- To determine the perception of consumers (antenatal attendees) concerning screening for syphilis at antenatal clinics.
- To determine the perception and understanding of health workers concerning the provision of antenatal syphilis screening and treatment.
- To analyse any inadequacies revealed in the antenatal screening and management of syphilis in the two districts
- To make recommendations for guidelines arising from the results of the research in order to improve syphilis screening in service delivery.

Methods

This was a descriptive study undertaken at hospitals and health facilities (clinics) in the districts of Potchefstroom and Wolmaranstad. It included: a retrospective review of hospital and clinic delivery and antenatal records for 1999 and 2000 to determine details of syphilis screening, treatment, gaps and inconsistencies in the records; interviews with clients to determine their understanding of the purpose of antenatal care, the nature of blood tests at the time of booking and specific understanding of syphilis and its consequences during pregnancy and treatment; interviews with health workers (respondents) to determine knowledge, understanding and attitudes

relating to screening for and treatment of syphilis and any problems that they experienced.

Results

In total, 932 maternity records were reviewed from Potchefstroom district during 1999 and 2000. Four hundred (43%) of these included delivery records (booked and unbooked women) and 532 (57%) included antenatal records (booked women only). There were 133 (14%) unbooked women for whom no syphilis testing was done even at the time of delivery. Of the 799 booked women, all were tested for syphilis using an RPR blood test that was sent to a laboratory. Results were recorded for 715 (89.5 %) and of these, 96 (13.4%) were RPR positive. Of those who tested positive, 72 (75%) completed treatment and 24 (25%) had no or incomplete treatment.

A total of 754 maternity records were reviewed in Wolmaranstad district during 1999 and 2000. Four hundred (53%) of these included delivery records (booked and unbooked women) and 354 (47%) included antenatal records (booked women only). There were 96 (13%) unbooked women for whom no syphilis tests were performed even at the time of delivery. Of the 658 booked women, all were tested for syphilis using an RPR blood test that was sent to the laboratory. Results were recorded for 465 (70.7%) and of these 70 (15%) tested RPR positive. Of those who were RPR positive, 66 (94%) completed treatment, while 4 (6%) had no or incomplete treatment. The study revealed that contact tracing efforts were recorded in only 2 (1.2%) records out of the total 166 clients that tested positive.

A total of 75 clients were interviewed in the two districts. Of these 31 (41%) said that they had booked in the first three months of their pregnancy. Thirty (40%) indicated that they were recalled for results after 3 weeks. Twenty-six (35%) knew that syphilis was a sexually transmitted disease, while 33 (44%) knew that it was associated with "sores on the private parts." With respect to screening for syphilis, 48 (64%) knew that screening for syphilis was necessary to prevent transmission of infection to the newborn.

Forty-one health workers (respondents) were interviewed in the two districts. Forty (98%) said that health education and counselling about syphilis was in place at

health facilities. Client related problems cited included clients failing to return for follow-up visits (73%) and difficulties experienced by farm workers in attending antenatal care (67%). Administration problems that were cited included the limited availability of kits for rapid RPR testing which was said to be available at health facilities by only 46% of respondents in the two districts. Most respondents (63%) said that syphilis blood test results were available after 1-3 weeks.

Conclusion

The main deficiencies identified in this study were lack of syphilis screening of unbooked women; no or incomplete treatment of clients who were positive for syphilis; lack of partner tracing and a long turn-around time from testing to treatment. Such a long turn around time would result in significant delays in commencing treatment. This problem could be overcome by on-site testing with the rapid RPR test, as recommended by the National Maternity Care guidelines. If laboratory services are used which are in the same town as the clinic, then same day results or turn around times of 48hours are recommended.

Recommendations

The following are recommended based on the results of the study:

- Improved awareness among clients and the community about syphilis and its implications especially during pregnancy
- Implementation of rapid on- site RPR card test at antenatal clinics
- RPR testing of unbooked women at the time of delivery
- Implementation of comprehensive reproductive health programmes with the participation of men to prevent re-infection of women who have been treated.
- Implementation of an improved system of antenatal registers for RPR results and treatment.

AN INVESTIGATION OF ANTENATAL SCREENING AND MANAGEMENT OF SYPHILIS IN TWO DISTRICTS IN THE NORTH WEST PROVINCE.

1. INTRODUCTION

1.1. Background

Syphilis is a common sexually transmitted infection (STI) in South Africa. Infection during pregnancy is associated with increased rates of miscarriage, stillbirth, preterm labour, intra-uterine growth restriction (IUGR), neonatal death and congenital syphilis in the newborn. Crane (1992) points out that, in untreated maternal syphilis, about 40% to 50% of pregnancies will result in fetal or perinatal death.

Maternal care forms an integral component of primary health care and free health services for pregnant women in South Africa. Government has a constitutional obligation to provide health care services, including effective antenatal care, to the public. The purpose of antenatal care is to ensure the wellbeing of the pregnant woman and to identify potential problems that may affect her health and that of the fetus (Olds, London & Ladewig 1992). One of the essential components of antenatal care in both developed and developing countries is to screen for maternal syphilis at the first visit for antenatal care. Temmermann (2002) notes that adverse pregnancy outcome due to syphilis is preventable through routine serological screening and treatment of infected women and their partners. However comprehensive and effective syphilis control programmes are still lacking in most parts of the developing world where there may be poorly resourced health facilities with inadequate medical supplies.

It is policy in South Africa to screen for syphilis at the first attendance for antenatal care (South African Health Review 1998). There are detailed guidelines for antenatal screening and treatment of syphilis (Guidelines for Maternity Care in South Africa, 2000). However there are various constraints to the implementation of an effective antenatal screening service especially in developing countries (Olds, London & Ladewig 1992). In South Africa, rural communities and the urban poor often do not have easy access to health facilities and health services may be poorly functioning (Saving Babies 2002).

1.2. Description of the research problem

In 1998 the Department of Health in the North West Province conducted a survey into the prevalence of HIV/AIDS and syphilis amongst pregnant women (Department of Health, North West Province 1998). The prevalence of syphilis in the province increased from 12.3% in 1997 to 17.6% in 1998. Two districts in the province had a particularly high increase in syphilis prevalence. Wolmaranstad District had a syphilis prevalence which increased from 17.8% in 1997 to 31.1% in 1998. Potchefstroom District had a syphilis prevalence which increased from 7.1% in 1997 to 24.7% in 1998. The researchers in the North West Province in both surveys used a cross sectional survey method (Department of Health, North West Province 1998). The sentinel population included pregnant women attending health facilities (clinics) for the first time during their current pregnancy. Sampling with the probability proportional to size (PPS) method was used for site selection. However, it is not clear how and why such a high increase in the prevalence of syphilis occurred between 1997 and 1998. These extraordinarily high increases may have been influenced by sample selection and population changes. Nevertheless, the increase in the prevalence of syphilis formed the starting point for the current study and suggested that there was a need to evaluate antenatal syphilis screening services in these two districts.

1.3. Statement of the problem and research question

For the purpose of the study the following issues needed to be addressed:

Were health facilities in the two districts (Potchefstroom and Wolmaranstad) in the North West Province providing comprehensive services for antenatal syphilis screening and treatment? If not, what deficiencies in service provision could be identified? What were the factors which contributed to problems identified in antenatal syphilis screening and management in the districts of Potchefstroom and Wolmaranstad?

1.4. Motivation for the study

Using syphilis in pregnant women as a reference point, the current study planned to:

- Identify prescribed standards of antenatal care of the National Department of Health for screening and management of syphilis in pregnant women.

- Examine the level of compliance of hospitals and clinics in Potchefstroom and Wolmaranstad Districts with the prescribed standards.
- Identify deficiencies in the functioning of antenatal care services, specifically in relation to syphilis in the North West Province.
- Propose recommendations to address the identified deficiencies.

2. LITERATURE REVIEW

2.1. Pathophysiology of syphilis

Syphilis is a sexually transmitted systemic infection caused by the spirochete *Treponema pallidum*. Tillman (1992) categorized syphilis into four clinical stages: Primary, secondary, latent, and tertiary. The primary stage occurs when the lesion or chancre appears on the vulva, vagina, cervix or other parts of the body. The chancre is infectious and can spread infection to exposed individuals. The secondary signs and symptoms of syphilis usually develop six to eight weeks after the appearance of a primary chancre (Whipple 1992). The secondary stage of syphilis is characterized by skin manifestations, which are wart-like genital condylomata. At this stage there are a high number of treponemes in the blood. The latent stage shows no clinical manifestations of the infection and the diagnosis can be made only by obtaining a positive serological test. Tertiary or late syphilis is rarely seen in pregnancy and consists of gummata in various organs notably of the cardiovascular and neurological systems.

Most infected pregnant women are in the latent phase of syphilis and, although asymptomatic, can still infect the fetus (Cameron, Young and Wilson 1998). The organism may be passed from the pregnant mother to the fetus and, in untreated mothers the child may be born with congenital syphilis. In addition placental and fetal infection during pregnancy can lead to miscarriage, poor fetal growth and stillbirth. The features of congenital syphilis in the newborn include a maculo-papular rash, rhinitis, jaundice hepatosplenomegaly and bony changes radiologically (Kennedy et al.1995).

Syphilis is a progressive disease and does not confer immunity to an infected individual who has been treated, thus reinfection in subsequent pregnancies is always possible.

2.2. Contribution of syphilis to perinatal mortality and morbidity

Perinatal mortality and morbidity due to untreated maternal syphilis is due to miscarriage, preterm labour, intra-uterine death and congenital syphilis.

2.2.1. International context

The prevalence of syphilis among women attending antenatal clinics is usually estimated by the percentage of women who booked and tested positive, which is not always a true reflection of the problem in the broader population. The prevalence of syphilis in women who book is determined more by existing STI programmes. Antenatal screening and management of maternal syphilis can have no impact on the prevalence at booking, but will impact on perinatal outcome. For example, overall rates of stillbirth and congenital syphilis will depend on the initial prevalence of maternal syphilis together with the efficacy of antenatal screening and treatment programmes.

In developed countries there has been a steady decline in the prevalence of syphilis among pregnant women and prevalence rates are low compared to developing countries. However, the prevalence of syphilis among pregnant women in certain developed countries has been found to vary among different population groups and in certain instances low prevalence rates may be attributable to poor documentation or ineffective screening programmes. According to Hurtig et al (1998) screening for syphilis in pregnancy in the UK is routine, although there is no stated policy and the number of maternal cases is unknown. A study conducted in the United Kingdom in 1997 (Cameron, Young and Wilson, 1998) found positive syphilis serology in 12 women (0.02%) out of a total of 58 445 pregnancies that were screened. In Australia, the New South Wales Health Department (1994) reported that the prevalence of syphilis in pregnant women was 0.03% (20-40 per 100 000). However, in a study conducted by How and Bowditch (1994) among a group of Aboriginal women in Australia between September 1989 and September 1991, syphilis was found in 20

(28%) out of a total of 71 antenatal attendees. The perinatal mortality rate was 48 per 1000 births and all stillbirths were associated with maternal syphilis.

In developing countries the prevalence of syphilis in pregnancy is higher than that in developed countries. Schmid (2004) estimated that in Sub-Saharan Africa about two million or more women with active syphilis become pregnant each year. In Cameroon a prevalence rate of syphilis among pregnant women of 17.4% was reported in the 1990's (WHO 2001). High prevalence rates of congenital syphilis have also been reported among newborns in developing countries. For example a study conducted by Ali (1990) at Mount Hope Women's Hospital in Trinidad, from January 1985 to December 1988 showed a resurgence of congenital syphilis. The average annual incidence of congenital syphilis was 115 per 100 000 live births and the absolute number of cases and annual incidence was reported to have doubled in the latter two years of the study. In Addis Ababa in Ethiopia, rates of congenital syphilis as high as 3,200 per 100 000 live births have been reported (Temmermann 2004).

The risks of perinatal mortality are increased if the mother has untreated syphilis during pregnancy. Finelli et al (1998) have shown that congenital syphilis contributed to as many as 29% of perinatal and infant deaths, 26% of stillbirths, 11% of neonatal deaths and 5% of post-neonatal deaths worldwide. Of note was the outcome of untreated maternal syphilis in Mwanza (Tanzania) of women with a high positive titre for syphilis compared to those without syphilis. In the former group there were 15% preterm births, 9% IUGR newborns, 25% stillbirths and 51% normal deliveries while in the latter group there were 3% preterm births, 7% IUGR newborns, 1% stillbirths and 89% normal deliveries (Watson-Jones 2004). Kusiako, Ronsman and Van der Paal (2000) state that in developed and developing countries strategies to improve perinatal health should include prevention and treatment of complications such as syphilis in pregnancy.

Declines in congenital syphilis have been noted in some developing countries as illustrated in the report, "Global Prevalence and Incidence of Selected Curable STIs", (WHO, 2001) which demonstrated a decline in syphilis among pregnant women once antenatal care was instituted. The decline in syphilis prevalence among pregnant

women in developing and developed countries is attributable to implementation of a syphilis-screening programme during antenatal care. Therefore, routine screening in both high and low risk areas is justified among pregnant women, because of the severe neonatal morbidity and mortality associated with congenital syphilis, as well as its potential prevention ("Guide to Clinical Preventive Services", 1996).

The Pan American Health Organization (PAHO) member states have a congenital syphilis elimination program that supports improvements in antenatal care and HIV-prevention (Finelli et al, 1998). It was set up in the Americas in 1995 and field-tested in countries in South America, Africa and beyond. Progress has been reported in Nairobi (Kenya), where syphilis screening of pregnant women increased from 60% to 100% and treatment from 9% to 85%. That report demonstrated attempts made in the reduction of congenital syphilis through improvement in maternal syphilis screening initiatives in developing countries.

The most effective means of lowering the prevalence of sexually transmitted infections (STI's) such as syphilis in the larger community is to focus on reducing the prevalence in susceptible and most vulnerable core groups. STI prevalence in selected sites in the Philippines (1992) emphasized that acceptable, accessible and effective STI services for women at high risk should be provided. According to Peeling and Ye (2004) the decline in the prevalence of primary syphilis was documented in countries where syndromic management of STIs was successfully implemented.

2.2.2. South African context

Syphilis is considered a significant health problem in South Africa. According to Delport et al (1993) a survey was conducted at the end of 1991 to determine the prevalence rate of maternal syphilis; 16 370 subjects from all population groups were tested. The prevalence rate for the blacks and coloureds was 7.1% and 8.1% respectively, while Asian and White groups had prevalence rates of 1.2% and 0.7%. The average national prevalence rate of syphilis in pregnant women in South Africa in 1991 was 6.6% and in some areas it was as high as 10% (Delport and van den Berg 1998).

The results of the 1998 HIV and Syphilis Sero-Prevalence Survey of women attending public clinics indicated that the North West Province had one of the highest incidences (21.3%) of HIV. According to a report in Saving Babies; Fourth Perinatal Care survey of South Africa (2003) an analysis of the syphilis serology results for the deaths categorised as unexplained revealed that 3% of the deaths had positive syphilis serology. The survey further showed that 40.2% of the unexplained stillbirths did not have syphilis serology taken, which suggests that untreated syphilis could have contributed to more deaths than was originally calculated. It is therefore imperative that syphilis screening takes place during the woman's first visit for antenatal care.

