Responding to the Rise of Congenital Syphilis in Indigenous Communities

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Indian Country ECHO Grand Rounds

Clinical Case/Welcome

Case Discussion

Tiffany

- 17 year old, presents to E.D. in late October 2022, reporting UTI sx.

- +UTI
- Also + hCG
- E.D. ultrasound c/w 14 wks
- UTI tx'ed
- Prenatal labs sent
- Referred to prenatal clinic

Case Discussion

Tiffany

- Prenatal labs include:
  - RPR 1:128, + TPPA, Urine Chlamydia positive
  - HIV, HBsAg, Hep C, GC all negative, other prenatal labs unremarkable.
- Multiple phone calls and a PHN visit later, Tiffany presents to clinic in early December 2022.
- + Rash, no other findings, reports no longer with partner, declines to name him.

Case Discussion

Tiffany

- At early December visit:
  - Treated with Bicillin Pen G 2.4 million units IM for secondary stage syphilis

    (+ azithromycin for chlamydia)

  - Prenatal care and ultrasound arranged
  - Day of tx titer subsequently returns 1:64

- In late January (after several missed visits), Tiffany returns for ultrasound and second prenatal visit:
  - Subsequent January results: RPR 1:128, Chlamydia positive

Case Discussion

Tiffany

- In early March, after extensive outreach efforts and missed visits, PHN locates Tiffany at site associated with meth use. She has reunited with partner, Marcus, who was never treated.
- Same day:
  - Tiffany and Marcus receive field treatment 2.4 MU of Bicillin Pen G and pan-screening.
- Follow-up is arranged for prenatal care (Tiffany) and syphilis staging (Marcus).

Case Discussion

Tiffany's delivery

- Despite extensive outreach efforts, Tiffany is next seen in early April on Labor and Delivery.
- 36 weeks 5 days
- Elevated blood pressure and apparent intoxication.
- + Urine Drug Screen for methamphetamine (with subsequent confirmation)

- Progresses rapidly in labor and delivers 5#14oz baby with Apgars 7 & 9.

Case Discussion

Tiffany's baby

- Maternal RPR at delivery 1:16
- Baby RPR 1:32
- No obvious findings c/w congenital syphilis

- Baby has some respiratory issues and is transferred to outside NICU.
- Receives full evaluation, including CSF analysis (VDRL neg), and treatment with Penicillin G IV x 10 days for possible congenital syphilis.

- Subsequently lost to follow-up with family reporting that they have left the area for a sober-living home in another state.

Syphilis Penicillin Shortage: National IHS Treatment Priorities 4/19/2023

1. Pregnant persons and HIV infected persons with syphilis as well as infants with congenital syphilis should receive priority for treatment with Benzathine penicillin G.

   Benzathine penicillin G (Bicillin L-A®) is the only recommended treatment for pregnant people infected or exposed to syphilis.

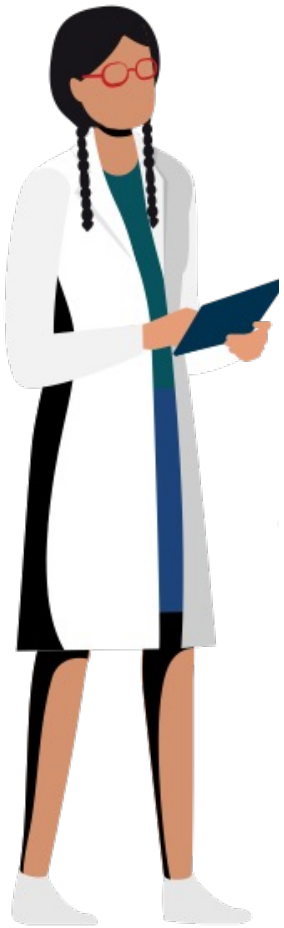
2. Other persons with early syphilis (primary, secondary, early latent) and sexual partners should be treated with Benzathine penicillin G if supplies are adequate to cover high risk patients listed under priority #1.

3. If Benzathine penicillin G supplies are inadequate to cover patients listed as priority #2, treat early syphilis (primary, secondary, early latent) with doxycycline 100 mg po bid for 14 days and late latent syphilis or latent syphilis of uncertain duration with doxycycline 100 mg po bid for 28 days.

4. Ceftriaxone 1 gm IV daily for 10 days may be an acceptable second-line alternate treatment for primary and secondary syphilis.

Epidemiologic & Clinical Overview of Adult and Congenital Syphilis

Congenital Syphilis – Reported Cases and Rates of Reported Cases by State, Ranked by Rates, United States, 2021

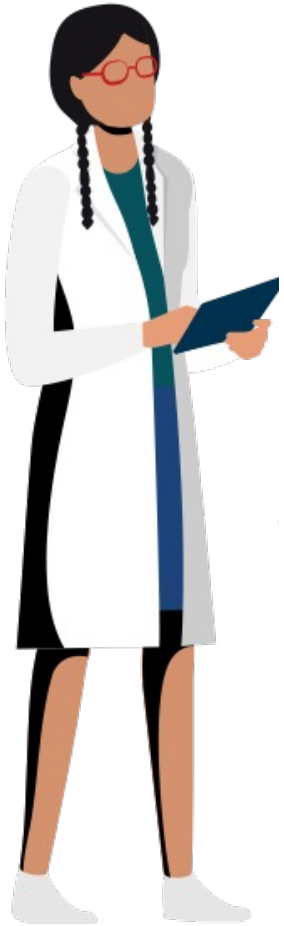


Rank*	State†	Cases	Rate per 100,000 Live Births
1 ★	Arizona	181	232.3
2 ★	New Mexico	44	205.7
3	Louisiana	110	191.5
4	Mississippi	64	182.0
5	Texas	680	182.0
6 ★	Oklahoma	85	175.6
7 ★	South Dakota	16	140.7
8	Arkansas	50	139.0
9	Nevada	45	133.6
10	Hawaii	20	128.0
11	California	518	123.2
12	Missouri	66	95.0
13	West Virginia	15	87.2
14	Florida	180	83.2
15 ★	Montana	9	80.1
	US TOTAL‡	**2,855**	**77.9**

https://www.cdc.gov/std/statistics/2021/tables/20.htm

Who should be screened for syphilis?

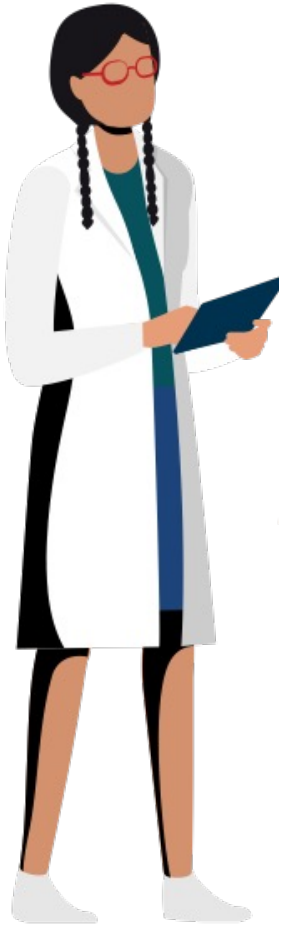
US Preventive Services Task Force Grade A Recommendations



- **"The USPSTF recommends early screening for syphilis infection in all pregnant women".**
- All pregnant women are at risk. All pregnant women should be tested for syphilis as early as possible when they first present to care. If a woman has not received prenatal care prior to delivery, she should be tested at the time she presents for delivery.

- **"The USPSTF continues to recommend screening for syphilis in nonpregnant persons who are at increased risk for infection".**
- Population: Asymptomatic, nonpregnant adolescents and adults who are at increased risk for syphilis infection

Syphilis

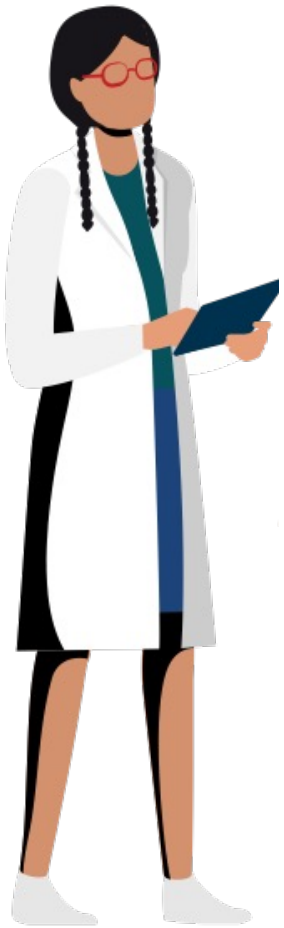


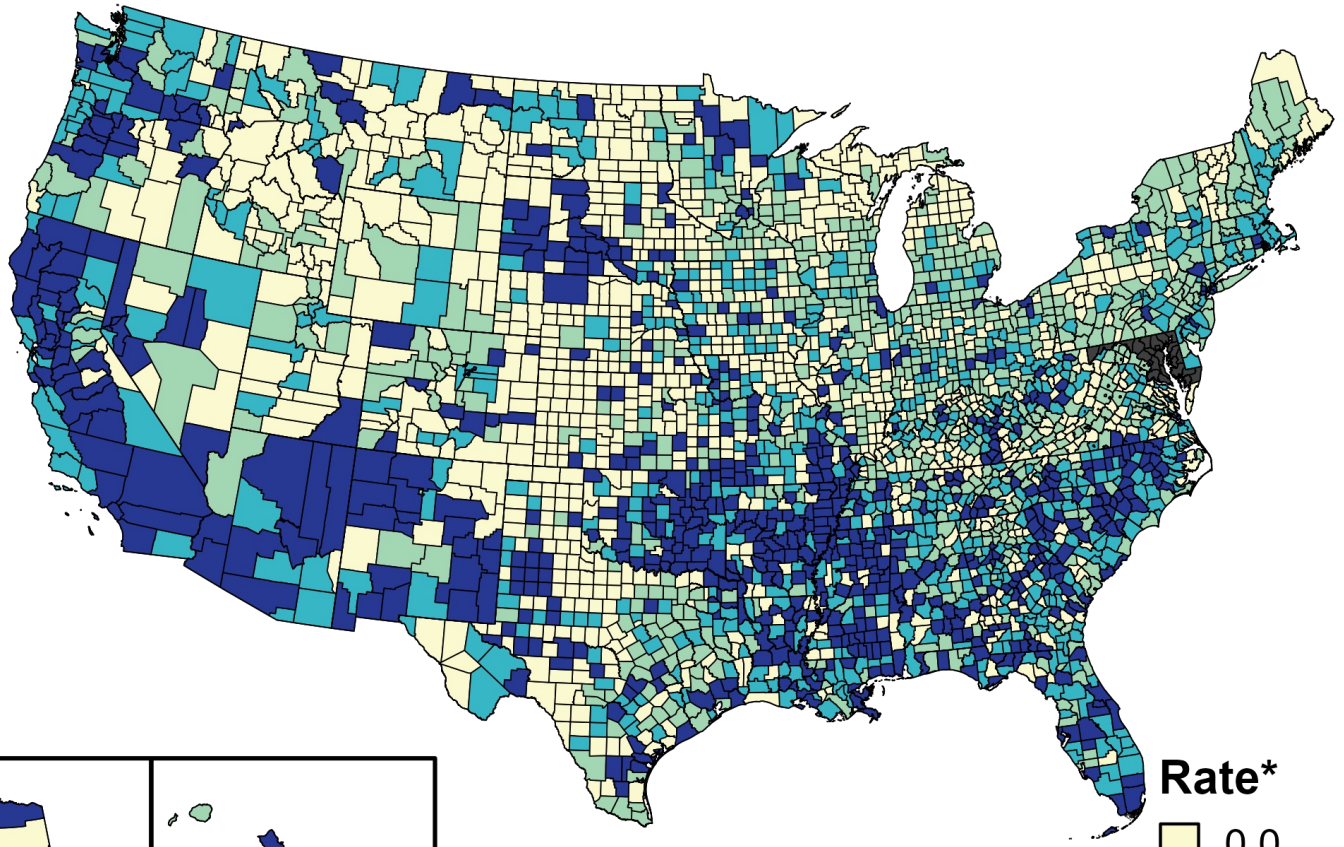
- ***Treponema pallidum***

- Sexual, vertical, and horizontal transmission
- **Curable with penicillin**
- 4 stages

