ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Alaska ID ECHO

December 12, 2023

This ECHO (Extension for Community Healthcare Outcomes) is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided by the HHS Secretary's Minority HIV/AIDS Fund.

AK ID ECHO

Consultant team

- Youssef Barbour, MD Hepatologist
- Leah Besh, PA-C HIV/Hepatology Provider
- Rod Gordon, R.Ph. AAHIVP Pharmacist
- Jacob Gray, MD Infectious Disease Provider
- Annette Hewitt, ANP Hepatology Provider
- Brian McMahon, MD Hepatologist
- Lisa Rea, RN HIV/STI Case Manager
- Lisa Townshend, ANP Hepatology Provider

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Welcome to Alaska Infectious Disease ECHO: HCV, HIV, PrEP, STIs

Approved Provider Statements:

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.
CPE Credit will be posted to the online CPE Monitor system within 60 days following completion of each activity when applicable.

The ANMC Joint Accreditation CE Program Portfolio additionally supports Behavioral Health (APA), Social Work (ASWB-ACE), and Dietitians (CPEU).

Contact Hours:

ANMC designates this activity for a maximum of 12 contact hours, including 3 total pharmacotherapeutics contact hours, commensurate with participation.

Financial Disclosures:

Youssef Barbour, MD and Lisa Townshend-Bulson, APRN / faculty for this educational event, are primary investigators in an ANTHC sponsored hepatitis C study funded in part by Gilead Sciences. All of the relevant financial relationships listed have been mitigated.

Requirements for Successful Completion:

To receive CE credit please make sure you have actively engaged in the entire activity, your attendance is recorded by the facilitator, and complete the course evaluation form found here: https://forms.gle/18t4EgvN2WdnM4P77

For more information contact
jlfielder@anthc.org or (907) 229-1185

ALASKA NATIVE MEDICAL CENTER

Congenital Syphilis

Jorge Mera, MD

Outline

Brief syphilis overview

Congenital syphilis

Clinical cases

Factors Considered to Determine the Diagnosis of Congenital Syphilis

- **Results of maternal syphilis blood test, If diagnosed with syphilis**
  - If it was adequately diagnosed, staged and treated during or before pregnancy
  - If syphilis treatment was initiated 30 days before delivery
  - Results of baby's syphilis blood test
  - Baby's physical exam (spinal tap and imaging results (if needed)

- **A baby born alive with syphilis may be asymptomatic (60 %-90%)**
  - Nevertheless, without immediate treatment, the baby may develop developmental delays, seizures, and death within a few weeks.

- **Untreated syphilis in pregnant people results in infant death in up to 40 percent of cases**

Clinical Case # 1

- **Consult:**
  - You are called to evaluate a neonate born to a 28-year-old AI/AN female who was **diagnosed with syphilis on her 3rd trimester, 60 days before delivery.**

- **At the time of the syphilis diagnosis:**
  - She was asymptomatic and did not have any previous prenatal care visits. Her RPR was 1:16 and Treponema pallidum antibodies were positive. She did not recall ever being tested, diagnosed or treated for syphilis. She was treated with 1 IM dose of 2.4 million units of Benzyl penicillin.

- **At delivery:**
  - Mother’s RPR is 1:8, neonates RPR is 1:64. The neonate's physical exam is normal.

Clinical Case # 1

What clinical scenario of congenital syphilis is this?

A. Scenario 1: Confirmed, proven or highly probable congenital syphilis

B. Scenario 2: Possible congenital syphilis

C. Scenario 3: Congenital syphilis less likely

D. Scenario 4: Congenital syphilis unlikely

Clinical Case # 1

Based on the clinical scenario what is your recommendation?

A. Perform an LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). If these studies are normal just follow serial RPRs on the neonate

B. Treat the neonate with a single dose of 50,000 units of **IM penicillin**

C. Perform LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). Regardless of study results treat the neonate with **penicillin G** IV for a total of 10 days and the mother with IM penicillin 2.4 million U IM/ week x 3 weeks.

D. Treat the mother with IM penicillin 2.4 million U IM/ week x 3 weeks

E. B and D are correct

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

To Answer the Question on Case # 1 You Need to Know the Following

Was the mother properly **diagnosed**, **staged** and **treated** for syphilis?

Was the treatment initiated 30 days before delivery?

Was the neonate's RPR < than 4-fold compared to the mothers RPR (obtained at delivery)?

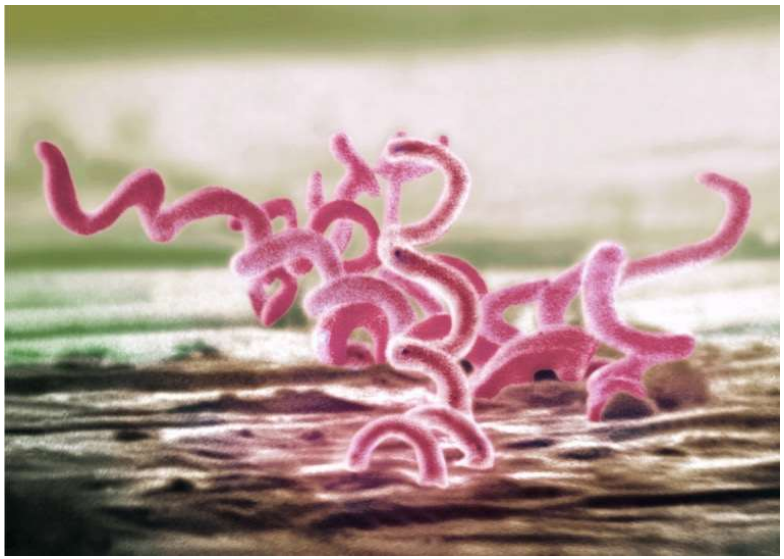
Was the neonate's physical exam normal?

- Does the neonate need any further workup such as LP, imaging, etc.?

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



Case Definitions: Primary Syphilis

Clinical Description

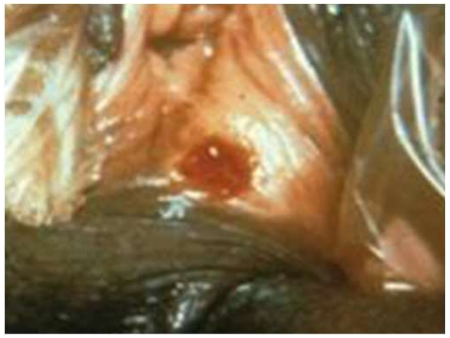
Characterized by one or more ulcerative lesions (e.g. chancre), which might differ in clinical appearance.

Classic Presentation

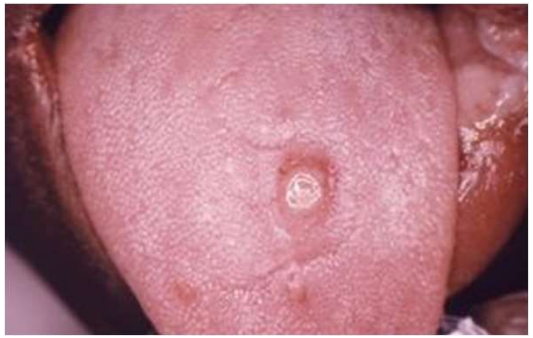
Single painless ulcer or chancre at the site of infection

Atypical Presentation

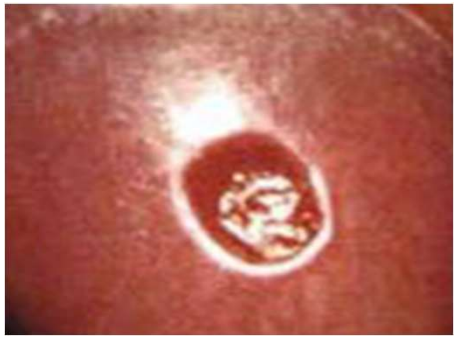
Multiple, atypical, or painful lesions at the site of infection



