Mississippi State Department of Health

Mississippi Morbidity Report

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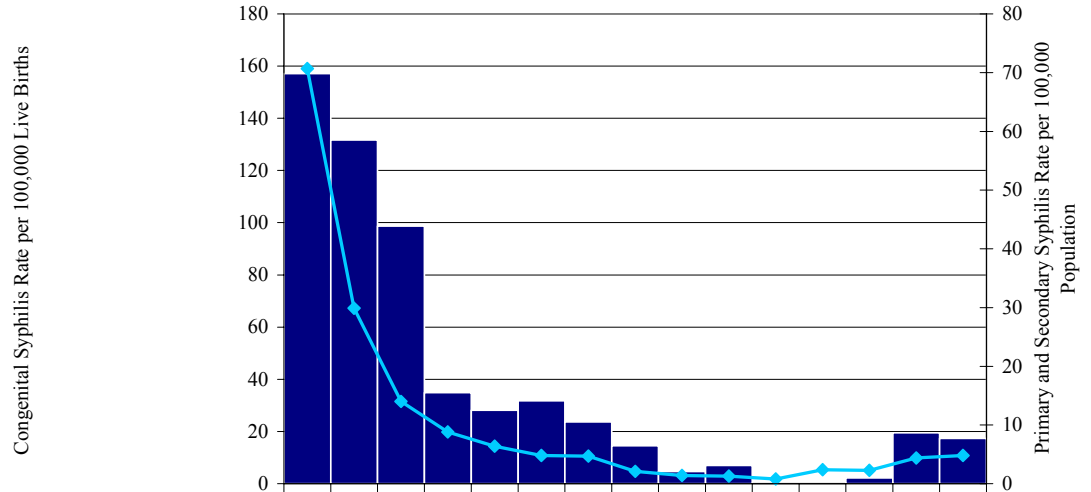
Congenital Syphilis in Mississippi

Introduction: In Mississippi the number of Congenital syphilis (CS) cases steadily declined for several years, from a rate of 157 per 100,000 live births (65 cases) in 1995 to a rate of 2.2 (1 case) in 2007. However, there were increases in CS both in 2008 and 2009, with rates of 19.5 (9 cases) and 17.4 (8 cases) respectively. This corresponded to a rise in primary and secondary (P&S) syphilis in females aged ≥ 10 years from a rate of 2.3 per 100,000 population (35 cases) in 2007 to a rate of 4.8 (73 cases) in 2009 (Figure). Studies have shown that as the incidence of P&S syphilis increases in women, increases in CS cases follow. A recent report from the Centers for Disease Control and Prevention (CDC) noted an increase in national CS rates among infants between 2005 and 2008 (8.2 in 2005 to 10.1 in 2008). This corresponded to an increase in primary and secondary syphilis rates among females aged ≥ 10 years from 2004 to 2007 (from 0.8 in 2004 to 1.1 in 2007). The following provides information regarding CS and two case reports of CS in Mississippi that outline the importance of screening for syphilis during the pregnancy, and prompt treatment when indicated.

Figure

Congenital Syphilis (CS) Rates Compared to Primary & Secondary (P&S) Syphilis Rates Among Females*, Mississippi, 1995-2009



	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
CS cases	65	54	41	15	12	14	10	6	2	3	0	0	1	9	8
P&S syphilis cases among females	1000	427	201	128	93	70	69	31	20	19	12	36	35	66	73
CS Rate	157.2	131.7	98.7	34.9	28.1	31.8	23.7	14.5	4.7	7	0	0	2.2	19.5	17.4
P&S syphilis rate among females	70.7	29.9	14	8.8	6.4	4.8	4.7	2.1	1.4	1.3	0.8	2.4	2.3	4.4	4.8

*Age ≥10

Clinical Features: Syphilis, caused by the spirochete *Treponema pallidum (T. pallidum),* is primarily transmitted through sexual contact, requiring exposure to the moist mucosal or cutaneous lesions in the primary or secondary stages. Syphilis is a systemic disease, and treponemes spread through the bloodstream beginning in the incubation period. CS occurs during untreated pregnancies when the fetus acquires the infection through transplacental transmission of *T pallidum.* Fetal infection results in a high risk of adverse pregnancy outcomes such as premature births, stillbirths or neonatal deaths. CS, like its adult counterpart, presents in a variety of clinical manifestations, such as cutaneous lesions, rashes similar to that of secondary syphilis in adults, snuffles, fever, anemia, mucous patches, rhinitis, non-immune hydrops, hepatosplenomegaly, jaundice, pseudo paralysis, and bone (osteochondritis of the long bones) and dental involvement. Some infants with CS have symptoms at birth, but most develop symptoms later. Nearly 100% of untreated infants show radiological signs of bone involvement after the first month of life.