1. Primary
2. Secondary
3. Early (non-primary, non-secondary)
4. Unknown duration or late

Primary and Secondary Syphilis – Rates of Reported Cases by County, United States, 2021

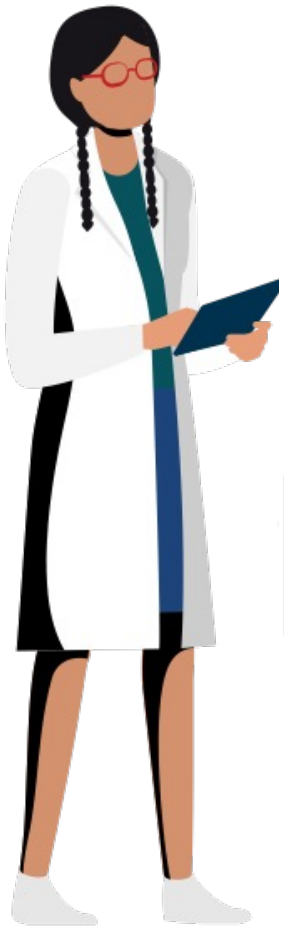


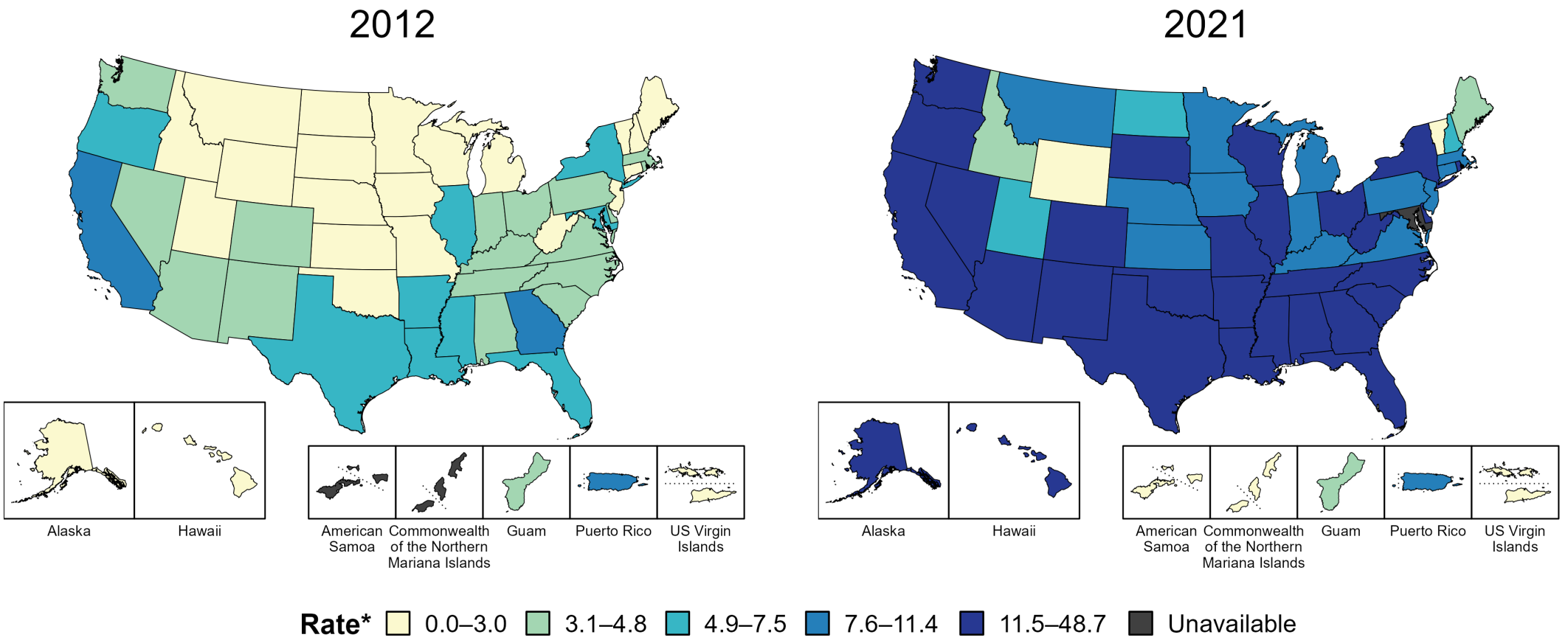


* Per 100,000

https://www.cdc.gov/std/statistics/2021/figures.htm

Primary and Secondary Syphilis – Rates of Reported Cases by County, United States, 2021

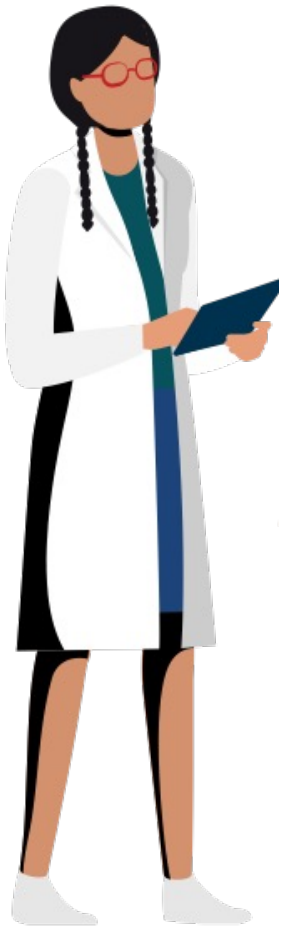


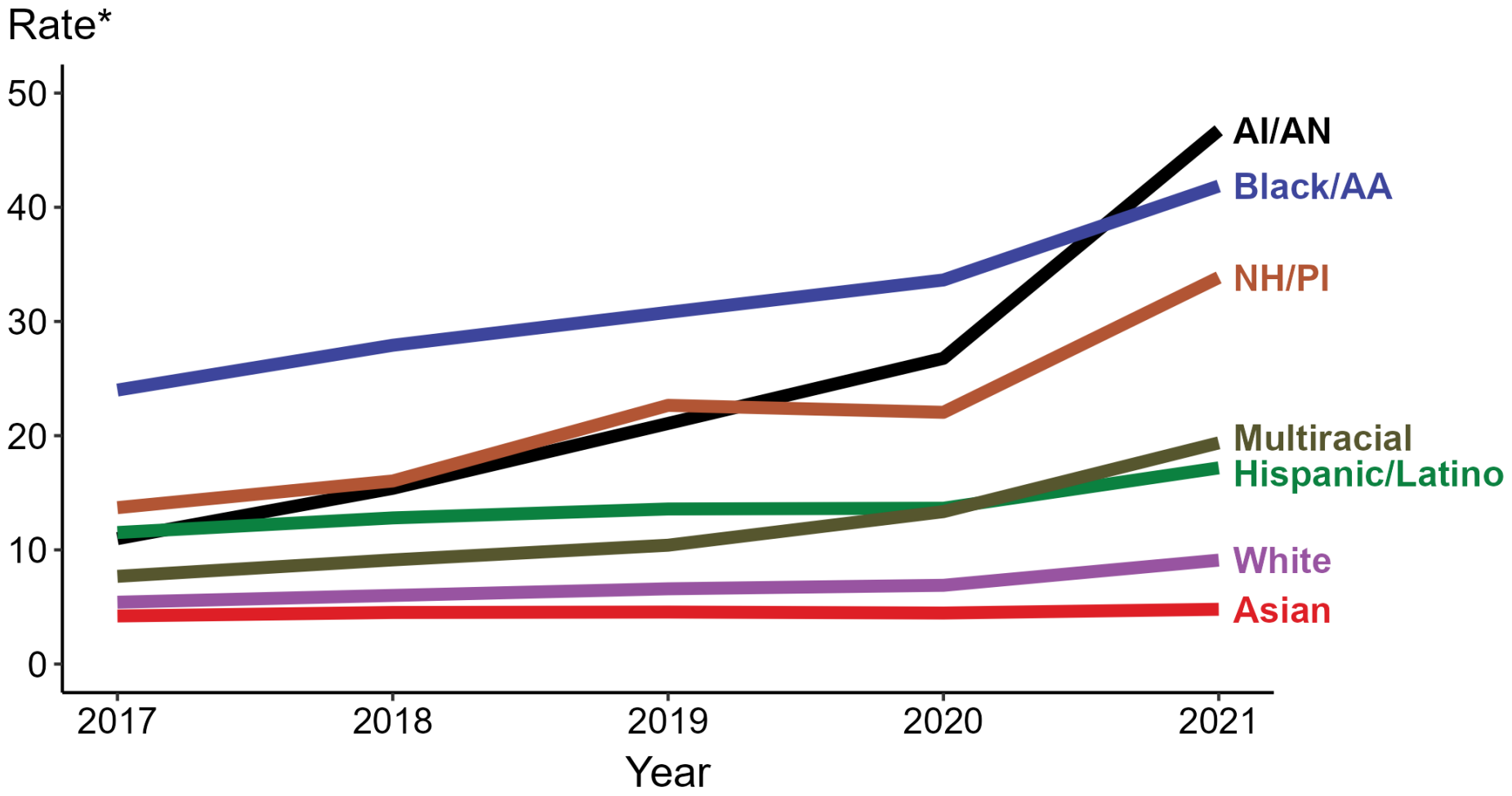


* Per 100,000

https://www.cdc.gov/std/statistics/2021/figures.htm

Primary and Secondary Syphilis – Rates of Reported Cases by Race/Hispanic Ethnicity, United States, 2017-2021