Vaginal



Tongue



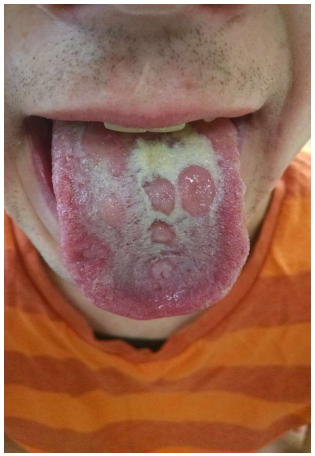
Penile

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

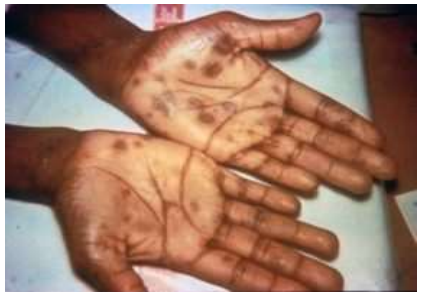
Case Definitions: Secondary Syphilis

Clinical Description

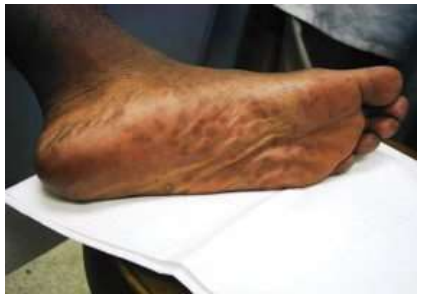
Characterized by localized or diffuse mucocutaneous lesions (e.g., rash – such as non-pruritic macular, maculopapular, papular, or pustular lesions), often with generalized lymphadenopathy. Other signs can include mucous patches, condyloma lata, and alopecia. The primary ulcerative lesion may still be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

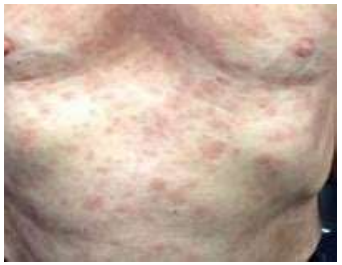


Mucous patches

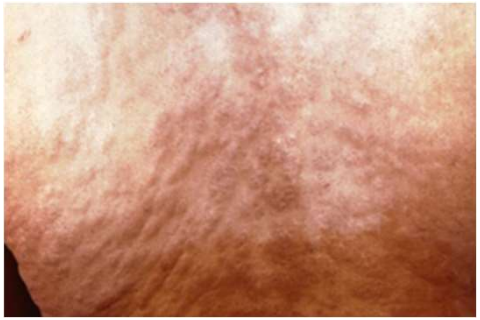


Palmar/plantar rash

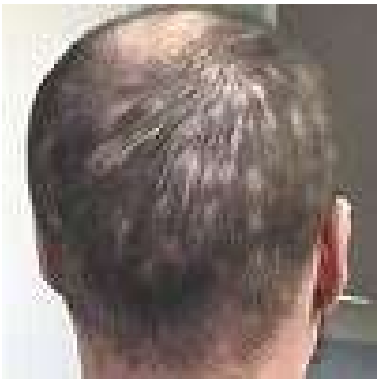




Torso/back rash



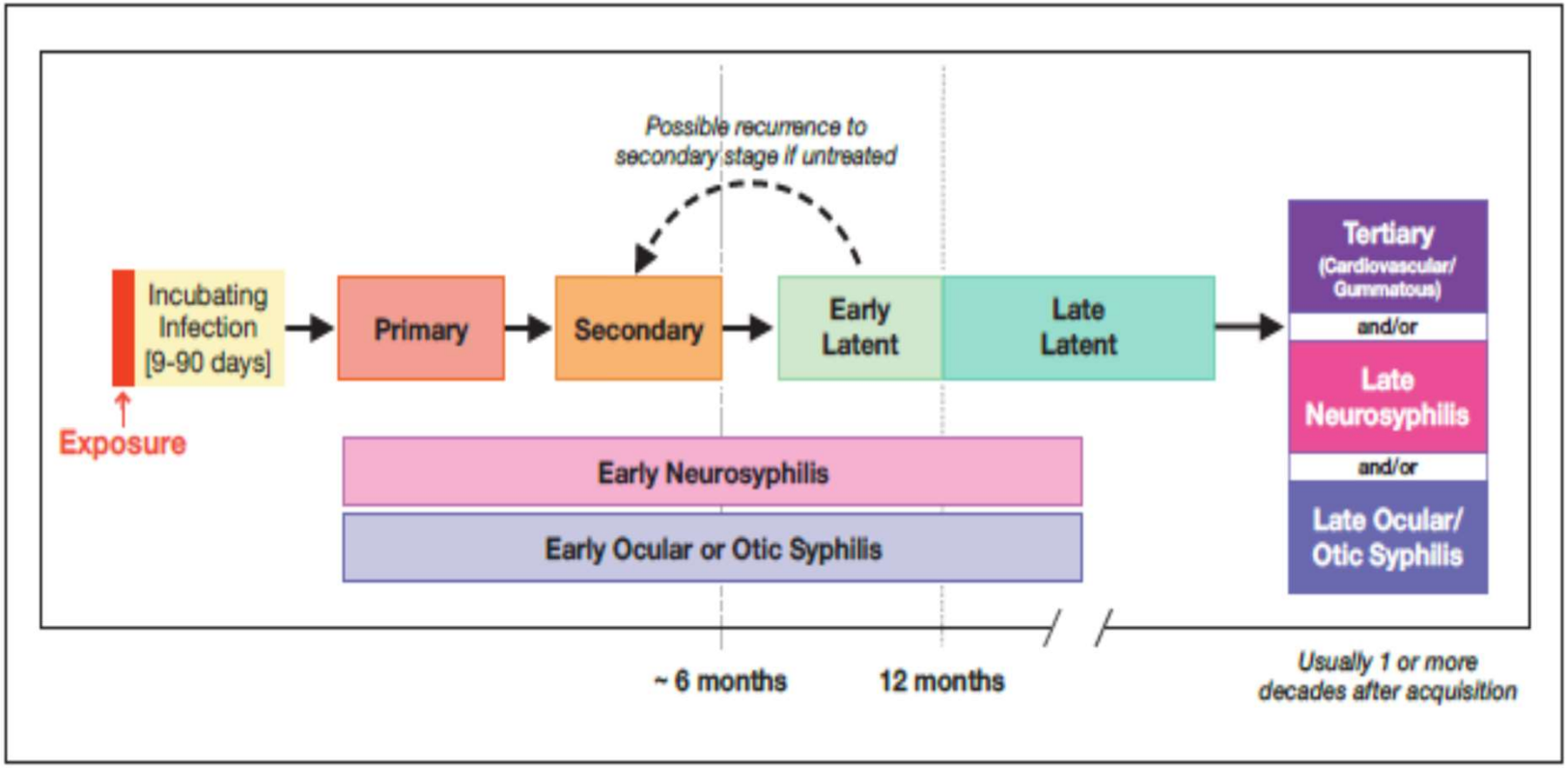
Condyloma lata



Alopecia

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

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: 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
(1) Report of symptoms consistent with syphilis within prior 12 months
OR
(1) 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

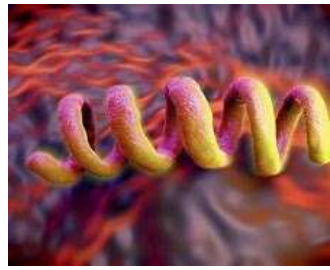
Clinical Description

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
(1) Sexual contact with a known case > 12 months ago
OR
(1) Neurologic, ocular, otic signs without evidence of acquiring infection in prior 12 months.

