

## Research Article

# Coverage and Uptake of Syphilis Screening among Pregnant Women Attending Antenatal Care: A 5-Year Review in Plateau State, Nigeria

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## I N F O

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## A B S T R A C T

**Introduction:** Nigeria is one of the high-burden countries in sub-Saharan Africa for syphilis and along with other sexually transmitted infections contributes to reproductive health morbidities and mortalities. This study was aimed at determining the coverage and uptake among the pregnant population in Plateau state Nigeria.

**Method:** The study was a 5-year descriptive analysis of syphilis screening services among pregnant women in Plateau state, Nigeria based on data generated between January 2012 and December 2016. The data on syphilis screening services were managed through the electronic Nigerian National HIV/AIDS Response Information Management System (eNNRIMS) which was a web-based software. The data was disaggregated by year, prenatal registration, and outcome of syphilis test in the software and analysis was done using excel to obtain the proportions and trend of syphilis screening uptake among the pregnant population.

**Result:** Out of a total of 199,104 that registered for antenatal care, only 55,028 (27.6%) got tested for syphilis, and 618 (1.1%) tested positive.

**Conclusion:** The coverage and uptake of syphilis screening services was very low with a high percentage of missed opportunity to identify and treat cases of syphilis in Plateau state.

**Keywords:** Plateau State, Pregnancy, Syphilis, Screening, Uptake

## Introduction

The WHO estimated that in 2008, there were 36.4 Million adults infected with syphilis globally and each year, out of an estimated 12 Million people testing positive for syphilis

globally, pregnant women account for over 2 Million with two-thirds of these cases contributed by SSA and South/South-East Asia.<sup>1-4</sup>

The reported prevalence of syphilis in pregnant women

attending ANC varies from one country to the other. In females within the African region, the prevalence of syphilis was 3.5% and the incidence was reported to be 8.5 per 1000 population. In SSA, it is estimated that the prevalence of syphilis ranges from 2.5% to 17% in pregnant women.<sup>5,6</sup>

In Ethiopia, studies reported syphilis prevalence ranging from 1% to 10.9% in diverse risk groups such as pregnant women, and blood donors.<sup>7,8</sup> According to the antenatal care-based sentinel surveillance, syphilis prevalence increased from 1.8% in 2003 to 2.7% in 2005 and then stabilised at 2.3% in 2007 and 2009.<sup>9,10</sup> The rate of syphilis- HIV co-infection among ANC attendees had also been rising from 4.1% in the year 2003 to 4.9% in 2005 and 5.3% in 2007, but dropped to 3.9% in 2009.<sup>11,12</sup>

Unless prompt diagnosis and treatment of syphilis are carried out, serious complications including male and female infertility may result and maternal syphilis during pregnancy is a particularly critical public health problem. Syphilis infection in pregnancy besides facilitating MTCT of HIV, can cause adverse birth outcomes in 60- 80% of children, including stillbirth, premature birth, neonatal death, low birth weight, congenital syphilis and disability.<sup>13</sup>

Despite global initiatives by the WHO to eliminate congenital syphilis with the aim to achieve at least 90% antenatal syphilis screening and adequate treatment for approximately 90% of seropositive pregnant women, the achievement is low due to low antenatal care coverage.<sup>2</sup>

Also, the United States Preventive Services Task Force has reaffirmed its recommendation that clinicians screen all pregnant women for syphilis to treat and prevent congenital infections.<sup>14</sup> Testing is now required by law in all states in America and should be performed at the first prenatal visit. In populations in which the prevalence of syphilis is high, serological testing should be performed in the third trimester and again at delivery.<sup>15</sup>

Studies have shown that early screening for and treatment of syphilis during pregnancy can effectively prevent adverse birth outcomes, however, fewer than half of pregnant women receive antenatal syphilis testing in many low-resource settings, likely due in part to cost and infrastructure required of classic syphilis assays.<sup>5,16,17</sup>

Prevention and control of STIs and improving access to STI services are critical components of the global strategies to achieving SDG 3 target 3 in the areas of combating communicable diseases. In Nigeria, despite the introduction of VDRL as part of baseline investigations for new antenatal pregnant women, the uptake of VDRL is unknown. The study is aimed at determining the uptake of screening services for syphilis and the burden of syphilis among pregnant women attending prenatal care in Plateau State, Nigeria.