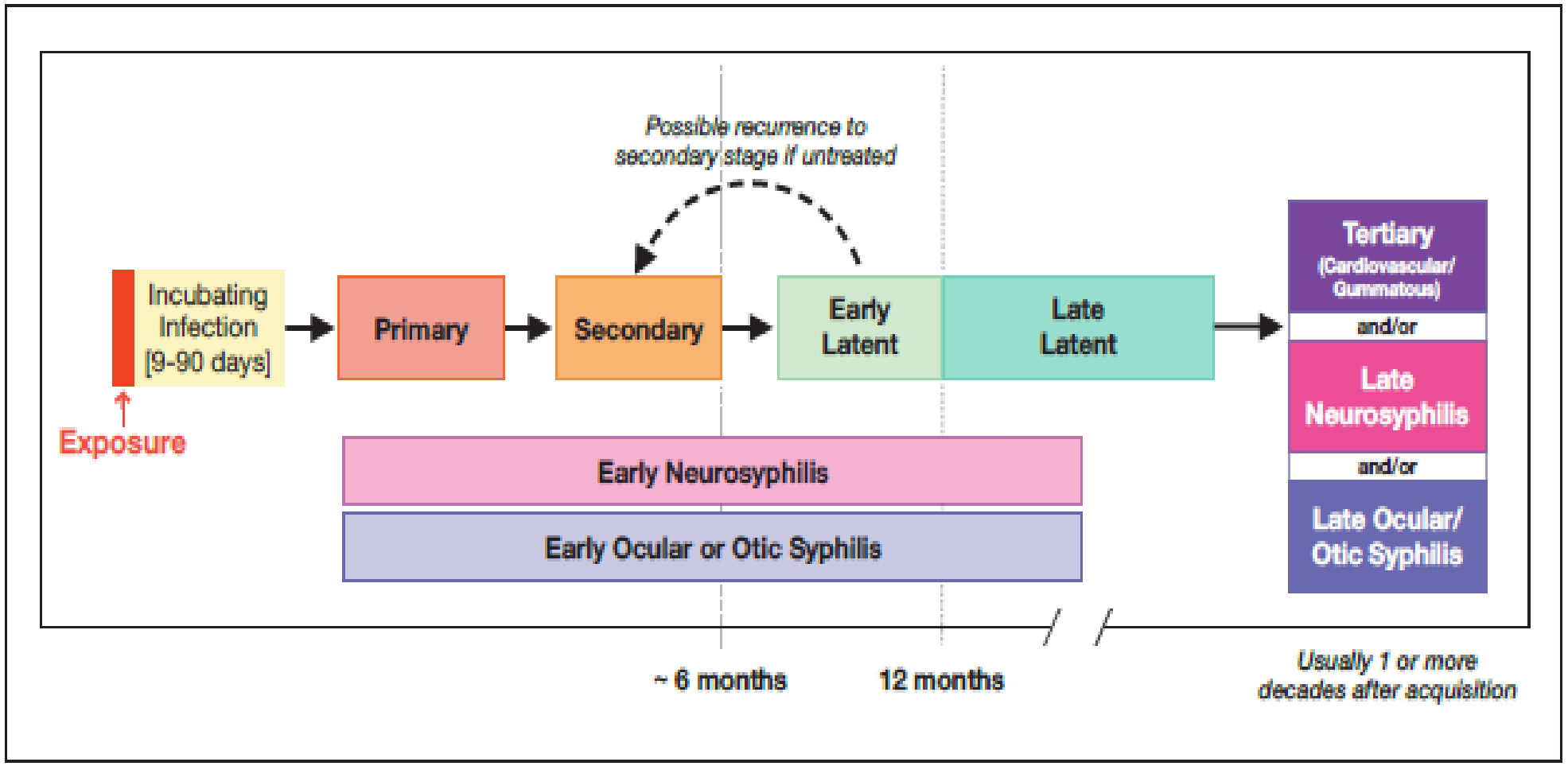


* Per 100,000

ACRONYMS: AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander

https://www.cdc.gov/std/statistics/2021/figures.htm

Natural History of Untreated Syphilis



The Diagnosis, Management and Prevention of Syphilis An Update and Review. New York City Department of Health and Mental Hygiene Bureau of Sexually Transmitted Infections and the New York City STD Prevention Training Center . May 2019. https://www.nycptc.org/x/Syphilis_Monograph_2019_NYC_PTC_NYC_DOHMH.pdf

Case Definitions: Primary Syphilis

Clinical Description

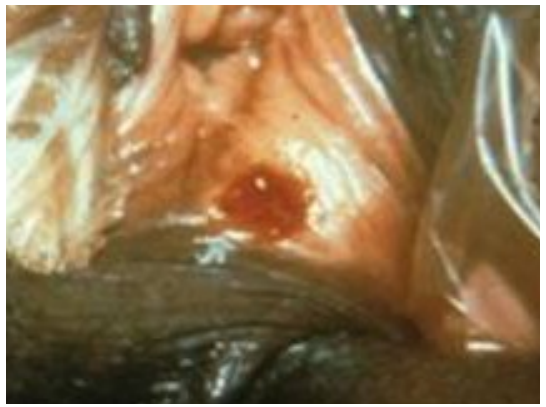
Characterized by one or more ulcerative lesions (e.g. chancre), which might differ in clinical appearance.

Classic Presentation

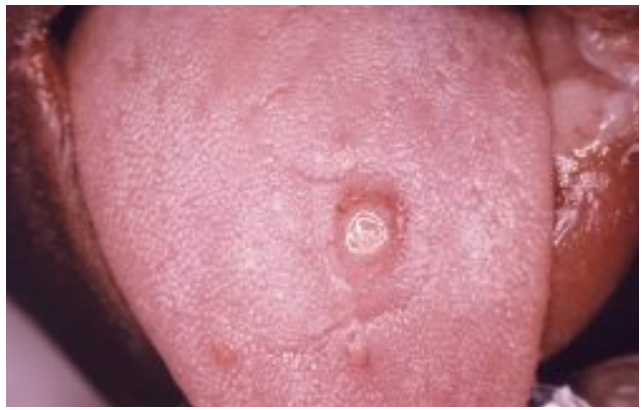
Single painless ulcer or chancre at the site of infection

Atypical Presentation

Multiple, atypical, or painful lesions at the site of infection



Vaginal



Tongue

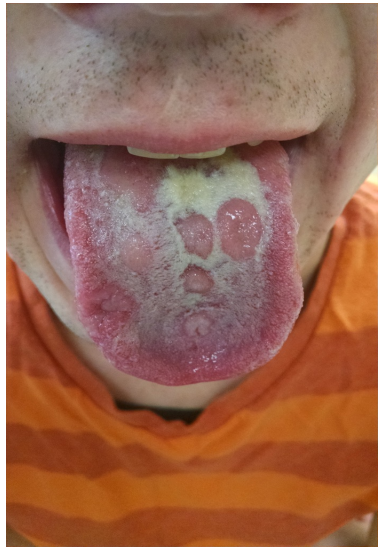
Penile

https://www.cdc.gov/std/syphilis/images.htm and https://www.cdc.gov/std/statistics/2019/case-definitions.htm

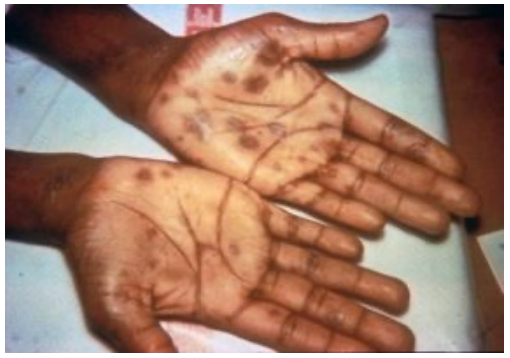
Case Definitions: Secondary Syphilis

Clinical Description

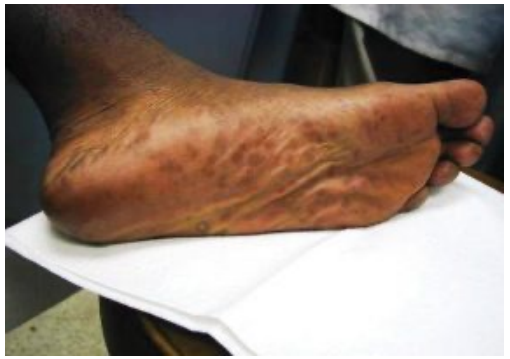
Characterized by localized or diffuse mucocutaneous lesions (e.g., rash – such as non-pruritic macular, maculopapular, papular, or pustular lesions), often with generalized lymphadenopathy. Other signs can include mucous patches, condyloma lata, and alopecia. The primary ulcerative lesion may still be present.

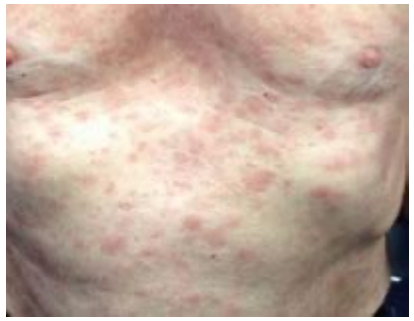


Mucous patches

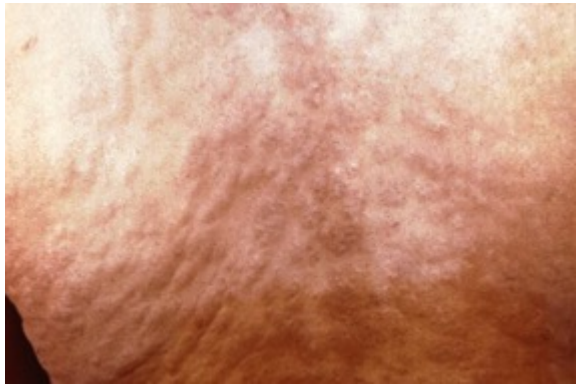


Palmar/plantar rash

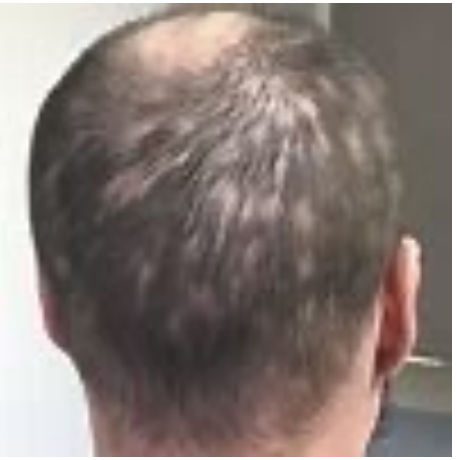




Torso/back rash



Condyloma lata



Alopecia

1. https://www.cdc.gov/std/syphilis/images.htm
2. https://www.cdc.gov/std/statistics/2019/case-definitions.htm

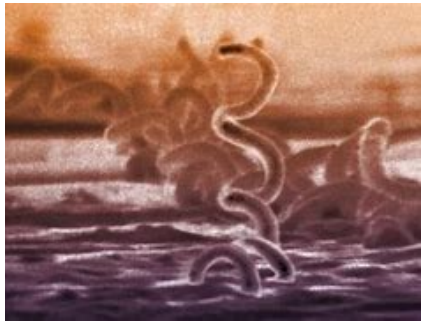
Case Definitions: Early (non-primary non-secondary)

Clinical Description

Stage of infection caused by *T. pallidum* in which initial infection has **occurred within the previous 12 months**, but there are no current signs or symptoms of primary or secondary syphilis.

Less than 12 months duration by (1) interval from prior negative syphilis test (or 4-fold titer increase) OR (2) report of symptoms consistent with syphilis within prior 12 months OR (3) sexual contact with a known case (or sexual debut) within prior 12 months

https://www.cdc.gov/std/statistics/2019/case-definitions.htm)



Case Definitions: Unknown duration or late

Clinical Description

Stage of infection caused by *T. pallidum* in which initial infection has **occurred >12 months** previously or in which there is insufficient evidence to conclude that infections was acquired during the previous 12 months.

Unknown or greater than 12 months duration by: (1) interval from prior negative syphilis test (or 4-fold titer increase) OR (2) report of symptoms consistent with syphilis occurring > 12 months ago OR (3) sexual contact with a known case > 12 months ago (4) Neurologic, ocular, otic signs without evidence of acquiring infection in prior 12 months.

https://www.cdc.gov/std/statistics/2019/case-definitions.htm)

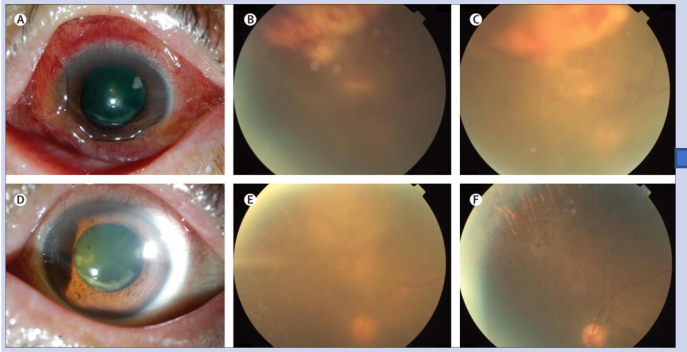
Neurologic Manifestations can occur at any stage

https://www.cdc.gov/std/statistics/2019/case-definitions.htm)

Neurosyphilis

Infection of the central nervous system with *T. pallidum,* as evidenced by manifestations including:

1. Syphilitic meningitis,
2. Meningovascular syphilis,
3. General paresis,
4. Dementia,
5. Tabes dorsalis



https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(13)70198-1/fulltext

Ocular syphilis

Infection of any eye structure with *T. pallidum.*
Manifestations can involve any structure in the anterior and posterior segment of the eye including:

1. Conjunctivitis
2. Anterior uveitis
3. Posterior uveitis
4. Panuveitis
5. Posterior interstitial keratitis
6. Optic neuropathy
7. Retinal vasculitis

Ocular syphilis may lead to decreased visual acuity including permanent blindness.