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



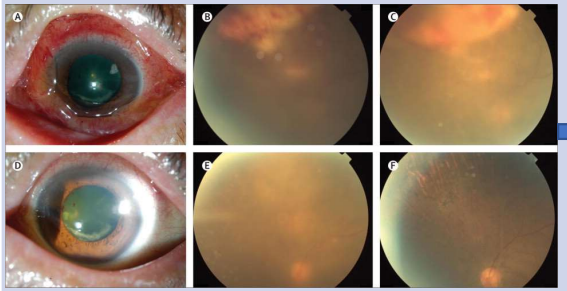
Neurologic Manifestations can occur at any stage

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

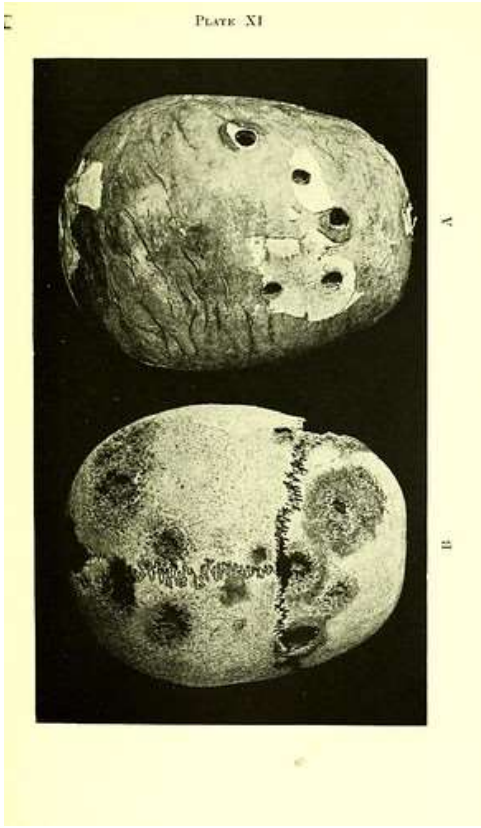
Otic syphilis can result in permanent hearing loss

Late Clinical Manifestations/Tertiary Syphilis

Clinical Description

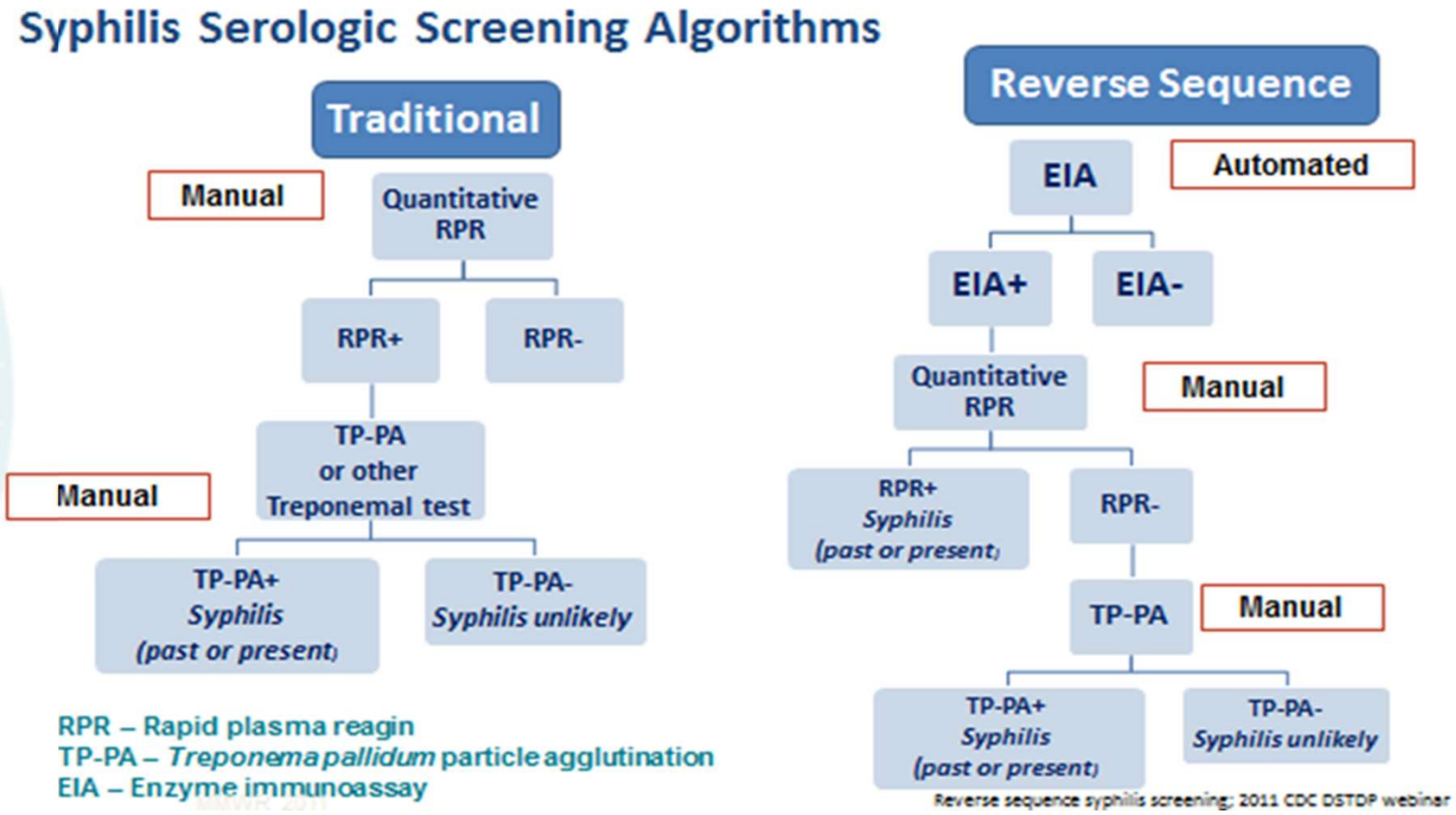
Late clinical manifestations of syphilis (tertiary syphilis) may include inflammatory lesions of:

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



Definitions

- **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.

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

1. Congenitally acquired syphilis among infants and children
2. Syphilitic stillbirths :
   1. 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.**

