

Preventing Congenital Syphilis

Increase Syphilis Screening During Pregnancy

Case Report

"A 32-day old term male infant was admitted to a Pediatric Care Unit in Fargo for management of respiratory failure and hypo-tension in July, 2020. The baby had not regained his birth weight. His examination was remarkable for unusual desquamation of the hands and feet, generalized edema, bleeding around the lips and anus, and proportional microcephaly. His laboratory was remarkable for coagulopathy, hypoglycemia, thrombocytopenia, and inappropriately low T4 and cortisol measurements. An MRI of the brain demonstrated multiple areas of ischemia. The baby's mother noted the desquamation had been present since nursery discharge. An evaluation for late onset neonatal sepsis was unrevealing; however, a diagnosis of congenital syphilis was ultimately established serologically with a positive syphilis IgM and IgG screen and reflex RPR titer of 1:256.

Review of maternal serology demonstrated that the baby's mother had a negative serological screen for syphilis in the first trimester; however, recommended screening for syphilis was not repeated in the third trimester or at delivery. Furthermore, the baby's mother had been evaluated for a rash consistent with secondary syphilis at 30 weeks gestation, but the diagnosis was missed. The child has been started on treatment with IV penicillin, but his long-term developmental outcome is guarded."

-- Case report provided by Dr. Clifford Mauriello, MD, a pediatric infectious disease provider at Sanford Health in Fargo.¹



Background

Overview

NDDoH Recommendations

Screen all pregnant women for syphilis three times, as follows:

- First prenatal visit
- Third trimester (28 weeks' gestation)
- At Delivery

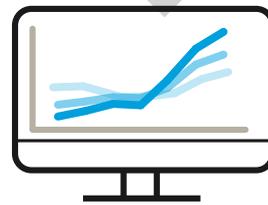
Syphilis Rates Increasing

In 2021*, North Dakota reported a total of 105 syphilis cases, 70 of which were early stages.² When compared to the past 10 year average, the number of reported ND syphilis cases in 2021 has increased by 92.0%. (2011-2020 ND 10-year case mean = 54.7, 2021 ND cases = 105)

Increase in Congenital Syphilis (CS)

Between 2009 and 2019, ND reported one CS case. Over the past 27 months (Jan 2020 - March 2022), five* new CS cases have been reported.²

The 192.8%** increase in the number of reported U.S. CS cases between the past 10-year mean and projected 2020 cases underscores the many missed opportunities to prevent disease.^{3,4,5} (2010-2019 U.S. 10-year case mean= 717.2, 2020 projected = 2,100)



Congenital syphilis (CS) is an infection with *Treponema pallidum* in an infant or fetus, acquired during pregnancy or possibly at birth from a mother with untreated or inadequately treated syphilis.

Congenital syphilis can cause a lifetime of disability or even death if the diagnosis is missed.

The majority of infants delivered with congenital syphilis will have normal laboratory and examinations findings, emphasizing the importance of prenatal screening to identify infected pregnant persons, provide treatment promptly and allow nursery providers to manage exposed neonates appropriately. Although timely identification and treatment of maternal syphilis during pregnancy can prevent congenital syphilis, the number of reported congenital syphilis cases in the United States continues to increase. The U.S. projections estimate 2,100** congenital syphilis cases to be reported in 2020. This number represents a 12.3% increase compared with 2019, and a 442.6% increase compared with 2010.⁵

In 2021*, North Dakota reported 29 syphilis cases among females, one case among transgender females- five of which were pregnant². Of the five pregnant cases, ND reported two cases of congenital syphilis in 2021. **Between January 2020 and March 2022, five cases of congenital syphilis have been reported to the North Dakota Department of Health.** Importantly, all infants were appropriately treated for their infections. However, this data reinforces the notion that effective prevention and detection of congenital syphilis depends on the timely identification of syphilis among pregnant persons.

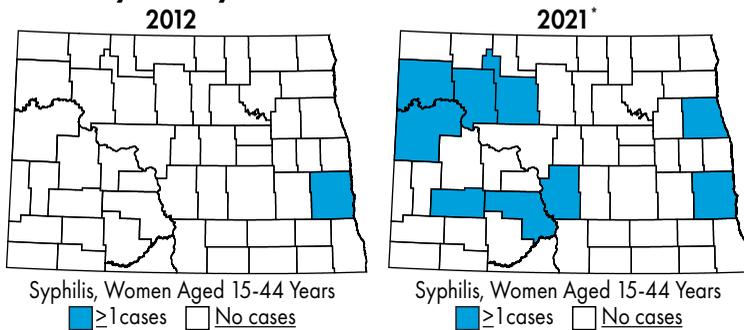
*Preliminary data [2021-2022]. When released, the 2021 North Dakota HIV, STI, TB & Viral Hepatitis Epidemiologic Profile will provide final syphilis data for individuals in 2021 and will supersede the data presented in this report. **When released, the 2020 STD Surveillance Report will provide final congenital syphilis data for infants born in 2020 and will supersede the data presented in this preliminary report.