Otosyphilis

Infection of the cochleovestibular system with *T. pallidum,* as evidenced by manifestations including sensorineural hearing loss, tinnitus, and vertigo.

Typically presents with cochleo-vestibular symptoms including

1. Tinnitus
2. Vertigo
3. Sensorineural hearing loss
4. Unilateral/Bilateral
5. Have a sudden onset
6. Progress Rapidly

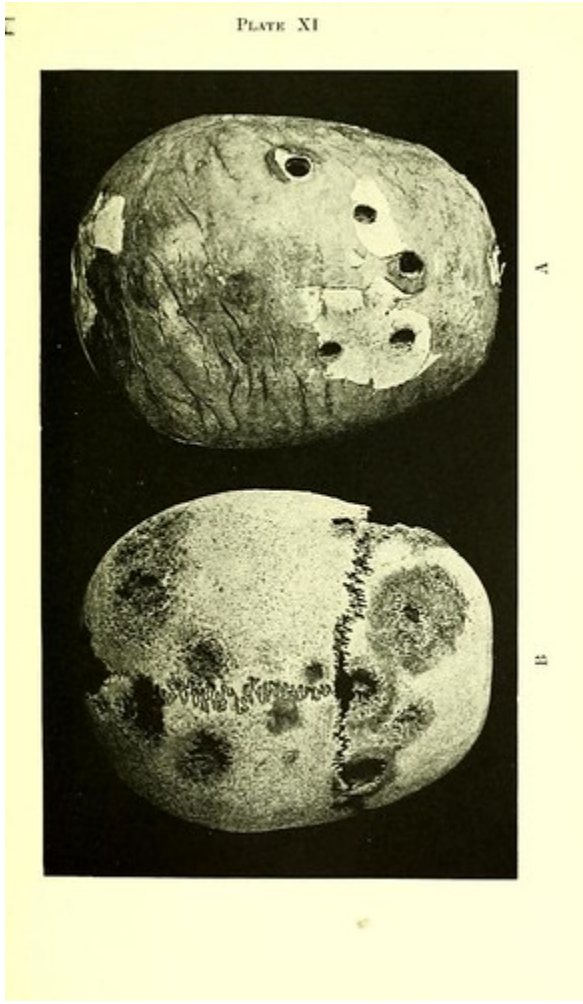
Otic syphilis can result in permanent hearing loss

Late Clinical Manifestations/Tertiary Syphilis

Clinical Description

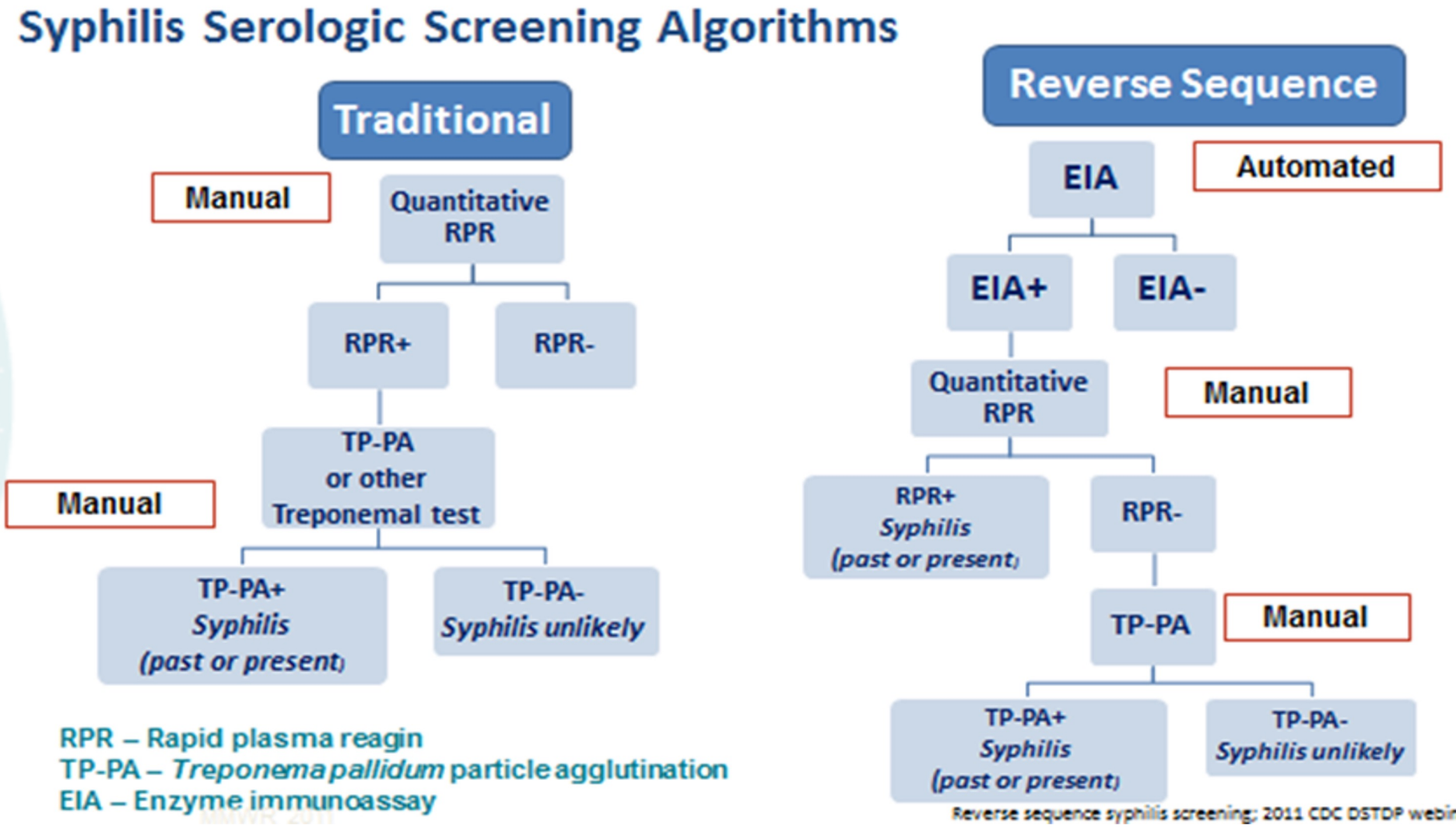
Late clinical manifestations of syphilis (tertiary syphilis) may include inflammatory lesions of:

1. Cardiovascular system (e.g., aortitis, coronary vessel disease),
2. Skin (e.g., gummatous lesions),
3. Bone (e.g., osteitis),
4. Other structures including the upper and lower respiratory tracts, mouth, eye, abdominal organs, reproductive organs, lymph nodes, and skeletal muscle)
5. Neurologic manifestations (e.g., general paresis and tabes dorsalis)



https://www.cdc.gov/std/statistics/2019/case-definitions.htm)

Serologic Diagnosis of Syphilis



Treatment of syphilis with Penicillin

Stage				
Primary	**Secondary**	**Early non-primary, non secondary**	**Late Latent/ or Unknown Duration**	**Neurosyphilis, ocular syphilis and otic syphilis**
Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units IM in a single dose	Benzathine penicillin 2.4 million units total administered as 3 doses of 2.4 million units IM each at 1-week intervals	Aqueous crystalline penicillin G 18-24 million units per day, administered as 3-4 million units by IV every 4 hours or continuous infusion for 10-14 days Alternative: procaine penicillin G 2.4 million units IM 1x/day PLUS probenecid 500 mg orally 4x/day, both for 10-14 days

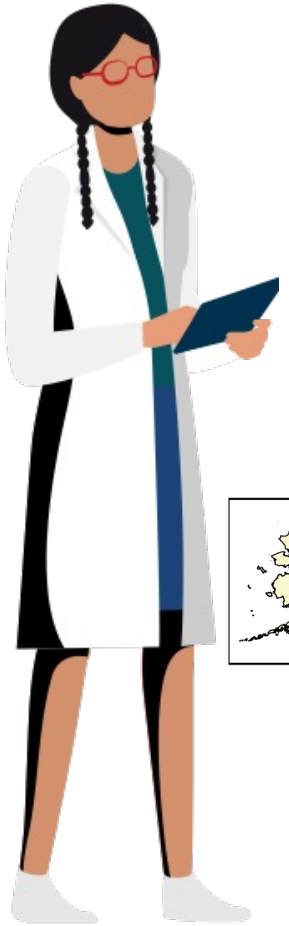
https://www.cdc.gov/std/treatment-guidelines/default.htm

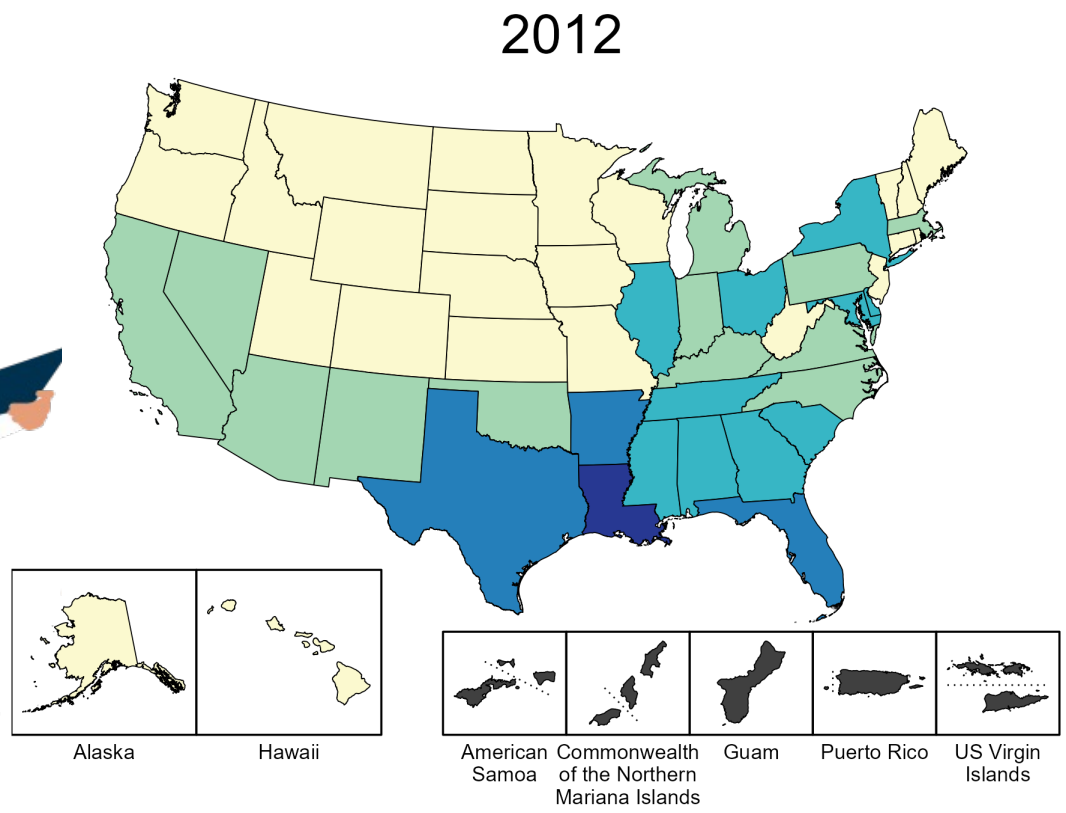
Penicillin Allergy

- Patients often are incorrectly labeled as allergic to penicillin
  - Evaluate what symptoms were experienced by patients with reported penicillin allergy
- Penicillin allergy causing anaphylaxis is rare
  - In studies that have incorporated penicillin skin testing and graded oral challenge among persons with reported penicillin allergy, the true rates of allergy are low, ranging from 1.5% to 6.1%.
- Allergies wane over time:
  - Approximately 80% of patients with a true IgE-mediated allergic reaction to penicillin have lost the sensitivity after 10 years
- ***Desensitization is recommended for pregnant women diagnosed with syphilis followed by treatment with penicillin.***

https://www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf

Syphilis (All Stages) – Rates of Reported Cases Among Women Aged 15-44 Years by State, United States and Territories, 2012 and 2021