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

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

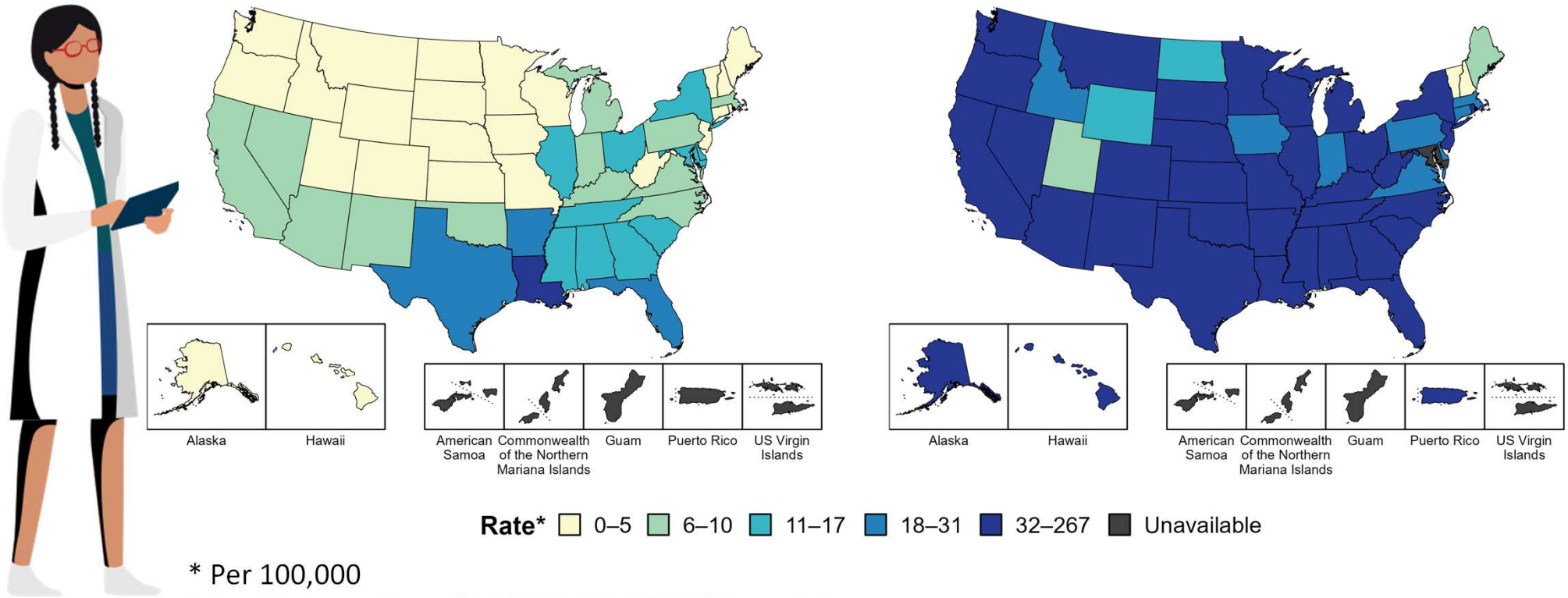
Outline

Brief syphilis overview

Congenital syphilis

Clinical cases

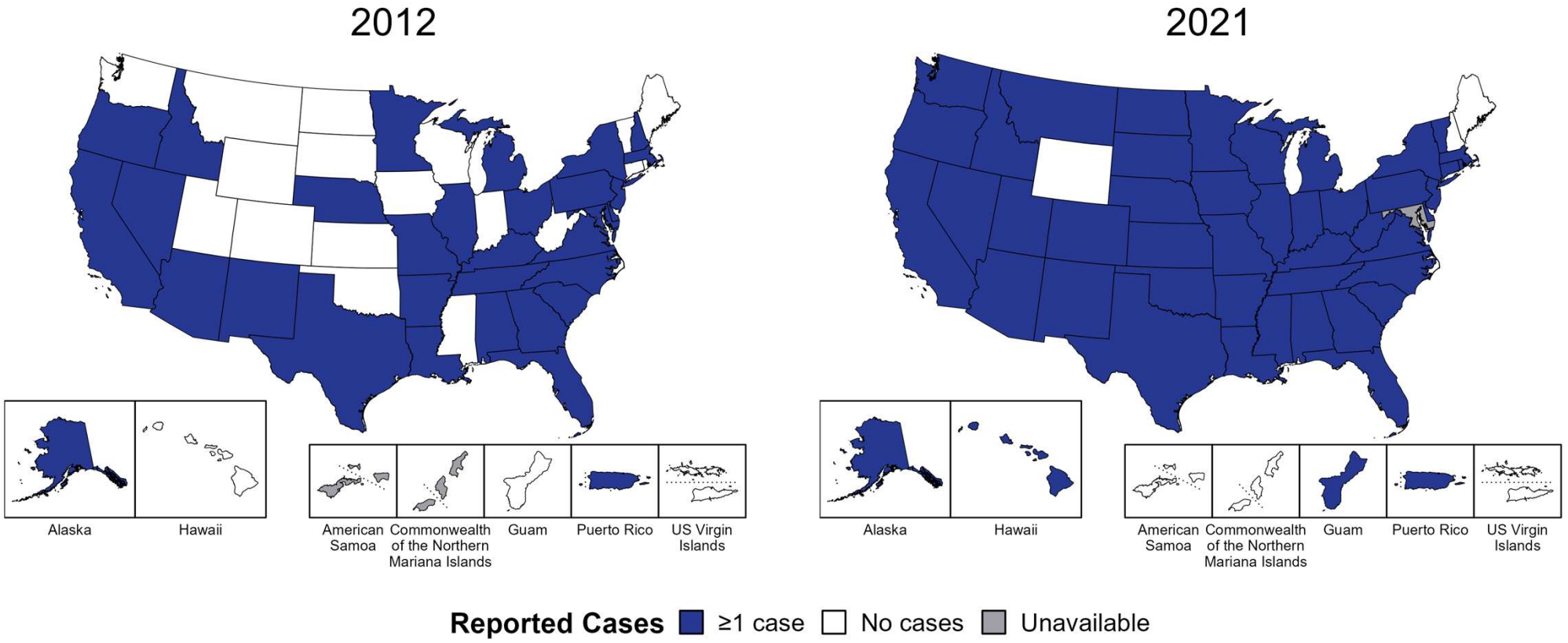
Syphilis (All Stages) – Rates of Reported Cases Among Women Aged 15-44 Years by State, United States and Territories, 2012 and 2021



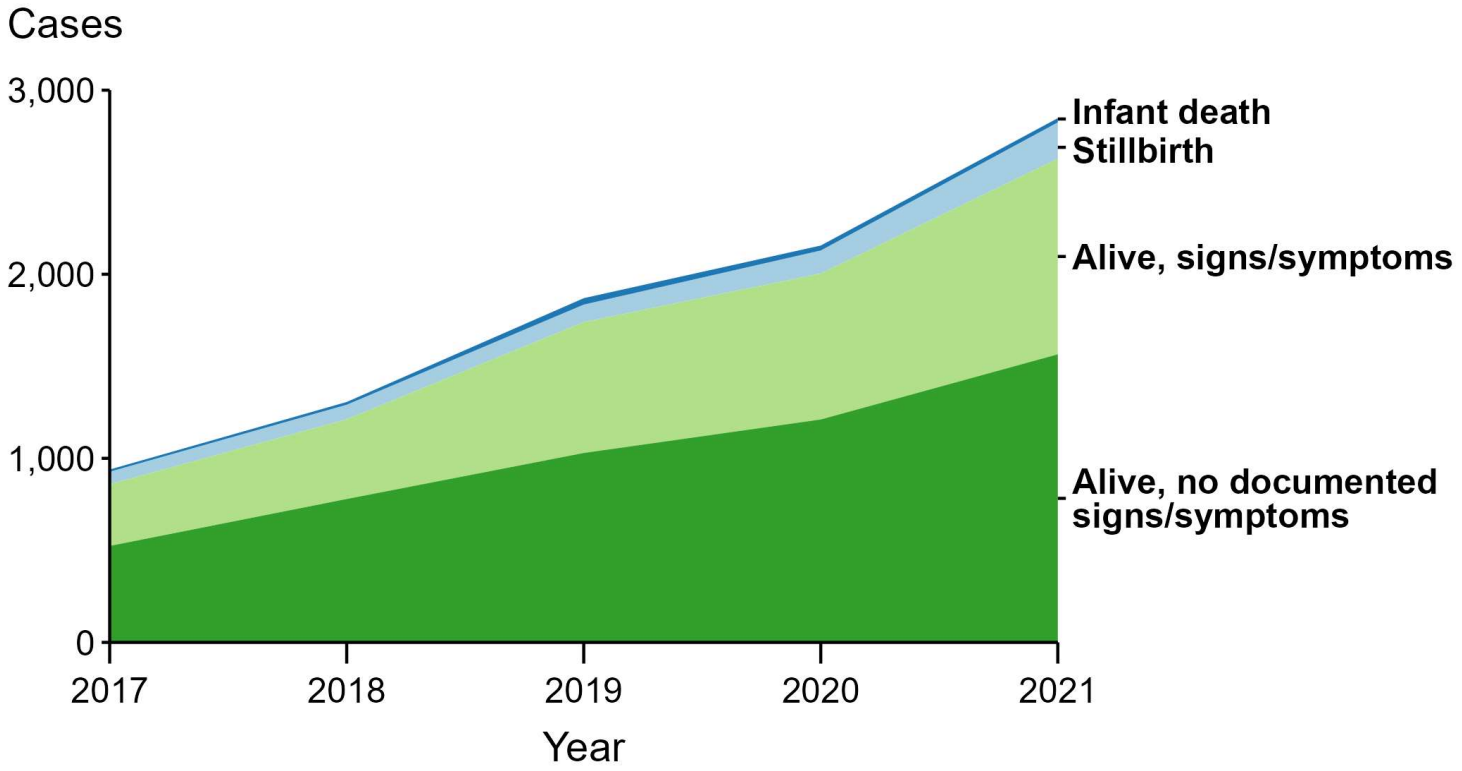
* Per 100,000

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

Congenital Syphilis — Reported Cases by Year of Birth and State, United States and Territories, 2012 and 2021



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



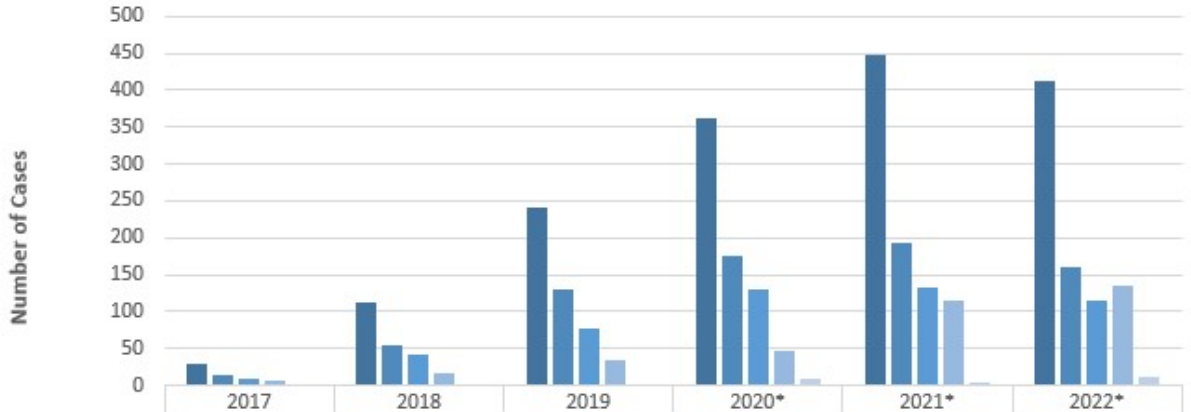
- * Infants with signs/symptoms of congenital syphilis have documentation of at least one of the following: long bone changes consistent with congenital syphilis, snuffles, condylomata lata, syphilitic skin rash, pseudoparalysis, hepatosplenomegaly, edema, jaundice due to syphilitic hepatitis, reactive 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 — 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**
16	Georgia	93	75.0
17	Oregon	27	66.0
18	Alabama	37	63.7
19	Washington	53	63.2
20	Alaska	5	53.4
21	Kentucky	25	47.9