Diagnosis and Treatment: Diagnosis of congenital syphilis is complicated by passive maternal IgG nontreponemal and treponemal antibodies to the fetus. This makes the interpretation of reactive serologies for syphilis in infants difficult. Treatment decisions are dependent upon 1) syphilis identification in the mother; 2) adequacy of treatment in the mother; 3) physical exam, x-ray, and laboratory evaluation of the infant; and 4) comparison of maternal (at delivery) and infant nontreponemal serologic titers.

Complete guidelines for diagnosis and treatment of syphilis in pregnancy and congenital syphilis are covered in detail in the Sexually Transmitted Diseases Treatment Guidelines, 2006 published by the Centers for Disease Control and Prevention. These guidelines are available at: http://www.cdc.gov/std/treatment/. The following are some key points to assist in the evaluation and treatment of syphilis in pregnant women and infants.

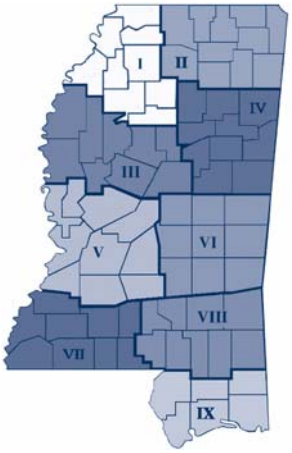
Key Points: Pregnant Women

- All women should be screened early in pregnancy with a **nontreponemal (RPR or VDRL) test.** All reactive serologies should have a **serologic titer.** If treponemal tests (i.e., **FTA-ABS or TP-PA**) are used for screening and are reactive, a **nontreponemal titer** should be done for confirmation.
- Repeat serologic testing should be performed in the **third trimester (28-32 wks)** and again at **delivery** for high risk women and in communities and populations where prevalence for syphilis is high.
- All women that deliver a stillborn after 20 weeks should be screened for syphilis.
- Seropositive women should be considered infected unless documentation proves adequate previous treatment with a decline in titers.
- **Penicillin** is currently the only drug recommended to treat syphilis in pregnancy. Women with a history of penicillin allergy should be skin tested for allergy, desensitized if allergic, and treated with penicillin appropriate for the stage of disease.
- Nontreponemal titers following treatment are vital to ensure adequate treatment (as evidence in a decline in titers) and no re-infection. Monthly titers should be obtained on women at high risk of re-infection. **A repeat titer at delivery is imperative in order to evaluate the infant.**

Key Points: Infant

- **All** infants born to mothers with reactive nontreponemal and reactive treponemal tests should have a **quantitative (titer)** nontreponemal serology test.
- Testing infant serum is preferred.
- Treponemal tests in the infant are not useful and do not help in evaluation as they only reflect mother's status.
- For comparison of the mother's results to the infant's, the nontreponemal titers should be from the **same** test and preferably from the same lab.
- All infants born to mothers with reactive serologies for syphilis should be examined and evaluated for evidence of congenital syphilis.
- The diagnosis, evaluation, and recommended treatment regimen for the infant is determined by several different scenarios. **These scenarios are detailed in the STD Treatment Guidelines** referenced above.
- All infants with a reactive serology for syphilis should be considered infected until evaluation proves otherwise. When the status is uncertain, the infant should be treated.
- All seroreactive infants should receive careful follow-up exams and nontreponemal serologic titers every 2-3 months until the test is nonreactive or has a 4-fold decrease.

Discussion: Due to the increase in syphilis in childbearing women and subsequently an increase in congenital syphilis in Mississippi, the recommendation for screening all women in the third trimester of pregnancy in addition to the screening in early pregnancy and at delivery should be highly considered. Congenital syphilis can be prevented by early detection through prenatal screening, appropriate treatment, and consistent follow-up. Syphilis, including congenital syphilis, is a Class I disease, requiring report to the Mississippi State Department of Health (MSDH) within 24 hours of first knowledge or suspicion. Reporting and collaboration among health-care professionals and MSDH can help decrease the number of babies born with syphilis in Mississippi.