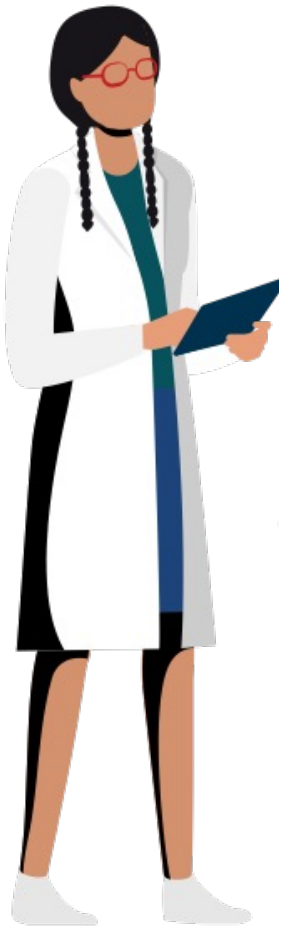


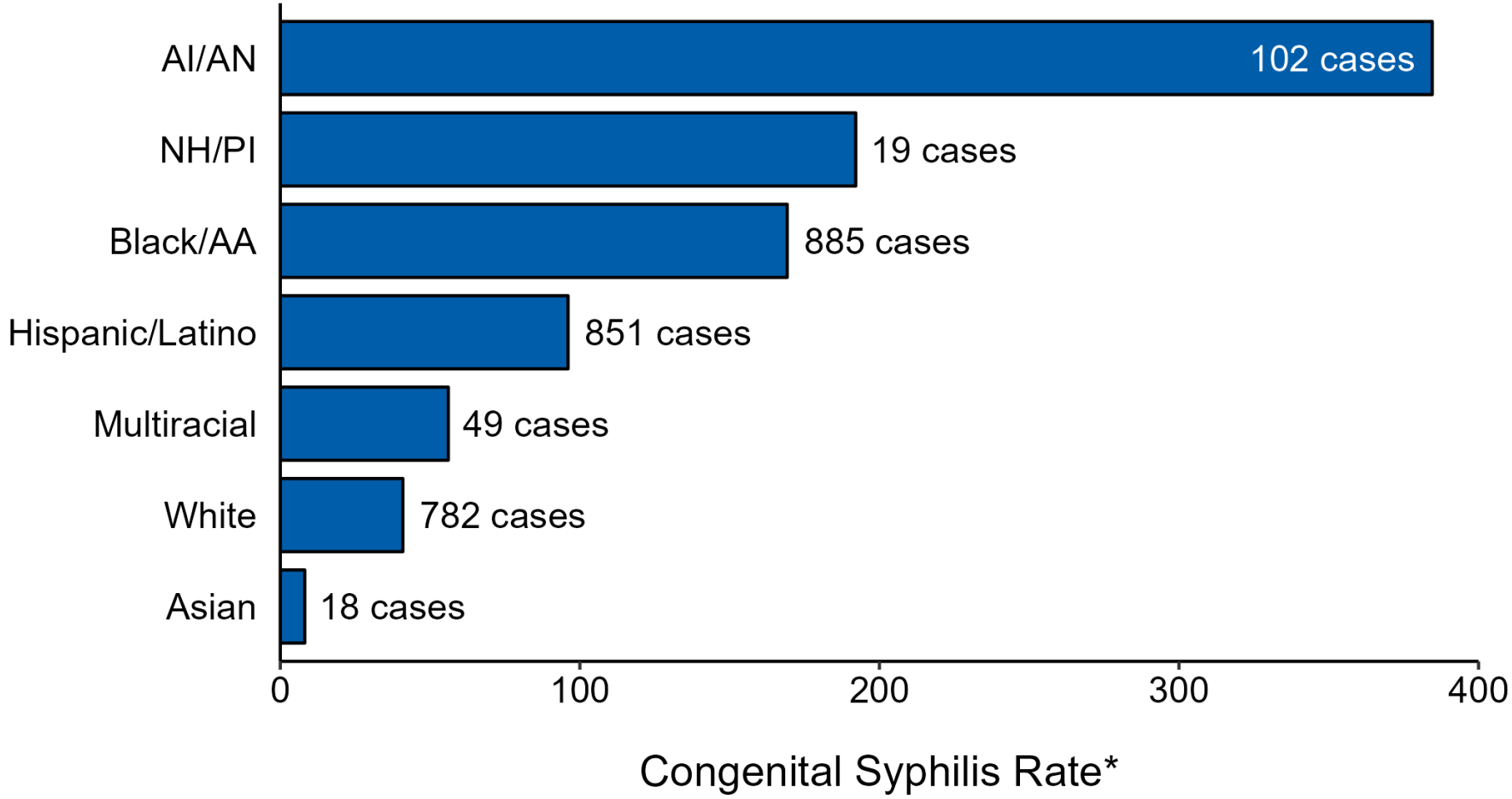


* Per 100,000

https://www.cdc.gov/std/statistics/2021/figures.htm

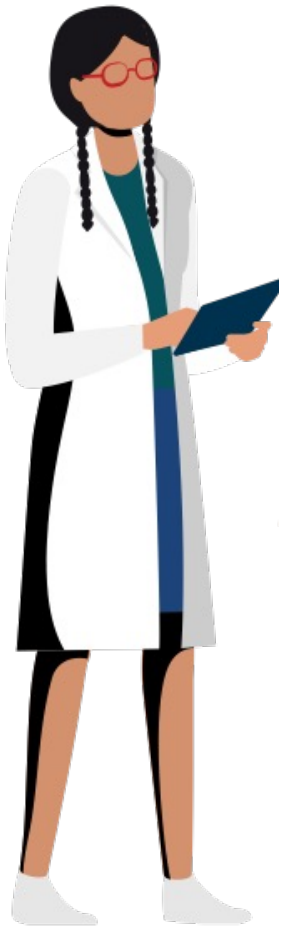
Congenital Syphilis – Case Counts and Rates of Reported Cases by Race/Hispanic Ethnicity of Mother, United States, 2021

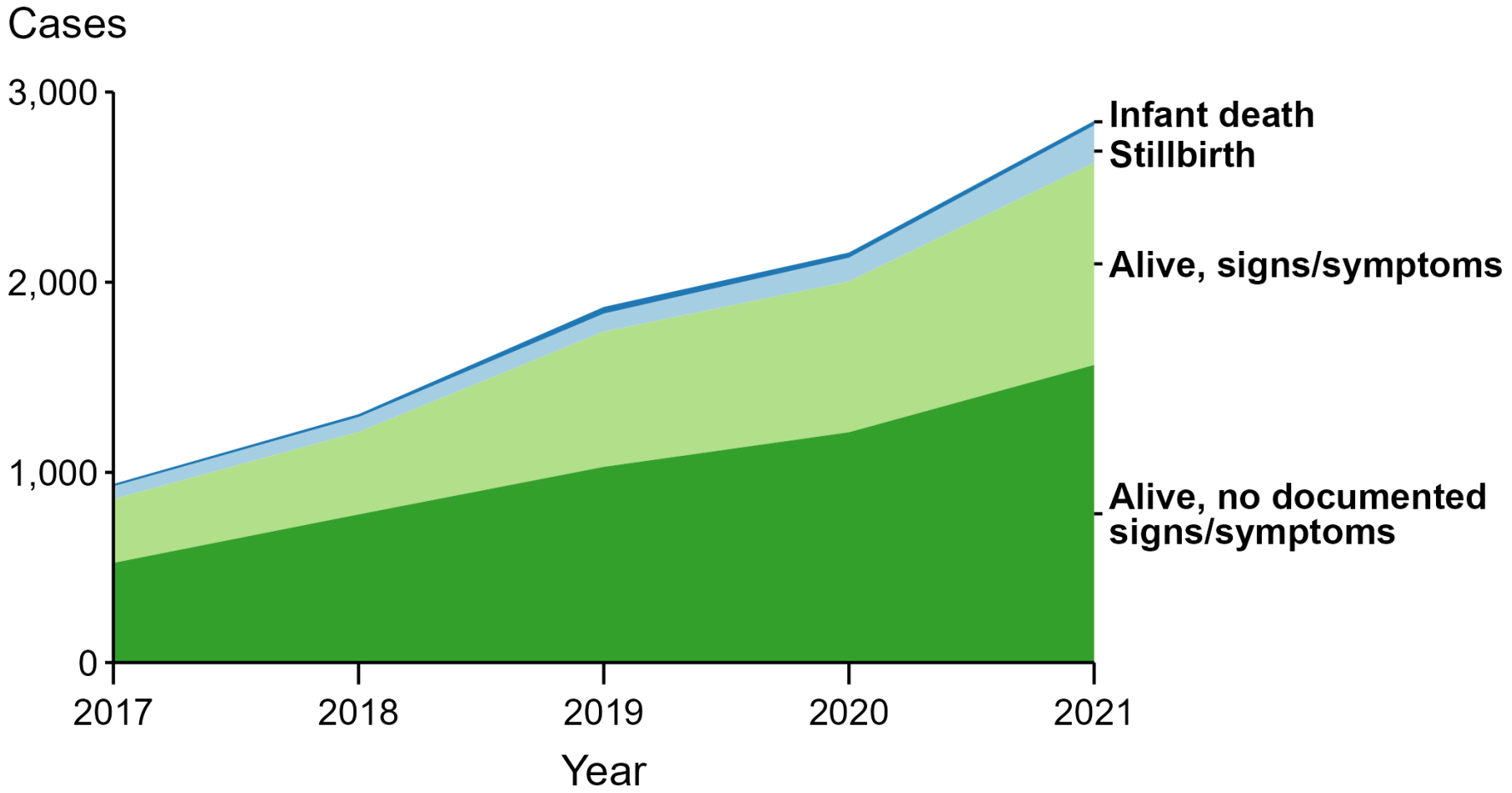




- * Per 100,000 live births
- **NOTE:** In 2021, a total of 149 congenital syphilis cases (5.2%) had missing, unknown, or other race and were not reported to be of Hispanic ethnicity.
- **ACRONYMS:** AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander
- https://www.cdc.gov/std/statistics/2021/figures.htm