SYPHILIS (2017-2022)

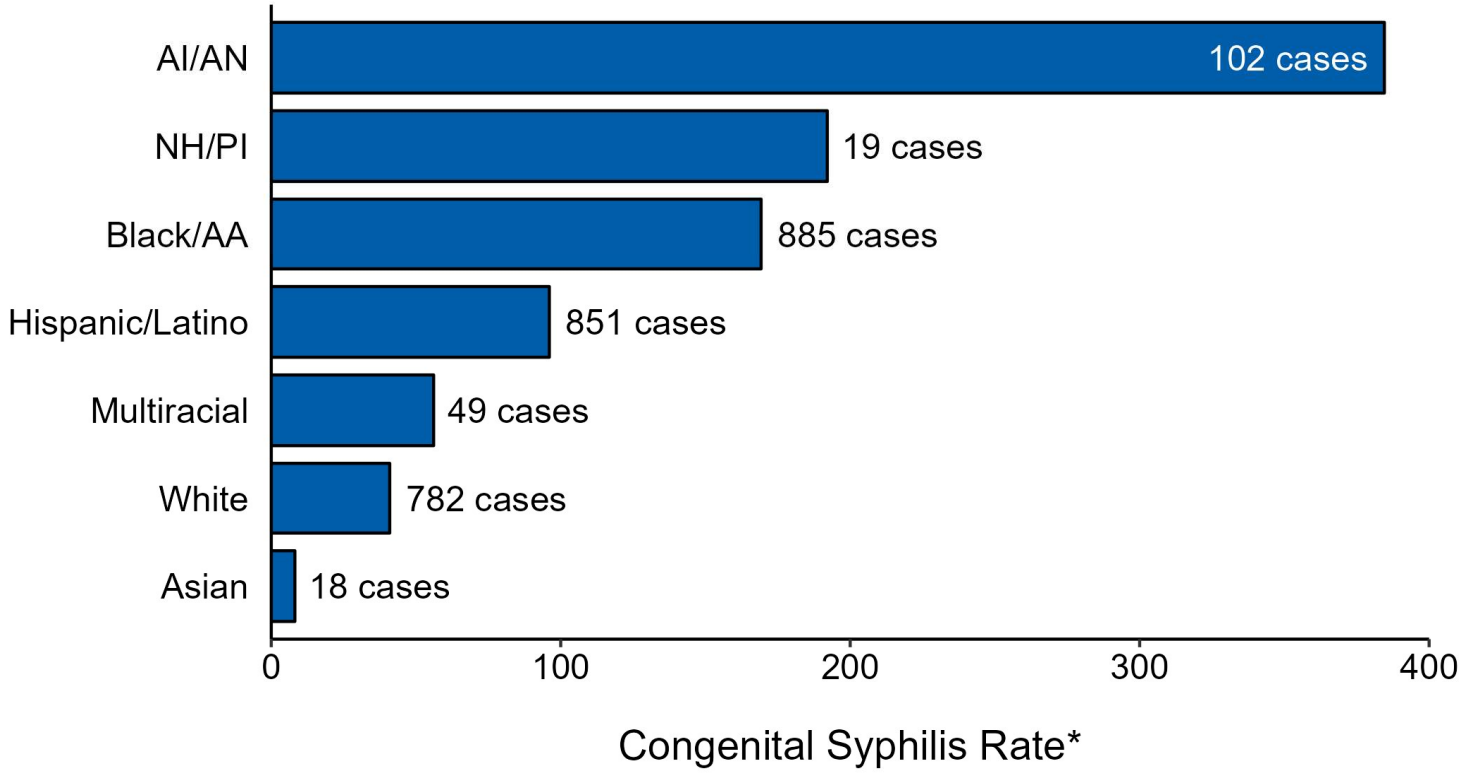
Cases of Syphilis Infection by Stage and Year - Alaska, 2017-2022[5,6,7,8,9]



	2017	2018	2019	2020*	2021*	2022*
Total Cases	28	113	242	361	447	412
Primary and Secondary	13	55	129	176	194	160
Early Non-Primary/Secondary	9	41	78	130	132	116
Late and Unknown Duration	6	16	35	47	116	136
Congenital	0	1	0	8	5	12

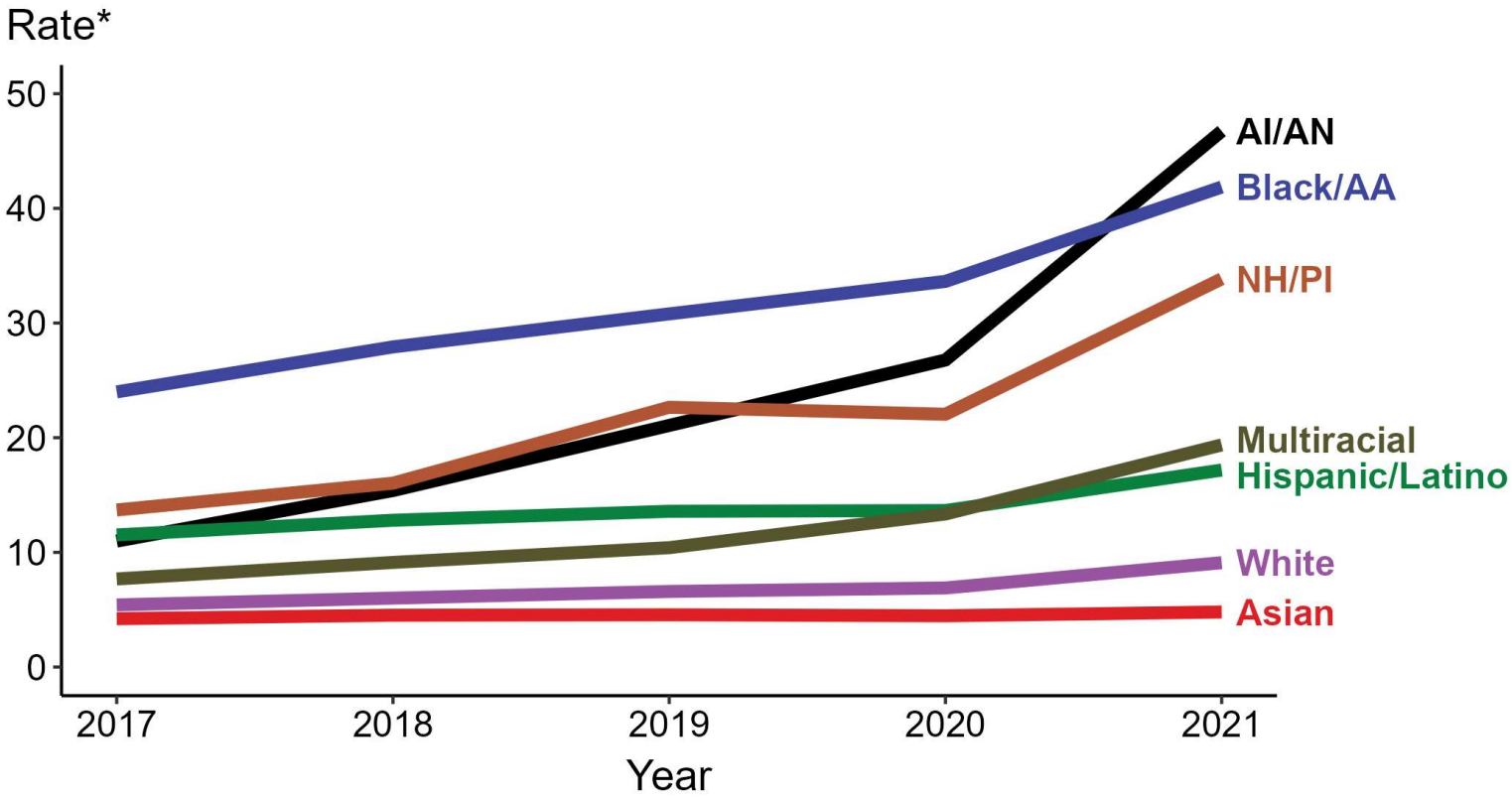
***COVID-19 pandemic - Data should be interpreted with caution due to the impact of COVID-19 pandemic on access to STI testing, prevention, and care-related services.**

