Rising Tide of Congenital Syphilis

Sexual Health and Harm Reduction Service

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OKLAHOMA
State Department
of Health

Objectives

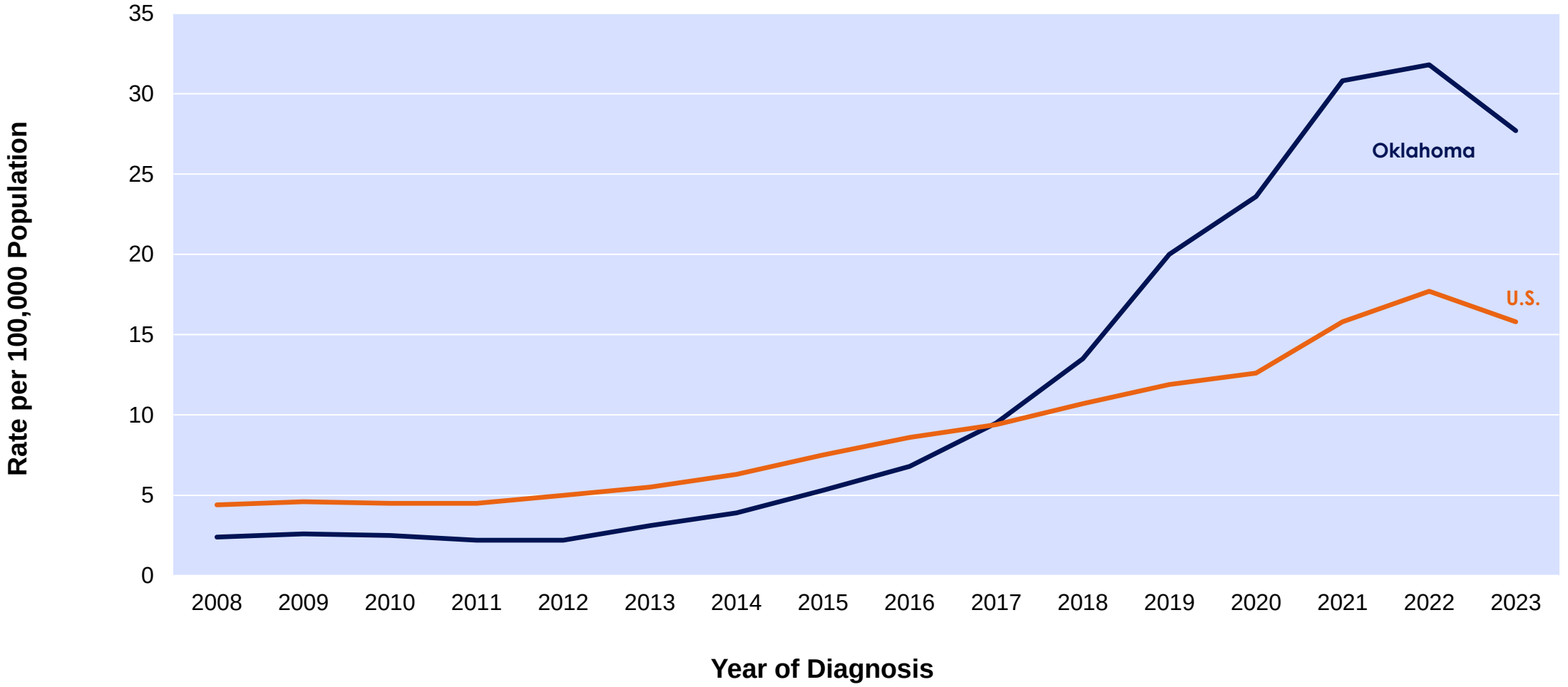
1. Define congenital syphilis and describe how it is transmitted from mother to infant
2. Describe the pathophysiology of syphilis and its potential impact on fetal/neonatal health
3. Outline screening recommendations for syphilis during pregnancy
4. Identify clinical manifestations of congenital syphilis in newborns and infants
5. Summarize treatment protocols

Primary and Secondary Syphilis

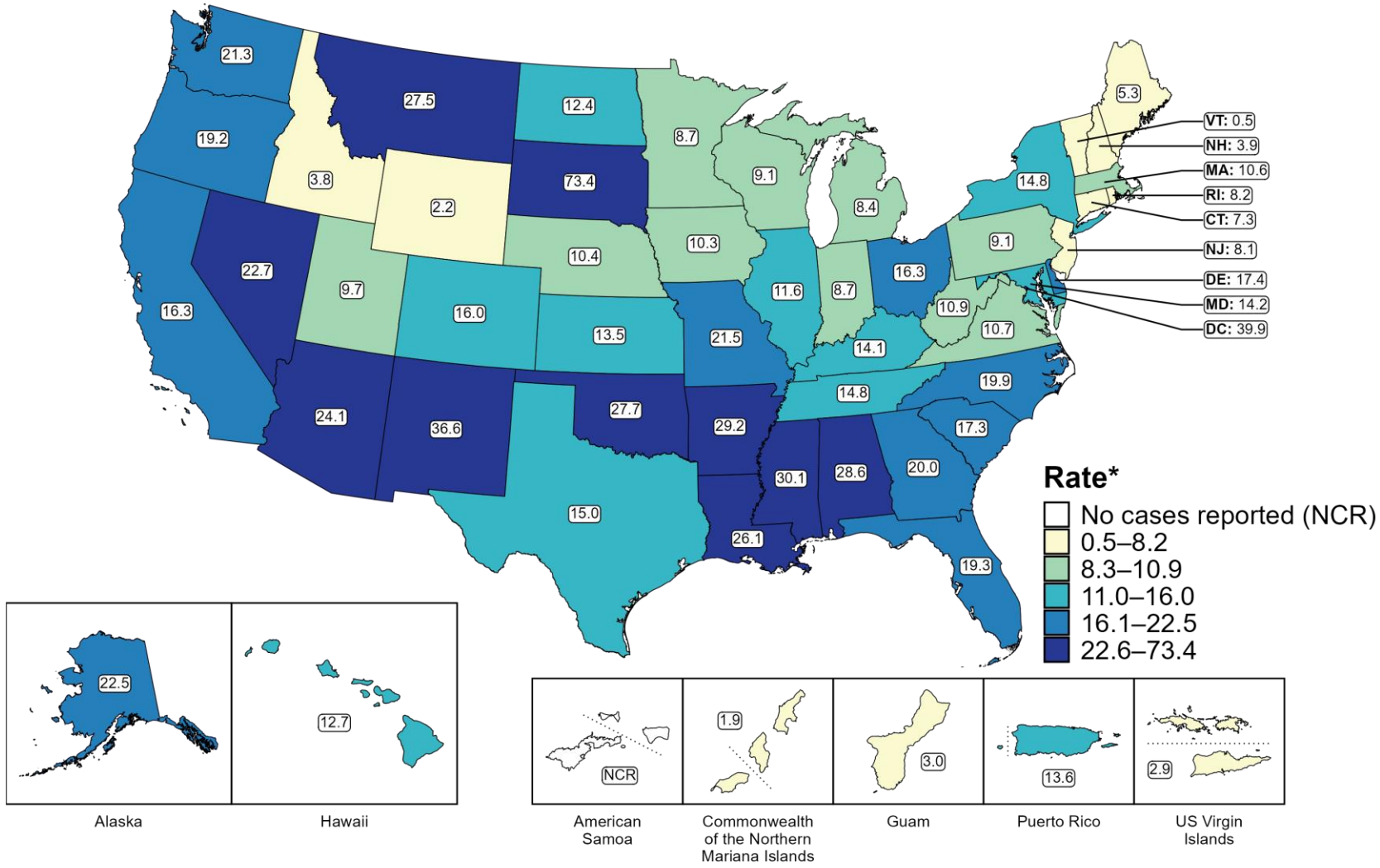
2023

OKLAHOMA STATE DEPARTMENT OF HEALTH

Primary and Secondary Syphilis, Rates per 100,000 Population, Oklahoma and U.S., 2008-2023

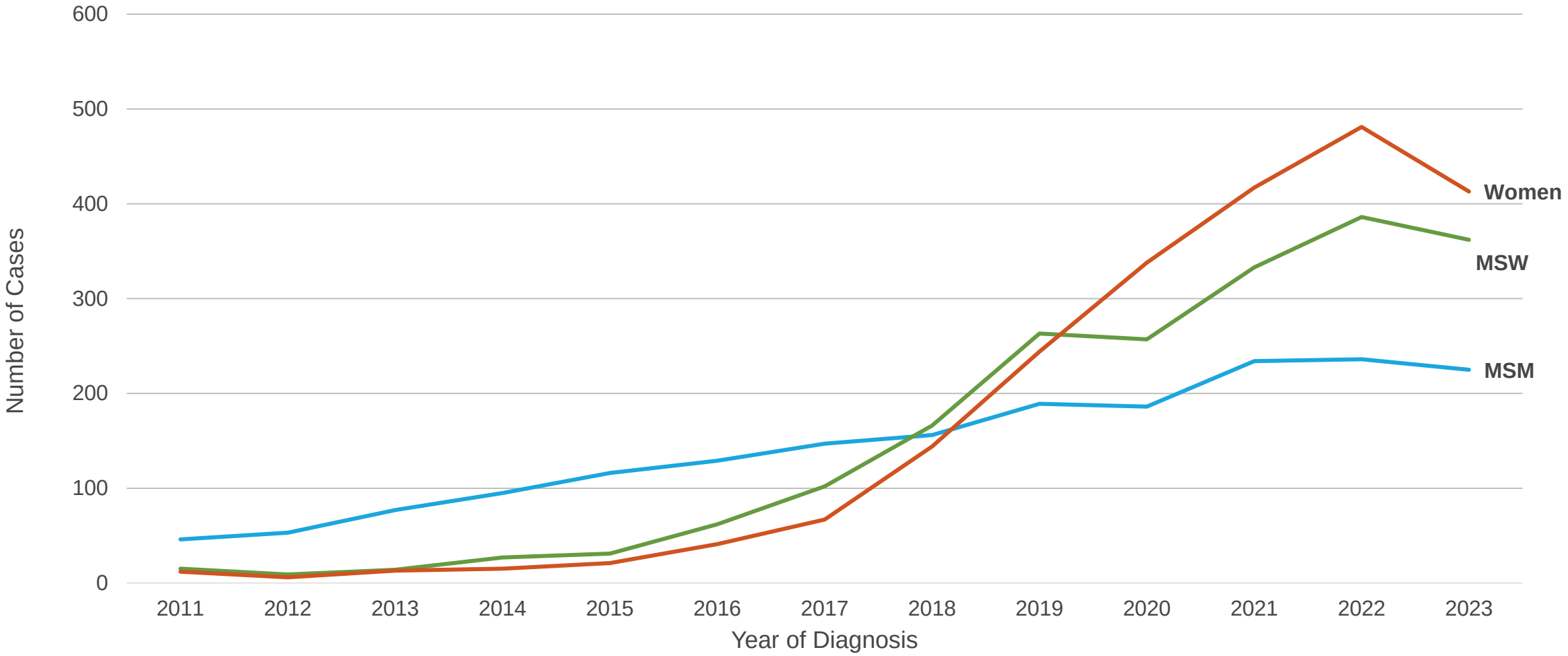


Primary and Secondary Syphilis
Rates of Reported Cases by State and Territory, United States, 2023



Source: CDC. 2023 STI Surveillance Report.

