

DESCRIPTION OF EXAMINATION RESULTS FOR SYPHILIS / TP FAST IN PREGNANT WOMEN AT HEALTH CENTER, KOTA UTARA

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ABSTRACT

The purpose of this study is to screen pregnant women at the North City Health Center for syphilis using a rapid method and to assess pregnant women's knowledge about syphilis using a questionnaire.

This study used descriptive qualitative approach. The data used were data from study findings and secondary data from literature, books, questionnaires, and medical records. The sampling technique used in this study was accidental sampling, with a total of 28 samples taken.

The results indicated that of the 28 pregnant women examined at the North City Health Center, 1 (3.6%) tested positive for syphilis and 27 (96.4 %) tested negative for syphilis. It can be established that the amount of pregnant women who test positive for syphilis at the North City Health Center was low. This could be attributed to the regularity with which pregnant women visit the Health Center to check on their pregnancy's health and the establishment of a pregnancy health checkup program at the North City Health Center every Wednesday.

Keywords: Syphilis Examination Results, Pregnant Women.

INTRODUCTION

Sexually transmitted diseases are a leading source of disability, illness, and death in the population. Sexually transmitted diseases remain a public health concern at the moment. The level of primary health care facilities and above is one of the most effective and appropriate levels for comprehensive and sustained prevention, control, and eradication activities [8].

Syphilis is an infectious disease caused by the bacteria *Treponema pallidum*. Syphilis is also known as The Great Imitator. Syphilis symptoms can mimic those of other diseases and can potentially spread to all organs of the body. Syphilis can be transmitted sexually, via blood transfusions, and also from pregnant women to their fetus[5].

Syphilis infection is transmitted to partners at a rate of 30% during one sexual interaction. Syphilis infection happens in a systematic manner; throughout the incubation phase, treponemes spread through the bloodstream. In pregnant women, treponemes can be passed to the fetus in utero shortly after onset of infection..

Treponema pallidum is a rod-shaped bacterium with a diameter of 0.009-0.5 microns and a length of 5-15 microns. Because *T. pallidum* has a very small form, it can only be observed under a microscope with a dark field of view using immunofluorescence.

Treponema pallidum produces three types of Ag/antigens: lipoids, polysaccharides, and proteins with a weak

color. *T. pallidum* bacteria can move quickly and age 4-7 days in bovine serum ultrafiltration, cysteine, pyruvate, sodium carbonate, and albumin, as well as in anaerobic circumstances at a temperature of 25%. Although *Treponema pallidum* is difficult to paint with paraffin colored items, it is capable of reducing AgNO₃ (Silver Nitrate) to silver metal that remains attached to the bacterial organs. These bacteria reproduce by aggregating. This bacteria breeds for approximately 30 hours [6].

Treponema pallidum bacteria are shaped, with thin peptidoglycan-coated organ walls, internal organ tissues, and external organ tissues. Endogelagel is located in the periplasmic area between the two membranes (periplasmic flagella). The organ that affects its own movement for *T. pallidum* bacteria which resembles a Corskscrew (a bottle opener) [10].

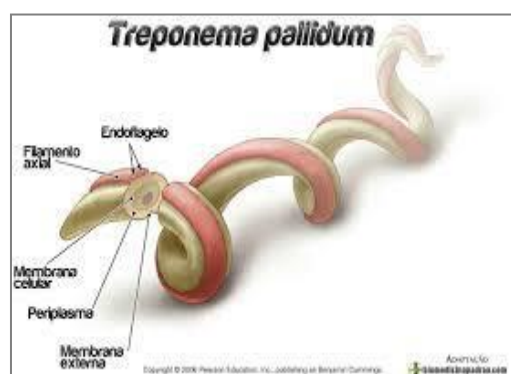


Figure 1, *Treponema pallidum*
Primary Data source

The outer tissue of *Treponema pallidum* has a limited number of protein elements. Through low protein concentrations, *Treponema pallidum* bacteria can elude the host's immune response. Additionally, this species of bacteria has a part of the cytoplasm known as a cytoplasmic fibril. The thread is shaped like a tap rope and measures 7-7.5 nm in width [4].