2.3 Comorbidity with HIV infection

Screening for syphilis has occurred for many years but in the last ten years HIV has become an increasing problem and is being screened for in many antenatal facilities. The antenatal survey gives estimates of HIV prevalence among pregnant women in South Africa. No direct information is available on infection rates among non-pregnant women, men, newborn babies and children (National HIV and syphilis Sero-Prevalence Survey of women Attending Public Antenatal Clinics in South Africa, 2000). The prevalence of HIV in the North West Province increased from 18.1% in 1997 to 21.3 % in 1998. During the following years there was an increase to 23% in 1999 and slight drop to 22.9% in 2000.

Sexually transmitted diseases seem to act as co-factors for HIV infection by increasing the ability of HIV infected individuals to transmit the virus to others and by enhancing the susceptibility of a person exposed to HIV (Whipple, 1992).

Susceptibility to HIV infection in syphilitic pregnant women is due mainly to the nature of genital lesions (chancres) containing many activated lymphocytes and macrophages, which can act as a source for target cells for HIV (Cameron, Young and Wilson, 1998). Therefore women with syphilitic sores on the genitalia have defects of the epithelium and are thus more susceptible to HIV infection.

HIV infection appears to affect the clinical course of early syphilis probably by increasing the risk for multiple chancres in primary syphilis as noted by Van Voorst Vader (1993) who also suggested that syphilis and a variety of other STIs were a reasonable guide to the incidence of high-risk behaviour relevant to HIV transmission

in defined populations. However, it is important to note that a low prevalence of HIV has been reported in women with syphilis such as in a study where 1587 pregnant women were assessed for HIV and syphilis and it was found that 192 (12.1%) tested RPR & TPHA positive and 1% HIV positive (Rasamindrakotroka, 1996). Nonetheless women who are diagnosed with syphilis are at an increased risk of HIV infection according to Crane (1992) who proposes that counselling and testing for HIV be encouraged in women who are treated for syphilis.

Kofi-Tsepko (1990) reviewed the impact of HIV by looking at disease causation among some African communities. The author argues that many traditional practitioners equate HIV infection with syphilis or other sexually transmitted diseases because modern science has ascribed HIV to sexual transmission. Clients may also find it difficult to distinguish HIV from other STIs and may associate all with witchcraft. Women who hold such beliefs often fall prey to multiple medications for STIs, which pose a threat to effective management and care.

2.4. Components of an effective antenatal syphilis screening service

For antenatal care to be effective in preventing the adverse consequences of maternal syphilis, the following components are essential:

2.4.1. Patient attendance for antenatal care and record keeping

Provision of antenatal care and attendance at antenatal care is regarded as a cornerstone of perinatal care (Saving Babies 2001 Perinatal Care Survey of South Africa) because early diagnosis and treatment of sero-positive mothers can take place thus lessening the possibility of congenital syphilis. According to the Guidelines for Maternity Care in South Africa (2000), pregnant women are encouraged to book for antenatal care as soon as pregnancy is detected or even as early as 4 or 5 weeks gestation. In South Africa 95% of women attend antenatal care, but many women appear to book much later than is recommended (Saving Babies: Fourth Perinatal Care Survey in South Africa, 2003).

A study by Jeffery et al (2000) demonstrated that it is possible to shift the commencement of antenatal care to a much earlier gestational age by offering women a one-stop pregnancy confirmation and first visit.

Zena (1996) states that if existing health services are unattractive to women, this could be an explanation for why women fail to attend antenatal care as they should. User-friendly services would be an added incentive for women to attend antenatal care regularly.

The Guidelines for Maternity Care (2000) regulate that clinics keep records of the number of visits made by a woman during pregnancy, including blood test results and treatment. The antenatal client carries a hand-held patient record that is produced at the clinic to access the antenatal file. Date of visits, record of blood testing and results, and treatment details are recorded. Good record keeping is an affirmation that the relevant care is given during patient care.

2.4.2 Health Education

Women who are tested early in pregnancy and found to be sero-negative for the syphilis blood test must remain uninfected Schmid (2004) says. Thus comprehensive education about syphilis is essential for all women whether they test negative or positive for syphilis. Public awareness campaigns must show why it is important for pregnant women to be tested. A pregnant woman needs to understand that she can pass the disease to her unborn baby, which in turn could lead to the child being born too early, deformed or dead. Such a campaign should also encourage partners to be tested and to take the full course of treatment if infected (Burns et al, 1997) in order for health workers to treat syphilis more broadly. Oppai-Tetteh, Hoosen and Moodley (1993) emphasise the reduction of syphilis prevalence and its effects on perinatal morbidity and mortality through improvement in client education.

2.4.3. Tests performed during antenatal syphilis screening

Delport and Pattinson (2000) state that all women in developing countries should be screened on-site during their first visit to an antenatal clinic and be treated before they leave the clinic. The authors maintain the RPR rapid card test is a suitable test for on-site screening for syphilis since the result is immediately available. This is also specified in the Guidelines for Maternity Care in South Africa (2000) on syphilis. According to the Guidelines, if the first test is done before 20 weeks gestation and is negative, a second test should be done at 36 weeks.

Delport and Pattinson (2000) describe the following tests (non-treponemal and treponemal tests) for serological diagnosis of syphilis during pregnancy:

i)The non-specific treponemal tests (VDRL, RPR, and WR) are flocculation tests. All the non-specific treponemal tests measure the IgG and IgM antibodies, which can be used as qualitative tests for screening and quantitative tests to follow treatment of the patient (Delport and Pattinson, 2000). Oppai – Tetteh, Hoosen and Moodley (1993) found that the non-specific treponemal serological tests used for screening for active disease have the advantage of being widely available, inexpensive, easy to perform and useful in monitoring the efficacy of syphilis therapy. These tests can be done in the laboratory with titres measured. The RPR rapid card test advocated in SA is an on-site test which indicates positivity, but does not measure titres.

The non-specific treponemal tests become positive due to the presence of a reagin in the serum. The reagin is present in the serum when a person who is infected with spirochaetes is tested. If treated adequately the spirochaetes are killed and the reagin slowly disappears from the serum. Ultimately these tests will become negative. The specific tests are for antibodies (IgG) and will remain positive for the rest of an individual's life.

False-positive RPR results according to Delport (1993) occur with low titres, which are usually seen in populations with a low prevalence of syphilis. On the other hand false – negative RPR tests may occur during active disease as a result of what is known as the 'prozone phenomenon'. This occurs when there is an excess of antibody in the serum to such an extent that the formation of the antibody-antigen lattice network required for flocculation is prevented. Delport and Pattinson (2000) have also commented on the problem of false positives. They say that the non-specific treponemal tests will occasionally exhibit false-positive reactions at a rate of 1-2% in the pregnant and general population. The authors further suggest that 90% of false-positive results will have titres less than 1:8 and that over 50% of the reactive non-specific treponemal tests may be false-positive.

Van Voorst Vader (1993) reports that false-positive tests occur with non-specific treponemal tests. Crane (1993) argues that if the non-specific treponemal test is drawn in the incubation, early, primary, or latent stages when the antibody levels of syphilis infection are low, false-negative results may occur. Delport and Pattinson (2000) also indicate that on-site rapid card testing could miss women with very low titres such as 1:2 or 1:4. The authors report that the low titres may be due to successful treatment of syphilis or biological false-positive tests, which may not put the fetus at risk for congenital syphilis. In many developed countries it is policy to perform a confirmatory test (see below) for all positive non-specific treponemal tests, particularly those with low titres (less than 8), because of the problem of false positives. In South Africa this is not done in the public sector because of the extra cost involved and the need to initiate treatment immediately (Guidelines for Maternity Care in South Africa, 2000; Fonn 1996).

ii) Specific treponemal tests are used for confirmatory testing of non-specific treponemal tests. The specific treponemal tests are qualitative tests and cannot be used to monitor the efficacy of treatment according to Delport and Pattinson (2000). The authors indicate that the fluorescent antibody absorption (FTA-ABS) test, the FTA-ABS double staining (DS) test, the microhaemagglutination assay for antibodies to *T. pallidum* (MHA-TP) and haemagglutination treponemal test for syphilis (HATTS), detect treponemal cellular components. Therefore, a reactive treponemal test indicates past or present infection, and a non-reactive test indicates no infection, in the past or present. As stated above, the specific treponemal tests such as the fluorescent treponemal antibody absorption (FTA-ABS) or treponemal pallidum haemagglutination test (TPHA) are not routinely used in the public health services for antenatal patients in South Africa, although these tests are used in some instances for patients in sexually transmitted infection clinics (Beksinska, 2001).

2.4.4. Retrieval and interpretation of results

A healthy client-health provider partnership encourages empowerment of women in their own health during antenatal care. Clients will be keen to know their results as it informs them about important aspects of their own pregnancy, and time should be taken to explain results, even negative ones. Despite the National Guidelines recommendation of on-site RPR testing, it appears that many maternity services in

South Africa, including the districts in the North West Province under study, rely on laboratory services to test for syphilis. Unless the laboratory can provide same-day results as in Cape Town (Smith, de Groot & Roditi, 1993), then laboratory service testing will inevitably result in delays in retrieval of positive results and delays in treatment.

Fonn (1996) in her study on syphilis blood result turn-around time (the time from taking the blood test to initiating treatment) stated that a turn-around time of 13 days in most rural areas could be achieved. This included seven maximum in the laboratory, and same day delivery of results from the laboratory to the health facility. In some facilities such as the Peninsula Maternal and Neonatal Service in Cape Town, laboratory results are received on the same day and treatment commenced immediately. Most antenatal facilities in the North West Province, including the two districts being studied, do not use the on-site RPR test and send blood to their local hospital laboratories. The on-site RPR rapid card testing for antenatal syphilis testing has not been introduced uniformly in health services provision either because some health workers believe blood testing is not a nurse's job, or sometimes it is an administrative matter when delays are experienced in the implementation of on-site testing. Turn around time is also influenced by the date scheduled for the client to attend for her second visit and whether she attends.

2.4.5. Treatment and management of maternal syphilis

Tillman (1992) states that the treatment of syphilis involves counselling and drug therapy with penicillin as the drug of choice. Guidelines for Maternity Care in South Africa (2000) propose that all women with a positive RPR be treated with a regimen of benzathine penicillin 2.4 million units intramuscularly once weekly for 3 doses as the treatment of choice. Fonn (1996) maintains that penicillin is a safe drug and that the prevalence of serious anaphylactic reactions to penicillin are said to range from 1.5 to 4 per 10 000, which confirms the use of penicillin as a drug of choice for syphilis treatment. Erythromycin 500 mg 4 times daily for 28 days is available as alternative treatment for those women who are allergic to penicillin. The Guidelines also suggest penicillin desensitisation in hospital, but very few units do this because treatment of the mother needs to be implemented as quickly as possible and the capacity to perform desensitisation is not available at primary and secondary level.

The National Guidelines: Comprehensive Management & Control of Sexually Transmitted Infections–Draft (2003) underscores this limitation noting that penicillin desensitisation of pregnant women with syphilis “is not feasible in most primary health care settings and thus cannot be recommended as a routine procedure.” Dickason, Schult and Silverman (1990) state that after antibiotic treatment, VDRL titres for the remainder of pregnancy need to be checked and the woman treated if a four-fold rise in antibody titre occurs. In South Africa this is not done routinely, again based on incapacity.

2.4.6. Treatment and management of the neonate

A symptomatic infant will have clinical, laboratory (CSF and full blood count) or radiologic evidence of congenital syphilis. An asymptomatic infant will not have clinical, laboratory or radiologic evidence of syphilis, and this may include infants of mothers who have been partially treated or who have been fully treated but whose records are inadequate. There is general agreement in the treatment of symptomatic congenital syphilis according to Ballot and Rothberg (1993). However the authors note that many of the asymptomatic infants may be uninfected; consequently there is the potential for over reporting and over treatment.

According to Delport and Rothberg (1998) the following neonates require treatment with procaine penicillin G 50 000 U/kg, which may be administered intramuscularly once daily for 10 days:

- Neonates who are symptomatic for congenital syphilis with positive serology in mother and fetus.
- Asymptomatic infants with RPR titre four times higher than the maternal titre should also be treated as above.

An asymptomatic full-term infant with a VDRL or RPR titre less than the maternal titre and whose mother was untreated or treated within 30 days of delivery poses a diagnostic dilemma, because serological methods cannot distinguish between active infection or passive immunity unless follow-up serology is performed. The authors add that if serological follow-up of the infant cannot be assured, a 10-day treatment regimen with aqueous penicillin G (100 000 – 150 000 units/kg/day) IV or procaine penicillin (50 000 units/kg/day) IM should be administered.

Nel (1995) suggests that prophylactic treatment of the neonate is not indicated, except where pregnant women had been treated with erythromycin. Cameron, Young and Wilson (1998) argue that if erythromycin is used, the baby should be treated with penicillin after delivery. However, according to the HIV/AIDS & STI Policy Guidelines (2003) in the case where the mother was treated with erythromycin during pregnancy, if the baby has physical signs (with or without an abnormal CSF, full blood count or radiology) of congenital syphilis or a non-treponemal titre fourfold greater than the maternal titre a 10-day course of treatment with aqueous penicillin or procaine penicillin is required. If the infant has a normal physical examination (including CSF, full blood count and radiology) and a non-treponemal titre the same or less than fourfold the maternal titre, a single dose of benzathine penicillin may be given but follow-up is required. In cases of penicillin allergy Doxycycline and Tetracycline can be effective treatment for syphilis; however, these drugs are contraindicated in pregnancy because of yellow-brown discolouration of the fetal deciduous teeth.

Dickason, Schult and Silverman (1990) maintain that the neonate should receive a full course of penicillin and routine screening of fetal cord blood samples with a non-treponemal test to aid in identification of congenital syphilis. However Delport and Pattinson (2000) reject the idea of using cord blood to indicate the need for neonatal follow-up treatment. They say the decision to treat should depend on maternal blood syphilis testing because treatment history of the mother and clinical evaluation of the infant could be used to predict the risk of asymptomatic congenital syphilis.

2.4.7. Counselling and partner referral

Syphilis is a sexually transmitted infection which does not confer immunity to the infected individual who has been treated, thus reinfection is possible on sexual engagement with untreated partners (Tillman 1992). Research done by Cooper (1981) shows that the mode of transmission through sexual intercourse makes it imperative for partner tracing and treatment, because it is possible for reinfection to occur.

Padayachee et al (1990) argue that if antenatal screening is to be effective, it should be mandatory for women's partners to be fully investigated as well, and off-spring followed-up appropriately. Partner treatment and follow-up is an essential component of the maternal antenatal syphilis screening if significant strides are to be achieved in the prevention and management of congenital syphilis. According to the report in Perinatal Care Survey in South Africa (2000) the prevalence of syphilis can be lowered and its effects on perinatal morbidity and mortality be reduced only through repetitive testing in pregnancy, treatment of sexual partners and improvement in health education.

2.4.8. Management of the unbooked patient in labour

It is reported that 95% of women in South Africa attend antenatal care (Saving Babies: Fourth Perinatal Survey of South Africa; 2003), however there is still a significant number who do not attend antenatal care, but deliver at health facilities as 'unbooked'. The reason for antenatal non-attendance is not quite clear, however according to the above survey report the 'unbooked status' is a reflection of socio-economic and cultural factors.

The unbooked woman's blood should be tested for syphilis sero-reactivity on admission in labour to decide on maternal and neonatal treatment and management should the results be positive. The on-site RPR rapid card test is preferable for the commencement of treatment before the woman and baby leave the health facility as indicated in the Maternity Guidelines for Maternity Care in South Africa (2000).