## Materials and Methods

The study was conducted in Plateau State, North-Central zone of Nigeria located between latitude 8° 24' N and longitude 8° 32' and 10° 38' East. The state is bounded in the North-East by Bauchi state, North-West by Kaduna state, South-East by Taraba state and to the South-West by Nasarawa state. It has an area of 26,899 square kilometres and is administratively divided into 17 Local Government Areas (LGAs). The population of the state as per the 2006 census was 1,598, 998 males and 1,607,533 females, and a total of 3,206,531. With an annual growth rate of about 2.7%, the projected population in the state was approximately 4,075,391 people as of the year 2015.

The study was a 4-year descriptive analysis of syphilis screening coverage and uptake services among pregnant women accessing prenatal care in Plateau state, Nigeria based on data generated between January 2012 and December 2015. Ethical approval was obtained from JUTH ethical review committee and the authorisation to use the state data was obtained from Plateau State Ministry of Health. The data were collected on a continuous basis from all health service delivery points in all the 17 Local Government Areas of Plateau state and with the targeted population being pregnant women accessing prenatal care in the health facilities. The review was based on the diagnosis of syphilis infections delivered by physicians and or laboratories which was entered into the newly instituted monitoring and evaluation system in the state. In addition, the harmonisation of the monitoring and evaluation system for data collection and reporting tools and template had been strengthened in the state.

The data on syphilis screening services were managed through the electronic Nigerian National HIV/ AIDS Response Information Management System (eNNRIMS) which was a web-based software. The data were captured into the HCT Tools (Registers) and referred to as source documents and the tools included; HCT and syphilis Register, Client intake form, Request and Result form, syphilis worksheet and syphilis monthly summary form with all the tools in hardcopies domiciled at the service delivery point (SDP). The eNNRIMS was centrally coordinated with a hierarchy of privileges from the SDP, through the Local Government level, and the state and national levels. The infrastructure and capacity of operators of the eNNRIMS were strengthened with internet access to allow data entry and validation. Data from the source registers were entered into the eNNRIMS at the facility level with the first verification at the LGA the second and third verifications were done at the state and national levels respectively.

At the state level, monthly Monitoring & Evaluation (M &

E) meetings were held with the participation of key M & E stakeholders from IPs, State Ministry of Health, Plateau State Agency for the Control of AIDS (PLACA) and Local Government officers. The monthly meetings were aimed at ensuring completeness, adequacy and accuracy of the data. Validation meetings were held quarterly to review source documents for HCT across SDPs against the electronic data platform for correctness and appropriateness. The same validations were held on semester bases at the national level with M & E officers from IPs, NASCP, NACA and state officers to finalise and confirm the correctness of the data across states including Plateau state. Data were retrieved from the database manually for analysis. The extracted data were analysed using Excel. Results were

presented in line graphs for the years, and bar charts to represent syphilis screening uptake and prevalence in Plateau State, Nigeria.

### Results

The results showed that within the study period, a total of 199,104 pregnant women registered as new antenatal clients and 55,028 were tested for syphilis, giving a syphilis screening uptake of 27.6% in Plateau state of Nigeria. Out of the number tested, 618 were positive for syphilis, giving a prevalence of 1.4% in the state. Despite a steady increase in the number of pregnant women registering for ANC, there was no corresponding increase in uptake for syphilis screening and the highest uptake for syphilis screening was in 2013 and the lowest in 2014 (Figures 1 and 2).