Primary and Secondary STIs in Oklahoma – Reported Cases by Sex and Sex of Sex Partners, 2011-2023



Acronyms: MSM = Gay, bisexual, and other men who have sex with men; MSW = Men who have sex with women only

Syphilis and Drug Use Among Pregnant Females, Oklahoma 2023

Total Syphilis (all stages)

- 36.8% reported drug use
  - 57.1% of which reported meth use
- 33.0% reported Injection Drug Use (IDU)
- 38.5% reported having partners with IDU

Primary and Secondary

- 51.1% reported drug use
  - 60.9% of which reported meth use
- 26.1% reported IDU
- 26.1% reported partners with IDU

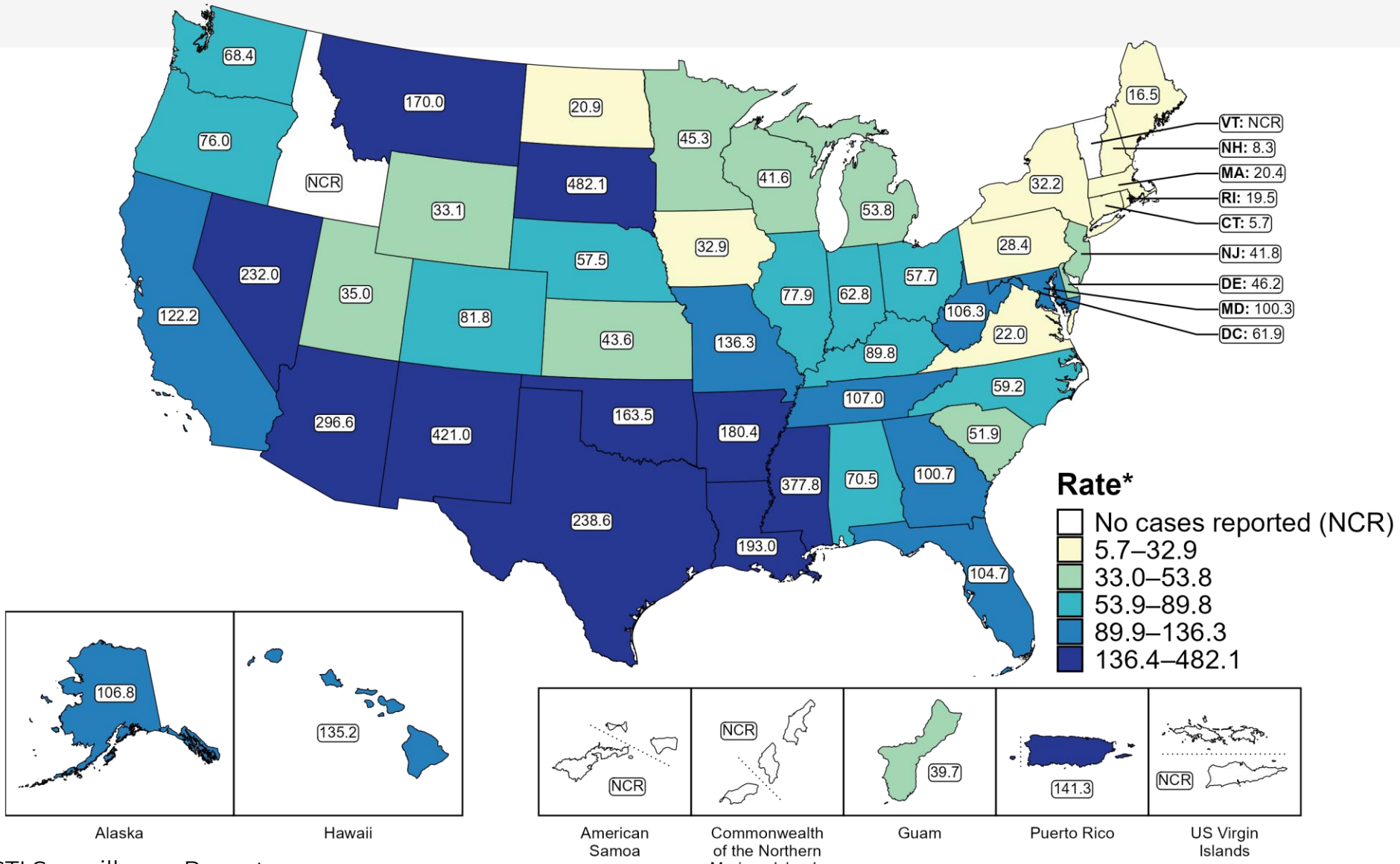
Syphilis Among Females, Oklahoma

Diagnosis	2019	2020	2021	2022	2023
Primary & Secondary Syphilis – Females	244	338	417	481	413
Primary & Secondary Syphilis – Pregnant Females	19	25	41	42	45
Total Syphilis - Females	606	697	1135	1463	1464
Total Syphilis - Pregnant Females	100	130	220	279	247
Congenital Syphilis	43	52	85	110	79

Congenital Syphilis

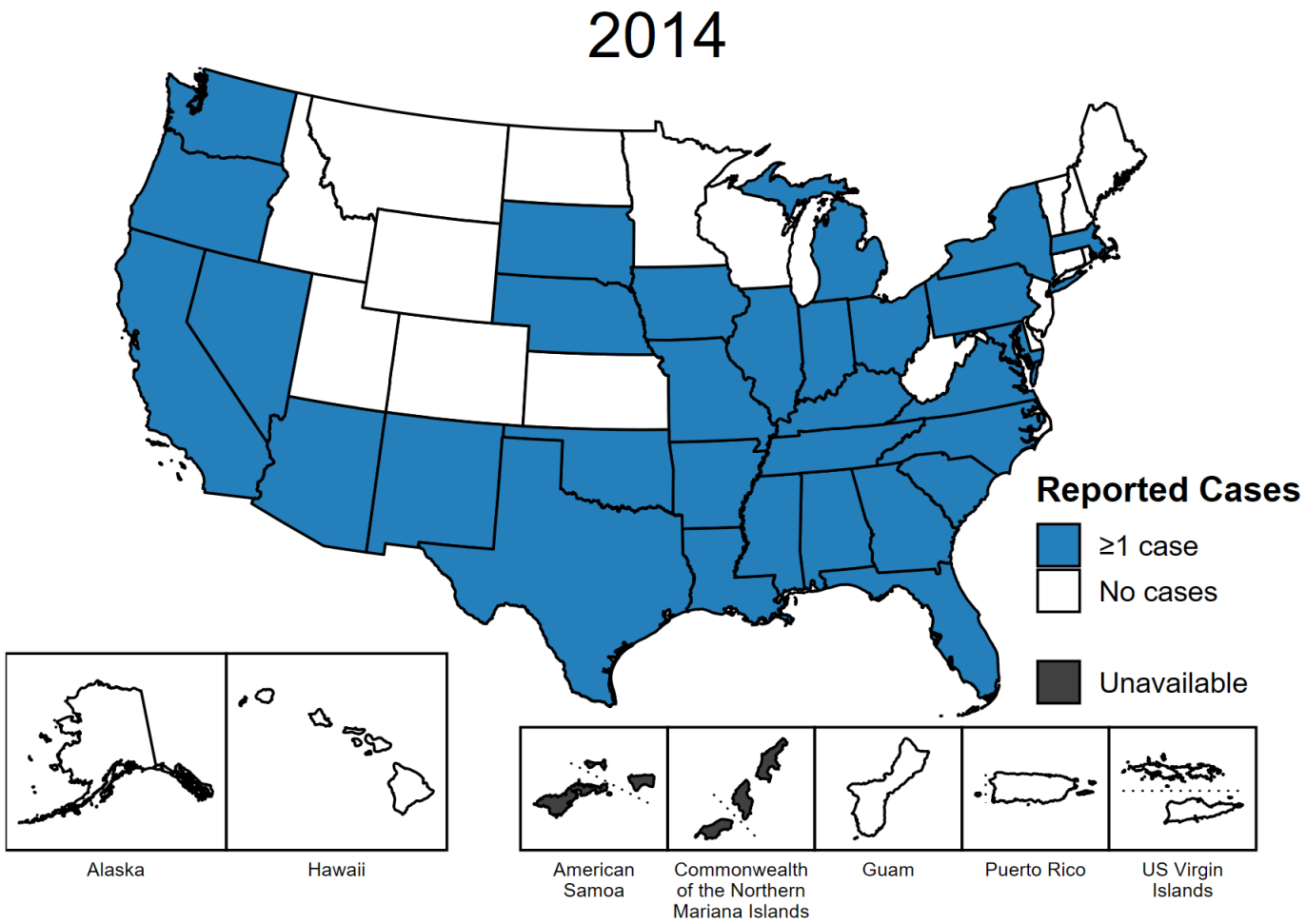
Oklahoma 2023

Congenital Syphilis -
Rates of Reported Cases by Year of Birth and State and Territory, United States, 2023



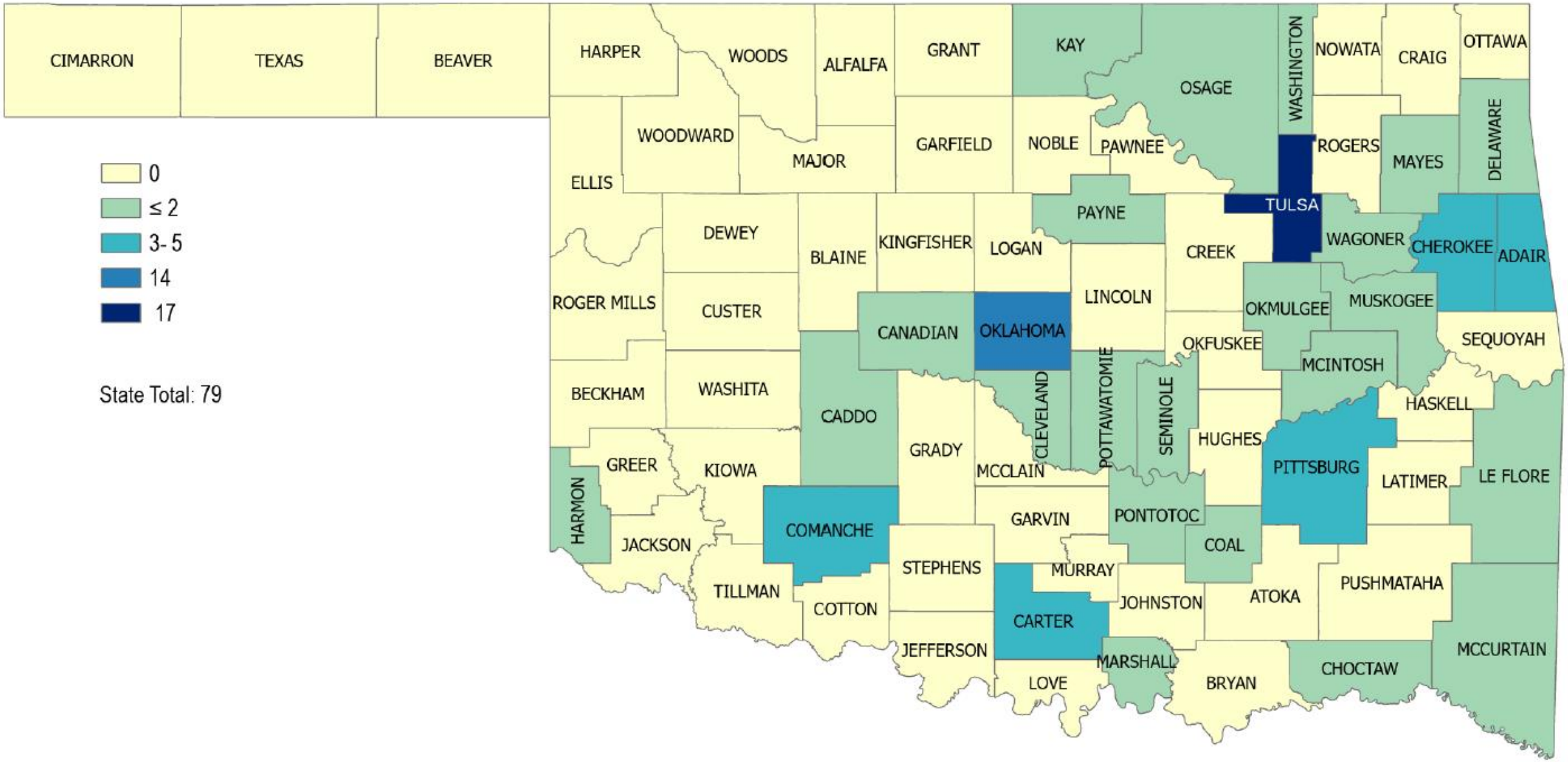
Source: CDC. 2023 STI Surveillance Report.

Congenital Syphilis — Reported Cases by State, United States and Territories, 2014–2023

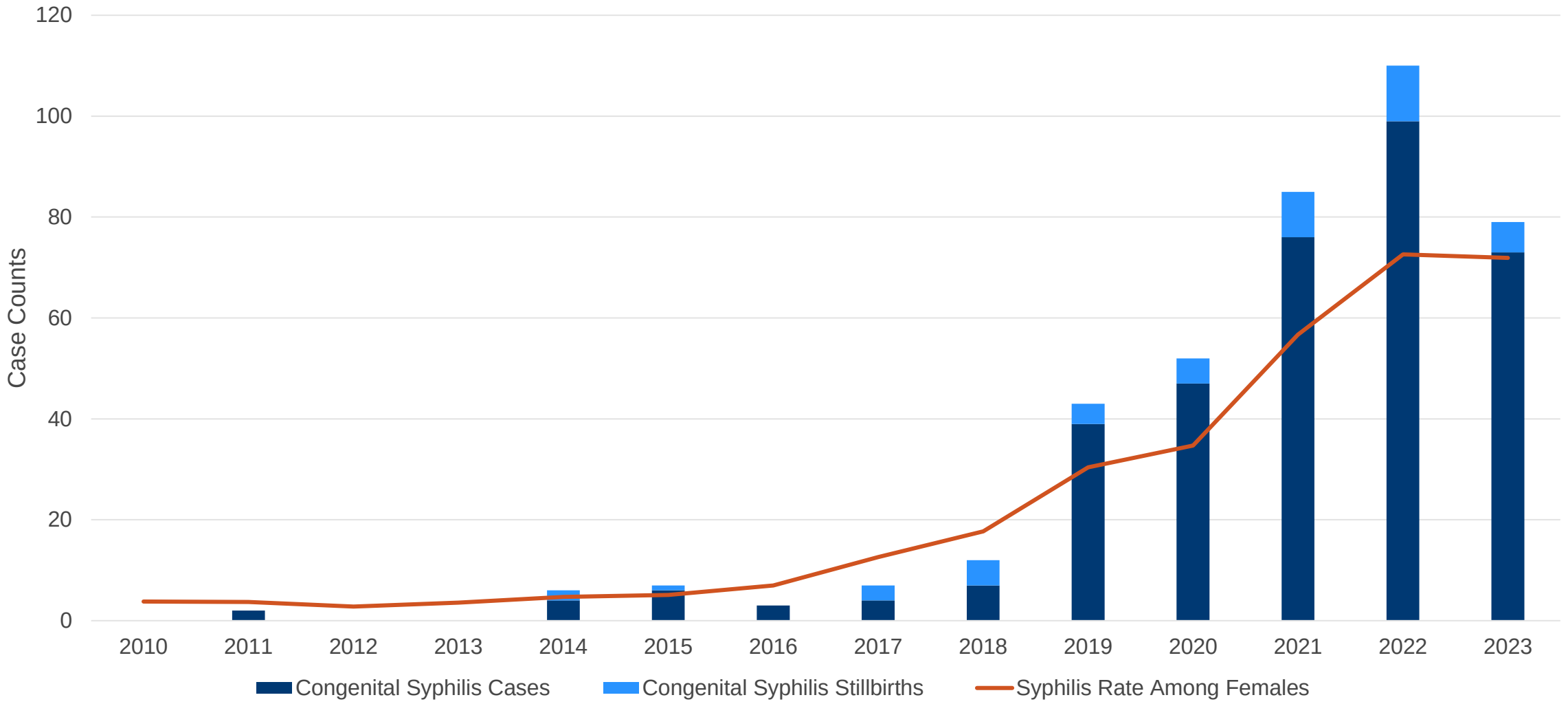


Source: CDC. 2023 STI Surveillance Report.