2.4.9. Perinatal audit

The Perinatal Problem Identification Program (PPIP) is an audit tool implemented in all provinces in South Africa. It is a system for auditing perinatal deaths which identifies causes of death and avoidable factors. It provides a uniform system for classifying perinatal death by cause and classifying avoidable factors into three categories (patient related, administrative and clinical management).

Once the information is available, priority problems are identified and appropriate solutions are sought (Saving Babies 2000, Perinatal Care Survey of South Africa). The report on Saving Babies Fourth Perinatal Care Survey of South Africa (2003)

revealed that syphilis is a major cause of perinatal deaths. There were 258 deaths (2%) that were recorded as being due to syphilis. The report revealed that 92 (3%) of unexplained deaths had positive serology. It found that screening for syphilis was not performed in 40% of unexplained intrauterine deaths hence deaths due to syphilis were said to be under reported. It is important that health personnel hold mortality meetings as a measure of quality improvement through peer review efforts so that appropriate solutions can be sought and implemented.

The following is a summary of antenatal syphilis management according to the Guidelines for Maternity Care in South Africa, 2000:

Syphilis serology testing in pregnancy

- All pregnant women should undergo RPR testing at the first antenatal clinic visit. If the first test is performed before 20 weeks gestation and is negative, a second test should be done at 36 weeks.
- A rapid card test is done by the antenatal clinic staff, to give results before the mother goes home. This allows immediate treatment of an RPR-positive woman.
- Specific treponemal tests such as FTA-Abs and TPHA are not normally used in the management of syphilis in pregnancy in South Africa.

Management of women with positive RPR tests

- Treat all women with positive RPR irrespective of titre values.
- Administer benzathine penicillin 2.4 million units IM once weekly for 3 doses. Give Erythromycin 500mg 4 times daily for 28 days to women who are allergic to penicillin. Penicillin desensitisation (in hospital) may also be considered. If Erythromycin is used, the baby should be treated with penicillin after delivery.
- Notify partner to come for examination and treatment

2.5. Constraints to implementing an effective antenatal screening and treatment service

2.5.1. Antenatal care attendance

Pregnant women are encouraged to book for antenatal care as soon as pregnancy is detected, even as early as 4 or 5 weeks gestation (Guidelines For Maternity in South Africa; 2000). However there are women who do not attend antenatal care (unbooked), who book late or do not attend as expected.

Evidence suggests that women who deliver infants with congenital syphilis are amongst those who did not access antenatal care (Schmid 2004). Non attendance for antenatal care is often viewed as a major risk factor for congenital syphilis in developing countries.

2.5.2. Administrative factors and clinical management factors

The WHO (1994) showed that the high perinatal mortality rates in developing countries reflect lack of appropriate resources, such as limited identification and treatment of sexually transmitted diseases in high prevalence areas. This lack of appropriate resources to facilitate syphilis screening such as that of skilled maternity staff, laboratory forms or specimen bottles, irregular transport for blood specimens, delays in returning laboratory results, and lack of appropriate drug therapies are all examples of administrative deficiencies in maternal health programs. Schmid (2004) cites the 'inability to maintain a syphilis testing service that requires transportation of blood to a centralized laboratory for testing' as a major obstacle in antenatal syphilis screening. The author points out that decentralized testing (rapid RPR syphilis testing) leads to more women with syphilis being detected and treated. In addition clinical management by health workers (doctors or midwives) may be inadequate due to ignorance about accepted protocols or failure to implement standard guidelines.

2.6. Contextualizing the problem of syphilis in pregnancy

2.6.1. Patient's perceptions about Sexually Transmitted Infections

In Setswana, the commonly spoken language in North West Province, Sexually Transmitted Infections are referred to as "bolwetse jo bo tshelanwang ka thobalano" (diseases spread by sexual contact). Syphilis is called Sifilisi. Other local names are 'thosola', 'matsabane' or 'rasephiphi'. (Multilingual AIDS Terminology, 1999). However a commonly used name by health workers during antenatal care is 'vuilsiek' which means 'dirty blood'. This negative connotation could result in shame or stigma to the individual and may thus delay pregnant women seeking treatment, which, in turn, subjects the unborn infant to congenital syphilis.

Staugard (1985) reports that venereal diseases are often explained among the Batswana as a consequence of transgressions of sexual taboos. Sexually transmitted diseases are classified as 'impure blood' always emanating from women. Males are not considered capable of transmitting sexually transmitted diseases.

Men commonly express having contracted sexually transmitted disease as 'go lomiwa ke basadi' meaning infected by women. The infected man holds the belief that the woman is a primary host or 'reservoir' of the disease. The belief has a direct impact on the treatment of the disease as partner tracing becomes a difficult exercise in communities that generally believe that men are not capable of transmitting sexually transmitted diseases (Staugard 1985). On the contrary, where partner cooperation is attained through adequate information in STD management, success is achieved. Behets et al (1998) cite a study in Haiti in 1993 where a partner-referral pilot trial showed that 30% of the male partners of pregnant women with an STD presented at the clinic for treatment as a result of referral by the women.

2.6.2. Poverty

The population in the North West Province is predominantly poor with high levels of illiteracy that seriously affect the people's productivity and ability to compete for jobs. The percentage of people living in poverty was 44.30% - 55.4% between 1994 and 2004 (Annual report 2003/2004 NWP). Women in particular are most affected due to gender imbalances and greater dependency on men for their livelihood. Poverty and a lack of education put women in a position where they are less able to negotiate for the use of safe sexual engagements. Reference is made especially to women who become re-infected as a result of being unable to negotiate with an infected partner during sexual relations. It is reported that women are socially more vulnerable, they are expected to be more passive in their sexual relationships, and are often more dependent on men for their economic support (Highsmith 1997, Treger 2002). Improvements in the quality of care are necessary to ensure that women are able to access the information and services they need. This can be made possible through expanding and improving training for all health care providers in reproductive health services (Alcala, 1995).

3. AIM OF THE STUDY

The overall aim or the intended outcome of the study was to contribute towards the reduction in perinatal mortality and morbidity rates from congenital syphilis.

4. SPECIFIC OBJECTIVES OF THE STUDY

- a) To determine the prevalence of syphilis amongst women attending antenatal and/or delivery care in two selected districts.
- b) To evaluate the effectiveness of antenatal screening and management of syphilis.
- c) To determine the perception of consumers (antenatal attendees) concerning screening for syphilis at antenatal clinics.
- d) To determine the perception and understanding of health workers concerning the provision of antenatal syphilis screening and treatment.
- e) To analyse any inadequacies revealed in the antenatal screening and management of syphilis in the two districts, and to categorise problems identified into patient –related, administration-related and medical-related groupings.
- f) To make recommendations for guidelines arising from the results of this research in order to improve syphilis screening in service delivery.

5. METHODOLOGY

5.1. The study population

The population of the North West Province is estimated at 3.4 million people according to the 1996 census. Approximately 65% of the population live in rural areas. Health facilities include three provincial hospitals, two psychiatric hospitals, 23 district hospitals, 343 clinics, 56 community health centres and 100 mobile clinics (Strategic Plan of North West Province 2003). Potchefstroom is an urban district with a hospital (Potchefstroom) and 10 clinics that provide antenatal care services for urban, farm and informal settlement communities. Wolmaranstad district has one hospital (Nic Bodenstein) and eight clinics that have antenatal care facilities also for its rural, farm and informal settlement communities. All clinics and health centres in

both districts render antenatal care services and not deliveries. Women give birth at local hospitals.

Routine antenatal blood tests at clinics in both districts comprise syphilis serology, Haemoglobin (Hb), and ABO blood grouping. The rapid plasma reagin (RPR) test is the most common antenatal syphilis test done in the North West Province health facilities. Some clinics in Potchefstroom and Wolmaranstad performed the HIV serology testing following principles of voluntary counselling and testing.

5.2. The study design

This was a descriptive study which mainly involved quantitative techniques which were used in collecting and analysing aspects of the data.

Evaluation of effectiveness was performed by examining the level of compliance of Potchefstroom and Wolmaranstad districts with the prescribed standards of antenatal care with respect to syphilis screening and treatment according to standards laid down by the National Guidelines for Maternity Care in South Africa (2000).

5.3. Methodologies to achieve individual objectives

5.3.1. Prevalence of syphilis amongst women attending antenatal and/or delivery care in the two selected districts based on a retrospective record review.

Retrospective antenatal record review 1999 and 2000

(a) Sample

The plan was to review 1600 antenatal records from the two districts for 1999 and 2000. This was to include about 200 antenatal records per year from each hospital using a checklist (data collection schedule – see appendix). The figure was based on the average antenatal attendance per month at each district which was 248 for Potchefstroom and 180 for Wolmaranstad.

(b) Sampling method

Attendants at record storage facilities were given instructions to select antenatal records from the hospitals according to their numbers, i.e., every tenth record was selected. It was possible to maintain the count as there were more than 3000 maternity folders for 1999 and 2000 at each hospital.

All available antenatal records for 1999 and 2000 of women who attended antenatal care at Potchefstroom and Wolmaranstad health facilities (clinics) were reviewed for syphilis screening and management. The records were obtained at the local hospitals in both districts where the women had given birth and in clinics where women attended antenatal care. Clinics in both districts did not conduct deliveries, therefore, the final destination for the antenatal record was the hospital where the delivery took place.

5.3.2. Effectiveness of antenatal screening and management for syphilis (based on the National Maternity Care Guidelines).

This included data on antenatal attendance; details of testing; recorded results and treatment details, which were taken from the retrospective record review (see 5.4.1)

5.3.3. Perception of antenatal attendees concerning screening for syphilis at antenatal clinics.

This was done through interviews conducted with patients (clients).

(a) Sample :

Women were interviewed at clinics in Potchefstroom and Wolmaranstad Districts. The plan was to interview 10 women at eight clinics in Potchefstroom district and at seven clinics in Wolmaranstad.

(b) Sampling method:

Patient Questionnaires and Interviews

A semi-structured questionnaire (see appendix) was used to interview women attending antenatal care. The women were randomly selected by an assistant (nurse at the clinic) who was briefed about the research to be conducted. The patient-waiting area was arranged in rows of stationary benches. Every 5th patient in each row was selected for the interview. To eliminate bias the women did not know why they were selected.

Patients were free to participate or leave if they so wished. The questions were asked in Setswana which is a commonly spoken language in the North West Province. Other spoken languages were, however, used according to the patient's preference. Patients were allowed to ask questions where they did not understand.

The researcher also probed some of the questions in order to gain more understanding.

5.3.4. Perception and understanding of health workers concerning the provision of antenatal syphilis screening and treatment.

Health worker questionnaire

(a) Sample :

All midwives in the two districts were given an equal chance of participation. No specific number was specified since the staff complement differed from area to area and there were a limited number of professional nurses. Nurses during the day and night were given an equal chance to respond to the questionnaire.

(b) Sampling method:

Health care personnel at Potchefstroom and Wolmaranstad district clinics and hospitals were interviewed using a structured self administered questionnaire.

A sealed envelope containing health worker questionnaires was delivered to the health facility manager with clear instructions. Questionnaires were handed to the midwives and collected and dispatched back to the researcher in a sealed envelope.

5.3.5. Inadequacies revealed in the antenatal screening and treatment of syphilis in the two districts, and to categorise problems identified into patient-related, administration-related and medical related groupings

Information obtained from the retrospective record review, client interview and health worker interviews was used to categorise identified problems.

5.4. Data Collection

Three components of the study were investigated and described:

5.4.1. Retrospective Record Review

The clinics and hospitals were checked for any antenatal records to determine gaps and inconsistencies in record keeping in both districts. Information was obtained on:

- percentage of booked women who were tested for syphilis;
- percentage of those tested for whom results were available;
- percentage of test positive women who received treatment;
- percentage of test positive partners who received treatment; and
- percentage of unbooked women tested at the time of delivery. In addition, if data were missing from patients' records, then these would be checked with laboratory records.

5.4.2. Patient questionnaire and Interviews (See appendix. Data collection form)

The interview was aimed at ascertaining the women's general understanding and perceptions of antenatal care and their specific knowledge related to syphilis screening. Questions were asked about:

- women's understanding of the purpose of antenatal care;
- optimal time for booking;
- knowledge of tests for which blood was taken;
- knowledge of the results;
- whether partners were informed of blood results; and
- syphilis specific knowledge.

5.4.3 Health Worker Self-administered Questionnaire (See appendix interview questionnaire)

The questionnaire was aimed at elucidating health workers' understanding and practice related to syphilis screening and their perception of any problems in the screening provided (see appendix). Questions were asked about:

- health workers' views on clients attendance for antenatal care;
- perception of syphilis as an increasing problem;
- strategies put in place for women to understand the purpose of syphilis screening;

- whether there were any problems relating to the laboratory or availability of testing equipment;
- management policies for women who default on treatment; and
- management of unbooked women at delivery who had not been tested antenatally for syphilis.

5.5. Data entry and analysis

The information was categorised and classified in tables to describe those factors which could contribute to any problems identified in antenatal syphilis screening and management in the specific context of the two districts of Potchefstroom and Wolmaranstad in North West Province. Data were obtained through retrospective patients' record review for 1999 and 2000 in the two districts mentioned. Data were captured and analysed manually. The report and analysis were descriptive.

5.6. Ethical Issues

The study was underpinned by a number of ethical considerations.

Primarily, recognition was given to the character and confidentiality of information given by women attending antenatal care. As a registered professional midwife, nurse educator and advanced midwife with the South African Nursing Council, the researcher is bound by the Nurses' Pledge and Code of Conduct.

The Research Proposal was approved by the Ethics Committee of the University of Cape Town and complies with all the regulations governing such academic work.

During field study, permission for conducting research was obtained from the Panel of the Departmental Research Committee of the North West Department of Health, and the district managers of both districts (see appendix).

6. RESULTS

6.1. RETROSPECTIVE RECORD REVIEW

The results outlined in this section relate to objectives 1 & 2 of the study.

In total, 932 maternity records were reviewed from the Potchefstroom district. Four hundred of these included delivery records (booked and unbooked women) and 532 included antenatal records (booked women only). In Wolmaranstad district 754 records were reviewed. Of these 400 included delivery records (booked and unbooked women) and 354 included antenatal records (booked women only).

6.1.1. Potchefstroom District

Table: 1. Number (%) of women who booked antenatally Potchefstroom Hospital (n = 400)

BOOKED	1999	2000	TOTAL
YES	125 (62.5)	142 (71)	267 (66.8)
NO	75 (37.5)	58 (29)	133 (33.2)
TOTAL	200 (100)	200 (100)	400 (100)

The antenatal records at hospital level were attached to delivery records. The total number of women who booked for antenatal care in 1999 and 2000 was 267 (66.8%). Those who did not attend antenatal care (unbooked women) were 133 (33.2%). The total number of booked and unbooked women was 400 (100%), (Table 1).

Table: 2. RPR test results for booked women delivering in Potchefstroom hospital (n=220)

RPR RESULTS	1999	2000	TOTALS
POSITIVE	11 (10.2%)	11 (9.8%)	22 (10%)
NEGATIVE	97 (89.8%)	101 (90.2%)	198 (90%)
TOTAL	108 (100%)	112 (100%)	220 (100%)

In addition to the 220 records with RPR test results for 1999 and 2000, there were 47 (17.6%) where blood was tested but the results were not recorded in the files. For the 133 (33.2%) unbooked women who delivered in the hospital, no RPR results were available, suggesting that blood was not taken for RPR testing in or after labour for such patients. Twenty-two (10%) of the recorded results were positive (Table 2). The highest RPR titre values ranged between 1:16 –1:32. The outcome of those who were RPR positive was as follows:

- 16 (73%) had complete treatment with benzathine penicillin IM once weekly for three doses;
- 3 (13.5%) had no treatment;
- 3 (13.5%) had incomplete treatment which varied from 1 to 2 doses of benzathine penicillin; and
- Partner tracing was not reflected in the hospital records for the two years.