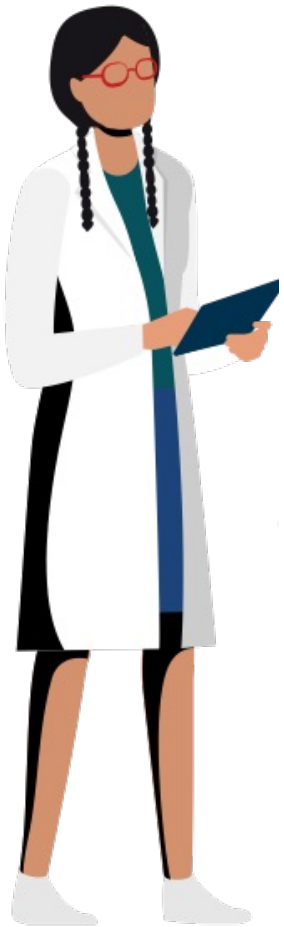
Congenital Syphilis – Reported Cases by Vital Status and Clinical Signs and Symptoms* of Infection, United States, 2017-2021

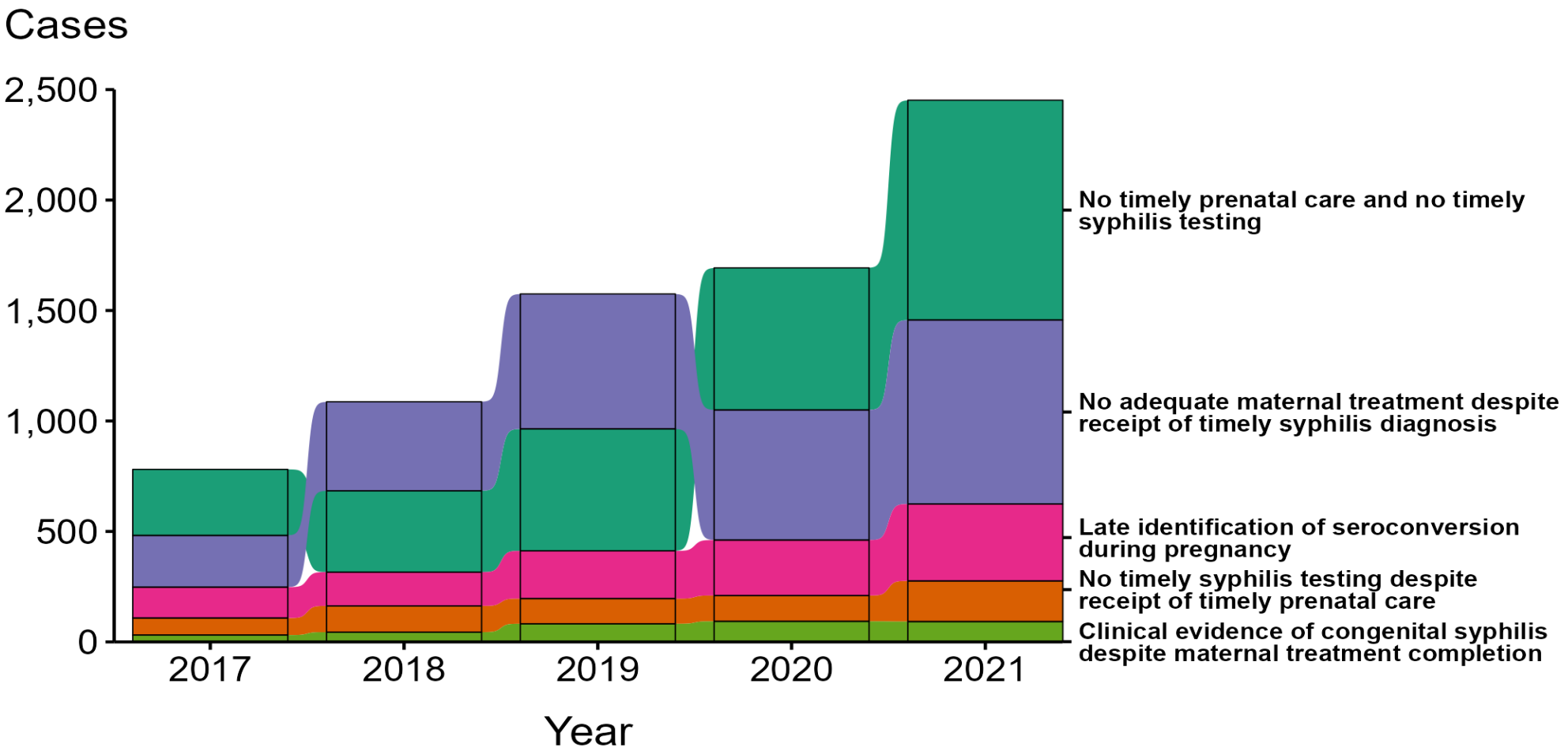




- * Infants with signs/symptoms of congenital syphilis have documentation of at least one of the following: long bone changes consistent with congenital syphilis, snuffles, condylomata lata, syphilitic skin rash, pseudoparalysis, hepatosplenomegaly, edema, jaundice due to syphilitic hepatitis, reactive CSF-VDRL, elevated CSF WBC or protein values, or evidence of direct detection of *T. pallidum*.
- **NOTE:** Of the 9,141 congenital syphilis cases reported during 2017 to 2021, 22 (0.2%) did not have sufficient information to be categorized.
- https://www.cdc.gov/std/statistics/2021/figures.htm

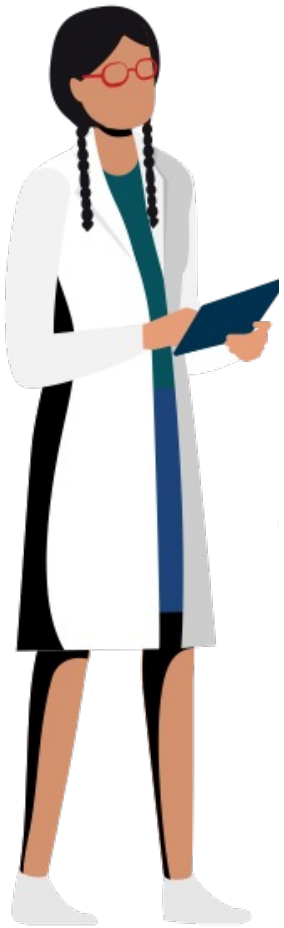
Congenital Syphilis — Missed Prevention Opportunities among Mothers Delivering Infants with Congenital Syphilis, United States, 2017–2021

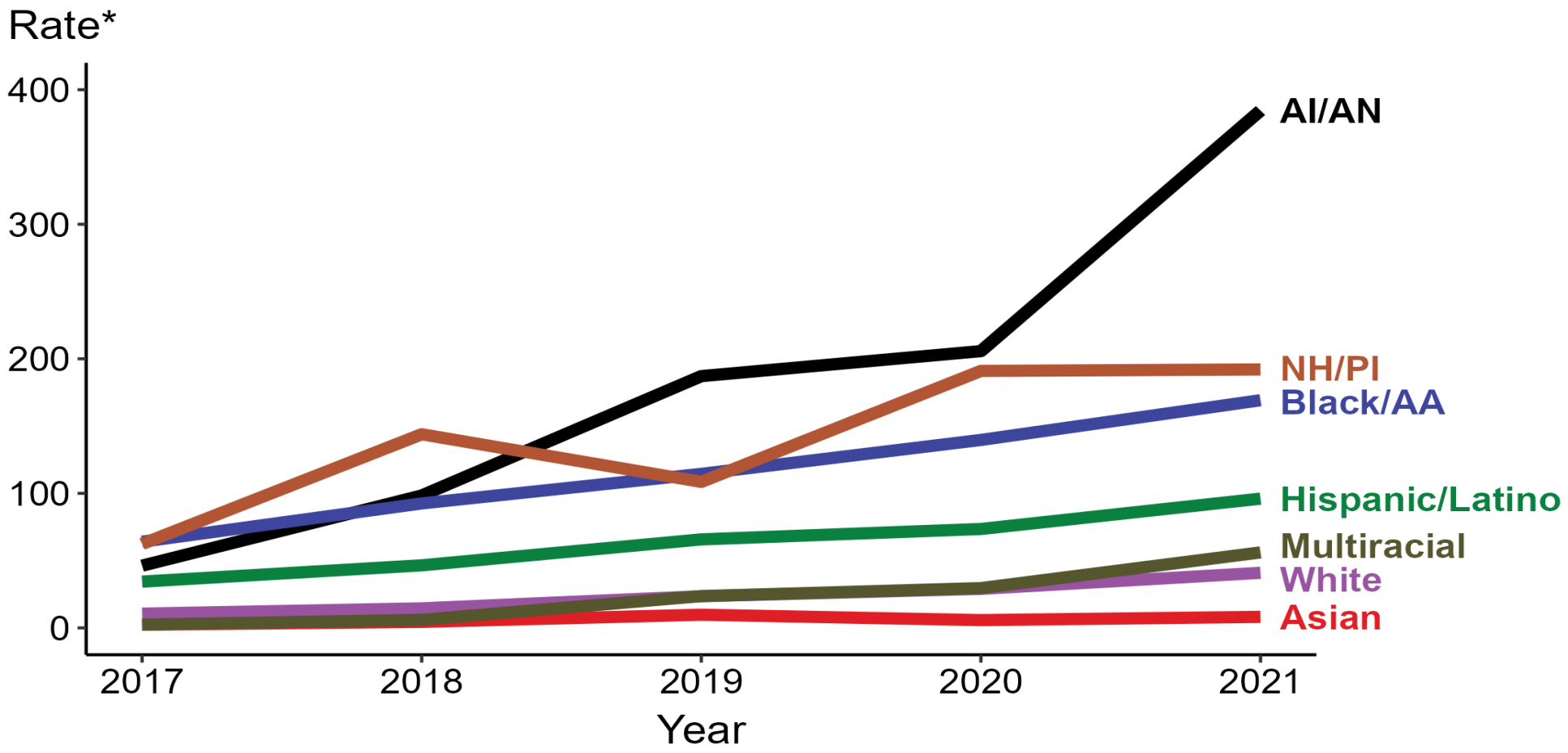




- **NOTE:** Of the 9,141 congenital syphilis cases reported during 2017 to 2021, 1,553 (17.0%) were not able to have the primary missed prevention opportunity identified due to insufficient information provided to CDC related to maternal prenatal care, testing, or treatment.
- https://www.cdc.gov/std/statistics/2021/figures.htm

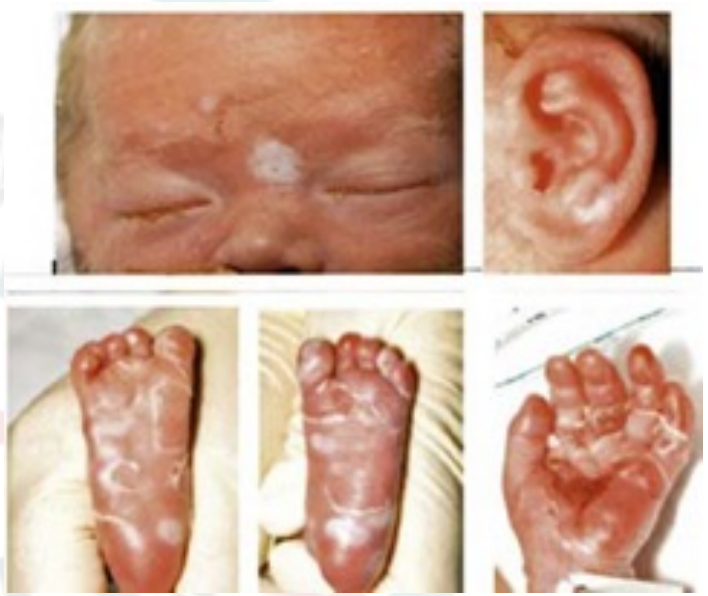
Congenital Syphilis — Rates of Reported Cases by Year of Birth, Race/Hispanic Ethnicity of Mother, United States, 2017–2021