Congenital syphilis is syphilis that arises during pregnancy and is transmitted

to the fetus by transplacental transmission. Syphilis can be transmitted to infants during pregnancy.

Although transmission of acquired syphilis occurs through free intercourse and therapy exists to help cure the condition, this disease is required and must be a common health problem in Indonesia.

Contact with syphilis-infected sex. Syphilis is typically transmitted through casual sex. If pregnant women with syphilis are not treated, they can spread the infection to the unborn child via blood circulation or food, causing the unborn child to get syphilis.

Indirectly in contact with syphilis sufferers. For example, a person who lives in the same house as a person who has syphilis can contract the disease by touching the inside of a syphilis patient's pants, sheets, gebar, kacu, or tuala.

Contamination via blood. *T. pallidum* is likely to be transmitted through donated blood if the donor is infected with syphilis.

Although the majority of instances of congenital syphilis are caused by infection in the uterus, syphilis can also be passed from mother to child during delivery. Congenital syphilis carries a risk for the mother during pregnancy that is directly related to the stage of the infection. When the fetus is capable of producing an immune response, congenital syphilis lesions typically occur when they are 4 months old in utero. Spread within the womb is possible in a syphilis-infected woman, until *T. pallidum* bacteria are detected in the amniotic fluid, umbilical cord, and organs that transport oxygen and nutrients from the mother to the fetus. *T. pallidum* bacteria enter the fetal blood circulation via the mother's oxygen and nutrients and then spread to all cells in the fetal body. Following that, it increases to the point where it initiates a cellular

infection reaction that harms the fetus. Growth disorders, stillbirths, and miscarriages can occur at various stages of intrauterine and extrauterine life as a result of congenital syphilis diseases [13].

The clinical manifestations of syphilis are identical in pregnant and non-pregnant women. Early manifestations of syphilis include small macules that develop into papules and ulcers. Ulcers are often single, painless, with a clean bottom and little blood, though they can be many at times. It is possible to develop bilateral inguinal lymphadenopathy. Men often get lesions on the coronal sulcus of the glans penis or the shaft of the penis, whereas women develop lesions on the vagina, vulvar wall, or cervix. If the ulcer is left untreated, it will heal naturally in 3-8 weeks without leaving a scar [8].

Clinical manifestations of congenital syphilis include generalized lymphadenopathy, 20% pneumonitis, 20% neurosyphilis, 40% fever, 70% skin lesions, and 70% hepatosplenomegaly. Bullae or red skin rashes on the palms of the hands, soles of the feet, mouth, vesicles, and nose are signs of skin lesions. Pseudoparalysis is caused by osteochondritis of the long bones, meningitis, and pharynx, and lesions on the mucous membranes and nose may grow more slowly [12].

Interstitial keratitis, Hutchinson's teeth, mulberry teeth, nerve VIII disorders resulting in deafness, neurosyphilis, sword-shaped sclerosis of the bones (saber sign), perforation of the hard palate and nasal septum due to gumma destruction are all possible clinical manifestations of advanced congenital syphilis (saddle nose). (infantile syphilis rhinitis) protrusion of the frontal bone, thin cracks in the charcoal space and around the nose, followed by ragaden.

According to a 2012 analysis in Europe, the prevalence of syphilis disease

in men was approximately 0.3-70.7/100,000, the population estimated 12,000,000 new problems each year in developed countries, and the prevalence of syphilis disease in blood donors is 25% occurs frequently in developing countries [14]

Syphilis Control in Primary Health Care: A Management Guide If not treated promptly and appropriately, congenital syphilis infection can result in 67 percent of pregnancies ending in miscarriage or stillbirth. Syphilis remains a significant public health problem in a number of countries throughout the world. Although relatively common technology is available and costs are generally low and affordable, syphilis remains a public health problem that results in prenatal mortality and morbidity.

Syphilis infection affects 36.4 million adults and causes 10.6 million new infections each year. Sub-Saharan Africa, the United States, and Southeast Asia have the greatest rates of syphilis transmission. According to a study conducted in Africa, 30% of students were seropositive for prenatal syphilis and 50% were responsible for child mortality in congenital syphilis [11].