Number of Congenital Syphilis Cases by County of Maternal Residence, Oklahoma 2023



Syphilis in Oklahoma: Congenital Cases and Rates Among Females, 2010-2023



Congenital Syphilis Cases in 2023, Maternal Information

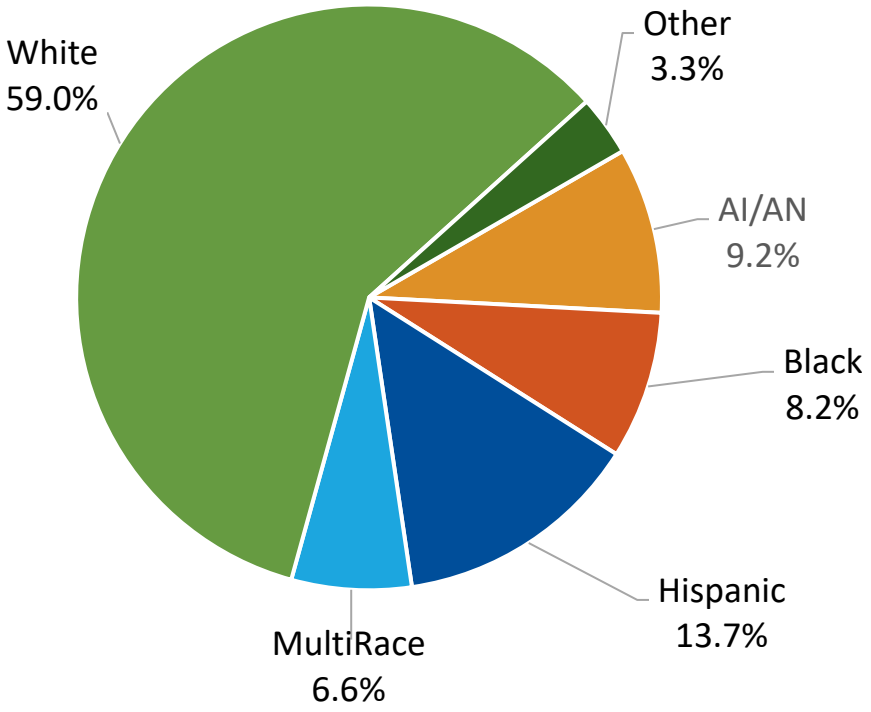
- 79 CS cases in 2023
  - 21.5% (17/79) - Tulsa
  - 17.7% (14/79) - Oklahoma

- Maternal age ranged from 16-43 years
  - 21.5% - 35 to 39
  - 25.3% - 25 to 29
  - 24.1% - 20 to 24

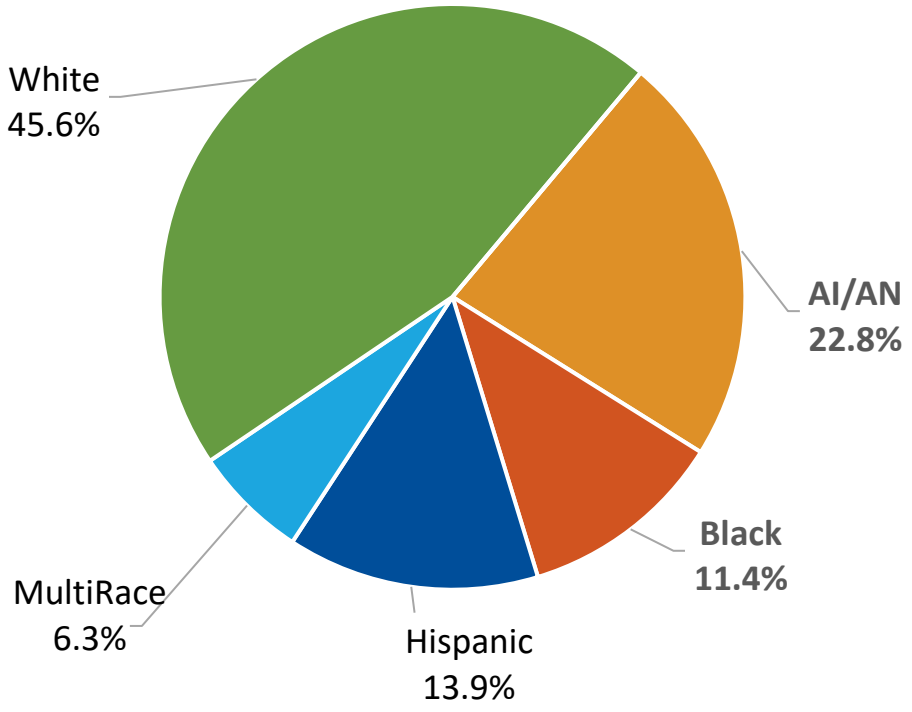
- 64.6% (51/79) had maternal drug use
- 73.4% (58/79) had previous STI prior to syphilis diagnosis

Congenital Syphilis - Maternal Race and Disparities, 2023

Oklahoma Females, Aged 15-44 Years

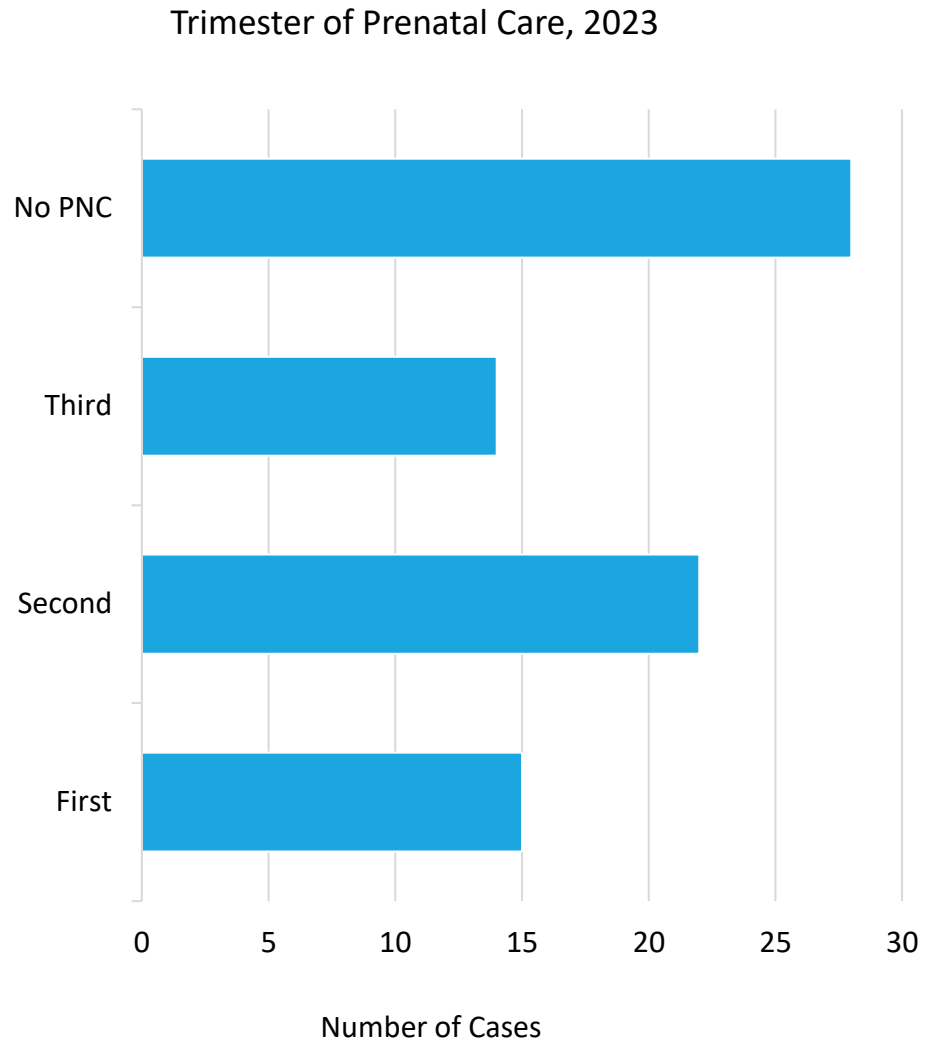


CS Cases by Maternal Race/Ethnicity, 2023



Congenital Syphilis Cases in 2023, by Prenatal Care and Screening

- 64.6% (51/79) had prenatal care (PNC).
- Of those with PNC:
  - 66.7% were tested for syphilis at their first appointment.
  - 43.1% were tested at 28-32 weeks gestation
- 94.9% (75/79) were tested for syphilis at delivery.



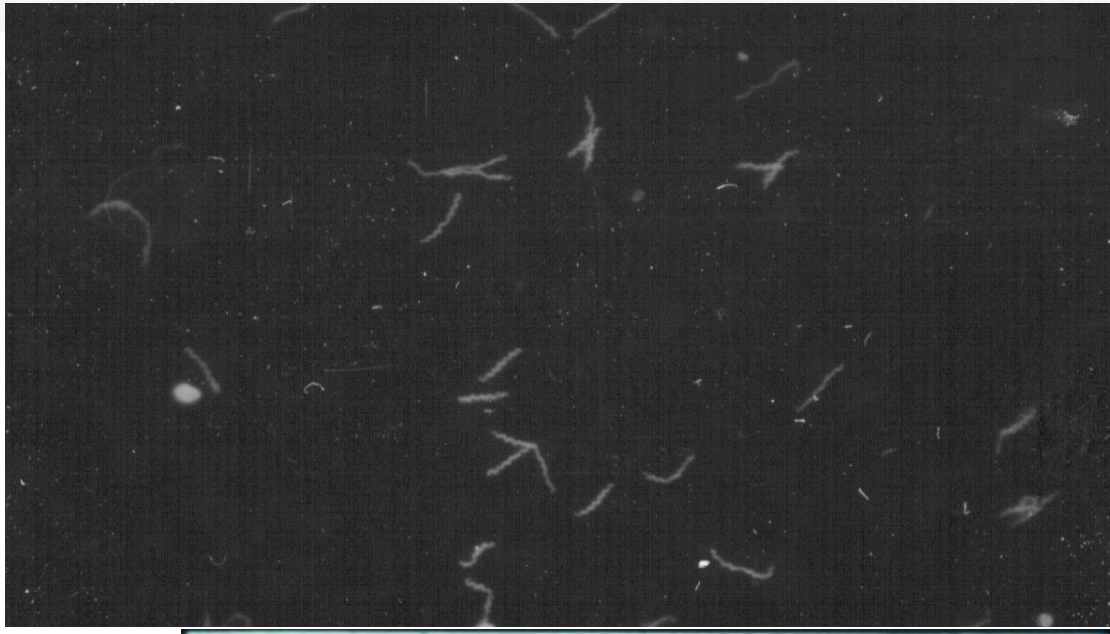
How Syphilis Spreads

Penetration:

- T. pallidum enters the body through direct contact with a syphilis sore during anal, vaginal, or oral sex
- From an infected mother to her unborn baby

Dissemination

- Travels via the circulatory system throughout the body
- Can invade the nervous system (CNS) during any stage