There were nine clinics in the Potchefstroom District, eight of them providing antenatal care. These eight clinics all agreed to participate in the study and supplied antenatal records for 532 women.

Table: 3. RPR results for antenatal clinic attendees in the Potchefstroom District (n=495)

RPR RESULTS	1999	2000	TOTAL
POSITIVE	55 (14.3%)	19 (17.3%)	74 (14.9)
NEGATIVE	330 (85.7%)	91 (82.7%)	421 (85.1)
TOTAL	385 (100)	110 (100)	495 (100)

The sample of 532 antenatal records only included booked cases. RPR results were recorded in 495 (93%) cases in 1999 and 2000. There were 37 (7%) cases in 1999 and 2000 in which RPR results were not recorded.

Of the total 495 RPR test results 74 (14.9%) were positive for 1999 and 2000 (Table 3) with the highest titre values ranging between 1: 32 and 1: 64. The outcome of those who were RPR positive was as follows:

- 56 (76%) completed treatment with benzathine penicillin IM once weekly for three doses;
- 10 (13%) had incomplete treatment recorded varying between one to two doses of benzathine penicillin IM only.;
- 8 (11%) had no treatment recorded.; and
- Partner tracing efforts was not reflected for both years.

6.1.2. Wolmaranstad District

Table: 4. Number (%) of women who booked antenatally Wolmaranstad (Nic Bodenstein) Hospital (n = 400)

BOOKED	1999	2000	TOTAL
YES	164 (84%)	140 (70%)	304 (76%)
NO	36 (18%)	60 (30%)	96 (24%)
TOTAL	200 (100%)	200 (100%)	400 (100%)

Out of the 400 women who delivered at Nic Bodenstein Hospital during 1999 and 2000, there were 304 (76%) who had booked. For the 96 (24%) unbooked women there were no recorded RPR results, suggesting that blood was not tested for syphilis in these patients in or after labour (Table 4).

Table: 5. RPR test results for women delivering in Wolmaranstad Hospital (n=207)

RPR RESULTS	1999	2000	TOTAL
POSITIVE	20 (18.7%)	12 (11.9%)	32 (15.5%)
NEGATIVE	86 (81.3%)	89 (88.1%)	175 (84.5%)
TOTAL	106 (100%)	101 (100%)	207 (100%)

Of the 304 booked women, there were RPR results recorded for 207 (68%). For 97 (32%) there were no results recorded although blood had been taken. Of those with RPR results recorded 32 (15.5%) women tested RPR-sero-positive (Table 5) with titre values ranging between 1:32 and 1:256 in 1999 and 2000. The outcome of those who were RPR positive was as follows:

- 30 (93.7%) women had complete treatment with 3 doses of benzathine penicillin IM;
- 2 women did not have treatment recorded; one had "treatment out of stock" as a reason for non treatment; and
- There was no evidence of partner tracing for sero-positive women.

Seven clinics in Wolmaranstad district participated in the study and supplied 354 antenatal records that could be reviewed for 1999 and 2000.

Table: 6. RPR results for antenatal clinic attendees in Wolmaranstad District (n=258)

RPR RESULTS	1999	2000	TOTAL
POSITIVE	14 (10.8%)	24 (18.75%)	38 (14.7%)
NEGATIVE	116 (89.2%)	104 (81.25%)	220 (85.3%)
TOTAL	130 (100%)	128 (100%)	258 (100%)

Of the 354 records reviewed there were RPR results recorded for 258 (72.9%) women. However, there were 96 (27.1%) women for whom blood was tested but no RPR result was recorded in the folder.

A total of 38 (14.7%) women tested RPR positive for both 1999 and 2000 in Wolmaranstad clinics (Table 6). The outcome for those who tested RPR positive was as follows:

- 2 (5.2%) of those who were RPR positive reflected incomplete treatment;
- 36 (14%) had complete treatment with 3 doses of benzathine penicillin IM; and
- 2 (5.2%) reflected efforts at partner tracing.

6.1.3. Summary of results for Potchefstroom and Wolmaranstad Districts

Table 7. Summary of results for syphilis screening of women in the Potchefstroom District (n = denominator for each variable)

Variable	Number (%)
Women who were tested for syphilis (n = 932)	799 (86)
Women who tested RPR positive (n= 715)	96 (13.4)
Women tested but no results recorded (n= 799)	84 (10.5)
Women who tested positive and completed treatment (n= 96)	72 (75)
Women who tested positive and did not complete treatment (n= 96)	24 (25)

As outlined in Table 7, a total of 799 (86%) women in the Potchefstroom District (i.e. hospital and clinic) were screened for syphilis during 1999 and 2000. Of these, there were no recorded results for 84 (10.5%). Ninety-six (13.4%) women who were tested were found to be RPR positive. Of these, 72 (75%) completed treatment with 3 doses of benzathine penicillin IM once weekly as recommended and 24 (25%) had no or incomplete treatment.

Table 8. Summary of results for syphilis screening of women in the Wolmaranstad District (n = denominator for each variable)

<u>Variable</u>	<u>Number (%)</u>
<u>Women who were tested for syphilis (n = 754)</u>	658 (87)
<u>Women tested RPR positive (n = 465)</u>	70 (15)
<u>Women tested but no results recorded (n = 658)</u>	193 (29)
<u>Women who tested positive and completed treatment (n= 70)</u>	66 (94)
<u>Women who tested positive and did not complete treatment (n= 70)</u>	4 (6)

As outlined in Table 8, a total of 658 (87%) women in the Wolmaranstad District were screened for syphilis during 1999 and 2000. Of these, there were no recorded results for 193 (29%). Seventy (15%) women who were tested were found to be RPR positive. Of these, 66 (94%) completed treatment with 3 doses of benzathine penicillin IM once weekly as recommended and 4 (6%) had no or incomplete treatment.

6.1. 4. Perinatal outcome:

Out of 800 records of women who gave birth at the two local hospitals in 1999 and 2000, there were 15 preterm infants and 10 stillbirths. Twenty four mothers of these babies had non-reactive RPR tests. However, one macerated stillbirth infant is reported for a mother with a positive RPR result and incomplete treatment.

Among the records of women who did not attend antenatal care (unbooked), but who delivered at the two district hospitals, there were six with the following features: three stillbirths including one with sepsis, one miscarriage, one early neonatal death, and one preterm infant. All other records reflected normal babies born at term.

Congenital syphilis was not reflected in any record during the reported period.

Neonatal paediatric and maternal audit tools were not in use during the period under review (1999 and 2000) in both districts. Potchefstroom Hospital only implemented the Perinatal-Problem-Identification-Programme (PPIP) in 2002. Wolmaranstad hospital had not implemented PPIP during the period under review. Antenatal registers could not be found for 1999 and 2000 at the health facilities in both districts.

6.2. CLIENT INTERVIEWS

The results outlined in this section relate to objective 3 of the study.

Women were interviewed at eight clinics in Potchefstroom District and at seven clinics in Wolmaranstad District. A total of 75 women were available for interview in the two districts.

6.2.1. Antenatal care attendance –understanding and actual practice

Table: 9. Women's perception of the gestation at which they should book (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Immediately when period was missed	3	2	5 (6.6)
Booking to be at 1 month	8	9	17 (22.6)
Booking to be at 2 months	3	3	6 (8.4)
Booking to be at 3 months	16	10	26 (34.6)
Booking to be at 4 months	5	7	12 (16)
Booking to be at 5 months	0	2	2 (2.6)
Booking to be at 6 months	3	2	5 (6.6)
Don't know when booking is to be done	2	0	2 (2.6)
TOTAL	40	35	75 (100)

Women were asked whether they had attended antenatal care in a previous pregnancy. Thirty-eight (86.6%) out of 40 women in Potchefstroom and 27 (77.1%) out of 35 women in Wolmaranstad said they had attended antenatal care at clinics. The women were not selected for the interview according to their parity, however, the majority, 65 (86.7%), were women who had a previous pregnancy. The rest were first-time pregnancies (n= 10: 13.3 %). Of the women selected in the two districts, five (6.6%) reported that booking should be done when the period was missed (Table 9). Most women (n=26; 34.6%) thought that the booking should be done at three months.

Table: 10. Actual time of booking for current pregnancy (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Immediately when period is missed	0	0	0 (0)
Booking done at 1 month	3	3	6 (8)
Booking done at 2 months	4	2	6 (8)
Booking done at 3 months	8	11	19 (25.3)
Booking done at 4 months	6	7	13 (17.3)
Booking done at 5 months	6	3	9 (12)
Booking done at 6 months	4	9	13 (17.3)
Booking done at 7 months	5	0	5 (6.6)
Booking done at 8 months	2	0	2 (2.6)
Not sure when booking was done	2	0	2 (2.6)
TOTAL	40	35	75 (100)

Of the 75 women interviewed, none booked immediately when they had missed a period (Table 10). Most women (n = 19; 25.3%) booked at three months. Nine women (12%) booked late in the last trimester of pregnancy.

Table: 11. Reasons given by clients for attending antenatal care (n=75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Good health of mother and baby	21	24	45 (60)
To learn about baby's health	5	6	11 (14.7)
For the benefit of mother's health	6	4	10 (13.3)
To learn about pregnancy and delivery	7	0	7 (9.3)
To detect STIs and get treatment	1	0	1 (1.3)
To take blood tests	0	1	1 (1.3)
TOTAL	40	35	75 (100)

Reasons given for attending antenatal care are contained in Table 11. The main reasons given for attending antenatal care were to ensure good health of the mother and baby (n = 45; 60%). Other reasons such as doing blood tests and assessment of sexually transmitted infections such as syphilis were given by only two (2.6%) women out of a total of 75 in both districts.

6.2.2. Knowledge and understanding of antenatal tests

Table: 12. Knowledge of routine antenatal blood tests (n=68)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
For HIV test	17	7	24 (35.2)
Blood grouping	3	4	7 (10.3)
Blood Pressure, sugar & cough	2	7	9 (13.2)
Not told	1	5	6 (8.8)
Don't know	7	8	15 (22.1)
Not sure	2		2 (2.9)
I forgot	1	0	1 (1.5)
Whether blood was clean	0	4	4 (5.9)
TOTAL	33	35	68 (100)

Women were asked what blood was tested for antenatally (Table 12) and whether they were told about their antenatal blood results. Of the women in both districts, 44 (64.7%) provided a response as to what their blood was tested for. Twenty-four (35.3%) could not provide a response as to why their blood was tested because they said they were not told (n = 6; 8.8%), did not know (n = 15; 22.1%), were not sure (n = 2; 2.9%) and forgot the reason (n = 1; 1.5%). The majority of women (n=24; 35.2%) said that they were tested for HIV; 9 women (13.2%) said that they were told that it was to detect abnormalities with their blood; 7 (10.3%) said it was for blood grouping; and 4 (5.9%) said it was to assess whether the blood was clean.

Table: 13. Knowledge of abnormalities concerning blood results (n = 9)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
I was told I had vuilsiek	2	0	2 (22.2)
I was told I had syphilis	1	0	1 (11.1)
I was told I was HIV positive	2	0	2 (22.2)
I was told I had weak blood	0	1	1 (11.1)
I have forgotten	2	0	2 (22.2)
I don't know	0	1	1 (11.1)
TOTAL	7	2	9 (100)

Table 13 reflects the women's knowledge concerning abnormal blood results. Only one (11%) woman said that she had syphilis, however health workers use 'vuilsiek' to mean syphilis when communicating with clients.

6.2.3. Knowledge and understanding of syphilis

Table: 14. Knowledge concerning syphilis (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Syphilis is an STD	16	10	26 (34.6)
Sores on private parts	14	19	33 (44)
Syphilis is cauliflower/ blomkool	3	1	4 (5.3)
Vuilsiek	4	0	4 (5.3)
I don't know	3	5	8 (10.7)
TOTAL	40	35	75 (100)

Table 14 shows that 26 (34.6%) women knew that syphilis is an STD. Thirty three (44%) said that the disease was associated with sores on the private parts. Four (5.3%) associated it with cauliflower (condylomata lata sores) and 4 (5.3%) said that it was "vuilsiek". Only 8 (10.6%) did not know about the disease.

6.2.4. Notification of partner of antenatal blood results:

Table: 15. Reasons why the partners were not informed (n = 12)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
My blood was not taken	1	0	1 (8.3)
He lives far away	3	4	7 (58.3)
I thought it was not necessary	1	0	1 (8.3)
He shows no interest	1	2	3 (25)
TOTAL	6	6	12 (100)

On being asked whether their partners were informed about the antenatal blood results, 34 (85%) in Potchefstroom and 29 (83%) in Wolmaranstad said that they informed their partners about their blood results. Six (15%) in Potchefstroom and 6 (17%) in Wolmaranstad did not inform their partners about the blood results. Table 15 shows why interviewees did not inform their partners that they had the disease. The main reason given was that the partner lived far away (n= 7; 58.3%). Other reasons included the partner not showing any interest (n = 3; 25%), the client

thinking it was not necessary to inform the partner (n = 1; 8.3%), and blood not being taken (n = 1; 8.3%).

Table: 16. Knowledge of implications of syphilis for the health of the baby (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Woman to attend antenatal care regularly	12	3	15 (20)
Syphilis is dangerous to baby if mother is not treated	19	15	34 (45.3)
If infected abstain from sex	4	5	9 (12)
If infected be treated	5	0	5 (6.6)
Baby can be infected by untreated mother	0	12	12 (16)
TOTAL	40	35	75 (100)

A total of 34 (45.3%) women from the two districts cited the importance of treating the mother to avoid the danger to the baby's health (Table 16). Twelve (16%) women, all from Wolmaranstad, said that the baby can be infected by an untreated mother. Thirty seven (93%) women from Potchefstroom and 34 (97.1%) in Wolmaranstad responded that re-infection was possible when a treated woman had sex with an infected person.

Table: 17. Understanding of importance of syphilis testing in pregnancy (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
To prevent infection reaching the baby	16	32	48 (64)
So that the infection is treated	17	2	19 (25.3)
To check "vuilsiek"	1	0	1 (1.3)
To check whether blood is clean	4	1	5 (6.6)
Not sure	2	0	2 (2.6)
TOTAL	40	35	75 (100)

Table 17 relates to the importance of women being tested for syphilis which shows that the majority of women (n=48; 64%) in both districts said that it was to prevent infection reaching the baby.

Table: 18. Recall for blood results (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
After 1 day	3	0	3 (4)
After 1 week	2	6	8 (10.6)
After 2 weeks	6	6	12 (16)
After 3 weeks	14	16	30 (40)
After 4 weeks	13	7	20 (26.6)
Don't know	2	0	2 (2.6)
TOTAL	40	35	75 (100)

Table 18 shows that the majority (n =30; 40%) of women were recalled for blood test results after 3 weeks.

Table: 19. Health education received during antenatal care (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Condom use	17	4	21 (28)
Information on STDs	8	7	15 (20)
Information on syphilis	6	15	21 (28)
To take regular treatment	3	7	10 (13.3)
I was never informed of anything	6	0	6 (8)
I was given information on HIV	0	2	2 (2.6)
TOTAL	40	35	75 (100)

As outlined in Table19, most women in the two districts were given health education about condom usage (n=21; 28%) and syphilis (n = 21; 28%).