In 2017, the United States (US) reported 30,664 cases of primary and secondary syphilis infection. Syphilis infection rates remain high, with up to 5,6,000,000 syphilis infection cases reported worldwide in adolescents and adults [15].

There were 521,000 untreated syphilis infections among pregnant women, resulting in 212,000 stillbirths and 92 thousand neonatal deaths, 65 thousand premature deliveries, and 152,000 babies born with syphilis infection. The data was collected from antenatal clinics in 147 countries.

Syphilis is typically acquired during pregnancy by sexual contact, whereas

congenital syphilis is caused by the mother acquiring the *Treponema pallidum* bacteria. Sexual transmission in primary or secondary syphilis requires exposure to moist mucosa or skin lesions [5].

Syphilis in pregnant women can be identified by dark field microscopy or direct immunofluorescence to detect treponemes in the exudate of lesions or tissues. Serum was recovered from primary syphilis lesions and lesions that can form in moist locations in secondary syphilis, particularly condyloma lata or mucosal lesions. Another test that needs to be performed is a syphilis serological test.

According to the traditional paradigm, transmission of "Syphilis from mother to fetus will manifest as Congenital Syphilis." However, as science and technology advance, several screening tests and treatments for syphilis are reported to be becoming increasingly effective at preventing disease spread. Syphilis transmission diagnosis and prevention are possible, affordable, and cost-effective [5].

To improve pregnant women's health, it is necessary to do a sexually transmitted infection screening and to educate pregnant women about sexually transmitted diseases. Concerning "health," the government then issued "Elimination of Mother-to-Child Transmission of Human Immunodeficiency Virus, Syphilis, and Hepatitis B." To prevent infection from mother to fetus during pregnancy, health workers can conduct first discovery activities during health services by doing blood tests on pregnant women at least once [16].

The purpose of syphilis therapy during pregnancy is to prevent congenital syphilis and to eradicate bacterial infection in pregnant women, and penicillin therapy is the treatment of choice. Penicillin therapy has been shown to be successful in 98% of cases of

syphilis infection. Pregnant women who have a history of penicillin allergy should get a skin test to check out anaphylaxis. Penicillin desensitization followed by therapy with benzathine penicillin G is recommended if the skin test was positive [9].

Treponema pallidum therapy comprises an intramuscular injection of benzathine penicillin G at a dose of 7,200,000 units for late latent tertiary syphilis or no known history of previous infection for three weeks and a single dose of 2,400,000 units for primary, secondary, and early latent syphilis. Antibiotics should be administered in serum for a period of 7-10 days, including a 30-33-hour replication period, with a treponemacid level of 6.12. There have been no reports of bacteria *T. pallidum* becoming resistant to penicillin to yet [1].

Antibiotic resistance has been reported in between 5% and 10% of pregnant women. Antibiotics at abnormal doses are indicated for pregnant women who have an unexpected body reaction to antibiotics. Antibiotic dosing is a method of exposing pregnant women to antibiotics in small doses until they reach an effective dose. After achieving the effective dose, pregnant women should continue with adequate penicillin therapy. Antibiotic administration must be carried out by trained health personnel in accordance with established procedures and the availability of tools to manage severe allergic reactions [2]

Laboratory examinations are used to conduct clinical evaluations, including the detection of living organisms that cause syphilis and the confirmation of syphilis disease. *T. pallidum* bacteria cannot be seen directly and cannot be cultivated in the laboratory, but they can be identified by evaluating the lesion in the dark field using a fluorescent microscope equipped with molecular techniques. Serological

tests can be used to screen for infection in someone who has syphilis but is not clinically symptomatic [5].

According to the 2011 National Guidelines for the Management of Sexually Transmitted Infections, there are two procedures to determine the presence of syphilis: serology and syndrome examinations (Kemenkes, 2013). The serological examination includes both non-treponemal and treponemal assays. Syphilis can be diagnosed in two ways: by an initial examination using the non-treponeme method and then through a verification or confirmation examination using the treponemal antigen approach to confirm a positive initial examination result. A nontreponemal test can be used to monitor the patient's reaction to treatment [3].