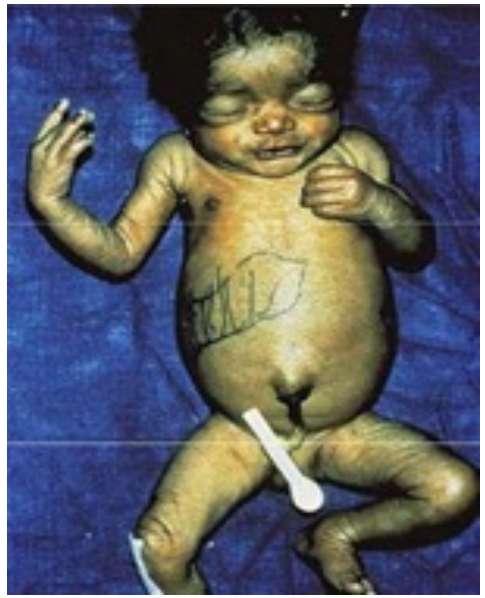


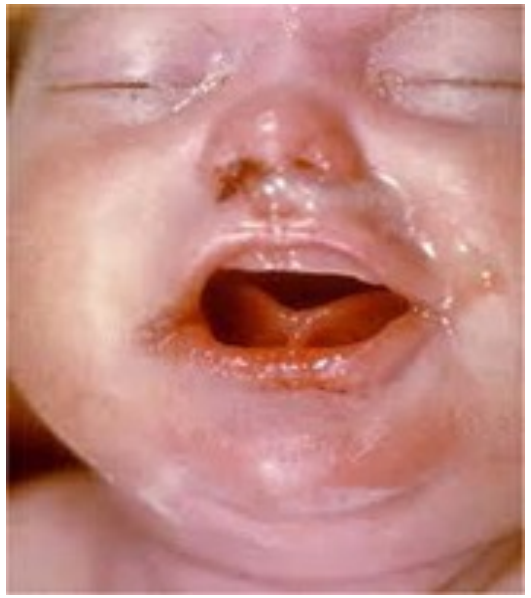


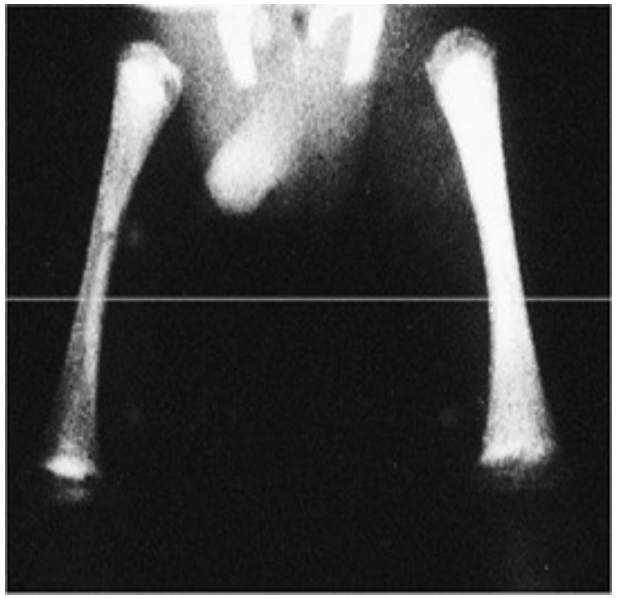
- * Per 100,000 live births
- **ACRONYMS:** AI/AN = American Indian or Alaska Native; Black/AA = Black or African American; NH/PI = Native Hawaiian or other Pacific Islander
- https://www.cdc.gov/std/statistics/2021/figures.htm

Clinical Manifestations of Congenital Syphilis (CS)









https://www.cdc.gov/ncbddd/birthdefects/surveillancemanual/quick-reference-handbook/congenital-syphilis.html

Scenario 1: Confirmed, proven or highly probable congenital syphilis	Scenario 2: Possible congenital syphilis	Scenario 3: Congenital syphilis less likely	Scenario 4: Congenital syphilis unlikely
Neonate with: • a physical exam consistent with CS • serum quantitative nontreponemal serology 4-fold greater than mother's or • a positive darkfield or PCR test of placenta, body fluids or positive silver stain of placenta or cord	**Neonate with** a normal physical exam and a serum quantitative nontreponemal serologic titer equal to or < 4-fold of the maternal titer at delivery and **one** of the following: • The mother was not treated, was inadequately treated, or has no documentation of treatment. • The mother was treated with erythromycin or a regimen not recommended in these guidelines • The mother received recommended regimen but treatment was initiated <30 days before delivery.	**Neonate with** a normal physical examination and a serum quantitative nontreponemal serologic titer equal or <4-fold of the maternal titer at delivery and **both** of the following are true: • The mother was treated during pregnancy, treatment was appropriate for the infection stage, and the treatment regimen was initiated ≥30 days before delivery. • The mother has no evidence of reinfection or relapse	**Neonate with:** • a normal physical exam • serum quantitative nontreponemal serology equal to or less than 4-fold mother's at delivery and • Mother's treatment was adequate before pregnancy • Mother's nontreponemal titer remained low and stable before and during pregnancy and at delivery
Evaluation: CSF with VDRL, cell ct, protein, CBC/diff, long bone radiographs, neurologic eval (eye, auditory, imaging)	CSF analysis for VDRL, cell count, and protein** CBC, differential, long-bone radiographs	No evaluation is recommended	No evaluation is recommended
Treatment: **Aqueous crystalline penicillin G** 100,000–150,000 units/kg/body wt./day, administered as 50,000 units/kg body wt./dose IV q 12 hours during the first 7 days of life and q 8 hours thereafter for a total of 10 days OR **Procaine penicillin G** 50,000 units/kg body weight/dose IM in a single daily dose for 10 days	**Treatment:** **Aqueous crystalline penicillin G** 100,000–150,000 units/kg/body wt./day, administered as 50,000 units/kg body wt./dose IV q 12 hours during the first 7 days of life and q 8 hours thereafter for a total of 10 days OR **Procaine penicillin G** 50,000 units/kg body weight/dose IM in a single daily dose for 10 days OR **Benzathine penicillin** 50,000 units/kg	**Treatment:** **Benzathine penicillin G 50,000** units/kg body weight/dose IM in a single dose * Another approach involves not treating the newborn if follow-up is certain but providing close serologic follow-up every 2–3 months for 6 months for infants whose mothers' nontreponemal titers decreased at least fourfold after therapy for early	**No treatment recommended** • Benzathine penicillin 50,000 units/kg body weight as a single IM injection might be considered, if follow-up is uncertain and the neonate has a reactive nontreponemal test. • Neonates should be followed serologically to ensure the nontreponemal test returns to negative

Syphilitic Stillbirth

Clinical case definition

A fetal death that occurs **after a 20-week gestation** OR in which the fetus weighs **>500g** AND the **mother had *untreated* or *inadequately* treated* syphilis at delivery.**

* Adequate treatment is defined as completion of a penicillin-based regimen, in accordance with CDC treatment guidelines, appropriate for stage of infection, initiated 30 or more days before delivery.

Comments: For **reporting** purposes, congenital syphilis includes:

1. cases of congenitally acquired syphilis among infants and children
2. syphilitic stillbirths

https://www.cdc.gov/std/statistics/2019/case-definitions.htm)

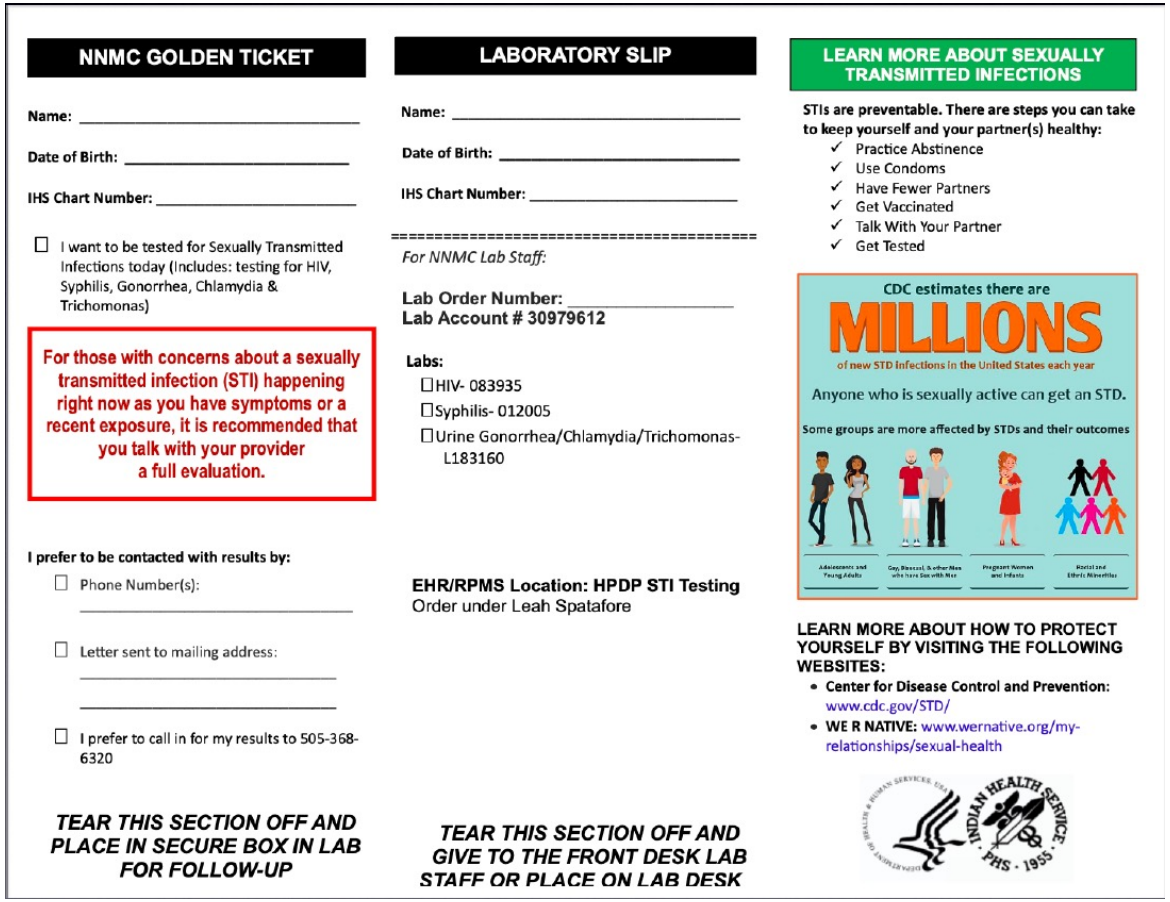
Provider Education Resources

- **CDC STD Treatment Guidelines:** https://www.cdc.gov/std/treatment-guidelines/default.htm
- **Indian Country Infectious Disease ECHO:** www.IndianCountryECHO.org
- **CDC STD Prevention Training Centers:** https://www.cdc.gov/std/training/default.htm
- **University of Washington STD CME sessions:** https://www.std.uw.edu/
- **California Prevention Training Center Online:** https://www.stdhivtraining.org/online_courses.html
- **Johns Hopkins STD Prevention Training:** https://www.stdpreventiontraining.com/
- **New York City STD/HIV Prevention Training Center:** https://www.nycptc.org/
- **CDC STD Surveillance:** https://www.cdc.gov/std/statistics/2019/default.htm
- **CDC STD Hotline:** https://www.usa.gov/federal-agencies/cdc-national-std-hotline

National Overview and Future Steps

IHS Screening Recommendations for Syphilis

1. **Annual syphilis testing for persons aged 13-64**
2. **Adoption of an STI/HIV/Viral hepatitis testing bundle:**
    1. Syphilis screening test with reflex RPR and TPPA
    2. HIV serology
    3. Screening for gonorrhea and chlamydia at three sites: Urine, Pharynx, Rectum
    4. Screening for hepatitis B and C
    5. Pregnancy test
3. **Adoption of "Express Testing":** On-demand, no-provider/no nurse lab visits for testing.
4. **Screen outside the hospital/clinic in the community**
    1. Field testing at Chapter House, community centers, Health Fairs, community events
    2. Utilization of IWTK (I want the kit) self-testing
5. **Field treatments for syphilis** by PHNs with Benzathine Penicillin



NNMC GOLDEN TICKET

Name: _____

Date of Birth: _____

IHS Chart Number: _____

☐ I want to be tested for Sexually Transmitted Infections today (Includes: testing for HIV, Syphilis, Gonorrhea, Chlamydia & Trichomonas)

For those with concerns about a sexually transmitted infection (STI) happening right now as you have symptoms or a recent exposure, it is recommended that you talk with your provider a full evaluation.