Epidemiology

North Dakota reported 105 cases of syphilis in 2021.² Of those, 70 were early (primary, secondary, or early latent stage) syphilis. Primary and secondary syphilis cases are diagnosed based on laboratory results and the presence of symptoms at the time of testing. Early latent syphilis is diagnosed based on a confirmed exposure or negative RPR occurring within the last 12 months in the absence of symptoms. The 10 year mean of early syphilis infections reported in North Dakota increased 105.9% in 2021.

In 2010, 846 (27%) of U.S. counties reported at least one case of syphilis (all stages) among women of reproductive age (15-44 years), increasing to 1,568 (50%) of counties in 2019.⁵ North Dakota is following a similar increasing trend. In 2012, 1 (1.9%) of ND counties reported at least one case of syphilis (all stages) among women of reproductive age (15-44 years), increasing to 9 (17%) of counties in 2021.² This serves as a clear reminder that congenital syphilis can occur almost anywhere.

Figure 1. Total Syphilis - Cases Among Women Aged 15-44 by County, ND, 2012 and 2021²



Contributing Factors

A review of missed opportunities for congenital syphilis prevention conducted by CDC reported that 1 in 2 newborn syphilis cases in the United States occurs due to gaps in testing and treatment during prenatal care.⁴ In the Midwest, the most commonly missed opportunities for prevention of congenital syphilis are a lack of adequate maternal treatment despite timely diagnoses of syphilis (25.2%), a lack of timely prenatal care (24.3%), and late identification of seroconversions (21.4%).

In North Dakota, lack of maternal testing in the third trimester or at delivery occurred in two cases of congenital syphilis resulting in missed opportunities for prevention.

40%

Missed Opportunities

Forty percent of the recent CS cases in ND were negative at first screen and then symptomatic during the pregnancy.² In both cases, additional testing was not done until after delivery.

60%

No Prenatal Care

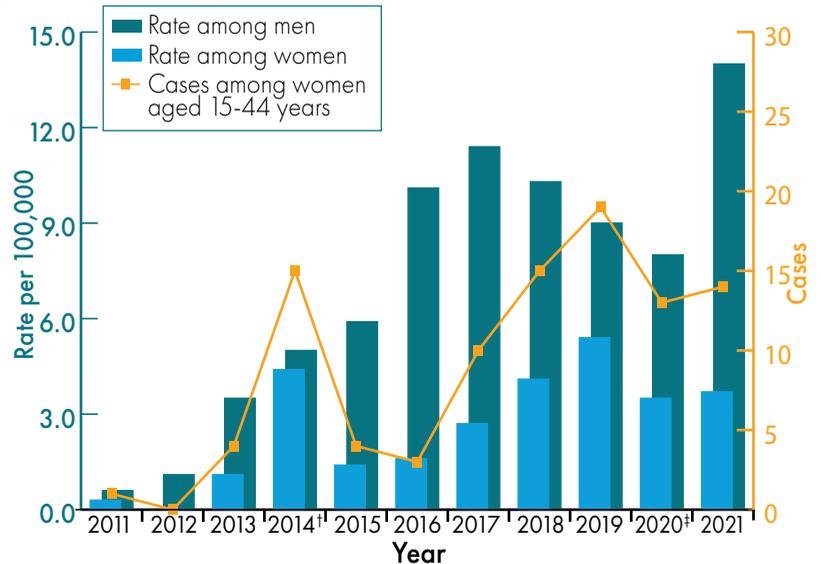
More than half (60%) the North Dakotas recent CS cases had no prenatal care.²

5x

Congenital Syphilis Increase

From 2009 to 2019, ND reported 1 CS case.² CS cases have risen 400% (n=5) over the past 27 months (Jan 2020 through Mar 2022).

Figure 2. Early Syphilis Cases, Rates of Men, Women, and Cases among Women aged 15-44, ND, 2011-2021^{2,5}



[†]Notes: 2014 includes syphilis outbreak. [‡]North Dakota Public Health Lab reported a 35% syphilis testing rate decrease from 2019 to 2020. ^{*}Preliminary data [2021-2022].

Screening Recommendations

Based on the previous information, women across the state may be at significant risk of acquiring syphilis before or during pregnancy. Furthermore, the data related to recent congenital syphilis cases and early syphilis in women of reproductive age reinforce the observations that screening only once during pregnancy is insufficient to prevent CS and highlight the importance of screening pregnant women at three time points.

The NDDoH recommends that in addition to first trimester syphilis screening, all pregnant women should be screened twice during the third trimester, once at 28 weeks' gestation and again at delivery. This recommendation applies to all pregnant women regardless of race, ethnicity, age, county of residence, marital status or sexual history.

If your patient is pregnant, you should test them for syphilis on three separate occasions.

At First Prenatal Visit

1

Third Trimester (28 weeks)

2

At Delivery

3