Clinical Stages

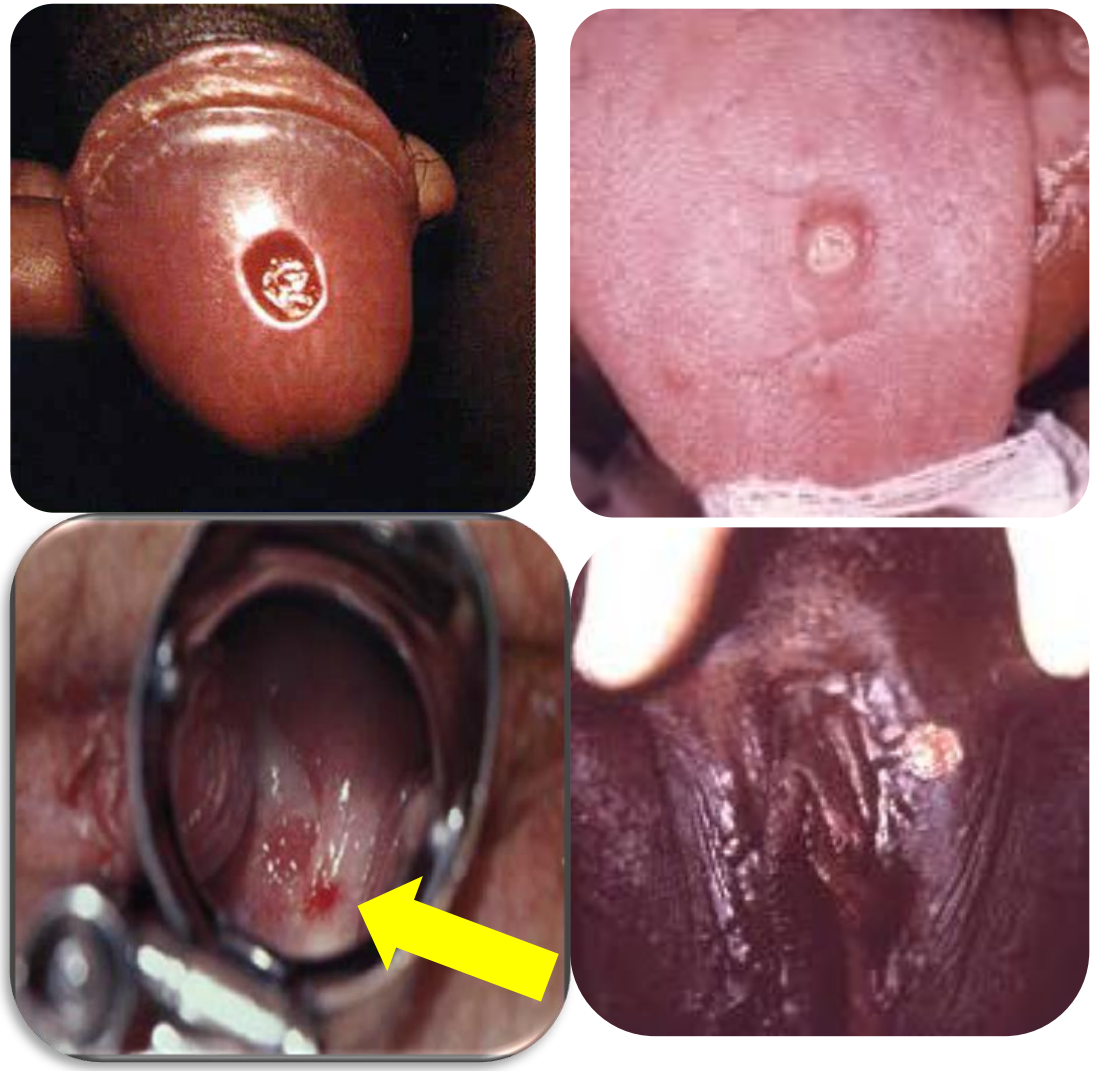
- Syphilis goes through several stages
- Signs/symptoms and transmission risk differ by stage
- Stages may not progress linearly

Clinical Manifestations – Primary Stage

- First and most infectious symptomatic stage
- 1-5 weeks typical duration
- Serological tests may not be positive in early primary syphilis
- Painless sore ‘chancre’

  Often singular

  May not be seen
- Appears at site of infection (most commonly genital site)
- Will resolve without treatment but syphilis infection remains
- **It is possible for patients to have a non-reactive titer but still be infectious**



Clinical Manifestations – Secondary Stage

Occurs 0-6 weeks after primary chancre

May overlap with primary stage

2-6 weeks typical duration

Serological titer result usually highest during secondary stage

Can be infectious

May reoccur

Symptoms resolve with or without treatment, but syphilis infection remains

Symptoms Include:

- Rash (75 – 100%)
- Lymphadenopathy (50 – 86%)
- Malaise
- Mucous Patches (6-30%)
- Condyloma lata (10-2-%)
- Alopecia (5%)

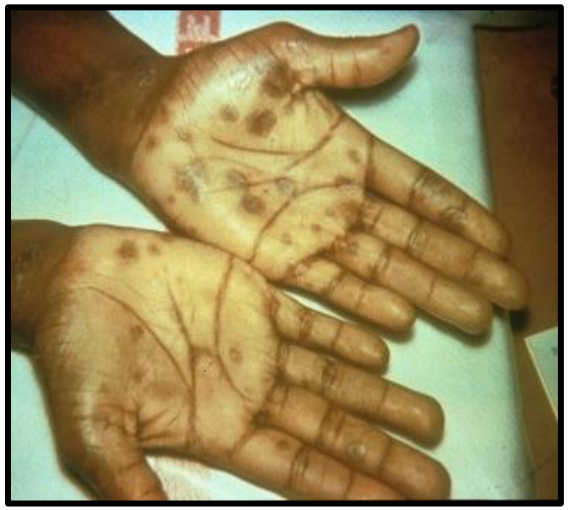
Secondary

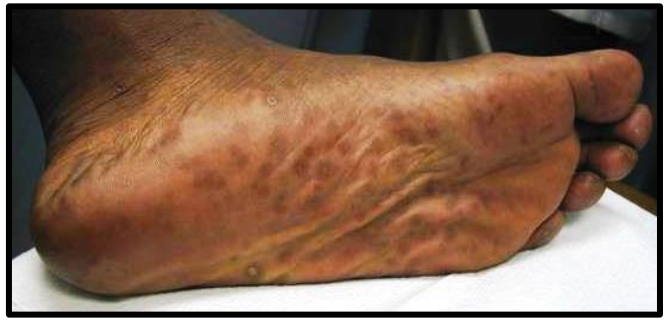
Rash shows through keratin layer

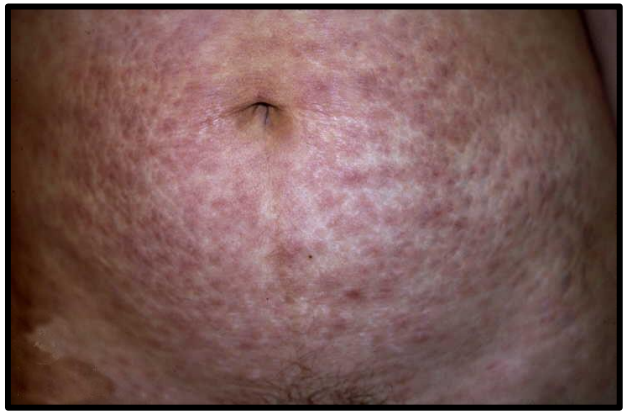
May not be painful or itch

Presents as different “types” of rashes – may resemble rashes caused by other conditions

Palmar/Plantar and General Body Rash are hallmark characteristics of syphilitic rash



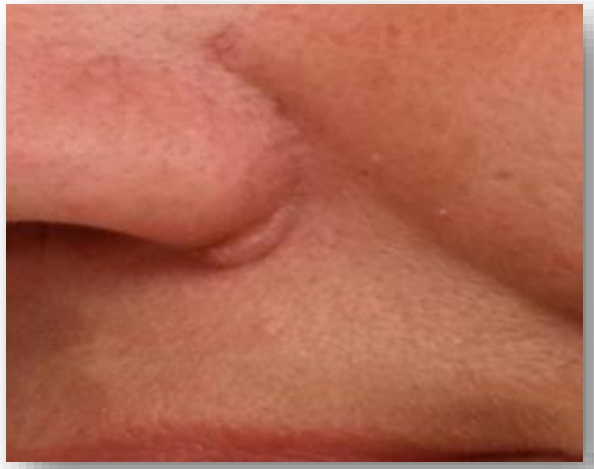
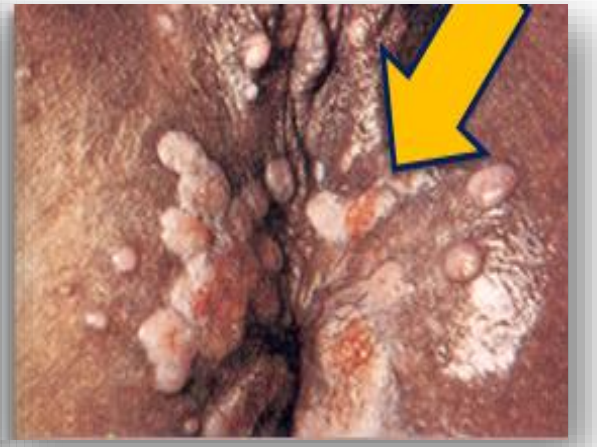


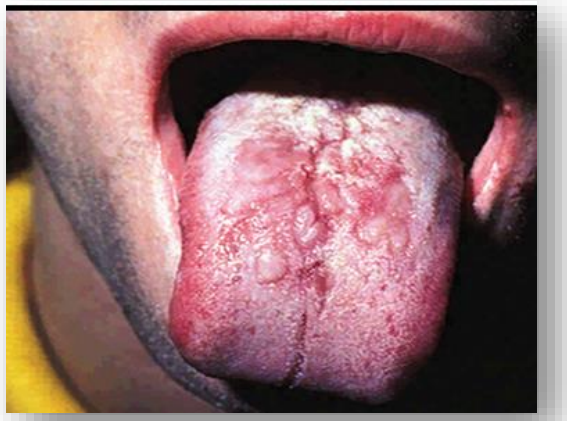
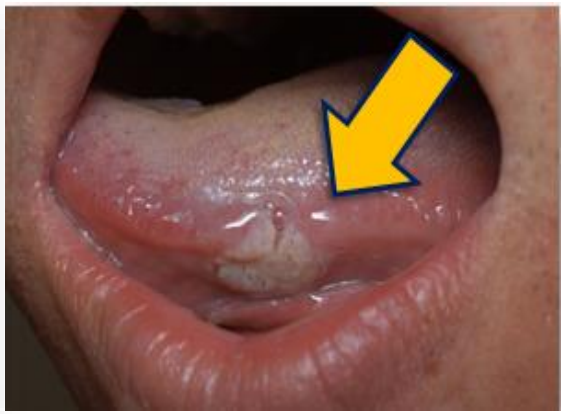
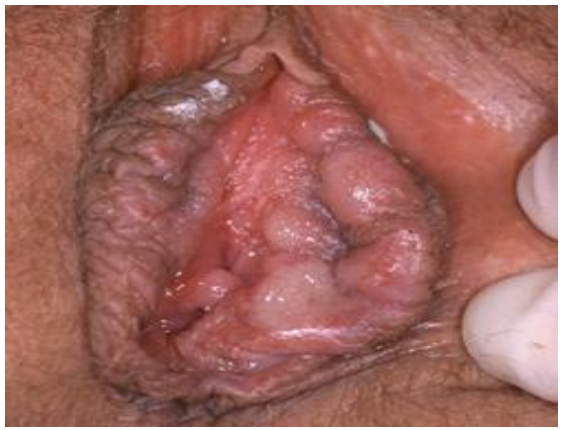