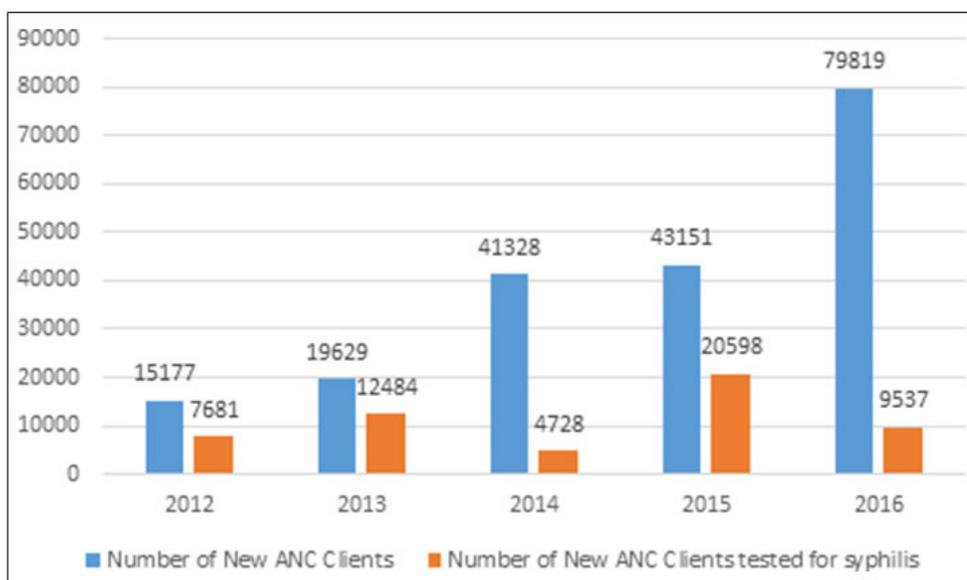


Figure 1. Number of New ANC and Those Tested for Syphilis between 2012 and 2016

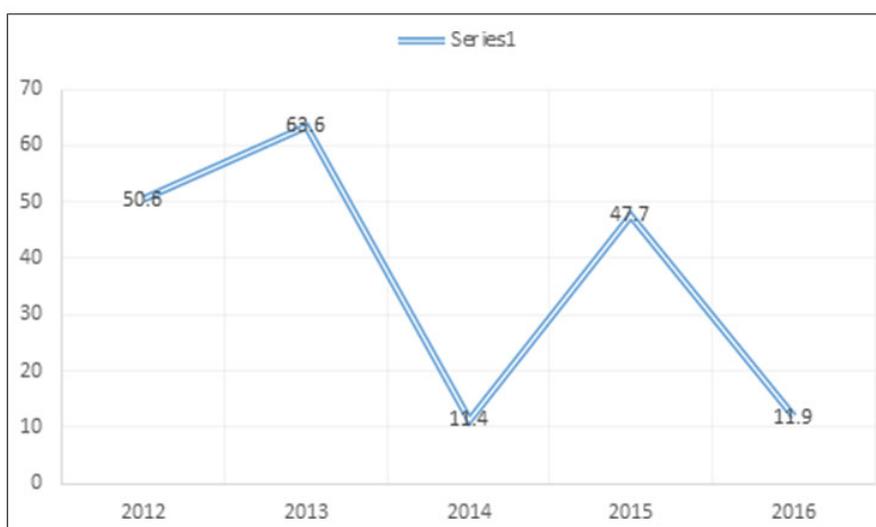


Figure 2. Trends of Syphilis Screening Uptake between 2012 and 2016

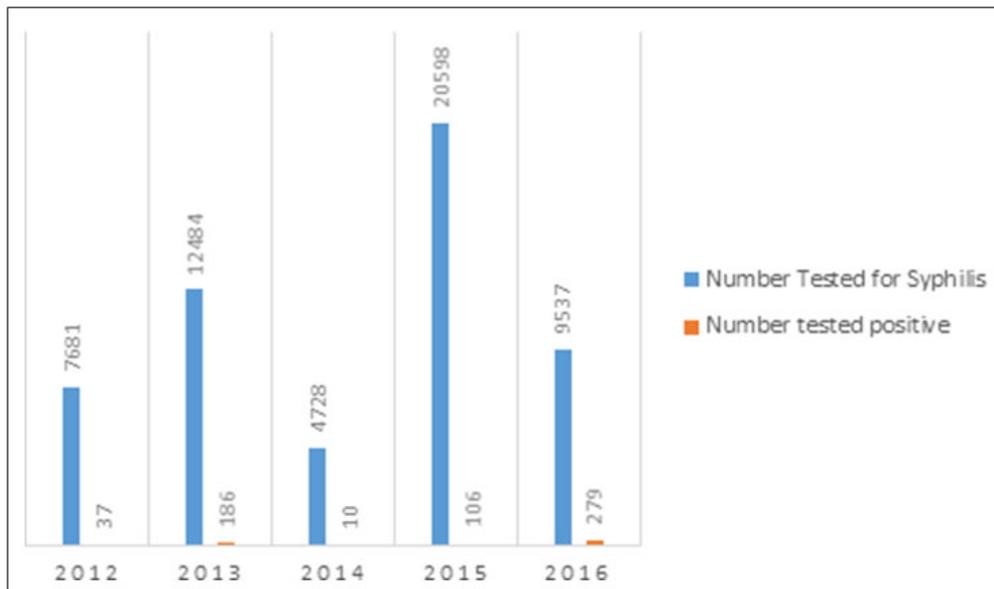


Figure 3. Number of New ANC Clients Tested for Syphilis and Outcome between 2012 and 2016