Serological testing for syphilis are classified into two types: non-treponemal tests and treponemal-specific tests. Non-treponemal tests include the Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL). The *Treponema pallidum* Hemagglutination Assay (TPHA), the *Treponema pallidum* Rapid Assay (TP Rapid), the *Treponema pallidum* Particle Agglutination Assay (TP-PA), and the Fluorescent Treponemal Antibody Absorption Assay (FTA-ABS) are all treponeme-specific tests [7].

Rapid Plasma Reagin (RPR) and Venereal Disease Research Laboratory (VDRL) tests are non-treponemal tests for detecting IgA (Immunoglobulin), a protein that serves as the body's defense against the lipid material of damaged *Treponema pallidum* cells. However, in chronic autoimmune disorders and acute viral infections, antibodies can be induced. As a result, this non-specific test may produce a false positive result. The nontreponeme test can be used to determine the efficacy of therapy and to detect active infection and reinfection. Because this test is

significantly less expensive and accessible than the treponemal specific test, it is more frequently used for initial examination. To avoid the expense of an initial nontreponemal test, if the result is positive, the investigation can be proceeded with a specific treponemal test [3].

The *Treponema pallidum* Hemagglutination Assay (TPHA), the *Treponema pallidum* Rapid Assay (TP Rapid), the *Treponema pallidum* Particle Agglutination Assay (TP-PA), and the Fluorescent Treponemal Antibody Absorption (FTA-ABS) tests are all specific tests for treponemes. They are used to identify the body's defense system against treponemes. Even after successful syphilis therapy, this test will remain reactive/positive for the remainder of one's life, however it rarely generates false positive findings. The disadvantage of this test is that it cannot determine whether a person is currently infected with syphilis but can detect infections with other treponemes [5].

Syphilis rapid test is a rapid syphilis test that typically takes 10-15 minutes to complete. TP Rapid is a rapid test strip immunoassay for the detection of *Treponema pallidum* antibodies (IgG and IgM) in serum, plasma, and whole blood. The sensitivity of this rapid test is between 85 and 98%, and the specificity is between 93 and 98% higher than that of TPHA or TPPA, and also the procedure for using this rapid test is relatively basic [7].

Treponema pallidum Rapid (TP Rapid) is a specific examination of treponemes classified to identify the treponeme-specific defense system in the body. Even after effective treatment for syphilis, this test will remain reactive/positive for life, however it rarely produces false positive results.



Figure.2 TP Rapid (*Treponema pallidum* Rapid)
Primary data source

Tp Rapid may be used in conjunction with Rapid Plasma Reagin as an alternative for the *Treponema pallidum* Particle Agglutination Assay (TP-PA) (RPR). The TPHA examination is significantly cheaper than the Tp Rapid examination, however the Tp Rapid examination can save time [7].

RESEARCH METHODS

This is a descriptive qualitative study with the aim of determining the results of syphilis examinations conducted on pregnant women at the North City Health Center in Gorontalo City. Descriptive research is a sort of research that tries to describe or describe an event, occurrences, or series of events.

In this study, data were collected from respondents/patients using questionnaires and immediately at the research location. Additionally, this study included information on the number of pregnant women in Gorontalo Province, Gorontalo City, and the North City Health Center. The Gorontalo Provincial Health Office and the North City Health Center Laboratory Installation provided the data.

The total population is the 81 pregnant women that are currently enrolled at the North City Health Center in Gorontalo City. The sampling technique used was incidental sampling, in which pregnant women who came to

the North City Health Center in Gorontalo City for a health check and agreed to be included in the research sample were included.

The research sample consisted of up to 28 samples of venous blood from pregnant women at the North City Health Center in Gorontalo City. The sample size obtained using the Stanley Lemeshow formula is:

$$n = \frac{N Z^2 1 - \alpha / 2 P (1 - P)}{(N - 1) d^2 + Z^2}$$

$$n = \frac{81 \times 1,96^2 \times 0,5 (1 - 0,5)}{(81 - 1) \times 0,15^2 + 1,96^2 \times 0,5 (1 - 0,5)}$$

$$n = \frac{77,8}{1,8 + 0,96}$$

$$n = \frac{77,8}{2,76}$$

$$n = 28 \text{ samples}$$

This study used two types of data, namely primary and secondary data. The primary data source for this study is the syphilis/Tp rapid examination findings obtained from pregnant women at the North City Health Center. Then there were secondary data sources such as medical records, questionnaires, and data obtained from literature.