Clinical Stages of Syphilis

Secondary

Mucocutaneous Lesions (Condyloma Lata) Oral and genital Mucous Patch

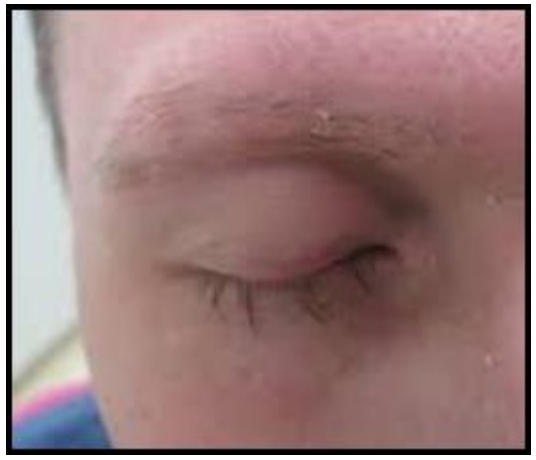



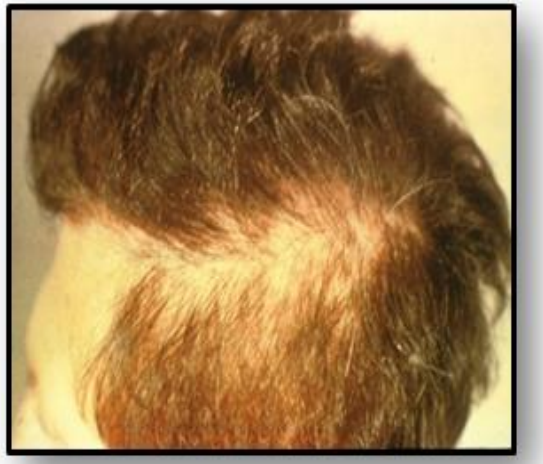




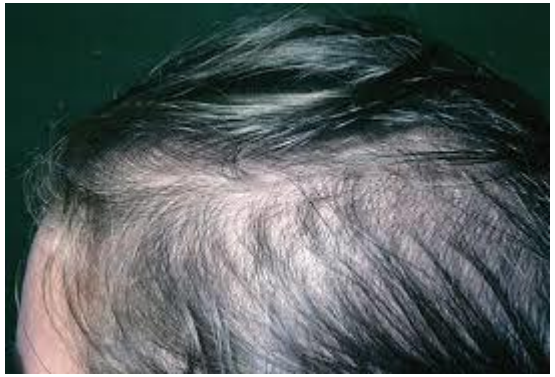

Clinical Stages of Syphilis

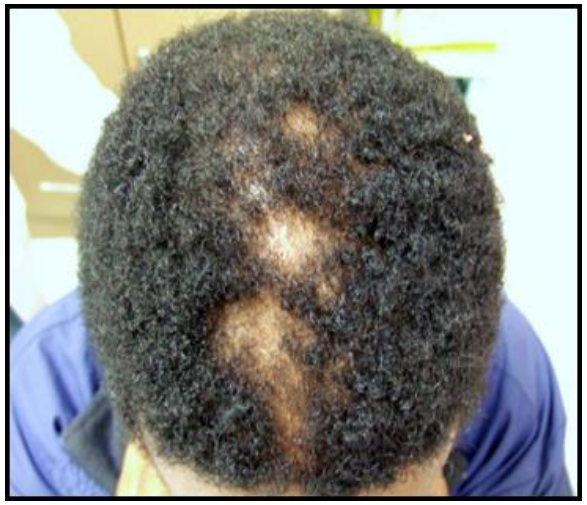
Secondary

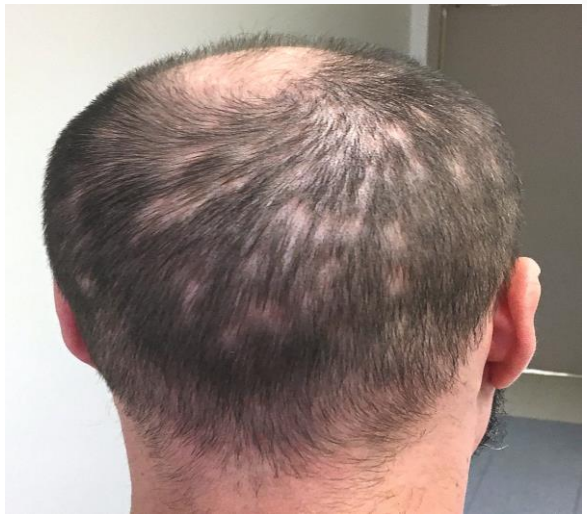
Hair Loss
Patchy Alopecia











Early NP, NS; Unknown Duration/Late Syphilis

Early Non-Primary Non-Secondary

- Positive treponemal test result

AND

- Positive non-treponemal result

AND

- One of the following:
  - Negative test within last year
  - Signs/symptoms within last year
  - Sexual exposure to Primary, Secondary or Early NP NS with last 12 months
  - Sexual debut within last 12 months

Unknown Duration/Late

- Positive treponemal test result

AND

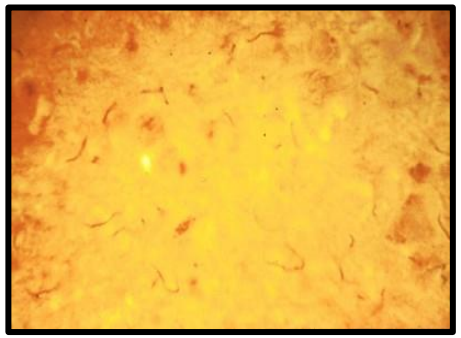
- Positive non-treponemal result
- Does not meet criteria for Primary, Secondary or Early NP NS

Clinical Manifestations – Neuro/ocular/otic Syphilis

Syphilis can disseminate to the nervous system during any stage of syphilis.

All clients should be assessed for neurosyphilis symptoms and tested for HIV.

Referral for LP (VDRL screen) Should be done as soon as possible for clients with symptoms. Clients with reactive VDRL should be admitted for IV PCN Therapy.



Spirochetes in Neural Tissue

Uveitis

Symptoms and Manifestations include:

Visual Changes (Uveitis)

Hearing Loss

Headache

Poor Concentration/ Memory Loss

Personality or mood changes

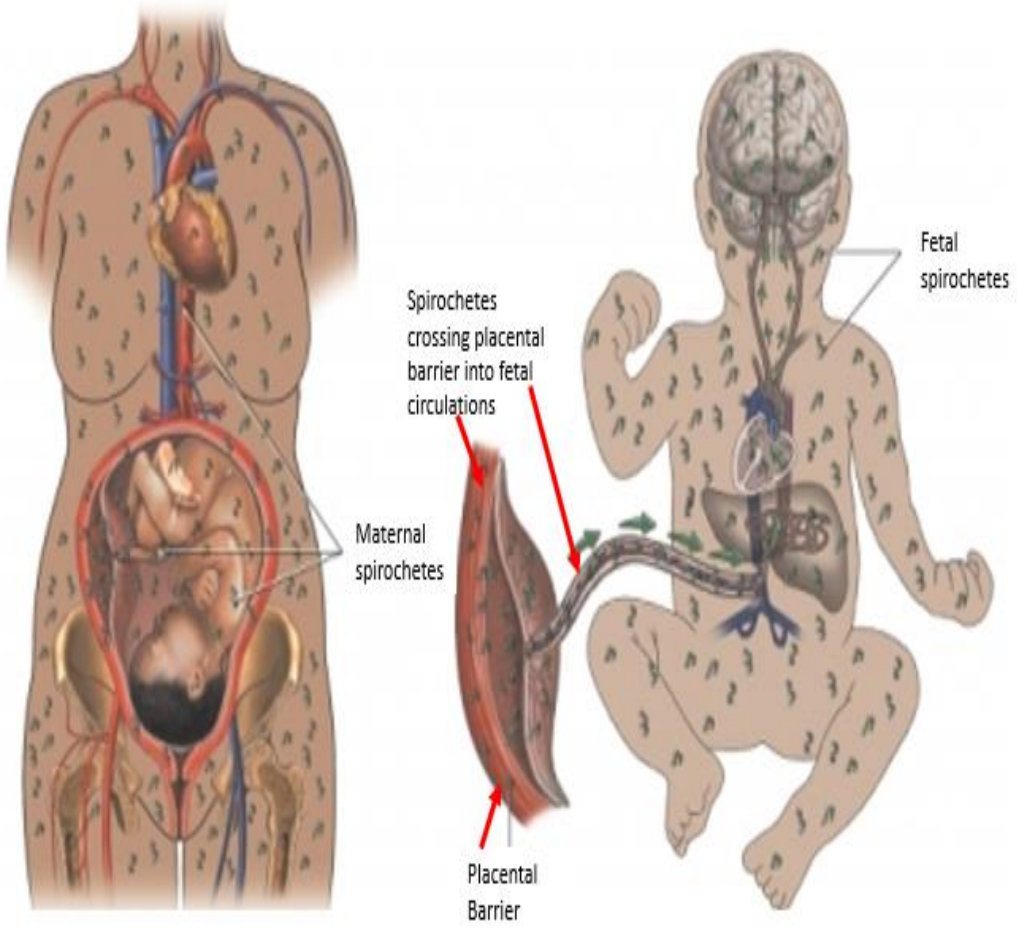
Mental illness

Movement problems/loss of coordination

Paralysis

Meningitis

Muscle Contractions

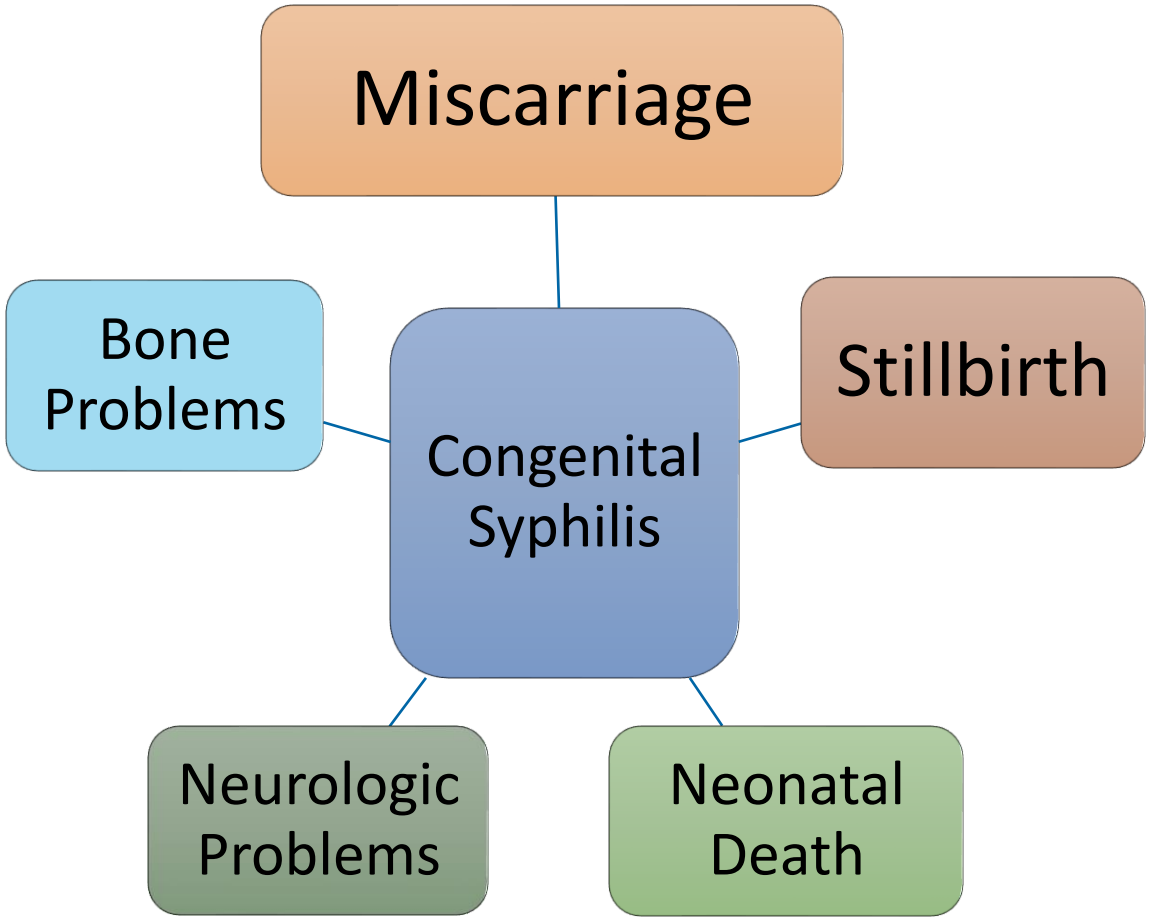


Syphilis In Pregnancy

- Transplacental transmission of spirochetes from Maternal bloodstream to fetal bloodstream
- Vertical Transmission rate is 90% if mother has untreated Primary or Secondary Syphilis. Fetus is at greatest risk during early stages of maternal infection

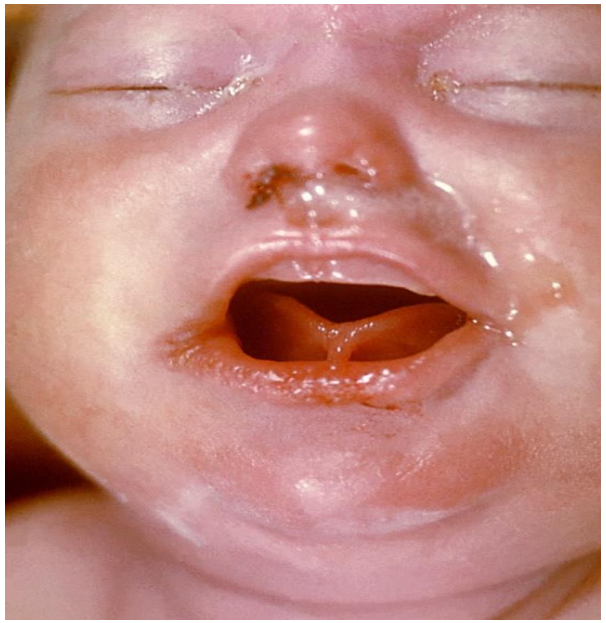
- Treating maternal syphilis before the last month of pregnancy, decreases risk of congenital transmission by 98%

Why do we care? Untreated syphilis is pregnancy may cause:



Early Congenital Syphilis

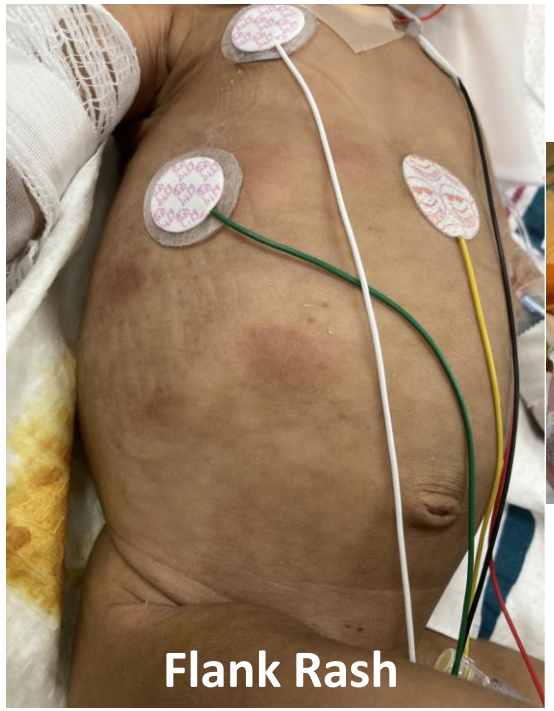
Clinical signs of congenital syphilis	
Osteochondritis	55%
Snuffles	40%
Rash	40%
Anemia	30%
Hepatosplenomegaly	20%
Jaundice	20%
Neurologic signs	20%
Lymphadenopathy	5%
Mucous patches	5%

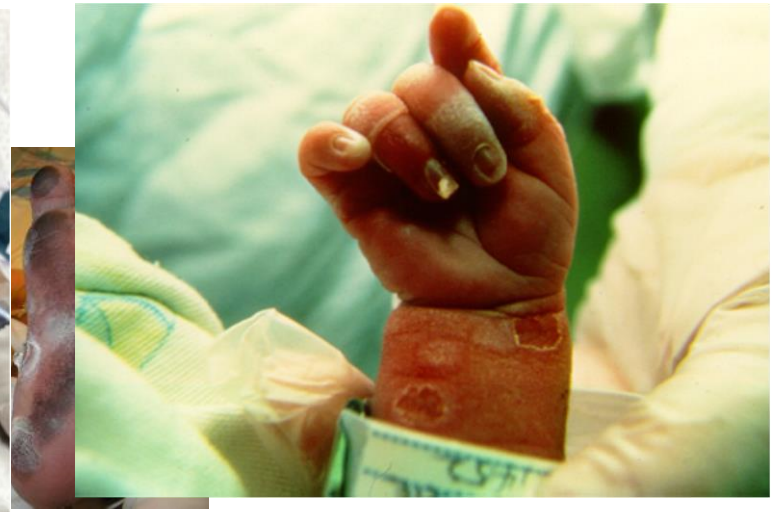


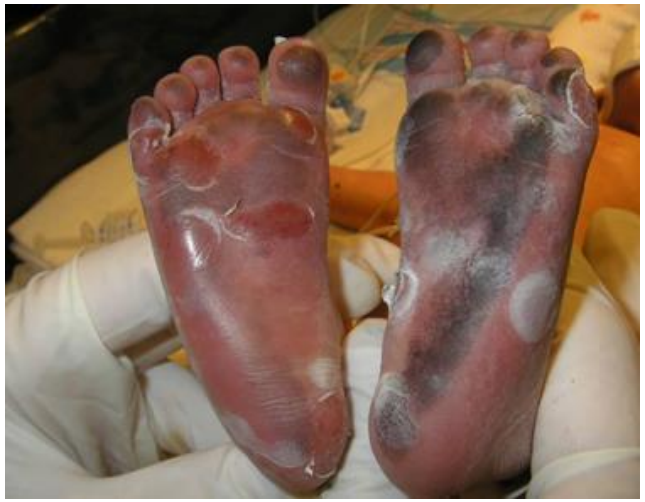
Snuffles

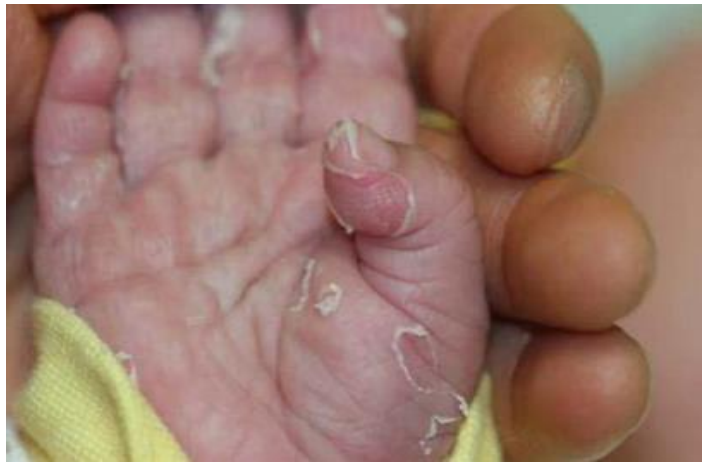
From the delivering provider perspective, the placenta is often large, thick, and pale. The umbilical cord is edematous. Please send the placenta to pathology.

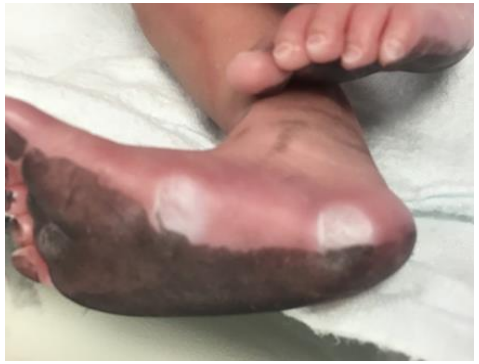
EARLY CONGENITAL SYPHILIS: CLINICAL MANIFESTATIONS: Newborn Rash





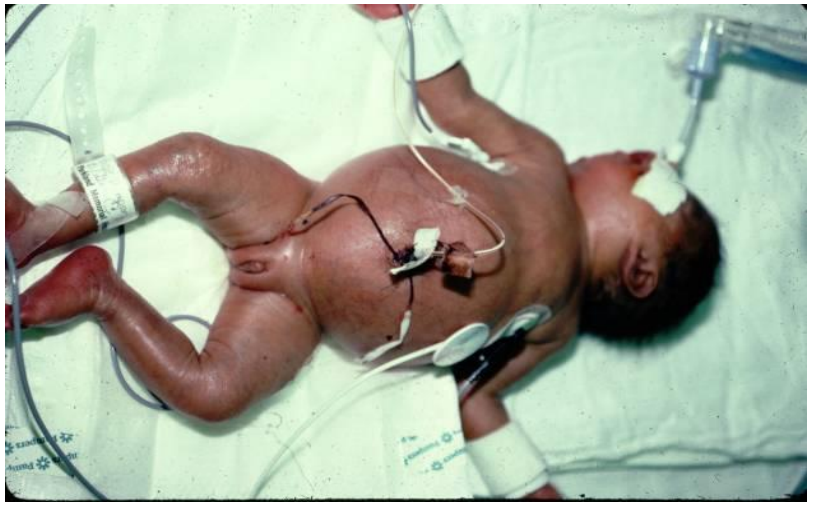




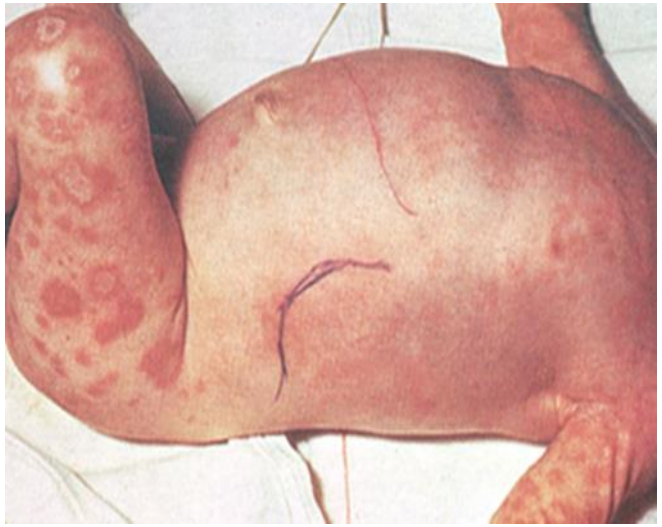


EARLY CONGENITAL SYPHILIS: CLINICAL MANIFESTATIONS

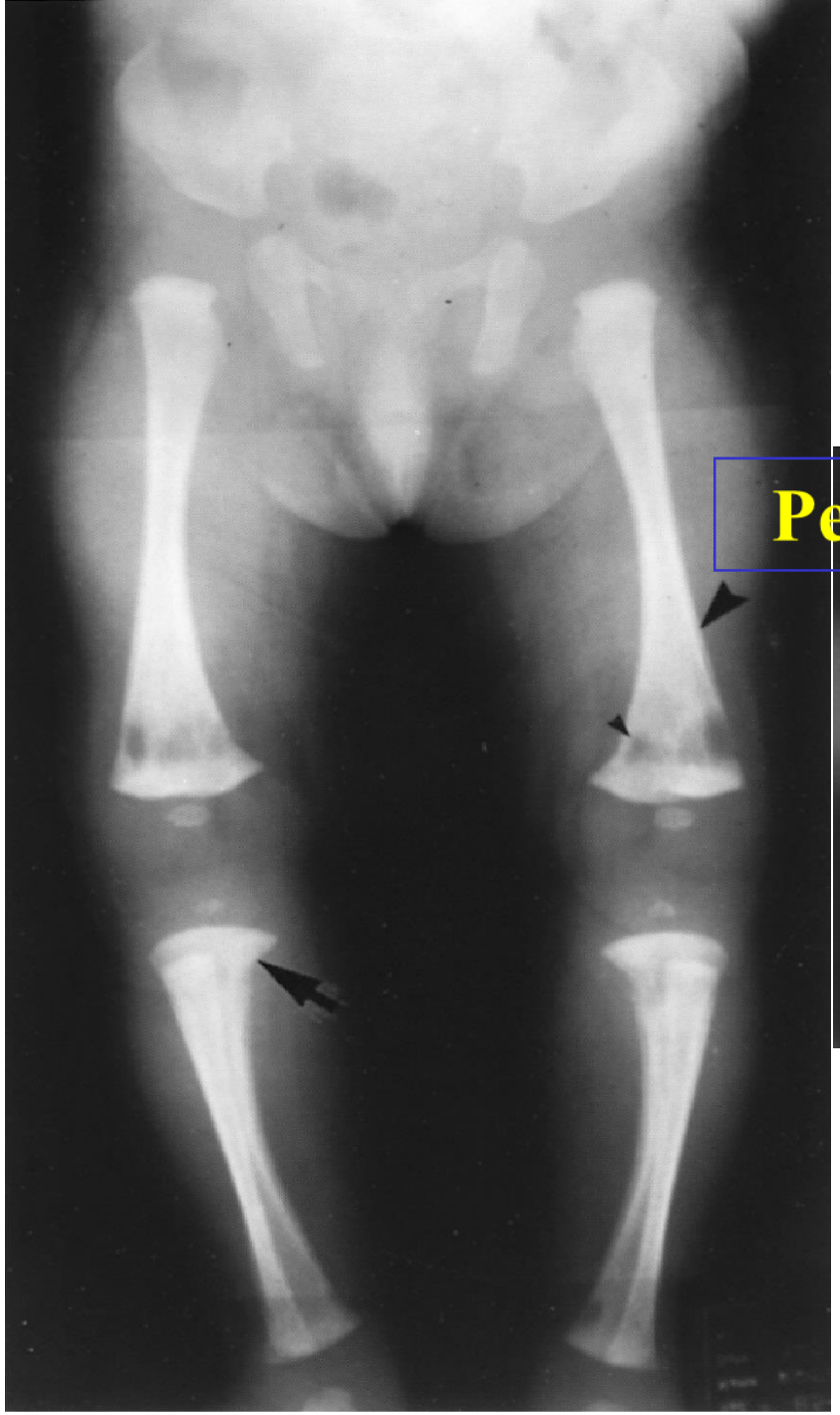
- Hepatosplenomegaly
- Anemia
- Thrombocytopenia
- Hydrops fetalis
- Pneumonia
- Nephrotic syndrome