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

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

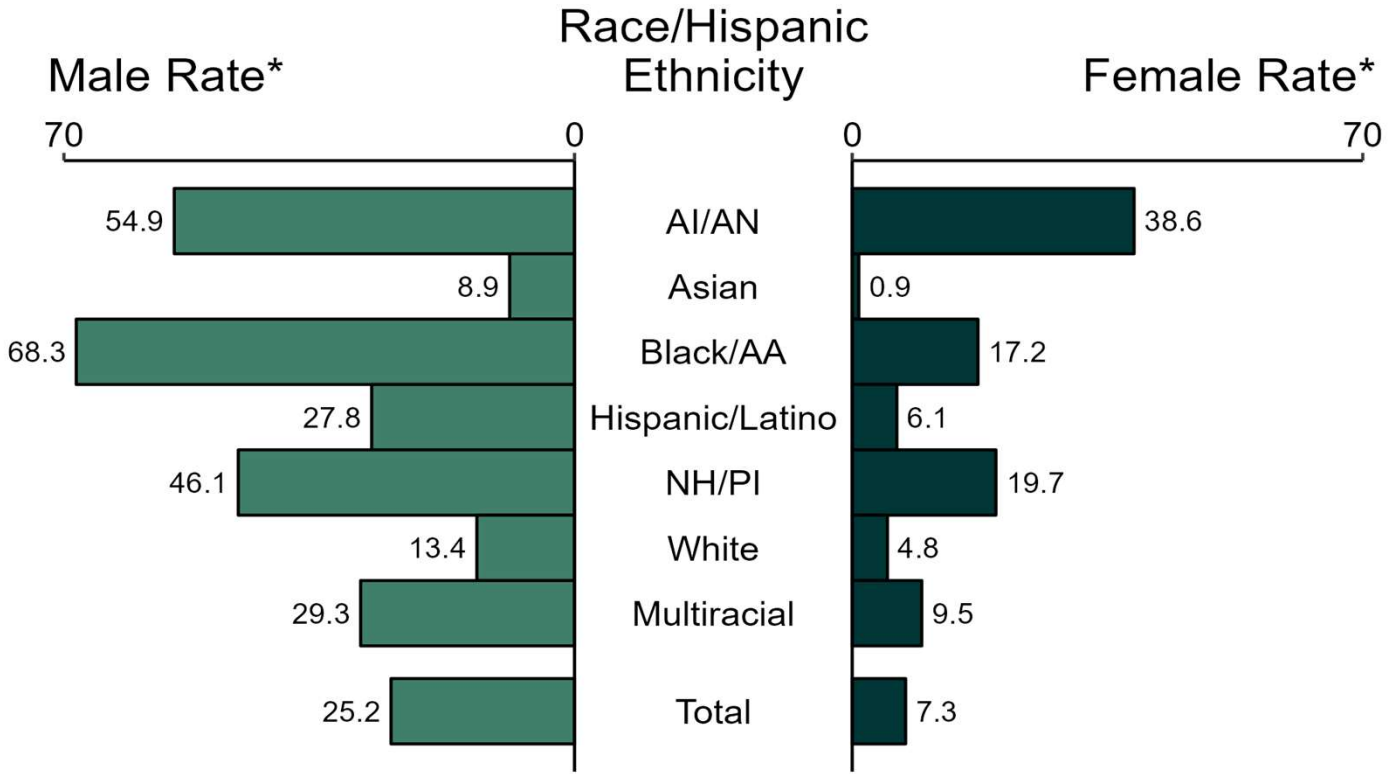


* Per 100,000

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

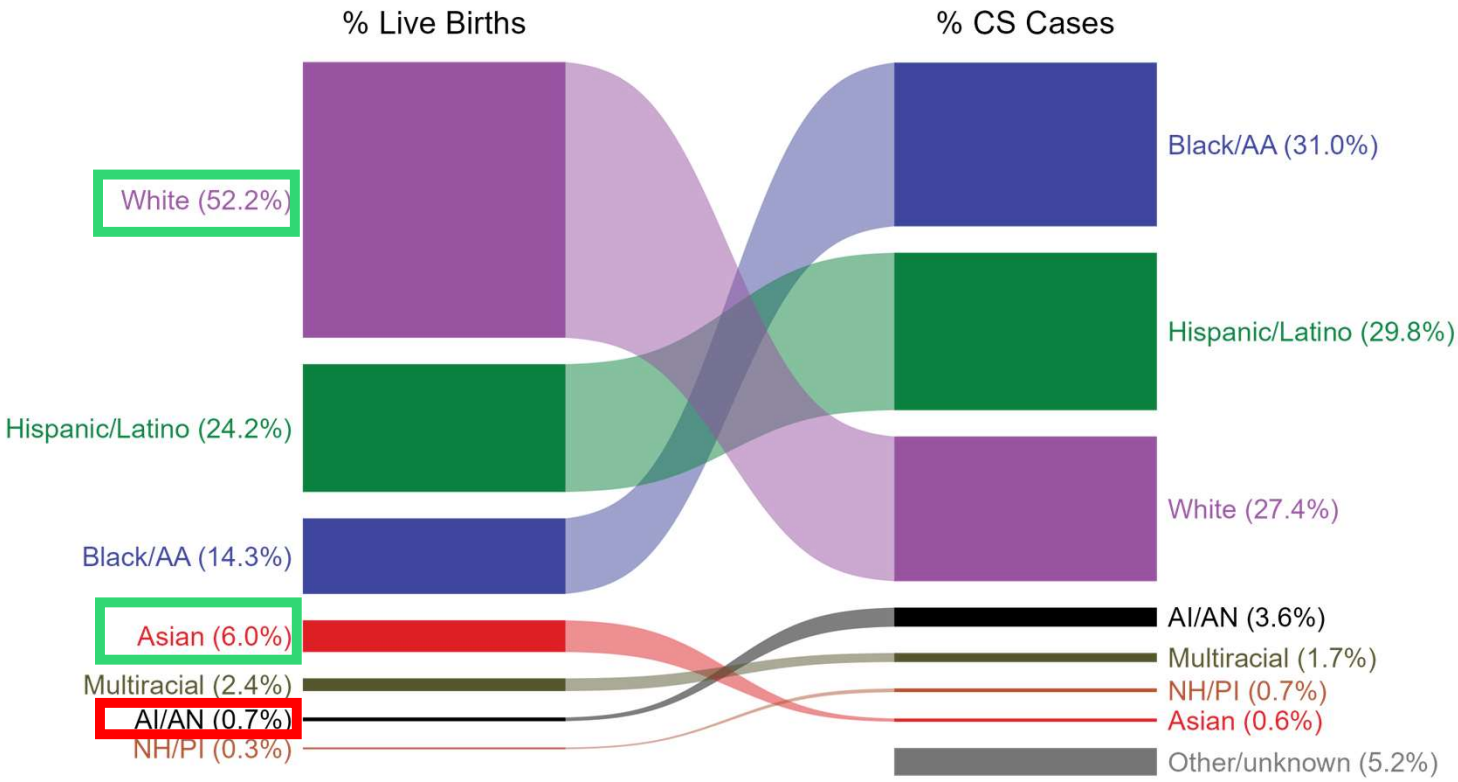
https://www.cdc.gov/std/statistics/2021/figures.htm

Primary and Secondary Syphilis — Rates of Reported Cases by Race/Hispanic Ethnicity and Sex, United States, 2021



* Per 100,000

Congenital Syphilis — Reported Cases by Race/Hispanic Ethnicity of Mother, United States, 2021