Mississippi
Provisional Reportable Disease Statistics
June 2010

		Public Health District									State Totals*			
		I	II	III	IV	V	VI	VII	VIII	IX	June 2010	June 2009	YTD 2010	YTD 2009
Sexually Transmitted Diseases	Primary & Secondary Syphilis	1	1	0	0	4	2	1	4	2	15	9	100	92
	Total Early Syphilis	2	2	3	0	17	4	1	13	7	49	30	272	229
	Gonorrhea	59	34	73	42	178	58	32	43	41	560	656	3,073	3,681
	Chlamydia	241	152	226	136	515	192	106	179	182	1,929	1,964	11,099	11,931
	HIV Disease	2	1	1	2	14	1	3	1	1	26	61	234	298
Myco-bacterial Diseases	Pulmonary Tuberculosis (TB)	0	1	2	0	7	1	0	3	0	14	10	43	42
	Extrapulmonary TB	0	0	0	0	0	0	0	0	0	0	5	4	10
	Mycobacteria Other Than TB	2	4	4	1	9	3	2	1	9	35	16	216	157
Vaccine Preventable Diseases	Diphtheria	0	0	0	0	0	0	0	0	0	0	0	0	0
	Pertussis	0	1	0	0	0	0	3	0	3	7	12	28	46
	Tetanus	0	0	0	0	0	0	0	0	0	0	0	0	0
	Poliomyelitis	0	0	0	0	0	0	0	0	0	0	0	0	0
	Measles	0	0	0	0	0	0	0	0	0	0	0	0	0
	Mumps	0	0	0	0	0	0	0	0	0	0	0	0	1
	Hepatitis B (acute)	0	1	0	0	0	0	0	1	0	2	2	16	12
	Invasive *H. influenzae* b disease	0	0	0	0	0	0	0	0	0	0	0	0	0
	Invasive Meningococcal disease	0	0	0	0	0	0	0	0	0	0	0	2	2
Enteric Diseases	Hepatitis A (acute)	0	0	0	0	0	0	0	0	0	0	1	0	6
	Salmonellosis	4	12	2	8	23	5	5	10	7	78	80	234	271
	Shigellosis	0	0	0	0	1	1	0	2	0	4	5	17	18
	Campylobacteriosis	5	3	0	0	3	1	0	2	0	14	15	53	57
	E. coli O157:H7/HUS	0	0	0	0	0	0	0	0	0	0	0	9	6
Zoonotic Diseases	Animal Rabies (bats)	0	0	0	0	0	0	0	0	0	0	0	0	1
	Lyme disease	0	0	0	0	0	0	0	0	0	0	0	0	0
	Rocky Mountain spotted fever	0	0	0	0	0	0	0	0	0	0	4	1	8
	West Nile virus	0	0	0	0	0	0	0	0	0	0	0	1	1

*Totals include reports from Department of Corrections and those not reported from a specific District.

Case Reports

Case 1: A 28 year old female had an RPR during pregnancy at approximately 28 weeks gestation that was nonreactive. She delivered a full term infant 11 weeks later. No RPR was done at delivery. The individual presented to the emergency department 10 weeks after delivery with a palmar/plantar rash and an RPR of 1:32. She was diagnosed with secondary syphilis and treated with benzathine penicillin. She took the infant to the pediatrician three days later for an evaluation of syphilis. The infant had a negative clinical exam, normal head ultrasound and CT scan, nonreactive VDRL from CSF and an RPR from serum of 164, normal CBC and slightly elevated liver enzymes. X-rays of the long bones revealed changes consistent with CS. The baby was admitted and treated with IV aqueous crystalline penicillin G for 10 days.

Case 2: A 22 year old female was diagnosed with secondary syphilis during the first trimester of pregnancy, with an RPR of 1:256, and was treated appropriately with benzathine penicillin. She presented for prenatal care approximately eight weeks later (17-18 weeks gestation) with an RPR of 1:8. No other titers were obtained during the remainder of her pregnancy. She delivered at 37 weeks gestation and her RPR at that time was 1:64. Neither the mother nor the infant were treated at time of delivery. The infant had no clinical abnormalities at delivery and also was not treated. At 42 days of age, the infant was taken to the local clinic for an RPR that was ordered by the child's pediatrician. The RPR was 1:256. On exam, the infant had a low grade fever, irritability, decreased feeding, decreased range of motion of the left lower extremity, and was unable bear weight on the left leg. Edema of joints and desquamation of soles was also noted. Blood work indicated a significant anemia; VDRL of CSF was nonreactive. The X-rays of hands revealed changes in the distal radius and ulna consistent with congenital syphilis and X-rays of the lower extremities revealed changes in the long bones consistent with congenital syphilis. The infant was admitted and treated appropriately.

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