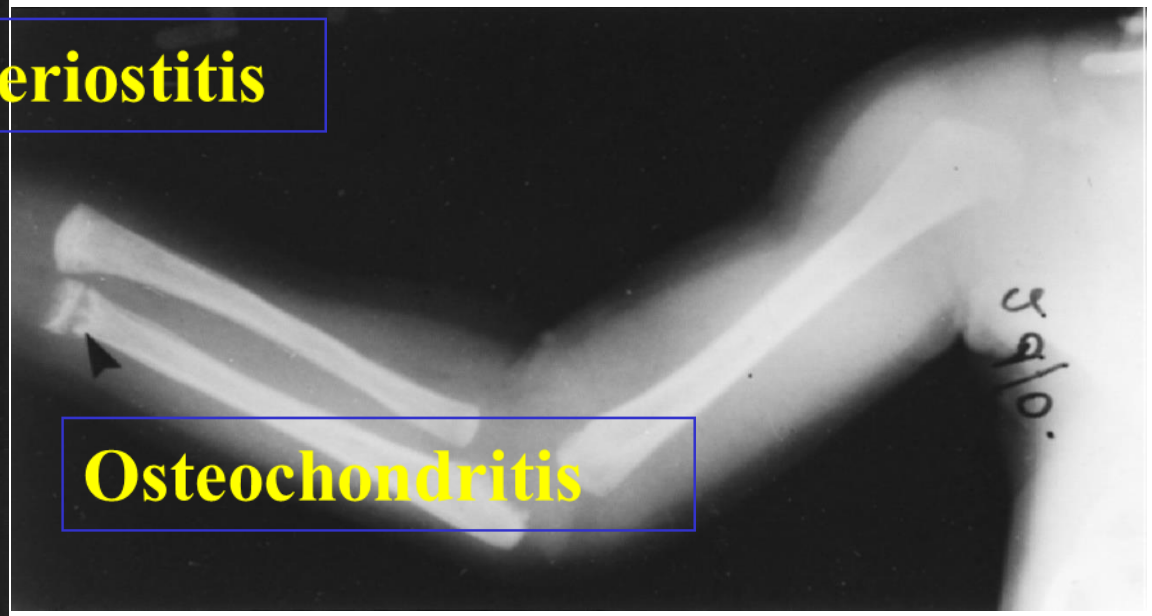
Hepatosplenomegaly



Flank Rash + Hepatosplenomegaly



Periostitis



Osteochondritis

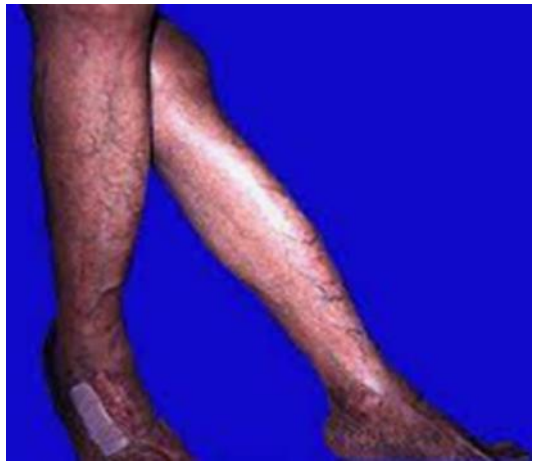
Late Congenital Syphilis

Hutchinson's Triad:

- Interstitial keratitis
- Hutchinson's teeth
- Deafness (8th nerve)

- Short Maxilla
- High palatal arch
- Sternoclavicular thickening

- Frontal bossing
- Protruding mandible
- Clutton's joints
- Flaring scapulas
- Mulberry molars
- Saber shins



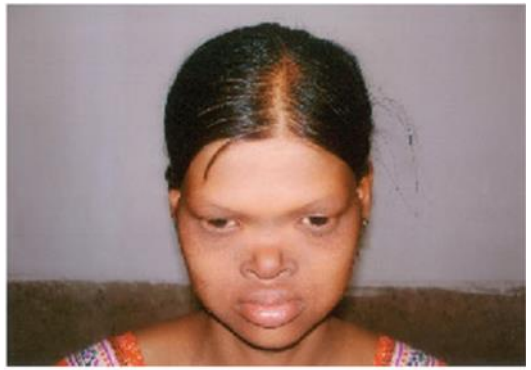
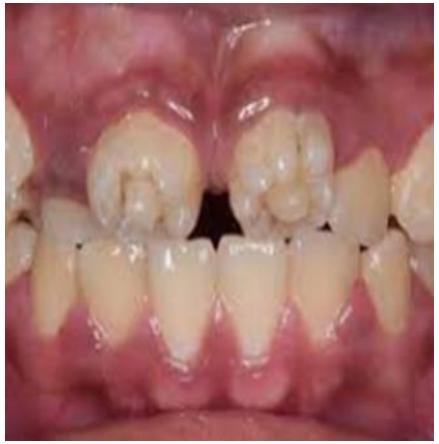
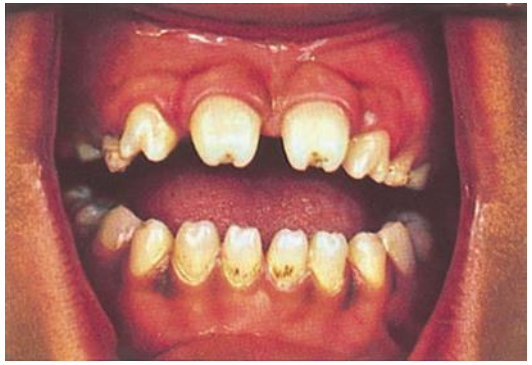


Fig. 1 : Dysmorphic facies with frontal bossing, prominent supraorbital ridges, absence of eyebrow and eyelashes, and a saddle nose





Source: Courtesy Dr. Stephanie Taylor

Who Needs Syphilis Screening

ALL PREGNANT FEMALES & Clients Who

- Have suspicious symptoms
- Recent partner(s) with a confirmed or suspected diagnosis
- History of or current Gonorrhea, Chlamydia, Syphilis or HIV diagnosis
- Multiple sex partners
- Homeless or hx of recent incarceration
- Hx of or current Drug Use
- Exchange sex for drugs/money/other needs
- **No Prenatal Care(Do not discharge until result is known)**

Syphilis Screening Recommendations in Pregnancy

CDC Recommendation is that all women who have delivered should have a current Syphilis test/result on file before being discharged

First Trimester Or First PNV: Everyone!!

Early 3rd trimester: (28-32 wks.)

At Delivery: EVERYONE!!

All Stillbirths Miscarriage 20wks or Greater.

Management of Syphilis dx during second half of pregnancy should include sonographic evaluation for CS and additional HIV Screening

Assessing, Diagnosing, & Treatment

- **CDC Recommends a Sexual history assessment be done at each PNV for pregnant females diagnosed with STIs**
  - **Sexual practices (oral, vaginal , rectal, condom use, substance use, sex work, dating apps etc.)**
  - **Partners**
    - **New Partners, Multiple partners, anonymous partners**
    - **Treatment status of Partners**
    - **If partners have additional partners**

- History of syphilis
- Most recent serologic test for syphilis
- Known contact to an early case of syphilis
- Signs or symptoms of syphilis in the past 12 months
- **CURRENT sign/symptoms**
- **PREGNANCY Status**
- **SCREEN FOR HIV, GONORRHEA and CHLAYMIDIA**
- **SCREEN for GC/CT at all reported sites of sexual contact (Vaginal, Oral, and Rectal)**

Physical Examination Assessment Questions

- Genitalia area
- Perianal area
- Oral cavity
- Skin of torso
- Palms and soles
- Neurologic examination

Neuro Syphilis

Change in or blurring of vision?
Recent eye pain or redness?
Spots or distortion in vision?
Double vision?
Light hurting eyes?
New weakness in arms, legs, or face?
New headache unlike usual headaches?
Stiff neck?
New/recent hearing loss?
New/recent ringing of ears?
Ocular injection
Photophobia
Nuchal rigidity
Facial palsy

Laboratory Testing

Diagnosis of syphilis requires a positive test from **both** categories apart from early primary syphilis

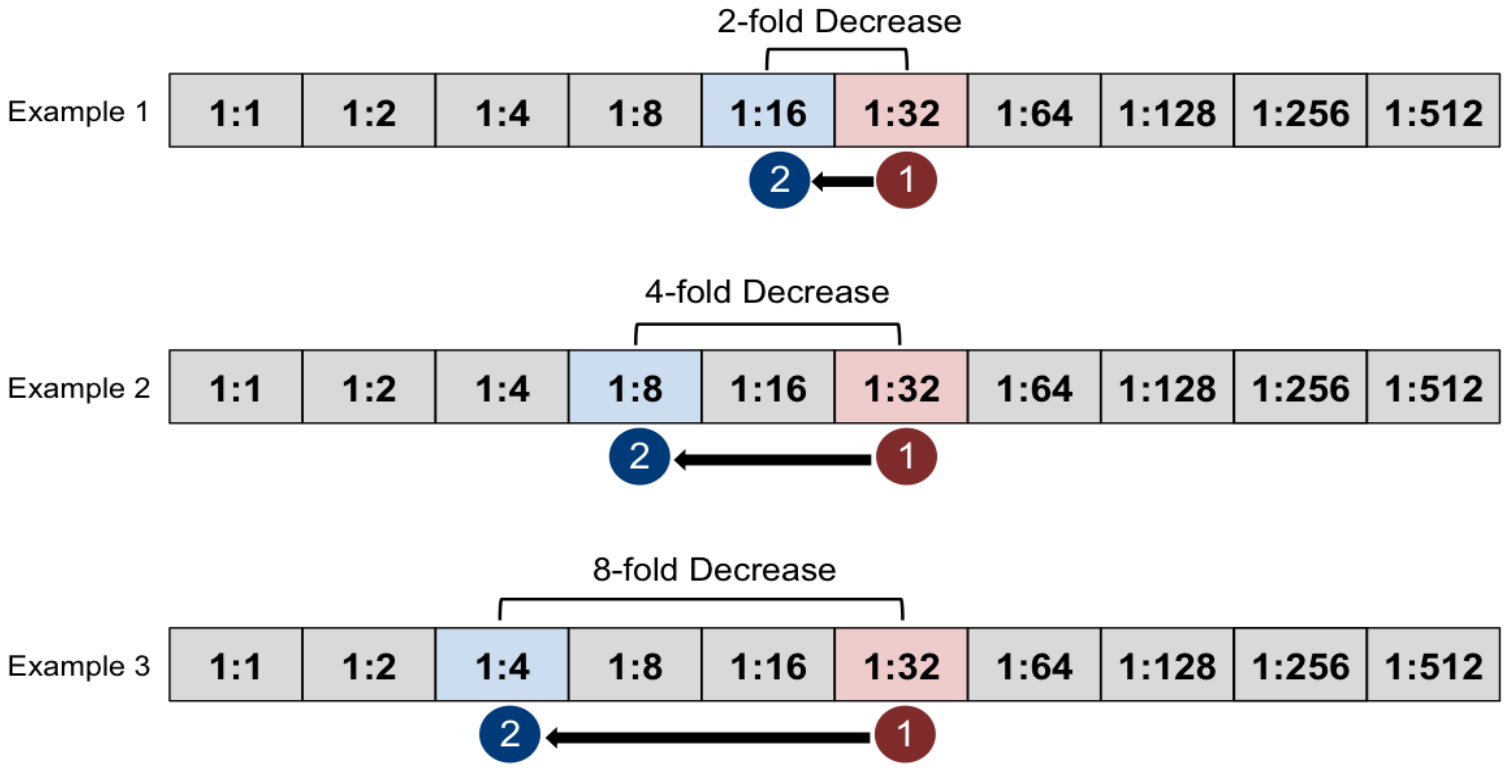
Non – Treponemal

- RPR
- VDRL
- Detects non-specific antibodies caused by inflammation
- Quantitative if reactive - measured in titers *(helps determine past/present infection or reinfection and treatment efficacy)*
- **May be reactive for life post treatment (Low Serofast)**
- Use this to determine if patient is cured or has treatment failure or re-infection

Treponemal

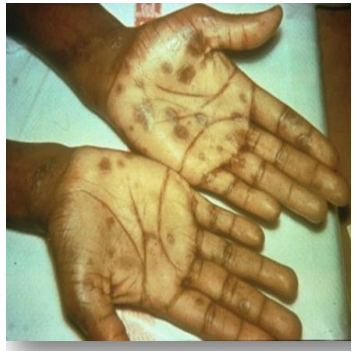
- **TP-N, TPPA, MBIA**
- FTA-ABS, EIA/CIA
- Detects specific antibodies against T. pallidum
- **Likely remains positive forever in most (85%)**
- Qualitative (Reactive/Non-Reactive)
- Can be screening or confirmatory

Serologic Titers of RPR and VDRL



Persons who have signs or symptoms that persist or recur and those with at least a fourfold increase in non treponemal test titer persisting for >2 weeks likely were re-infected or experienced treatment failure. (CDC Treatment Guidelines,2021).

Who Needs Treatment



All symptomatic clients
All asymptomatic clients with a reactive titer w
Titer/treatment history can't be confirmed.