Table: 20. Causes women perceive to be responsible for the loss of their baby (n = 17)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Diarrhoea and vomiting	5	3	8 (47.0)
Prematurity	1	3	4 (23.5)
Cord around the neck	1	0	1 (5.8)
Epistaxis	1	0	1 (5.8)
Miscarriage	2	0	2 (11.7)
Born at home	1	0	1 (5.8)
TOTAL	11	6	17 (100)

Eleven women (27.5%) in Potchefstroom and 6 women (17.1%) in Wolmaranstad said that they had lost a baby in a previous pregnancy citing reasons outlined in Table 20. Of the women who had lost babies in previous pregnancies, 8 (47%) cited diarrhoea and vomiting as the cause of death, while 4 (23.5%) cited prematurity as the cause of death.

6.2.5. Consultation with a traditional healer during antenatal care.

Twelve (30%) of the interviewees in Potchefstroom and 11 (31%) in Wolmaranstad reported consulting a traditional healer when they were infected with syphilis. Seven (18%) in Potchefstroom and 9 (26%) in Wolmaranstad said they would not consult a traditional healer because the clinic was best and injections cured syphilis. Thirteen (33%) in Potchefstroom and 5 (14%) in Wolmaranstad said they did not believe in traditional healers; whereas 8 (20%) in Potchefstroom and 10 (28.5%) in Wolmaranstad said traditional healers were not sure of what they were doing.

6.2.6. Screening the partner for STDs

Table: 21. Reasons for screening men for syphilis (n = 75)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Because they harbour STDs	9	5	14 (18.6)
To be in good health	12	13	25 (33.3)
To protect baby from being infected	5	10	15 (20)
To prevent them from spreading the STDs	14	5	19 (25)
Those who didn't think men's blood should be tested	0	2	2 (2.5)
TOTAL	40	35	75 (100)

Forty (100%) interviewees in Potchefstroom and 33 (94%) in Wolmaranstad agreed that the men should be screened for STDs. Only 2 (6%) women in Wolmaranstad disagreed about men being tested. In both districts (Table 21), 25 (33.3%) women said that men should be tested for both partners to be in good health, 19 (25%) supported men being tested to prevent them from spreading STDs, and 15 (20%) believed that it would protect the baby and 14 (18.6%) thought that men harboured STDs.

6.3. HEALTH PERSONNEL RESPONSE

The results in this section relate to objectives 4 and 5 of the study.

Twenty-two and 19 midwives (respondents) respectively from Potchefstroom and Wolmaranstad districts participated in the interview. They were from a total of 15 health facilities, i.e., eight clinics in Potchefstroom and seven in Wolmaranstad. This included 41 respondents out of a total of 68 with a response rate of 60%. There was thus a 40% non-response rate which could have affected the results below. Health service practices and problems identified with respect to screening for syphilis are outlined below.

6.3.1. PERSONNEL PERCEPTIONS ABOUT SYPHILIS AND PRACTICES/ STRATEGIES

6.3.1.1 Reasons for viewing syphilis as an increasing problem

Table: 22. Reasons for viewing syphilis as an increasing problem (n = 20)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Client ignorance concerning STD management	3	4	7 (35)
Increasing HIV infection rate	5	1	6 (30)
Ineffective contact tracing	1	1	2 (10)
Partners refuse treatment	0	0	0 (0)
Irregular antenatal attendance	0	5	5 (25)
TOTAL	9	11	20 (100)

Nine (43%) of 21 respondents in Potchefstroom and 11 (61%) of 18 respondents in Wolmaranstad viewed syphilis as a problem that was increasing. Table 22 shows health workers' (respondents) views of why syphilis was an increasing problem. The main factors that were cited included client ignorance concerning STD management (n = 7; 35%), increasing HIV infection rate (n = 6; 30%), and irregular attendance (n = 5; 25%).

6.3.1.2. Reasons for not viewing syphilis as a problem that was increasing

Table: 23. Reasons for viewing syphilis as a problem that was not increasing (n = 19)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Women come on time for their treatment	3	2	5 (26.3)
Increasing knowledge on safe sex	1	0	1 (5.2)
Early detection and treatment of STD's	1	2	3 (16.0)
Effective antenatal care	2	0	2 (10.5)
Effective compliance to treatment	5	3	8 (42.0)
TOTAL	12	7	19 (100)

Twelve (57%) and 7 (39%) respondents in Potchefstroom and Wolmaranstad respectively did not perceive syphilis as an increasing problem (Table 23). The main reasons given included effective compliance with treatment (n = 8; 42%), women reporting on time for their treatment (n = 5; 26%), and early detection and treatment of STD's (n = 3; 16%).

6.3.1.4 Strategies in place to determine whether women understand the purpose of syphilis screening

Of the respondents, 21 (95%) in Potchefstroom and 19 (100%) in Wolmaranstad responded to the question and said that there were strategies such as health education and counselling in place to determine whether women understand the purpose of syphilis screening.

6.3.1.5. Views on who is responsible for antenatal syphilis screening

Twenty-one (95%) of the 22 respondents in Potchefstroom and 13 (68%) of the 19 respondents in Wolmaranstad stated that it was the job of the midwife to take blood for antenatal syphilis screening. One (5%) and 3 (16%) of the respondents in Potchefstroom and Wolmaranstad respectively said it was the job of the laboratory technician, three (16%) of respondents in Wolmaranstad said other professionals were responsible for taking blood.

6.3.2 PERCEPTIONS CONCERNING PATIENT/ CLIENT-RELATED PROBLEMS

6.3.2.1. Perceptions concerning client- related problems affecting adherence with antenatal screening for syphilis

Table 24: Experience of personnel about client-related problems (n = 15)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Patients do not come back for blood results	3	8	11 (73.3)
Some patients confuse routine bloods with HIV test	3	0	3 (20)
Farm workers have problems in attending antenatal care	1	0	1 (6.7)
TOTAL	7	8	15 (100)

Seven (32%) of the 22 respondents in Potchefstroom and 8 (42%) of the 19 respondents in Wolmaranstad said that they experienced problems with clients relating to antenatal screening for syphilis (Table 24). Fifteen (68%) of the respondents in Potchefstroom and 11 (58%) of the respondents in Wolmaranstad did not experience such problems. The main problems experienced were: lack of return for results (n = 11; 73%), confusion by clients of screening test for syphilis with those of HIV (n = 3; 20%), and problems in attending antenatal care by farm workers (n = 1; 6.7%).

6.3.2.2. Strategies in place for the management of non-adherent patients

Table: 25. Strategies in place for the management of non-adherent patients (n = 32)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Stress importance of completing treatment	8	6	14 (43.7)
Emphasize defaulting danger	5	5	10 (31.3)
Give continuous health education	1	4	5 (15.6)
Pre-test counselling	2	1	3 (9.3)
TOTAL	16	16	32 (100)

Sixteen (72.7%) out of 22 respondents in Potchefstroom and 16 (84.2%) out of 19 in Wolmaranstad said they had strategies in place for managing patients who did not adhere to treatment for syphilis during antenatal care. The following strategies were mentioned by the respondents (Table 25): they stressed the importance of completing treatment (n = 14; 43.7%), they emphasized the dangers of defaulting treatment (n = 10; 31.3%), they gave continuous health education (n = 5; 15.6%), and they undertook pre-test counselling (n = 3; 9.3%). Non-respondents to the question included 6 (27.2%) in Potchefstroom and 3 (15.7%) in Wolmaranstad.

6.3.2.3. Constraints in attending antenatal care

Table: 26. Constraints encountered in attending antenatal care (n = 18)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Farm workers find it difficult to attend antenatal care	6	6	12 (66.6)
Increase in teen pregnancy	3	0	3 (17)
No response	0	1	1 (5.5)
Most women do not have planned pregnancies	2	0	2 (11.1)
TOTAL	11	7	18 (100)

Eleven (50%) of the 22 respondents in Potchefstroom and 7 (36.8%) of the 19 respondents in Wolmaranstad responded to the question on patient-related problems in attending antenatal care. The problems cited were as follows (Table 26): farm workers had difficulty in attending antenatal care (n = 12; 66.6%), most women had unplanned pregnancies (n = 2; 11.1%), the increase in teen pregnancy (n = 3; 17%), and no response was elicited from 1 (5.5%) respondent.

6.3.3. PERCEPTIONS CONCERNING ADMINISTRATION-RELATED PROBLEMS

6.3.3.1. Omission of syphilis testing during antenatal care.

Table: 27. Omission of syphilis testing during antenatal care (n = 8)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Overcrowded clinics	1	0	1 (12.5)
Specimen bottles unavailable	1	3	4 (50)
Women don't receive clear instructions at the clinic	1	2	3 (37.5)
TOTAL	3	5	8 (100)

This question was answered by 8 (36%) out of 22 and 11 (58%) out of 19 respondents from Potchefstroom and Wolmaranstad respectively. Of these, 5 (62%) respondents in Potchefstroom and 6 (55%) in Wolmaranstad said that screening for syphilis during antenatal care was never omitted. Three (38%) respondents in Potchefstroom and 5 (45%) in Wolmaranstad said that some booked women do not have screening for syphilis antenatally for the following reasons: specimen bottles unavailable (n = 4; 50%), women don't receive clear instructions at the clinic (n = 3; 37.5%), and overcrowded clinics (n = 1; 12.5%), (Table 27).

6.3.3.2. Strategies put in place to manage clients where syphilis testing was omitted

Table: 28. Steps taken if a patient missed blood testing (n = 8)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Take blood at the next visit	3	2	5 (62.5)
Do home visits	0	3	3 (37.5)
Use home-based care staff	0	0	0 (0)
TOTAL	3	5	8 (100)

Nineteen (86.3%) of the 22 respondents in Potchefstroom and 14 (73.6%) in Wolmaranstad did not agree that patients missed blood tests during antenatal care. Three (13.7%) of the 22 respondents in Potchefstroom and 5 in Wolmaranstad said there were steps in place if a patient missed syphilis testing (Table 28). The following steps were taken: blood was taken at the next visit (n = 5; 62.5%), and home visits were done and blood taken (n = 3; 37.5%).

6.3.3.3. Follow-up visit for assessment of results

Table 29: Follow up visits for checking blood results (n = 41)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Same day	1	1	2 (5)
Following week	3	4	7 (17.1)
1 week after initial blood test	6	4	10 (24.4)
2 weeks after initial blood test	2	0	2 (4.8)
3weeks after initial blood test	7	7	14 (34.1)
1 month after initial test	1	0	1 (2.4)
No response	2	3	5 (12.2)
TOTAL	22	19	41 (100)

Twenty-two (100%) of the respondents in Potchefstroom and 19 (100%) in Wolmaranstad agreed to strategies being in place for follow up visits for checking syphilis blood results. Respondents said that syphilis blood test results were available following testing at the following times (Table 29): the following week (n = 7; 17.1%), at 1 week (n = 10; 24%), at 2 weeks (n = 2; 4.8%), at 3 weeks (n = 14; 34%), and at 1 month (n = 1; 2.4%). There was no response from 5 (12%) respondents.

6.3.3.4. Strategies for informing RPR positive mothers about their results

Of the respondents, 19 (86.4%) in Potchefstroom and 18 (94.8%) in Wolmaranstad reported that they informed women at their next antenatal visit about positive RPR results. Three (13.6%) out of 22 respondents in Potchefstroom and 1 (5.2%) out of 19 respondents in Wolmaranstad did not respond to the question. Twenty-one (95%) respondents in Potchefstroom and 16 (84%) in Wolmaranstad said that the women who tested RPR positive came back in time for treatment. Only one (5%) in Potchefstroom and 2 (10.5%) in Wolmaranstad said women who were RPR positive did not come back in time for treatment.

6.3.3.5. Strategies in place for partner tracing

Twenty (91%) out of 22 respondents in Potchefstroom and 13 (68.4%) out of 19 in Wolmaranstad said that they used contact slips for partner tracing. Four (21%) of the respondents in Wolmaranstad said they did not have strategies in place for partner tracing. Two (9.0%) out of 22 respondents in Potchefstroom and 2 (10.5%) out of 19 respondents in Wolmaranstad did not respond to the question.

6.3.3.6. Strategies put in place for unbooked pregnant women

Table 30: Strategies put in place for unbooked women (n = 18)

RESPONSE	POTCHEFSTROOM	WOLMARANSTAD	TOTAL (%)
Blood was taken at the bed-side	1	4	5 (28)
RPR for immediate results and treatment	1	4	5 (28)
Nothing was really done for them	5	3	8 (44)
TOTAL	7	11	18 (100)

Seven (31.8%) of the 22 respondents in Potchefstroom and 11 (58%) of the 19 respondents in Wolmaranstad said strategies were in place for attending to unbooked women when they came to deliver at health facilities. Fifteen (68.1%) of the 22 respondents in Potchefstroom and 8 (42.1%) of the 19 respondents in Wolmaranstad did not respond to the question. Those who responded gave the following reasons as contained in Table 30: nothing is really done for them (n = 8; 44%), blood is taken at the bed-side (n = 5; 28%), and RPR testing done for immediate results and treatment if necessary (n = 5; 28%).

6.3.4. Administration-related problems as perceived by respondents

Equipment:

Availability of kits/equipment for rapid RPR testing was mentioned by 8 (36.3%) of 22 and 11 (57.8%) of 19 respondents in Potchefstroom and Wolmaranstad, respectively. Thirteen (59%) respondents in Potchefstroom and 8 (42%) in Wolmaranstad said that kits for syphilis testing were not available. One respondent (4.5%) in Potchefstroom did not answer the question.

Laboratory delays/ communication of results:

Two (10.5%) health workers at Wolmaranstad mentioned laboratory-related problems such as the laboratory closing during the festive season in the absence of a technician, and blood specimens being damaged on the way to an alternative site. Three (7.3%) respondents in Potchefstroom and Wolmaranstad said sometimes technicians released results only when they were telephoned. One (2.4%) health worker stated unknown reasons for the delay. Nineteen (72.7%) respondents in Potchefstroom and 16 (84.2%) in Wolmaranstad said there were no laboratory-related problems. Two (11%) out of 18 respondents cited 8-12 days and 4 (22%) mentioned 2 weeks as the turn-around time for syphilis results at health facilities.

Availability of treatment

All 22 (100%) respondents in Potchefstroom district and 13 (68.4%) in Wolmaranstad stated that treatment was always available at their health facilities, however, 6 (31.5%) respondents in Wolmaranstad reported that they sometimes ran out of stock for syphilis treatment. When this happened they said they asked for stock from other health facilities.

6.4. Limitations of the study

6.4.1. Retrospective patient record review

Patients' retrospective record review aimed at investigating strengths and gaps in the system including the number of unbooked women who were not tested at delivery, unrecorded results of booked women, and completeness of treatment and systems of partner tracing in syphilis screening at health facilities in both districts.

A noticeable shortcoming in antenatal screening was the inconsistencies in record keeping. Some clinics kept patient records, while others allowed patients to carry them. Duplicate copies of patient antenatal cards were kept at some clinics to facilitate data capturing. There was no coherent system of regulating patients' records at both districts. Not all clinics had patients' antenatal records for the period under review. Only one clinic in Wolmaranstad had antenatal records for 1999.