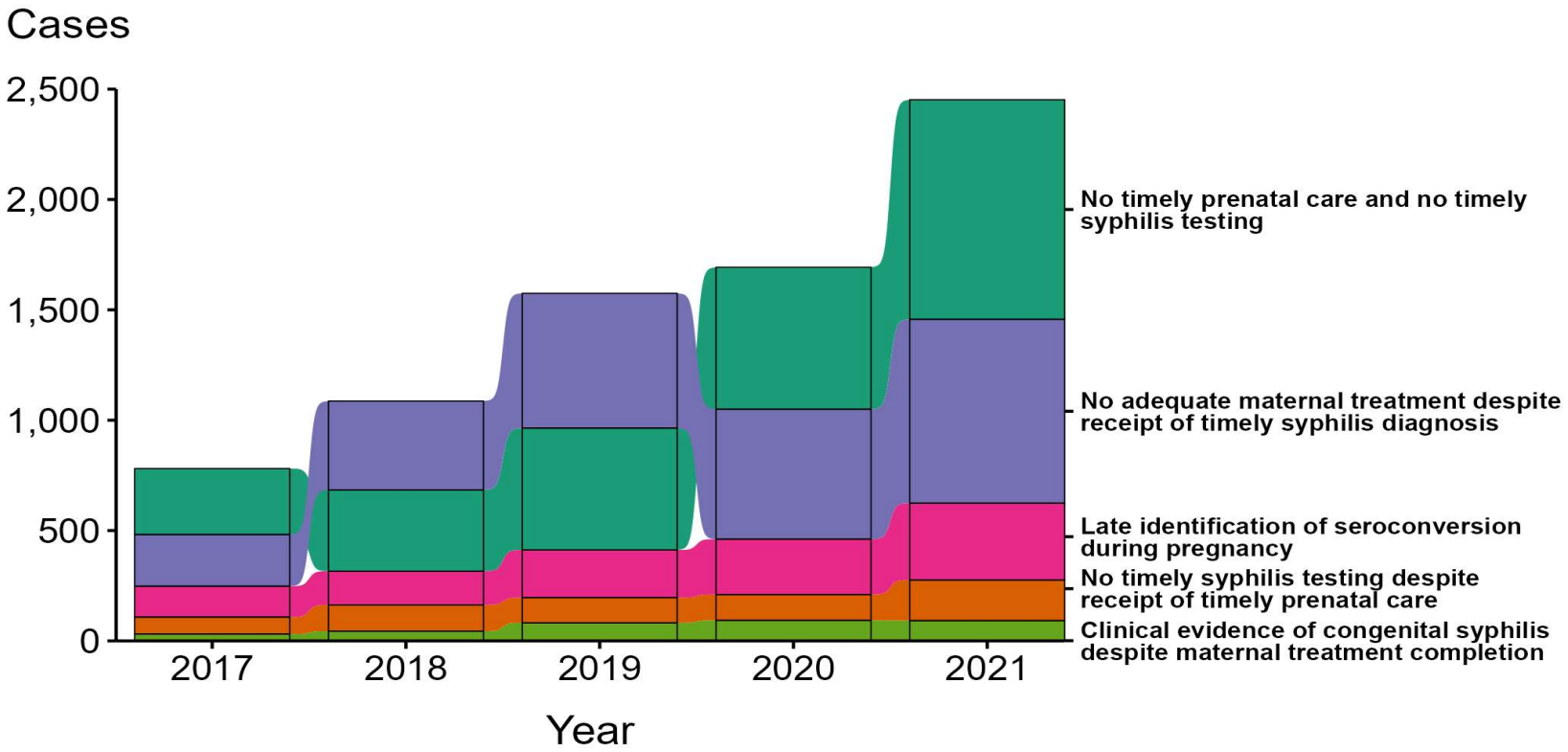
Congenital Syphilis Transmission

- How
  - Transplacental during maternal spirochetemia
  - Direct contact with an infectious lesion during birth
  - Not transferred into breast milk
- When during gestation?
  - At any time during gestation with increasing frequency as gestation advances.
- According to syphilis stage:
  - Primary or secondary syphilis: 60% to 90%
  - Early latent: 40%
  - Late latent syphilis: 10% (2% after four years)

Risk Factors Among Pregnant People from Vulnerable Populations

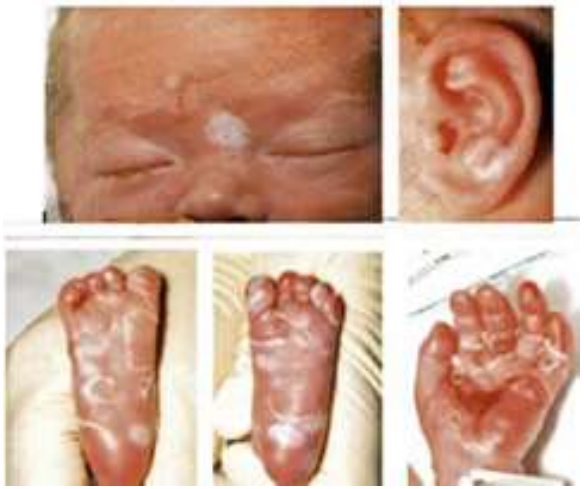
- Risk factors
  - Residence in a community with high syphilis rates (4.6 per 100,000 population)
  - Misusing drugs
  - Having a STI during pregnancy
  - Having more than one or a new sex partner
  - Having a sex partner with an STI
  - Having sex in conjunction with drug use or transactional sex
  - Entering prenatal care during the second trimester or later or no prenatal care
- Social vulnerabilities
  - Unstable housing or homelessness
  - Substance abuse
  - Incarceration (female or partner)

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



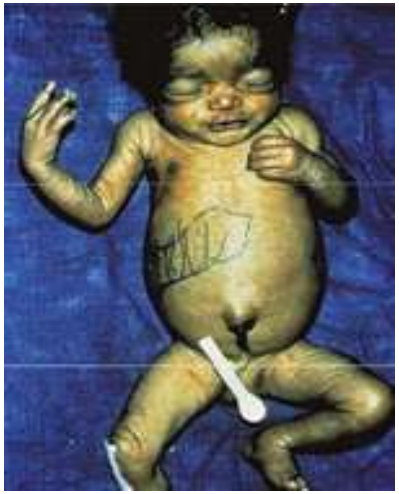
- **NOTE:** Of the 9,141 congenital syphilis cases reported during 2017 to 2021, 1,553 (17.0%) were not able to have the primary missed prevention opportunity identified due to insufficient information provided to CDC related to maternal prenatal care, testing, or treatment.
- https://www.cdc.gov/std/statistics/2021/figures.htm

Clinical Manifestations of Congenital Syphilis (CS)

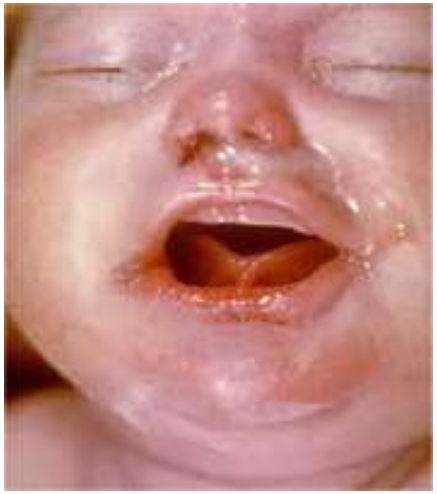


RASH

Maculopapular, in back, buttocks, posterior thighs, palms, and soles. It fades, pigmentation may persist.

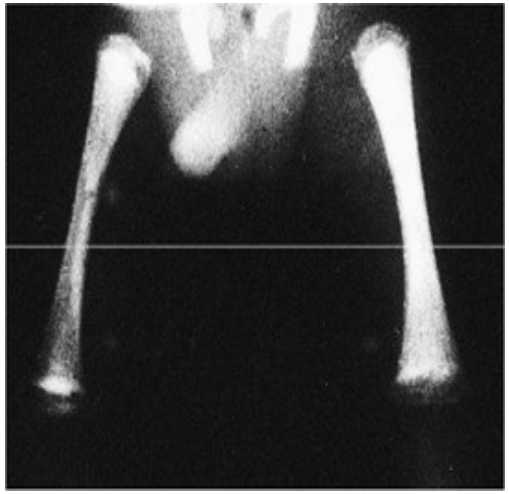


Fetal Hydrops



Syphilitic rhinitis

("snuffles"), develops during the first week after birth and seldom after the third month.



Bilateral, symmetric, and polyostotic

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

Who should be screened for syphilis?