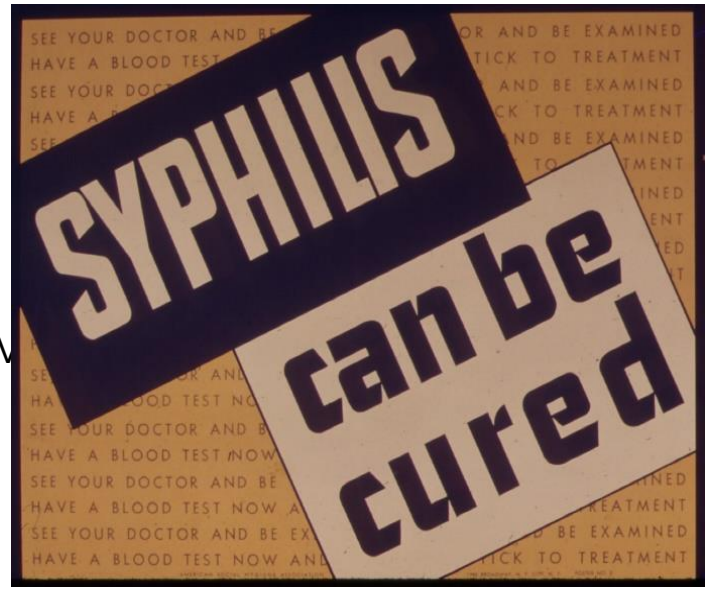
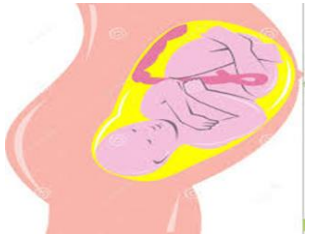


Image Credit: Louisiana Department of Health



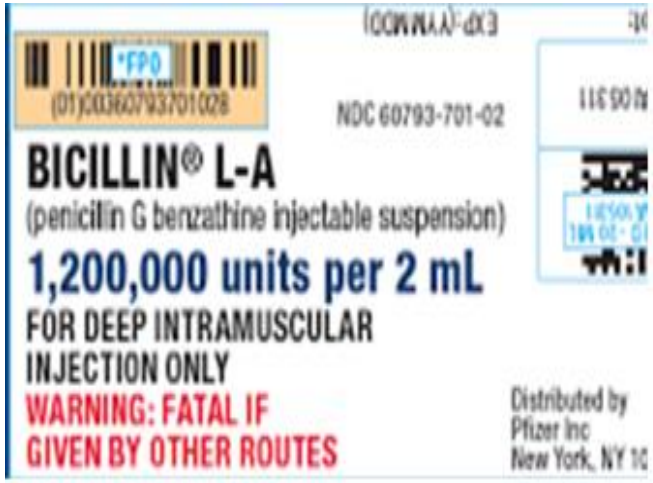
All pregnant females who are:

- Symptomatic,
- Reactive serology with no symptoms or and No history of syphilis
- Has partner(s) with a confirmed diagnosis.

All partners to a confirmed case of syphilis-
Confirmed case= Partner has primary or secondary symptoms, partners reactive titer status is known or
DIS have confirmed partner is infected and untreated.

Treatment of Syphilis in Pregnancy

- The only treatment for syphilis in pregnancy is penicillin. There are no available alternatives
- Pregnant women should be treated with the penicillin regimen appropriate for their stage of infection
- Pregnant women with penicillin allergy require desensitization in a hospital setting due to the risk for serious IgE – mediated hypersensitivity reactions (CDC, 2021)
- Treating Partners of pregnant females is crucial to preventing reinfection before delivery



NEVER administer in the Deltoid Muscle!!!!

Syphilis Treatment During Pregnancy

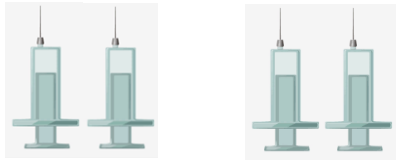
Draw Blood for Syphilis titer on first day of treatment

P & S symptoms and Early Latent=
Treatment x 1 dose

Total dose Bicillin 2.4mu

Pregnant P & S symptoms and Early Latent=
Treatment x 2 doses at 1-week intervals

Day 1 Day 7



Total dose Bicillin 4.8mu

Late Latent and unknown duration (NO symptoms)=
Treatment x 3 doses at 1-week intervals

Day 1 Day 7 Day 14

Total dose Bicillin 7.2mu

Bicillin is the only approved regimen for Pregnant Females. Patients reporting PCN allergy must be desensitized and treated with BIC

Bicillin Treatment in Pregnancy: Time Between Doses for Latent Syphilis

- Adherence to 7-day interval between doses in pregnancy is necessary
- 40% of pregnant woman are below treponemicidal levels after 9 days
- Pregnant females must Restart entire series (3 weekly doses) if dose is missed (interval >7 days)
- **Treatment must be initiated and completed > 30 days before delivery to be considered adequate**
- Encourage Abstinence or Condom use until patient and partner(s) are treated

Jarisch-Herxheimer Reaction

Acute febrile illness following penicillin injection

Usually occurs within a few hours after Bicillin injection

Dying treponemes release endotoxins faster than body can clear them

Can occur at any stage

Most common during early syphilis when treponemal load is higher

Can cause exacerbation of syphilis symptoms and uterine contractions

Follow Up Serology Titers Post Treatment

- Primary/Secondary/ Early Latent Syphilis- 6 & 12 months*
- Latent/Unknown Duration - 6, 12,& 24 months*
- Clients Living with HIV- 3, 6, 9, 12, & 24 months
- Pregnant females diagnosed and treated at or before 24weeks- 8 weeks post treatment
- Pregnant females diagnosed and treated after 24 weeks- Follow titers should be repeated at delivery**

* Clients with risk factors, practices, or behaviors pose an increased risk for syphilis acquisition can be screened more frequently.

****Titers should be repeated sooner in pregnant females if reinfection or treatment failure is suspected or client is living with HIV****

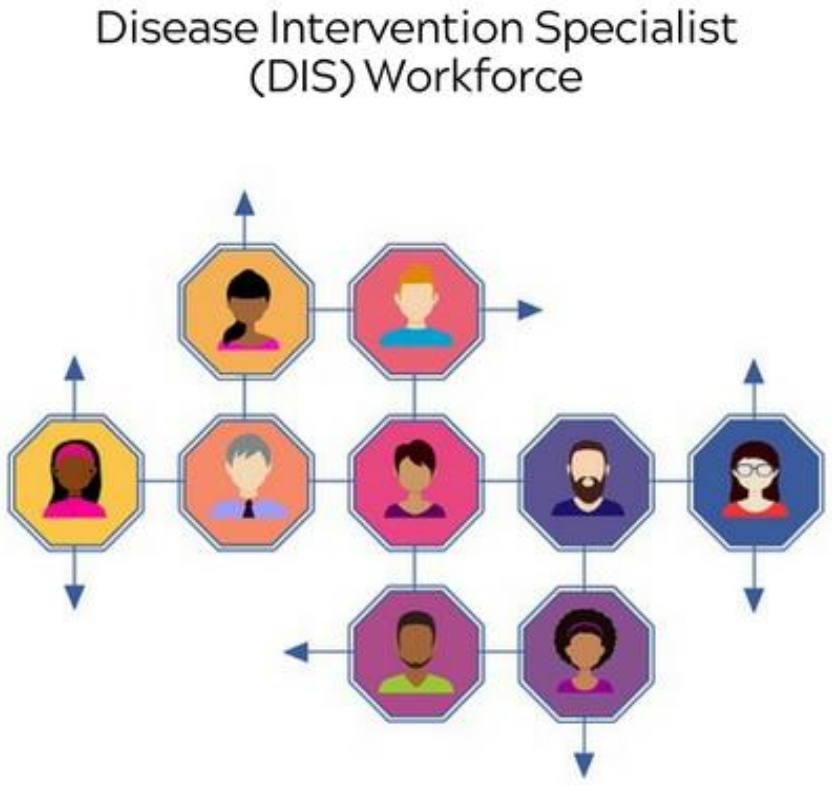
Nurses Responsibility in Syphilis Staging and Treatment

- Take a Thorough Sexual History! Including assessment of risk behaviors and treatment of sex partners to assess for reinfection (CDC STI Treatment Guidelines 2021)
- **Ensure Physical Exam and Specimen Collections are done**.
- Accurate Staging of Syphilis symptoms. (Always review chart for titer hx.)
- ASK QUESTIONS about PCN allergy!
- Provide Client Centered Prevention and Follow-UP Education
- Ensure new syphilis case is put into PHIDDO within 24 hours of receipt of result!!
- Collaborate with DIS on referrals(desensitization, LP for neurosyphilis exam), information on titer history and staging clients.
    - Call or **email** your DIS when you have symptomatic client in clinic(Include all pertinent details(stage/treatment pregnancy status and good contact info for client)
    - Prioritize getting pregnant females and partners into clinic for exam and treatment!!
- Contact SHHR Nurse Manager or Nurse Consultants if you have questions about treatment or circumstance that is not in protocol

Disease Intervention Specialist (DIS)

- DIS interview patients and contacts to gather information concerning infections or exposure to HIV and Syphilis. Consults with private physicians to stimulate case reporting, obtain information on treated cases, provide information on diagnostic and treatment techniques, and link clients and exposed partners to facilities for treatment.

- Collaboration for the exchange of clinical information on clients between providers and DIS is critical to ensure clients are screened and treated appropriately.



DIS Responsibilities

- Interview clients with a newly reactive syphilis titer, symptom, contact or re-infected
- Find and interview partners who have been a contact to syphilis (all pregnant females, and partners of OC with a titer ≥ 1:16
- Draw lab specimens
- Assist with Transporting clients to CHD if needed
- Stage syphilis based on the information obtained during client interview
- Assist with tracking titers and treatment history of patient
- Collaborate with CHD and nursing staff to refer client to care, assist with staging and symptom identification
- Provide Client Centered Prevention information

Things to remember for Management of Syphilis in Pregnancy

- Initial Staging can change based on provider examination or DIS investigation
- If client has a history of syphilis, The RPR will determine if client is re-infected
-
- TP-N & TP-PA, FTA, MBIA will always be positive after initial infection
- Ask specific questions about reported PCN allergy to determine if client can still be treated with BIC.(When? What type of reaction? Was medical intervention needed?)
- **<u>Test all clients for HIV, Gonorrhea and Chlamydia</u>**

Things to remember for Management of Syphilis in Pregnancy

- Always treat symptomatic clients regardless of if test result is non-reactive or not back yet. Remember that titers are sometimes delayed to rise in primary syphilis

- DO NOT delay treatment or referral if your DIS has not called you back! Initiate treatment, create PHIDDO case and email your DIS the information!

- Treat for appropriate stage of syphilis. Missed Doses greater than 14 days(non-pregnant clients) and 9 days for pregnant females or require client to start treatment regimen over.

- ALWAYS ASSESS FOR NEURO/OCULAR/OTIC SYPHLIS. Give treatment with BIC according to Stage and refer to ER for immediately for CSF-VDRL Screen. **BIC WILL NOT TREAT NEURO SYPHILIS**

- **DO NOT GIVE BIC IN A DELTOID MUSCLE**!!!! This is not best practice, extremely painful for client. BIC is poorly absorbed due to small muscle mass and can cause severe muscle damage including necrosis

How Oklahoma Providers Can Help

- Become Familiar with Syphilis Symptoms and CDC Treatment recommendations
- Communicate titer results and treatment status between OB and PEDS provider.
- Work with OSDH DIS, Maternal FSS and Nurses and County Health Departments to ensure patient and partner(s) are staged and treated appropriately.
- O.S. § 1-502.2 protects health care providers to share medical or epidemiological information to health professionals , state agencies or district court within the continuum of car for diagnosing and treating communicable diseases without a written ROI.

How Oklahoma Providers Can Help

- Incorporate comprehensive sexual history questions into EMR platform.
- Consider creating internal CS nurse/physician case management committee to keep track and contact with pregnant clients diagnosed with syphilis to ensure they follow through with treatment, partner treatment and to work with in house lab to improve time of getting syphilis results.
- Incorporate in house guidelines for PCN desensitization, oral challenge, or skin testing to ensure Pregnant females with PCN allergy can be treated with Bicillin as soon as possible.
- Complete Reporting of Necessary Variables (Report Syphilis to OSDH within 24hours)
  - Demographics, Pregnancy Status
  - Signs/Symptoms and Treatment
  - Details what would help guide intervention

How Oklahoma Providers Can Help

- Consider joining Congenital Syphilis Review Board and Task Force. Contact Dawn.Kluesner@health.ok.gov

- Consider enrolling RNs and APRNs into STI Academy. Contact Anissa.Lynch@health.ok.gov

- Consider keeping condoms in triage/ED/offices to provide to symptomatic clients or clients with diagnosis. Contact Sexual Health and Harm Reduction Service for information on how to obtain free condoms

- Build Rapport with DIS and Local County Health Departments! CHDs will treat pregnant females for free

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Webpage:
SHHR.health.ok.gov

Email:
Condoms@health.ok.gov
HIVSTDTESTS@health.ok.gov

Rapid Start/PrEP
RapidStart@health.ok.gov

Need condoms for events? Email the condoms@health.ok.gov address. Please include Name/date of event, Name and shipping address, and number of condoms/lube requested. Please submit request at least 2-3 weeks before event.

For Additional STI Information

CDC Sexually Transmitted Infections Treatment Guidelines 2021
https://www.cdc.gov/std/treatment-guidelines/default.htm

National Network of STD Clinical Prevention Training Centers
www.STDCCN.org

Sexual Health and Harm Reduction Service (405)-426-8400 https://shhr.health.ok.gov

App available on Apple
and Android Devices

iOS and android Users
Launch Chrome or Safari on your phone or tablet
Navigate to STI mobile app (cdc.gov)
Tap the Menu icon or Share Icon
Tap Add to Home Screen.

CDCSTD

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