Registers for antenatal blood results could not be traced in both districts making it difficult to trace previous blood results. One of the hospital laboratories (Wolmaranstad) had no system for recording blood results for 1999 and 2000. Booked clients' records reflected the date blood was taken whereas RPR results were not recorded. When viewing the records, a gross limitation was not knowing why certain things were not done. For example, in situations when a date for taking blood was documented but no results or treatment recorded it was not clear whether staff forgot to record the result or whether treatment was not recorded because there was no stock. The time lag between performance of a syphilis test and initiation of treatment was not determined in the data collection sheet in this study. Also record review did not include collecting information on the gestational age at booking.

The clinics in both districts did not conduct deliveries, which is the reason why unbooked women could only be found from retrospective record reviews of women who had already delivered at both hospitals in 1999 and 2000.

6.4.2. Client interviews

The objective was to determine the perception of clients concerning screening for syphilis at antenatal care. However, only booked clients at the clinics could be interviewed. Views expressed were only from women who attended antenatal care at clinics in Wolmaranstad and Potchefstroom districts, which may have resulted in responder bias.

6.4.3. Health worker interviews

The study sought to determine the perception and understanding of health workers concerning the provision of antenatal syphilis screening and treatment. However, not all health workers at health facilities in both districts responded to the questionnaires.

The study was directed at all health workers (midwives) responding to the questionnaires. Each district had 34 midwives which make up a total of 68. It is however not clear why only 41 (60%) out of 68 in both districts responded to the questionnaires.

6.5. SUMMARY OF RESULTS

The study investigated the comprehensiveness in the provision of antenatal syphilis screening and treatment in the North West Province. The results revealed gaps in the provision of antenatal syphilis screening in the two districts of Potchefstroom and Wolmaranstad. Inconsistencies in care were noted in the retrospective record review, responses of clients and responses of health workers (respondents).

7. DISCUSSION

This study demonstrates that an antenatal syphilis screening programme for pregnant women in two districts in the North West Province is feasible. However, facilitating and inhibiting factors in the programme have been identified and it is important to address the shortcomings of the programme if perinatal mortality and morbidity from congenital syphilis are to be reduced in the province.

7.1. Syphilis prevalence

The results of this study showed that of the women who were screened for syphilis during 1999 and 2000 in the Potchefstroom and Wolmaranstad districts, 13.4% and 15% were sero-positive, respectively (Tables 7 and 8). The North West Province is said to have the highest prevalence of syphilis (17.8%) among antenatal attendees compared to the other provinces in 1998. The results obtained in this study are comparable to those obtained in the survey of 1997, in which prevalence rates for syphilis among pregnant women in the Potchefstroom and Wolmaranstad districts were 7.1% and 17.8%, respectively but they are lower than those recorded in 1998 - - Potchefstroom: 24.7% and Wolmaranstad: 31.1 (Results of the HIV and Syphilis antenatal Survey, 1998). However, the results that were obtained in this study may not be a true reflection of the actual prevalence of the disease as it excluded women who were not tested (Potchefstroom: n = 133; 14% and Wolmaranstad: n = 96; 13%), and those where no results were recorded (Potchefstroom: n = 84; 10.5% and Wolmaranstad: n = 193; 29%), (Tables 7 and 8).

While the majority of women in both districts showed non-reactive syphilis results, significant strides to integrate women's health programmes is being sought to put in place systems to create awareness in preventing sexually transmitted infections, especially during antenatal booking and treatment. According to the Results of the HIV and Syphilis Antenatal Survey (2000), the decrease in syphilis infection rates justifies a consideration by the Department of Health to extend syphilis screening beyond antenatal clinic attendees; implementing a universal policy offering routine syphilis screening to all women of reproductive age.

7. 2. Unbooked women with specific reference to syphilis testing

The present study showed 229 (28.6%) unbooked women (non-clinic attendees) in both districts delivered at both hospitals in the two districts. The National Department of Health has identified guidelines and standards of antenatal care, which emphasize early 'booking' as soon as pregnancy is detected or even at 4 or 5 weeks of gestation (Guidelines for Maternity Care in South Africa, 2000).

This study revealed that unbooked women did not have RPR testing for syphilis reflected in their files. This is a gap in the service that needs to be addressed as these women could possibly be sero-positive and, if not treated, could pose health risks to their babies. The perinatal outcome of the study showed 3 stillbirths from unbooked women. According to Kennedy et al (1995) screening for syphilis at delivery should generally be performed on women who did not have antenatal care, or on those with a history of syphilis.

7.3. Timing of booking

Timing of booking influences the efficacy of syphilis screening especially when considering vulnerability of the unborn baby to congenital syphilis. Women, who commence antenatal booking when pregnancy is visible do so with the perception of avoiding too many unnecessary visits. The study showed that only 16% of the women booked before three months of their pregnancy, 72% booked at 3-6 months, 9% booked after 6 months, and 3% were unsure of their booking date (Table 10). The success of antenatal care still lies in early reporting especially if women can report as soon as pregnancy is discovered or confirmed. Schmid (2004) argues that

screening and treatment of women for syphilis early during pregnancy and the prevention of reinfection will reduce the risk of congenital syphilis. Hence, the need for women to book as early as possible.

Respondents in the two districts showed an understanding regarding time for antenatal booking. However late antenatal booking is still noted as illustrated above. Infrequent or late attendance for antenatal care is reported as the most common patient-related avoidable factor according to Saving Babies: Perinatal Care Survey of South Africa (2000). Therefore, it is important to encourage women to attend antenatal care early. Jeffery et al (2000) in their study on the impact of pregnancy confirmation clinic on the commencement of antenatal care reported possibly shifting the commencement of antenatal care to a much earlier gestational age by offering women a one-stop pregnancy confirmation and first visit clinic. This would benefit the screening of women for syphilis and the treatment of those who are sero-positive.

7.4. Undocumented syphilis test results

Of the total of 799 women in Potchefstroom district who were screened for syphilis during 1999 and 2000, no results were recorded for 84 (10.5%). In Wolmaranstad district a total of 658 women were screened for syphilis in the same period with no results recorded for 193 (29%). Overall, for the two districts combined, no results recorded for 277 (19%) of the women who were screened for syphilis during pregnancy. The undocumented results were traced from laboratory records of 1999 and 2000 from local hospital laboratories. However, Wolmaranstad hospital laboratory did not have RPR results for the period under review. Therefore, 193 of the undocumented syphilis results (hospital and clinic) in Wolmaranstad district could not be traced through laboratory records. Out of a total of 84 unrecorded booked syphilis results (hospital and clinic) in Potchefstroom district, only 37 could be traced from Potchefstroom laboratory records for 1999 and 2000.

Southwick et al (2001) reported that although the majority of participating mothers in their study of maternal and congenital syphilis in Bolivia received antenatal care, only a few had documented proof that a syphilis test had been performed during pregnancy. Ross, Mzolo and Ross (2002) also found that the lack of recording of RPR results was a common problem at antenatal care. Failure to document syphilis results is a gap in the execution of care because a syphilis sero-positive patient

could have missed treatment possibly resulting in serious consequences for the fetus.

7.5. Retrieval of RPR results and timing of treatment

One of the most important findings of the study was the limited use of the rapid RPR on-site test that was said to be available by 36% and 58% of respondents in Potchefstroom and Wolmaranstad respectively. The limited availability of the use of this test probably contributes to the high number of women not screened in the two districts and health workers, therefore, do not offer same day diagnosis and treatment.

Information on the time from taking blood to getting results and initiating treatment is important in preventing the transmission of syphilis from the mother to the fetus. The time lag between performance of the RPR test to the initiation of treatment was not determined in this study according to the retrospective patient record review. Timing of the follow-up visit for reviewing results revealed inconsistencies within the same province in the responses obtained from health workers (Table 27). Fourteen (34.1%) of the health workers who were interviewed in both districts said they received their results in three weeks, which seemed to be consistent with information obtained from 30 (40%) of antenatal attendees in both districts who indicated that they were advised to check for syphilis blood results after 3 weeks (Table 18). This matter was followed up with the district health managers at Potchefstroom and Wolmaranstad who reported that the laboratories release RPR results at least one week after blood was taken.

Women were also asked whether they were told about their blood results and 39% reported that they were not told about their results. Informing clients of their blood results even when non-reactive is essential in creating an awareness of the importance of screening for diseases like syphilis, and in preventing and treating potential infection in the fetus. Also clients who are informed clients will be less likely to default treatment.

Only 11 (26.8%) of the health workers (see section 6.3.3.1) stated that they omitted to screen pregnant women for syphilis with most problems being administration-

related such as the lack of specimen bottles, women not being given clear instructions, and overcrowding at clinics. These are all factors that could be addressed through improvements in health service management. Omitting to screen for syphilis can have dire implications as was found in an antenatal patient attending a community health centre in the North West Province in 2001 who was not tested during her first antenatal visit. She was tested during the second antenatal visit and found to be RPR sero-positive but could not be given treatment as there was no stock. She gave birth to a preterm infant with signs of severe congenital syphilis. This case example illustrates the need for early screening and also for ensuring that facilities are equipped to treat women who test RPR positive.

If the paradigm could shift so that women are given information that adds value to their health and that of their unborn babies, such as understanding the implications of their blood results and the importance of starting and finishing treatment, a reduction in mortality and morbidity from congenital syphilis could be achieved.

Twenty-four (25%) and 4 (6%) of the women who tested RPR positive in the Potchefstroom and Wolmaranstad districts received no or incomplete treatment. Lack of stock was noted to be a factor among certain women in Wolmaranstad. Contingency measures should be put in place to replenish stock so that patients do not go home before treatment is given. This situation is not, however, unique to the women in these two districts. Ali (1990) in his study on the resurgence of congenital syphilis in Trinidad reports that only 68% of the 25 women with a positive VDRL test received treatment. As a result perinatal mortality increased steeply if treatment was delayed or not given at all during pregnancy. Similarly, Beksinska et al (2001) hold a view that despite the widespread availability of the syphilis screening programme, treatment and adherence remain inadequate. The authors further suggest that there is a progressive decline between the proportion of women who get tested, get their results, and receive and complete treatment. Adherence to treatment is therefore a significant factor in the effectiveness of syphilis screening at service delivery level, especially in the prevention of congenital syphilis.

Another factor influencing effective treatment relates to the time of screening for syphilis in pregnancy. Aiken (1992) reported that mothers with early syphilis

defaulted treatment usually because they booked late or failed to book at all at antenatal clinics.

7.6. Perinatal outcome

Of all the records that were reviewed at the two hospitals, there was only one woman who tested RPR positive, had incomplete treatment and who gave birth to a macerated stillbirth. Congenital syphilis was not reflected in the records of unbooked women who had a stillbirth or neonatal death. Delport and Rothberg (1998) note that in the event of a stillbirth, congenital syphilis should be presumed and the case reported if the mother was untreated or inadequately treated and the fetus weighed more than 500g. It is significant that among all babies whose mothers were found to be syphilis sero-positive in the study, none had any relevant test done for syphilis testing. Delport and Pattinson (2000) argue that there is no place for using cord blood in the treatment of congenital syphilis. Conversely, Opai-Tetteh, Hoosen and Moodley (1993) report on the difficulties faced by clinicians in the diagnosis of congenital syphilis. They state that patients who were RPR negative at the initial antenatal visit demonstrated IgG antibodies (with specific treponemal tests) in the umbilical cord after delivery. None of the neonates born to these mothers had clinical evidence of syphilis. A maternal RPR may be negative with IgG treponemal antibodies in the cord blood and explains why all the babies in the study by these authors had no clinical evidence of congenital syphilis. Delport and Pattinson (2000) also argue that the presence of maternal antibody makes infant serology difficult to interpret thereby making diagnosis of congenital syphilis more difficult.

7.7. Partner-tracing:

Partner tracing by means of contact slips was documented only in 2 records at Makwassie clinic in Wolmaranstad out of a total of 754 records for the hospital and clinics. There was no reflection of partner tracing in Potchefstroom district records. However 20 (91%) respondents in Potchefstroom and 13 (68.4%) in Wolmaranstad said that they used contact slips for partner tracing.

Seventeen percent of the women in both districts reported that they did not inform their partners about their antenatal blood results. Some of the women who failed to report results to their partners gave reasons such as "*I thought it was not necessary*"

or "He shows no interest in me" (Table 15). It is said that a sexually transmitted disease is a stigmatising condition which can be translated by the sufferer into feelings of shame (Oskowitz 1997). Words such as 'vuilsiek' are used by health workers to mean sexually transmitted infections, which may increase such feelings. Crane (1997) suggests emotional support for patients diagnosed with syphilis, with emphasis on partner counselling and treatment.

7.8. Strategies to determine whether women understand the purpose of syphilis screening:

Gaps in women's knowledge were quite evident when asked for reasons why blood was taken during antenatal care. Some responded by saying '*blood is taken for blood pressure, sugar, cough or for HIV*' (Table 12). It was not quite clear whether the lack of understanding was due to specific information not being given at antenatal care by nurses or due to failure of patients to understand technical information. Chalmers (1990) argues that owing to their already considerable workload of patient care, it is probably unreasonable to make nurses responsible for patient education as well.

Most health workers (Potchefstroom: 95%; Wolmaranstad: 100%) said that there were strategies in place at their health facilities through health education and counselling for women to understand the purpose of syphilis screening. However, 41% of the women in both districts were not told, did not know, or forgot why blood was taken during antenatal care (Table 12). Appropriate strategies should be in place to facilitate effective communication with clients during pregnancy so as to maximise their understanding and improve their health.

8. CONCLUSIONS

AN INVESTIGATION OF ANTENATAL SCREENING AND MANAGEMENT OF SYPHILIS IN TWO DISTRICTS IN THE NORTH WEST PROVINCE

The prevalence of syphilis among pregnant women, who were screened during 1999 and 2000 in Potchefstroom and Wolmaranstad districts was 13.4% and 15% respectively. This study attempted to describe those factors that may contribute to

problems in antenatal syphilis screening and management in the districts of Potchefstroom and Wolmaranstad. Although this study was undertaken in a peri-urban setting, the basic principles and processes could be applied within rural settings as well since the province is 65% rural.

Clear roles and activities emerged in relation to strengthening antenatal syphilis screening and management at health facilities. The results revealed shortcomings in antenatal syphilis screening, which require urgent attention. The main problems included the failure to provide on-site RPR testing with same day diagnosis and treatment, unrecorded RPR results despite testing, delay in initiating treatment with an estimated three week turn around time from testing to treatment, lack of on-site syphilis testing for unbooked women who deliver at health facilities, no or incomplete treatment of RPR positive women, and no effective partner tracing mechanism. Poor understanding by clients concerning syphilis in pregnancy and the nature of antenatal booking blood tests was also demonstrated. The health worker-patient relationship raised concerns especially where patients were not informed of their RPR results. The implications of these results are that these gaps should be acknowledged and that consideration be given to the development of guidelines and protocols to facilitate effective antenatal syphilis screening. The recommendations were written with a view to bringing about improvements in antenatal syphilis screening in the two districts, and all similar health facilities in the North West Province.

9. RECOMMENDATIONS.

Based on the results of this study, the following measures are recommended in implementing an effective syphilis screening programme within the two districts in the North West Province:

9.1. Create increased awareness of syphilis and its implications for the newborn among pregnant women.

This includes counselling of RPR positive clients to improve their knowledge of the disease and screening, promote adherence to treatment and improve partner tracing. Individuals who hold significant positions in the community will need to be involved to demystify the causes of syphilis and to address myths which delay

individuals seeking treatment.