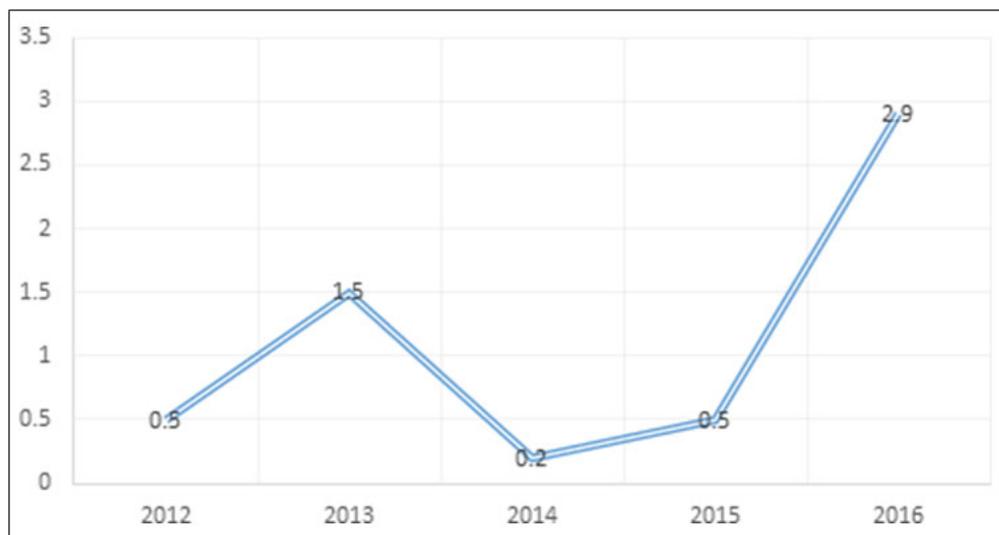


Figure 4. Prevalence of Syphilis among Pregnant Women between 2012 and 2016

The prevalence of syphilis among pregnant women was highest in 2016 and lowest in 2014, even though, 2015 had the highest number of pregnant women that were tested for syphilis (Figures 3 and 4).