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The data processing method then generates the required information as a result of the data processing process or as a summary of the raw data. Coding, Entering, Cleaning, Editing, Tabulating, and Describing are all data processing processes.

In this study, descriptive univariate analysis was used to describe the information or characteristics of the

sampled data (Masturoh et al, 2018). To process the findings according to Sugiyono's (2014) formula, namely:

$$Persen(\%) = \frac{f}{N} \times 100 \%$$

Note :

N = Overall value of the sample

f = Frequency of results

% = Percentage

100 = Fixed number

The validity of the data was identical to the data obtained by the researcher in contrast to data that actually occurs on the object of research to establish the data's authenticity and the researcher's ability to account for the data obtained, including: (Credibility, Tranferabilitas, Dependabilitas and Confirmability).

RESEARCH RESULTS

A. Informants Based on Age

Table. 1 Informants Based on Age

Age	Frequency	(%)
< 20 years	11	39,3
21 – 30 years	13	46,4
31 - 40 years	4	14,3
Jumlah	28	100

Source : Primary Data, 2021.

Table 1 shows that of the 28 pregnant women who were studied, the largest age group of pregnant women was 20–30 years, which amounted to 21 (60.7%) respondents, then aged 3-40 years, which amounted to 6 (21.4%). respondents, then the last is the age group under 20 years, namely 1 (3.5%) respondents.

B. Informants Based on Age Characteristic

Table.2 Respondents Based on Gestational Age

Gestational Age	Frequency	(%)
1 – 14 weeks	11	39,3
15 – 27 weeks	13	46,4
28 – 40 weeks	4	14,3
Total	28	100

Source : Primary Data, 2021.

Table 2 above shows that from 28 pregnant women informants, the highest gestational age was 15-27 weeks, namely 13 people (46.4%), then 1-14 weeks gestation was 11 people (39.2%). and the last is the gestational age of 28-40 weeks as many as 4 people (14,2%).

C. Characteristics of Respondents Based on the Results of Syphilis Examination in Pregnant Women

Table. 3 Syphilis Examination Results in Pregnant Women

Result	Frequency	(%)
Positive	1	3,6
Negative	27	96,4
Total	28	100

Source : Primary Data, 2021.

In table 3, the 28 pregnant women who were tested for syphilis using the rapid test method, the most negative results were 27 people (96.4%), then 1 person (3.6%).

D. Characteristics of Respondents Based on Syphilis Understanding

Table. 4 Respondents Based on Syphilis Understanding

Questions	Answers	
	Yes	No
Understanding of syphilis	3	25
Have you ever had a syphilis test?	0	28

Knowledge about the dangers of syphilis	3	25
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transmission of further Sexually Transmitted Infections (STIs).

Source : Primary Data, 2021.

Table 4 reveals that of the 28 pregnant women examined for syphilis and interviewed about syphilis, the results obtained the most responses, namely 25 (89.2 %) pregnant women who were unaware of the disease and its dangers, and the number of pregnant women who were aware of the disease and its dangers. amounted to three individuals (10.7%). Then, each pregnant woman reported that they had never been tested for syphilis.

DISCUSSION

1. Respondent's Age

As can be observed from Table 1, the largest age category for pregnant women is 20 to 30 years, represented by 21 respondents (75 %), followed by 31 to 40 years, represented by 6 respondents (21.4%). Then there is the under-twenty-year-old age group, which consists of one individual (3.5).%

According to studies conducted at Gorontalo City's North City Health Center, a pregnant woman who tests positive for syphilis is 19 years old. positive. The patient recently underwent a pregnancy test. According to the anamnesis, the patient had no subjective or objective complaints about genital or skin issues during or before pregnancy. The patient is married; her most recent sexual encounter with her husband occurred three weeks ago without the use of a condom. At the same puskesmas, the patient's husband was diagnosed with syphilis. Subjective and objective symptoms of the husband were rejected. There were no complaints from the husband that resulted in the