9.2. Implement the rapid RPR card test.

The RPR card test must be done by nurses so that treatment is started early where the woman is RPR positive. A policy is needed to implement this screening tool to ensure uniformity and consistency. On-site (laboratory) syphilis results should be made available to the clinic within 48 hours if the laboratory and clinic are in the same town. A practical training programme must be implemented for professional nurses in the clinic. Lower categories of nurses such as enrolled nurses or enrolled nursing assistants should also be trained to screen for syphilis. Training must encompass screening for syphilis and other STIs, treatment and referral guidelines. In-service training is required in history taking and counselling, especially with respect to the taking of blood during antenatal care and the physical assessment of infants whose mothers test RPR positive.

9.3. Screen unbooked women for syphilis

All women who failed to attend antenatal care, i.e., unbooked women, and who were never tested should be tested for syphilis whether they deliver at health facilities or at home. Efforts are needed to promote early attendance at antenatal care and publicise free health services, including syphilis screening and treatment, as an incentive to attend early.

9.4. Ensure that women book early

Introduce a system where the point at which the woman confirms she is pregnant also becomes the woman's first antenatal visit where she is classified according to risk. This entails introducing a one-stop pregnancy confirmation and first antenatal visit as reflected in the Guidelines for Maternity Care in South Africa (2002). This approach should take into consideration culture-bound practices of reporting pregnancy when it is quite visible.

9.5. Ensure accurate record keeping

Emphasise accurate record keeping so that health facilities keep an antenatal audit of blood results especially at each patient's subsequent visit. As a basic principle in patient care, systems of monitoring prenatal records for screening and management

of syphilis should be in place. Regular spot-checks are needed of antenatal records especially during perinatal review meetings. Control of patient records, e.g., all clinics must keep a register of antenatal blood results whether the patient returned for the results or whether treatment was initiated and completed. Patients need to carry antenatal records (a hand-held card) with them which can be produced in labour at a health facility.

9.6. Ensure adequate service level agreements.

These must be established between health facilities and local laboratories pertaining to efficiency of the laboratory service, e.g., equipment, consistent turn-around time, syphilis screening, and capacity building in RPR testing. Health facility managers need to facilitate adequate transport of blood specimens.

9.7. Introduce a quality assurance tool

A quality assurance tool is needed to assess the success of antenatal syphilis screening and the perinatal mortality rate. Regular perinatal review meetings (PPIP) should take place where medical and nursing staff are brought together to address problems and to seek ways to overcome them. The Perinatal Problem-Identification Programme (PPIP) needs to be implemented at all maternal and neonatal units to improve perinatal outcome, reduce sub-standard care, and improve antenatal care services.

9.8. Implement comprehensive reproductive health programmes

The management of sexually transmitted infections should include the participation of men. This requires partner tracing and setting up widespread information at all health facilities where male clients can be reached and counselled on the causes and management of STD's. Deliveries need to be conducted at the primary health care level in the Southern Region of the North West Province, because the local hospitals were the only health facilities providing delivery services then in the two districts in the study.

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11. APPENDICES:

- Checklist: Retrospective Record Review
- Questionnaire for women attending antenatal care
- Personnel Questionnaire
- Permission to conduct research

**TITLE : AN INVESTIGATION OF
ANTENATAL SCREENING AND
MANAGEMENT OF SYPHILIS IN TWO
DISTRICTS IN THE NORTH WEST
PROVINCE**

CHECKLIST : DATA COLLECTION ON ANTENATAL RECORDS

DISTRICT : WOLMARANSTAD\POTCHEFSTROOM

CLINIC :

PATIENT'S FILE NUMBER :

**TITLE : AN INVESTIGATION OF ANTENATAL SCREENING AND MANAGEMENT OF
SYPHILIS IN TWO DISTRICTS IN THE NORTH WEST PROVINCE.**

.....

1. GENERAL INFORMATION

1.1. AGE

--	--

1.2. MARITAL STATUS.....

--	--

1.3. RESIDENTIAL ADDRESS.....
.....

--	--

1.4. TELEPHONE.....

--	--

2. PRENATAL HISTORY

2.1 . Parity: number of births.....

--

2.2. Gravida.....

--

2.3. Outcome of birth

2.3.1. recorded

2.3.2. not recorded

	1
	2

a. number of miscarriages

b. number of stillbirths

c. number of neonatal deaths

d. number of neonates with severe jaundice

e. normal full term

f. primip

	1
	3
	4
	5
	6

2.4. weeks of pregnancy was the woman when booking

a. recorded

b. not recorded

	1
	2

2.5. Date of first booking recorded

a. recorded

b. not recorded

	1
	2

2.6. date of return date

a. recorded

b. not recorded

	1
	2

3. SYPHILIS TEST AT PRENATAL CARE

3.1. Date blood taken for RPR(WR)

- a. recorded.....
- b. not recorded.....
- c. lab report attached

	1
	2
	3

3.2. Date of results

- a. recorded.....
- b. not recorded.....

	1
	2

3.3.Results:

- a. RPR (WR) positive.....
- b. VDRL titre.....
- c. RPR (WR) negative.....
- d. RPR (WR) results not recorded

	1
	2
	3
	4

3.4. Treatment :

- a. type recorded.....
- b. treatment not recorded.....
- c. duration recorded.....
- d. test negative.....
- e. non-availability of treatment recorded.....
- f. treatment not recorded/ results not recorded

	1
	2
	3
	4
	5
	6

3.5 Repeat RPR(WR) test.....

- a. recorded
- b. not recorded
- c. VDRL titre.....
- d. initial results not recorded
- e. initial results negative

	1
	2
	3
	4
	5

3.6. period after initial treatment :

- a. recorded.....
- b. not recorded.....
- c. TPHA.....
- d. initial results not recorded
- e. initial results negative

	1
	2
	3
	4
	5

3.7. duration of treatment:

- a. recorded.....
- b. not recorded.....
- c. initial results negative

	1
	2
	3

3.8.Partner tracing:

- a. efforts of partner tracing recorded.....
- b. efforts of partner tracing not recorded.....

	1
	2
	3

- c. partner tracing not necessary initial RPR(WR)test negative.....
- d. partner tracing not recorded; initial results not recorded

	4
--	---

3.9. Partner treatment

- a. recorded.....
- b. not recorded.....
- c. initial results negative

	1
	2
	3

3.10. Unbooked patient

- a. date of RPR (WR) bedside test recorded.....
- b. date of RPR(WR) bedside test not recorded.....

	1
	2

3.10.1. Results of RPR(WR) test

- a. RPR(WR) positive.....
- b. RPR (WR) negative

	1
	2

3.10.2. Treatment:

- a. recorded.....
- b. not recorded.....
- c. test negative.....

	1
	2
	3

3.11. health education related to the condition

- a. recorded.....
- b. not recorded.....

	1
	2

4. OTHER SEXUALLY TRANSMITTED DISEASES(STDs) DURING ANTENATAL CARE

4.1. Type of sexually transmitted disease

- a. recorded
- b. not recorded

	1
	2

4.2. Treatment

- a. recorded.....
- b. not recorded...

	1
	2

4.3. health education related to the STD

- a. recorded.....
- b. not recorded.....

	1
	2

4.4 partner tracing

- a .efforts of partner tracing recorded.....
- b .efforts of partner tracing not recorded.....

	1
	2

4.5. partner treatment

- a. recorded.....
- b. not recorded.....

	1
	2

4.7.Allergy requiring alternative treatment

- a. recorded.....
- b. not recorded.....

	1
	2

5. PERINATAL OUTCOME

5.1.recorded

5.2. not recorded

	1
	2

- a. miscarriage.....
- b. preterm birth.....
- c. stillbirth.....
- d. neonatal death.....
- e. normal full term birth

	1
	2
	3
	4
	5

6. HEALTH PROMOTION

6.1. record of counselling or advice given in relation to syphilis

- a. recorded.....
- b. not recorded.....

	1
	2

7.NEONATAL CARE

7.1. whether cord blood taken for testing (relevant syphilis test)?

- a. record reflects blood taken.....
- b . no reflection of cord blood taken.....
- c. maternal WR test negative
- d. maternal WR test results not recorded

	1
	2
	3
	4

7.2.results of blood taken

- a. results positive.....
- b. results negative/maternal/child
- c. maternal WR test results not recorded
- d. not recorded

	1
	2
	3
	4

7.3.Treatment

- a. recorded.....

	1
	2

- b. not recorded.....
- c. duration of treatment recorded
- e. duration of treatment not recorded
- f. maternal blood WR negative
- g. maternal blood not tested

	3
	4
	5
	6

7.4.presence of skin/bone lesions

- a. recorded.....
- b. not recorded.....

	1
	2

7.5.syphilis treatment at health facility

- a. no syphilis related care necessary mother's RPR(WR) test negative.....
- b .no syphilis related care recorded, RPR (WR) test not recorded
- c. WR Positive: mother received treatment during antenatal care....
- d. WR Positive: treatment not recorded
- e. WR Positive : treatment incomplete

	1
	2
	3
	4
	5

**TITLE: AN INVESTIGATION OF
ANTENATAL SCREENING AND
MANAGEMENT OF SYPHILIS IN
TWO DISTRICTS IN THE NORTH
WEST PROVINCE.**

**QUESTIONNAIRE FOR WOMEN
ATTENDING ANTENATAL CARE.**

QUESTIONNAIRE FOR WOMEN ATTENDING ANTENATAL CARE

DISTRICT: WOLMARANSTD/POTCHEFSTROOM

INTERVIEW SCHEDULE NO.

INTERVIEW SCHEDULE NO:

TITLE : An investigation of antenatal screening and management of syphilis in two districts in the North West Province.

The purpose of this study is to determine the effectiveness of syphilis screening during antenatal care at health care facilities in two districts in the North West province. We wish to know whether women attending antenatal clinics understand what syphilis is and why it is tested for in antenatal clinics. We also wish to study whether the antenatal clinics are performing this screening effectively. Recommendations to the health authorities for the improvement of this service will be made as a result of the findings of the study.

The study is being conducted in two districts in the North West Province at two hospitals: Potchefstroom and Nic Bodenstein respectively.

The information will be collected from women specifically who attend antenatal care at the mentioned hospitals.

.....

You are cordially requested to participate in this study and to provide us with valuable information.

The information which you have provided will be handled with utmost confidentiality and we do not record your name. The researcher will ask you questions as they appear on the interview schedule. Please respond to questions as they are asked. **You are free to ask questions where you do not understand.**

Please note that after you have answered the questionnaire we will give you information about syphilis in pregnancy.

This interview will take a total of 30 minutes.

- I. Name of facility:

1

- II. Region/district :.....

2

- III. Date:.....

3



1. GENERAL INFORMATION

1.1. What is your age?

1

1.2. What is your marital status?

1

 Married/Cohabiting.....

2

 Single

3

 Divorced.....

4

 Widow

1.3. What is your educational standard? Please specify.

1

 No schooling

2

 Primary.....

3

 Secondary school

4

 Tertiary

5

 Other (please specify).....

1.4. What is your current employment?

1

 Professional

Semi-skilled

Unskilled

Unemployed

Other (please specify).....

	3
	4
	5

2. ANTENATAL CARE HISTORY

Past pregnancy

2.1. Did you attend antenatal care in your previous pregnancy?

Y	1
N	2

2.1.1. if yes, where did you attend prenatal care?

Clinic.....

Hospital

Private doctor.....

Traditional healer.....

Other(please specify).....

	1
	2
	3
	4
	5

2.2. When do you think you should book?(please specify months of pregnancy)

after missing the first period

when 3 months pregnant

when 6 months

when you feel baby moving inside

other please specify....

	1
	2
	3
	4
	5

2.3. For what reason do you book for antenatal care? (Briefly explain)

for the good health of mother and baby

to be given good advice for pregnancy

	1
	2
	3

to detect serious conditions and treat them

	4
--	---

to protect the unborn baby through regular attendance

	5
--	---

to prepare the mother for care of coming baby

other(please specify).....

	6
--	---

Current pregnancy

2.4. At which period of pregnancy did you report for antenatal care(first visit)?

	1
--	---

Immediately after missing the first period

	2
--	---

At 1 month of pregnancy

	3
--	---

At 3 months

	4
--	---

At 6 months

other....please specify

	5
--	---

2.5. When was your last date of menstruation?

State month

	1
--	---

2.6. Was your blood taken when you first visited the clinic during pregnancy?

Y	1
---	---

N	2
---	---

2.6.1. if yes, for which tests was your blood taken? (mention the name of any blood test which was done during the first

visit)

	1
--	---

syphilis test

	2
--	---

HIV/AIDS test

	3
--	---

Blood grouping

	4
--	---

Rhesus test

	5
--	---

WR, Blood grouping, Rh, Hb

I don't know

	6
--	---

2.7. How soon after the blood was taken were you told to come for checking the results? Please specify.

The following day after blood was taken

	1
--	---

After one week

	2
--	---

After two weeks

	3
--	---

After 1 month

After 2 months

	4
--	---

At the next visit

	5
--	---

2.8. Were you informed of all your results?

Y	1
---	---

N	2
---	---

2.9. Were you told that there was any problem with any of your results?

Y	1
---	---

N	2
---	---

2.9.1. if yes, which test was abnormal?

I was told that there is some problem

	1
--	---

I was told syphilis result is positive

	2
--	---

I was just told that I should come for injection

	3
--	---

I was told I have 'vuil-siek' and need treatment

	4
--	---

I was told to come for treatment of WR positive

	5
--	---

I was told to come because of HIV results

	6
--	---

2.10. Were you given any treatment in response to the results?

Y	1
---	---

N	2
---	---

2.10.1. if yes, specify treatment:

name.....

	1
--	---

tablets.....

	2
--	---

	3
--	---

injection.....

	4
--	---

length of treatment.....

2.11. did you inform your partner/husband of your results?

Y	1
---	---

N	2
---	---

2.11.1. if not, why not? Briefly explain.

He works far from home

	1
--	---

He says he does not have STD

	2
--	---

He says he is not interest

	3
--	---

He left me as soon as I told about the pregnancy

	4
--	---

He beats me up if I talk about going for treatment

	5
--	---

2.12. was your partner/husband sent for testing?

Y	1
---	---

N	2
---	---

2.13. if yes, did he receive treatment?

Y	1
---	---

N	2
---	---

2.12.1. if not, why not?. Briefly explain.

He stays far from home

	1
--	---

He says he is not sick

	2
--	---

He says he is not interested

	3
--	---

He says traditional healers are better than clinics

	4
--	---

He does not want to talk about treatment

	5
--	---

Other(please specify).....

	6
--	---

2.14. have you ever had sexually transmitted disease before?

Y	1
---	---

N	2
---	---

2.14.1. if yes, please specify.

Syphilis

'drop'

heavy offensive vaginal discharge

offensive itching vaginal discharge

painful sores on the vulva

other(please specify).....

	1
--	---

	2
--	---

	3
--	---

	4
--	---

	5
--	---

	6
--	---

3. SYPHILIS – RELATED KNOWLEDGE

3.1. Can you tell me what syphilis is? (explain what type of disease it is)

painful sores on the vulva

sores on the vulva which take long to heal

offensive vaginal discharge

itching vaginal discharge

'cauliflower' on the vulva

don't know.....