### Discussion

Our study showed that on average, the uptake of syphilis screening services among pregnant women in Plateau State was 27.6% of the total number of 199,104 tested. The highest uptake of 63.6% recorded was in 2013 and the least (11.4%) uptake was reported in 2014. The study showed an undulating pattern in the uptake of screening services among women during the study period. However, a reversed pattern was observed in Nigeria with a steady increase in the number of pregnant women tested for syphilis in the

last three years and the highest in 2014.<sup>18</sup> Failure to test for syphilis means that people can easily be infected or infect others compromising the control and prevention of syphilis and other STIs in the state.<sup>13</sup>

As of 2014, only 11.4% of pregnant women in Plateau state had been tested for syphilis with about 88.6% yet to be tested representing the widest gap and missed opportunity for syphilis control. This gap has serious public health implications for the efforts to prevent new syphilis transmissions and other STIs. The uptake of syphilis screening is low nationally and in other low-resource settings. The uptake rate of 27.6% is far below the WHO-recommended 90% uptake rate and this may be responsible for the high burden of syphilis and other STIs among pregnant women and

congenital syphilis in low-resource settings.<sup>14</sup> The first step towards syphilis prevention is knowing the screening of the population for appropriate deployment of preventive tools for syphilis control, no wonder, the United States Preventive Services Task Force has reaffirmed its recommendation that clinicians screen all pregnant women for syphilis to treat and prevent congenital infection.<sup>14</sup> However, this will form the baseline for the target of 90% of the population tested for syphilis and treated in the Sustainable Development Goal (SDG) 3 by 2030 in Plateau state.

A prevalence of 1.4% is below the range of 2.5% to 17% recorded in low resource settings which could be accounted for by the low coverage.<sup>5,6</sup> Also, unlike the findings at the national level where the recorded the highest number tested for syphilis in 2014, in Plateau state, it was in 2013 and since then it has been on a downward trend.<sup>18</sup> It is important to study the factors that accounted for the highest number of pregnant women tested in 2013 in order to adopt and sustain the strategies for wider coverage towards universal antenatal syphilis testing in the state. This is important because pregnant women are a vulnerable population considering the fact that they are sexually active through which syphilis is transmitted mainly. Women of reproductive age also serve as an interface for both horizontal and congenital transmission of syphilis in countries with a high burden of STIs including HIV. If the uptake is poor among women of reproductive age, the outcome would be worst among the male population with generally poor health-seeking behaviour compared to women and are particularly underrepresented among those accessing syphilis screening services. Since the youths are not accessing screening services, syphilis infections are likely to go unrecognised and untreated and opportunities for prevention and control will not be utilised. Young people offer the greatest hope for changing the course of the syphilis epidemic and are key to the success of the 90% attainment of the population knowing their status and (SDG) 3 by 2030.

The syphilis uptake might have been affected by inadequate health resources and poor distribution of the available health resources in the Plateau state. Most of the health facilities lack the technology and human capacity to provide syphilis screening services and the few facilities providing such screening services, most women are unable to pay due to poverty in such settings. Similar findings are reported in studies at the national level in Nigeria and other countries in sub-Saharan Africa.<sup>5,6</sup> To close the gaps in syphilis screening uptake in Plateau state, policies aimed at making services available and affordable would enhance access by pregnant women and the active reproductive male population. This measure will have a significant effect on the burden of syphilis in STI-endemic countries and a reduction in morbidity associated with syphilis uptake in line with the global consensus on syphilis testing and treatment.<sup>15</sup>

The application of the reported findings would be limited considering the fact that besides the potential for incorrect data entry by the data officers, the use of secondary data gave us little opportunity to include other variables in the analysis especially since the secondary data was not disaggregated into individual subjects for multivariate logistic regression analysis of determinants for syphilis uptake in the general population. However, these findings could be used at the policy level to strengthen strategies towards achieving 90% of syphilis screening uptake among pregnant women in Plateau state.

## Conclusion

The syphilis screening uptake was very low among pregnant women in Plateau state and consistently lower coverage was recorded in most of the years with significant missed opportunities to effectively control syphilis in Plateau state Nigeria.

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**Conflict of Interest:** None

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