I prefer to be contacted with results by:

☐ Phone Number(s): _____

☐ Letter sent to mailing address: _____ _____

☐ I prefer to call in for my results to 505-368-6320

TEAR THIS SECTION OFF AND PLACE IN SECURE BOX IN LAB FOR FOLLOW-UP

LABORATORY SLIP

Name: _____

Date of Birth: _____

IHS Chart Number: _____

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For NNMC Lab Staff:

Lab Order Number: _____
Lab Account # 30979612

Labs:

☐ HIV- 083935

☐ Syphilis- 012005

☐ Urine Gonorrhea/Chlamydia/Trichomonas- L183160

EHR/RPMS Location: HPDP STI Testing
Order under Leah Spatafore

TEAR THIS SECTION OFF AND GIVE TO THE FRONT DESK LAB STAFF OR PLACE ON LAB DESK

LEARN MORE ABOUT SEXUALLY TRANSMITTED INFECTIONS

STIs are preventable. There are steps you can take to keep yourself and your partner(s) healthy:

- ✓ Practice Abstinence
- ✓ Use Condoms
- ✓ Have Fewer Partners
- ✓ Get Vaccinated
- ✓ Talk With Your Partner
- ✓ Get Tested

CDC estimates there are
MILLIONS
of new STD infections in the United States each year

Anyone who is sexually active can get an STD.

Some groups are more affected by STDs and their outcomes

LEARN MORE ABOUT HOW TO PROTECT YOURSELF BY VISITING THE FOLLOWING WEBSITES:

- Center for Disease Control and Prevention: www.cdc.gov/STD/
- WE R NATIVE: www.wernative.org/my-relationships/sexual-health

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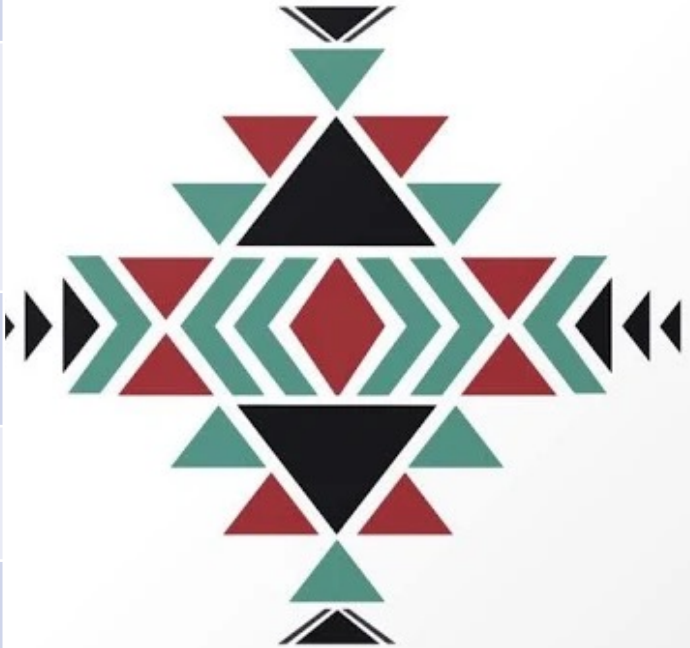
Opportunities for Screening and Treatment

Opportunities	Approach
Patient education	• NPAIHB *Stop Syphilis* website • Health Boards: Tribal Health, State Department of Health
Patient access to care	• Every encounter is an opportunity to **educate and test** • Express Testing: eg. “Golden Ticket” • Community outreach: Health Fairs, Street Clinic, health workers, leaders
Patient adherence to treatment	• Every encounter is an opportunity to **track treatment** • Community outreach: PHNs, health workers
Staff and staff education	• Webinars, ECHOs • Telehealth consultation
Facilities	• Every encounter is an opportunity to **screen** • Community outreach: field testing and treatment
Protocols	• Resource and protocol sharing among sites • MCH website
Treatment availability	• Continue to advocate on national level



Future Resources

- **Maternity Care Coordinator (MCC) Pilot Program**
  - Increase screening, education, and intervention for the maternal/newborn dyad using telehealth and home visitation during pregnancy and postpartum periods
- **Community Screening**
  - Community Health Aide Program (CHAP)
  - Community Health Representatives (CHR)
- **MCH Communication**
  - ihs.gov/MCH – June 2023
  - MCH Newsletter
  - MCH webinars and ECHOs

Contact Information

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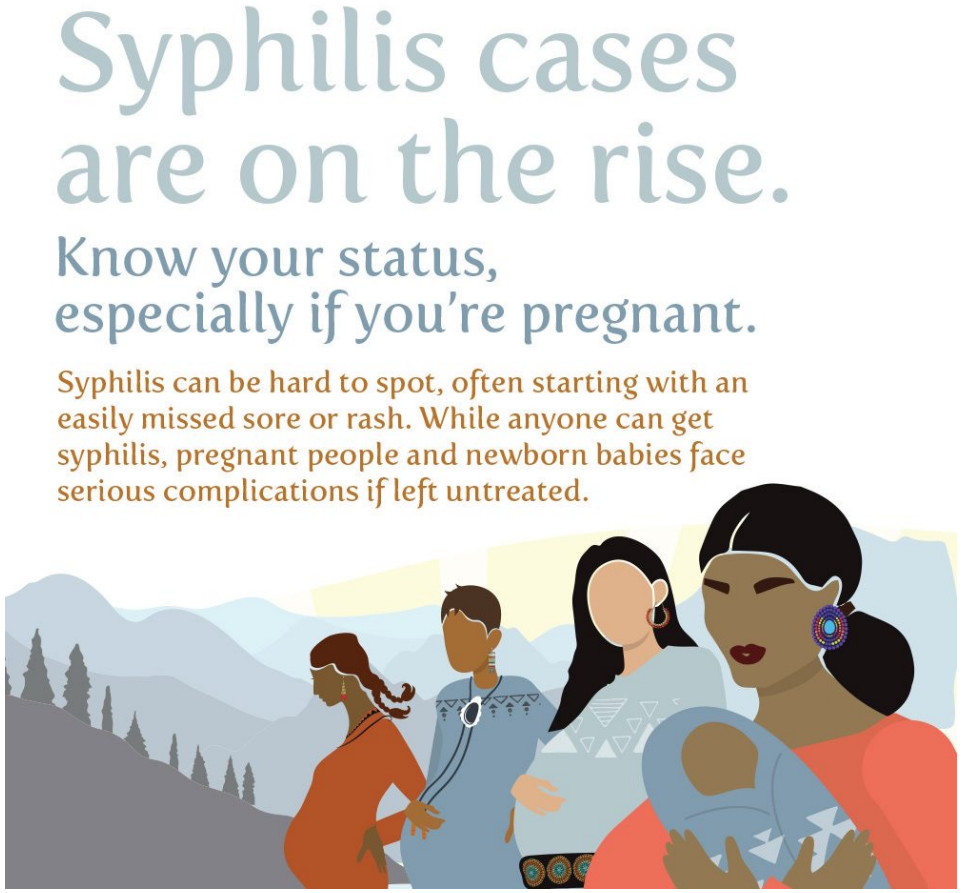
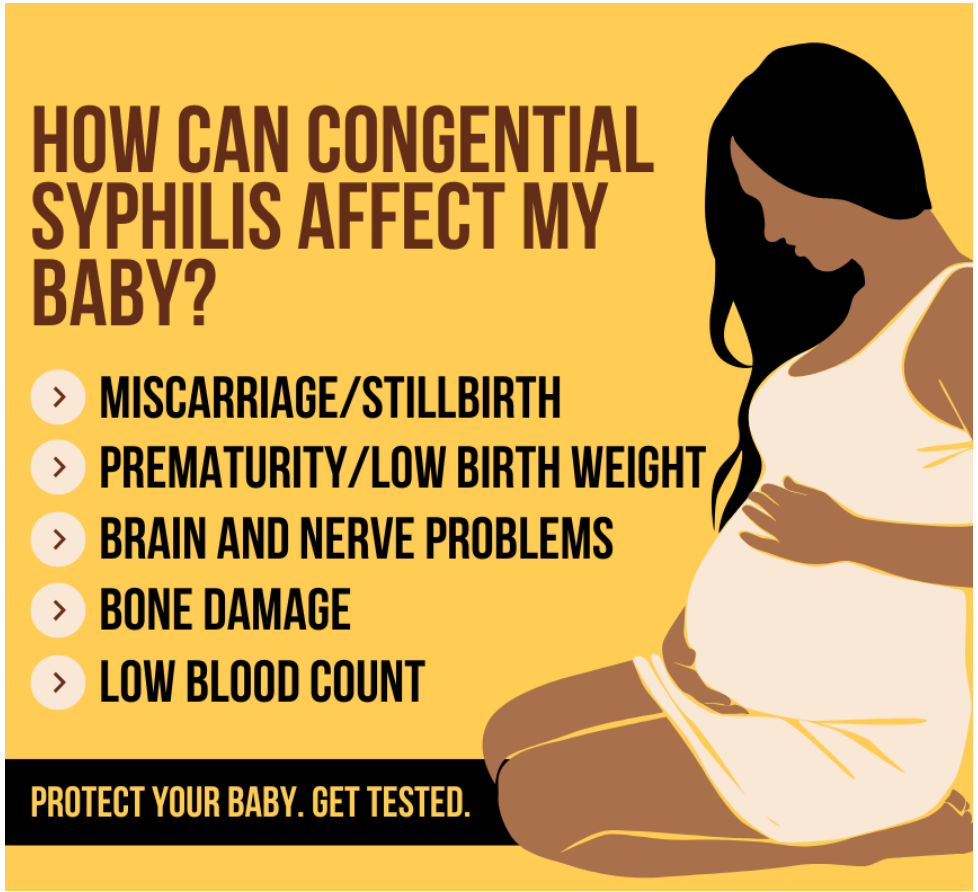
Tina.Pattara-Lau@ihs.gov





Follow-up

Please email the following contact with any questions, concerns, or interest in having a follow-up discussion to learn more about how we can best support your efforts:

David Stephens, BSN, RN
He/him
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Northwest Portland Area Indian Health Board
dstephens@npaihb.org