--	--

	2
--	---

	3
--	---

	4
--	---

	5
--	---

	6
--	---

3.2. Why is it particularly important that women should be tested for syphilis during pregnancy? Please explain briefly.

to prevent infected women to affect unborn babies

to detect any syphilis and treat it on time

to prevent spreading of syphilis to others

	1
--	---

	2
--	---

	3
--	---

syphilis can be easily transmitted to the unborn baby
Women may have been infected when they were not pregnant

	4
--	---

	5
--	---

don't know.....

	6
--	---

3.3. Why is it important that the pregnant woman should receive regular treatment when she has tested syphilis positive?

So that they can be cured of the disease

	1
--	---

To protect the baby from being infected

	2
--	---

So that they can be healthy

	3
--	---

So that they do not infect their partners

	4
--	---

To be cured from other STD's

	5
--	---

don't know.....

	6
--	---

3.4. Do you think you can be infected again if you sleep with a person who has syphilis when you have completed your treatment?

Y	1
---	---

N	2
---	---

	3
--	---

don't know.....

3.5. Do you think a partner should be treated as well when the woman receives treatment?

Y	1
---	---

N	2
---	---

	3
--	---

don't know.....

3.5.1. if yes, why do you think so? Please explain briefly.

To protect the woman from being re-infected

	1
--	---

To make the partner be responsible for his health

	2
--	---

To promote health in both partners

	3
--	---

To keep couples free from STD's

	4
--	---

to avoid infecting the unborn baby

	5
--	---

don't know

	6
--	---

3.6. What information were you given at the clinic concerning sexually transmitted diseases especially syphilis? Briefly explain.

	1
--	---

I was not told anything

	2
--	---

To use condoms even during pregnancy

	3
--	---

That I can still be infected if I have sex with an infected person

	4
--	---

most sexually transmitted diseases can be cured

	5
--	---

treatment must be taken until complete

3.7. What knowledge do you have concerning the health of the baby when the mother has syphilis during pregnancy? Please explain briefly.

Baby will be infected

	1
--	---

Baby will have serious diseases like heart problems

	2
--	---

Baby's bones will break easily

	3
--	---

Baby may be born dead

	4
--	---

Baby will have sores on the body

	5
--	---

none

	6
--	---

3.8. Have you ever lost a baby during pregnancy before?

Y	1
---	---

N	2
---	---

3.8.1. If yes, what was the cause of the baby's death?

Please indicate the cause.

Baby had fever

	1
--	---

Baby had diarrhoea

	2
--	---

Baby had sores

	3
--	---

Nurses said baby had inflammation

	4
--	---

Don't know

	5
--	---

3.9. If you had syphilis would you consult a traditional healer?

Y	1
---	---

N	2
---	---

3.9.1. if no, why would you not? Briefly explain.

I do not believe in traditional medicine

	1
--	---

They cannot heal syphilis

	2
--	---

Clinic medicine is the only medicine to cure syphilis

	3
--	---

Some traditional healers are not sure of what they are doing

	4
--	---

Traditional doctors medicine is dangerous

	5
--	---

Other(please specify).....

3.10. Do you think the baby also needs treatment at birth when the mother has been treated for syphilis?

Y	1
---	---

don't know

	3
--	---

3.10.1. if yes, briefly explain why.

	1
--	---

the baby may be infected as well

	2
--	---

to make sure that baby is free from syphilis

	3
--	---

to keep baby health

	4
--	---

to prevent baby from getting other STD's

to keep baby free from syphilis throughout his life

	5
--	---

3.11. What is your opinion concerning men's blood being tested at the same time a woman's blood is taken during antenatal care?

Please explain briefly.

	1
--	---

Because they may re-infect treated women

	2
--	---

They may spread disease knowingly

	3
--	---

They may spread disease without knowing

	4
--	---

They become responsible sexual partners

They should be healthy as well

	5
--	---

THANK YOU

INFORMATION SHEET : CLIENTS' QUESTIONNAIRE

Title : An investigation of antenatal screening and management of syphilis in two districts in the North West Province.

It has been policy for many years in South Africa to screen for syphilis in antenatal clinics. All pregnant women should undergo syphilis testing at the first antenatal clinic according to the Guidelines for Maternity Care drawn by the Department of Health.

This study attempts to obtain information on the effectiveness of antenatal services in the management and screening of syphilis during pregnancy in the North West Province.

Recommendations will be made to the health authorities for the improvement of this services as a result of the findings of the study.

Syphilis is a sexually transmitted disease which has serious implications on the unborn baby's health; it often produces no signs in the mother but can affect the unborn baby. The baby could be born before time (premature), be born with deformities or be predisposed to certain diseases such as cardiac or bone disorders. Syphilis may even lead to stillbirth or early death in childhood.

Blood testing during pregnancy is a means of checking if a pregnant woman has syphilis. Treatment can be given to treat this condition in the mother and thereby prevent infection of the unborn baby. It is very important that the partner is treated too, to prevent re-infection.

The information in this study will help us know if women are aware of the importance of antenatal care, and what they know about syphilis screening in pregnancy.

We are also investigating health facilities to see if they have capacity to investigate for and treat syphilis in antenatal clinics adequately including treatment of partners.

You are invited to participate in this study and to provide us with valuable information.

1. The information which you have provided will be handled with utmost confidentiality and we do not record your name.
2. The researcher will ask you questions as they appear on the interview schedule.
3. Please respond to questions as they are asked.
4. You are free to ask questions where you do not understand

5. It is important that you talk with the clinic sister if there is more you need to know about syphilis during pregnancy and how it affects the unborn baby.
6. Remember that it is important to attend antenatal clinic regularly as long as you have not had your baby yet.

LOKWALO-TSHEDIMOSO

Tlhotlhomiso ya bolwetsi jwa syphilis mo baimaneng.

Mo dingwageng di le dintsi go nnile maleba go tlhotlhomisa le go dira ditsheka-tsheko tsa bolwetsi jwa syphilis mo baimaneng.

Patlisiso e, e leka go bona dintlha tse di maleba tsa go senola maitlomo a mafelo a pholo mo tlhokomelong ya baimana kgatlhanong le bolwetsi jwa syphilis mo porofenseng ya Bokone-Bophirima.

Dipholo (results) le ditla-morago tsa dipatlisiso tse, di tla romelelwa botsamaisi jwa Lefapha la Pholo ka ga dintlha tse di mosola tsa go tokofatsa botshelo jwa baimana.

Syphilis ke bolwetse jwa thobalano jo bo nang le ditla-morago tse di masisi mo leseeng fa mosadi a ithwele. Moimana yo o nang le syphilis ga se gantsi a nna le matshwao a a bonalang a bolwetse jo; mme fela ngwana ene a ka tshwaetsega. Ngwana a ka tsalwa pele ga nako (premature), a ka nna le dirwe tse di golofetseng kgotsa a ka amega motlhofo mo malwetseng a pelo kgotsa a marapo.

Syphilis e ka dira gore ngwana a bonwe a setse a didimetse (stillbirth) kgotsa a tlhokofale mo boseeng.

Diteko tsa madi ka jalo mo baimaneng di thusa go lemosa fa mosadi a ka ne a na le bolwetse jo jwa syphilis. Kalafi ya mmangwana go sa le gale mo boimaneng e ka thusa thata go thibela phetelo/tshwaetso ya lesea le le iseng le tsalwe.

Molaetsa mogolo wa patlisiso e, ke go thusa go netefatsa botlhokwa jwa thuso ya baimana mo thibelong le kalafing ya bolwetse jwa syphilis.

Re seka-seka mafelo a pholo ya boimana mo maitekong a go thibela le go alafa bolwetse jo. Re tlhotlhomisa gape maitlomo a kalafi a a ka bong a tsentswe mo tirisong tebang le bolwetse jo. Re lebile segolo-bogolo mekgwa e e leng gona ya tlhokomelo ya borre/balekane mabapi le syphilis.

KA JALO:

1. O lalediwa ka boikobo go dirisana le rona mabapi le tshedimoso e o ka e nayang mabapi le bolwetsi jwa syphilis.
2. Tshedimosetso ya gago e tla tsewa ka matssetseleko le mo sephiring. Leina la gago ga le na le dirisiwa.
3. Modira-dipatlisiso o tla go botsa dipotso jaaka di kwadilwe.
4. O lopiwa ka tswée-tswée go araba potso jaaka o e bodiwa.
5. O na le tshono ya go botsa potso fa go tlhokega.
6. Go botlhokwa go buisana le mooki kwa kliniking mabapi le bolwetse jwa syphilis fa go tlhokega; go itse ka mokgwa o ngwana a ka tshwaetsegang ka gona.
7. Lemoga, go botlhokwa thata go tsamaya kliniki ya baimana ka nako yotlhe ee beilweng, go fitlhela o tshola ngwana.

RE A LEBOGA

.....

**TITLE :AN INVESTIGATION OF
ANTENATAL SCREENING AND
MANAGEMENT OF SYPHILIS IN
TWO DISTRICTS**

PERSONNEL QUESTIONNAIRE

.....

DISTRICT: WOLMARANSTAD/POTCHEFSTROOM

INTERVIEW SCHEDULE NO:

TITLE : An investigation of antenatal screening and management of syphilis in two districts in the North West Province.

Copy of the subject information sheet and the Informed Consent form for consent of participants

The study is being conducted in two districts in the North West Province at two hospitals : Potchefstroom and Nic Bodenstein respectively. The information will be collected from health staff specifically those who work with women at prenatal care clinics in the Southern region at Primary Health Care level as well.

This interview will take a total of 25 minutes.

You are cordially requested to participate in this study and to answer truthfully so that valuable information should be gathered. The information provided will be handled with utmost confidentiality. Do not reveal your name. Please respond to questions as they appear on the interview schedule.

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- I. Type of facility: Clinic/Hospital.....
- II. Name of facility:.....
- III. Region/district:.....
- IV. Date.....

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1.GENERAL INFORMATION

1.1.Your age.....

1.2.Sex :.....

female

male

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1.3.What is your highest educational qualification : please tick response and specify

- Diploma
- Degree.....
- Any other(please specify).....

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2. PRENATAL CARE

1. What is your view about pregnant women attending antenatal care in your area? Please explain briefly

more women attend antenatal care
 teenage pregnancy is increasing
 most women from rural areas attend antenatal care
 most women seem not to have planned their pregnancy
 other ...Please specify

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2.2. Do you think syphilis is an increasing problem in pregnant women?

YES/NO

Y	1
N	2

2.2.1. if yes, why is the condition increasing? (please specify reason)

ignorance concerning STD management
 as a result of increasing rate of HIV infection
 ineffective contact tracing
 partners refuse treatment
 other ..(please specify)

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2.2.2. if no, why is that so? (please specify reason)

women come on time for their treatment
 increasing knowledge on safe sex
 early discovery and treatment of STD 's
 effective health education during antenatal care
 other..(please specify)

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2.3 Does your antenatal health facility have Rapid RPR testing for syphilis?

YES/NO

Y	1
N	2

2.4. Does every woman whose blood is taken for syphilis testing know why the test is done?

YES/NO

Y	1
N	2

2.5. Which strategies have you put in place to determine whether women understand the purpose of syphilis screening?
(please explain briefly)

- health education specific to syphilis management
- public education through media
- community participation through care groups
- counselling during antenatal care
- other (please specify).....

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2.6. In your opinion whose job is it to take blood for antenatal syphilis screening?

- Midwife
- Laboratory technician
- Doctor
- Specialist
- Other (please specify)

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2.7. Do you experience any patient-related concerns during syphilis screening? YES/NO

Y	1
N	2

2.7.1. if yes, please name them

- patients do not come back for blood results
- some patients mistake routine bloods for HIV test
- farm workers seldom come for antenatal care
- pregnant women do not take STD 's seriously
- other please specify.....

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2.8. Do you ever have women at your health facility who present themselves to the clinic but miss to be taken blood for syphilis testing?
YES/NO

Y	1
N	2

2.8.1. if yes, why do they get missed? Please explain briefly.

- Health facilities are overcrowded
- Health personnel cannot cope with high numbers of pregnant women
- Women do not receive clear instructions during antenatal care
- Specimen bottles are sometimes not available
- Other (please specify).....

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2.9. In the event of missing a client who should have been tested what do you do? Please explain briefly.

- Wait until next antenatal visit

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- Take blood at next antenatal visit
- Do home visits
- Call the patient back by means of home-based care personnel
- Other (please specify)....

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2.10. Does your health facility ever run out of stock on syphilis treatment?
YES/NO

Y	1
N	2

2.11. In the event of the treatment not being available what advice is given to the patients? Please explain briefly.

- We ask from another health facility
- We refer them to the local hospital for further management
- They are attended to during the next antenatal visit
- They are given a referral to the private doctor
- Other (please specify)....

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2.12. Do you have any strategies in place for partner tracing in your health facility?
YES/NO

Y	1
N	2

2.12.1. if yes, how is partner tracing done? Please give a brief explanation.

- Contact slips are issued
- Health education in media
- Through doing home visits
- Male care groups visit the infected men
- Other (please specify)...

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2.13. where does the partner receive treatment? Please tick response.

- health centre
- clinic
- private doctor
- traditional healer
- chemist
- other (please indicate briefly).....

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2.14. After the booking of bloods, when do you usually make the next booking for assessment of results? Please explain briefly.

Same day
 the following week
 2weeks after initial blood taking
 1 week after initial blood test
 1month after initial blood tests
 other (please specify).....

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2.15. How are pregnant women notified about their positive syphilis results when they are at home?

We wait for next antenatal visit
 By sending health-worker advisers
 Messages are sent through home-based care personnel
 They are given return dates
 Other (please specify)....

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2.16. Do those women who have tested syphilis positive come back on time for treatment?

YES/NO

Y	1
N	2

2.17. How do you manage patient compliance to treatment? Please explain briefly.

Stressing the importance of completing treatment
 Pre-test counselling
 Continuous health education
 Emphasize the danger of defaulting treatment on baby
 Other (please specify)....

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2.18. How do you manage those women who default on treatment

Briefly explain
 stress importance of keeping to treatment
 give remaining dose and re-educate
 trace them through care groups
 trace them through home visits by nurses
 other (please specify)....

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2.19. What is the turn-around time for syphilis results at your health facility?

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- 48 hours
- 1 day
- 2 - 3days
- 1 week
- 4-5days
- 8-12 days
- other(please specify).....

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2.20. Do you have any laboratory-related problems in syphilis screening at your health facility?

YES/NO

Y	1
N	2

2.20.1. if yes, what are they? Please explain briefly.

- Blood results delay if lab technician is on leave
- Some send results only when phoned
- Others respond to phone only if it is an emergency
- Blood bottles break in transport
- Unknown reasons for results delay
- Other (please specify).....

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2.21. Do you ever experience any administrative problems in relation to syphilis screening?

YES/NO

Y	1
N	2

2.21.1. if yes, what are they? Please indicate briefly.

- Shortage of blood specimen bottles
- Lab forms not available sometimes
- Lab technicians not available sometimes
- local lab closes during festive season
- Other (please specify).....

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2.22. What do you do about unbooked women who come to deliver at your facilities when they have not been tested for syphilis screening before? Please explain briefly.

- Blood is taken for testing at the bedside
- RPR testing for immediate results and treatment

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Referred back to the clinic
 We do not do any deliveries at our facility
 Nothing is really done for them

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2.23. What other problems do you encounter at your health facility which are related to syphilis screening?

Partners refusing to come for treatment
 Shortage of personnel to give women effective counselling
 Shortage of STD medication (Bicillin)
 Irregular attendance of antenatal care
 none
 Other (please specify)....

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THANK YOU