2. Respondent's Gestational Age

Other respondent data collected in this study via the questionnaire include gestational age. As shown in Table 2, the most common gestational age range for 28 informants was 15-27 weeks, accounting for as many as 13 respondents (46.4 %), followed by gestational age 1-27 weeks. At 14 weeks, up to 11 people (39.2 %) and at 28-40 weeks, three to 4 persons (14.2%)

As showed in Table 2, positive tests for syphilis were obtained in pregnant women with a gestational age of 24 weeks. These findings corroborate the theory that obtaining the same results with his research entitled secondary syphilis in pregnant women in the second trimester and late latent syphilis in husbands resulted in positive results for syphilis in a woman who was pregnant for the first time and was six months along in her pregnancy. A medical history, physical examination, microscopic examination, and serological testing for VDRL and TPHA were used to support the analysis. Numerous white plaques with a smooth surface were seen in the perianal region. T. pallidum is seen on DFM inspection of the perianal lesion. Serological examinations employing VDRL and TPHA revealed a reactive titer of 1:128 and 1:5120, respectively. The patient received a single intramuscular dosage of benzylpenicillin G 2,4,000,000 IU. On subsequent examination, the previous lesions were vanished, and there were no new lesions. The titer decreased from 1:128 to 1:64 following VDRL serological examination.

3. Characteristics of Respondents Based on Syphilis Knowledge

As shown in Table 3, of the 28 informants who were examined for syphilis and interviewed about syphilis, the most responses were from 25 pregnant women (96.2 %) who were unaware of the disease and its dangers, while the number of pregnant women who were aware of the disease and its dangers was three (10.71%). Then, all pregnant women said that they had never been examined for syphilis, 28 individuals (100%).

The information above shows that many pregnant women were unaware of what syphilis is or the problems associated with it. This can be a serious problem because it increases the risk of sexually transmitted diseases being transmitted. The author's beliefs on this issue were supported by insight based on the proper appreciation, which can trump positive reviews from informants, most notably on the insight of preventing infectious disease transmission from mother to child. Informants with the necessary expertise into the prevention of infectious disease transmission from mother to child can respond to sexually transmitted diseases.

Someone with insight will attempt to justify their insight. If someone truly understands syphilis, they will have a good attitude and a strong interest in preventing this infectious disease.

The researcher asked respondents on a questionnaire, "Have you ever had a syphilis test?" and all pregnant women responded that they had never had a syphilis examination (100%).

With the responses from pregnant women above, the researchers requested data from the North City Health Center for each respondent analyzed to corroborate their responses.

The researchers then collected data indicating that some pregnant women had undergone a syphilis examination. This may occur as a result of the respondent's lack of knowledge about the sexually transmitted disease syphilis and the infectious disease syphilis.

The results of this study indicate that as many as 8 respondents (26.7 %) have good knowledge, as many as 17 respondents (54.7 %) have moderate knowledge, and as many as 15 respondents have bad knowledge (16.7%). It demonstrates that the percentage of pregnant women who were unaware of triple elimination was still relatively high, at 20%. (36.4%). Demonstrates that the availability of information also has an effect on knowledge. Respondents in Mojo Village, Mojo District, Kediri Regency had received information about sexually transmitted diseases, namely 25 respondents (69.4%), and it was known that respondents received information through counseling, namely 16 respondents (44.5 %), and it was discovered that respondents received information via social media, namely 8.4 percent. With the amount of information available, both counseling and social media are expected to help increase. Sensitization and education regarding sexually transmitted diseases. The results indicate that there were 80 respondents, that 90% of respondents are known to be educated, and that 40% of respondents indicated that radio, television, and social media are the primary sources of information about HIV/AIDS, indicating that the level of knowledge in this study is quite high. satisfactory, and pregnant women have benefited from social media information.

The preceding explanation shows the value of information regarding the infectious syphilis infection. Pregnant women who have been educated about the sexually transmitted disease syphilis, either through counseling at the puskesmas or through certain media, will make an effort to avoid sexually transmitted diseases.

CONCLUSION

After doing the research, the author concluded that:

1. Of the 28 pregnant women at the Kota Utara Health Center there were 1 (3.6%) positive people and 27 (98.2%) negative people.
2. Of the 28 respondents, 3 (10.7%) understood syphilis and 25 (89.2%) unaware about syphilis.

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