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 CDC recommends

- **Screening for syphilis all pregnant people:**
  - Screen at the first prenatal encounter
- **Pregnant people at high risk of infection:**
  - Repeat screening at 28 to 32 weeks **and** at delivery
- **Pregnant people who have not been screened in pregnancy or who give birth to a stillborn after 20 weeks of gestation:**
  - Screen at delivery

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

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

Congenital Syphilis Scenarios Simplified

- **Scenario 1: Confirmed, proven or highly probable congenital syphilis**
  - *A physical exam consistent with CS OR*
  - *A 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*
- **Scenario 2: Possible congenital syphilis**
  - Mother **not properly treated** during pregnancy
- **Scenario 3: Congenital syphilis less likely**
  - Mother properly treated **during** pregnancy
  - Treatment initiated > 30 days before delivery
- **Scenario 4: Congenital syphilis unlikely**
  - Mother properly treated **before** pregnancy

Scenario 1:
Confirmed, proven or highly probable congenital syphilis

Neonate with:

- *A physical exam consistent with CS*: Hepatomegaly, Jaundice, Nasal discharge ("snuffles"), Rash, Generalized lymphadenopathy, Skeletal abnormalities
- *A 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*

Evaluation:

CSF with VDRL, cell ct, protein, CBC/diff, long bone radiographs, neurologic eval (eye, auditory, imaging)

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

Scenario 2:
Possible congenital syphilis

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.

Evaluation:

CSF analysis for VDRL, cell count, and protein
CBC, differential, long-bone radiographs

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 body wt. single IM injection

Scenario 3:
Congenital syphilis less likely

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**

No evaluation is recommended

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 syphilis or remained stable for low titer, latent syphilis (VDRL <1:2 or RPR <1:4).

Scenario 4:
Congenital syphilis unlikely

Neonate with:

- a normal physical exam
- serum quantitative nontreponemal serology equal to or less than 4-fold mother 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

No evaluation is recommended

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

Clinical Case # 1

- **Consult:**
  - You are called to evaluate a neonate born to a 28-year-old AI/AN female who was **diagnosed with syphilis on her 3rd trimester, 60 days before delivery.**

- **At the time of the syphilis diagnosis:**
  - She was asymptomatic and did not have any previous prenatal care visits. Her RPR was 1:16 and Treponema pallidum antibodies were positive. She did not recall ever being tested, diagnosed or treated for syphilis. She was treated with 1 IM dose of 2.4 million units of Benzyl penicillin.

- **At delivery:**
  - Mother’s RPR is 1:8, neonates RPR is 1:64. The neonate's physical exam is normal.

Clinical Case # 1

What clinical scenario of congenital syphilis is this?

A. Scenario 1: Confirmed, proven or highly probable congenital syphilis

B. Scenario 2: Possible congenital syphilis

C. Scenario 3: Congenital syphilis less likely

D. Scenario 4: Congenital syphilis unlikely

Clinical Case # 1

Based on the clinical scenario what is your recommendation?

A. Perform an LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). If these studies are normal just follow serial RPRs on the neonate

B. Treat the neonate with a single dose of 50,000 units of **IM penicillin**

C. Perform LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). Regardless of study results treat the neonate with **penicillin G** IV for a total of 10 days and the mother with IM penicillin 2.4 million units IM/ week x 3 weeks.

D. Treat the mother with IM penicillin 2.4 million units IM/ week x 3 weeks

E. B and D are correct

To Answer the Question on Case # 1 You Need to Know the Following

Was the mother properly **diagnosed**, **staged** and **treated** for syphilis during pregnancy?

- NO, the mother had no history of primary or secondary syphilis in the past 12 months nor syphilis testing. She was treated as early syphilis and should have been staged as late latent. This places her in scenario 2

Was the treatment initiated 30 days before delivery?

- YES

Was the neonates RPR < than 4-fold compared to the mothers RPR (Obtained at delivery)?

- RPR was reactive and > than 4-fold compared to the mothers RPR: **This automatically places it in scenario 1**

Was the neonate's physical exam normal?

- YES: Scenario 2-4

Based on the information given, does the neonate need any further workup such as LP, imaging, etc.?

- YES: Because the neonate is in scenario1: Confirmed, proven or highly probable congenital syphilis

Clinical Case # 1

What clinical scenario of congenital syphilis is this?

A. Scenario 1: Confirmed, proven or highly probable congenital syphilis

B. Scenario 2: Possible congenital syphilis

C. Scenario 3: Congenital syphilis less likely

D. Scenario 4: Congenital syphilis unlikely

Clinical Case # 1

Based on the clinical scenario what is your recommendation?

A. Perform an LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). If these studies are normal just follow serial RPRs on the neonate

B. Treat the neonate with a single dose of 50,000 units of **IM penicillin**

C. Perform LP on the neonate as well as long bone radiographs and neurologic eval (eye, auditory, imaging). Regardless of study results treat the neonate with **penicillin G** IV for a total of 10 days and the mother with IM penicillin 2.4 million U IM/ week x 3 weeks.

D. Treat the mother with IM penicillin 2.4 million U IM/ week x 3 weeks

E. B and D are correct

Clinical Case # 2

- You are called to evaluate a neonate born to a 24-year-old female who was diagnosed with syphilis on the first trimester of pregnancy.

- At the time of diagnosis, she had a rash that involved trunk, palms and soles. Her RPR was 1:32 and she was treated with 1 IM dose of 2.4 million units of Benzyl penicillin.

- At delivery, the mothers RPR was 1:4 and the neonates was 1:8. The neonate's physical exam is normal.

Clinical Case # 2

What clinical scenario of congenital syphilis is this?

A. Scenario 1: Confirmed, proven or highly probable congenital syphilis

B. Scenario 2: Possible congenital syphilis

C. Scenario 3: Congenital syphilis less likely

D. Scenario 4: Congenital syphilis unlikely

Clinical Case # 2

What is your recommendation?

A. Neonate serial RPRs every 3 months, since the mother was properly treated and neonates RPR is < than 4-fold compared to mothers at delivery

B. Treat the neonate with **penicillin G** for a total of 10 days since RPR is > than mothers

C. Treat the neonate with **penicillin G** IV for a total of 10 days and the mother with IM penicillin 2.4 million U IM/ week x 3 weeks

D. Treat neonate with benzathine penicillin G 50,000 units/kg body weight/dose IM in a single dose

E. A and D are correct

To Answer the Question on Case # You Need to Know the Following

Was the mother properly **diagnosed**, **staged** and **treated** for syphilis during pregnancy?

- YES: the mother had secondary syphilis and was treated properly This places her in scenario 3

Was the treatment initiated 30 days before delivery?

- YES

Was the neonates RPR < than 4-fold compared to the mothers RPR (Obtained at delivery)?

- YES

Was the neonate's physical exam normal?

- YES:

Based on the information given, does the neonate need any further workup such as LP, imaging, etc.?

- NO: Because the neonate is in scenario 3: Congenital syphilis less likely

Clinical Case # 2

What clinical scenario of congenital syphilis is this?

A. Scenario 1: Confirmed, proven or highly probable congenital syphilis

B. Scenario 2: Possible congenital syphilis

C. Scenario 3: Congenital syphilis less likely

D. Scenario 4: Congenital syphilis unlikely

Clinical Case # 2

What is your recommendation?

A. Neonate serial RPRs every 3 months, since the mother was properly treated and neonates RPR is < than 4-fold compared to mothers at delivery

B. Treat the neonate with **penicillin G** for a total of 10 days since RPR is > than mothers

C. Treat the neonate with **penicillin G** IV for a total of 10 days and the mother with IM penicillin 2.4 million U IM/ week x 3 weeks

D. Treat neonate with benzathine penicillin G 50,000 units/kg body weight/dose IM in a single dose

E. A and D are correct (since the scenario is # 3 (Congenital syphilis less likely)

Congenital Syphilis Key Points

- Testing for pregnant people is recommended at the **first prenatal visit, during the third trimester (28 weeks), and at the time of delivery**
- Any person who delivers a **stillborn infant after 20 weeks gestation** should receive testing for syphilis
- You need to stage syphilis properly to avoid failures
- Untreated syphilis in pregnant people results in infant death in **up to 40 percent** of cases
- The best way to prevent congenital syphilis is to prevent, diagnose and treat syphilis before and during pregnancy

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

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:

Jorge Mera, MD
He/him
ECHO Clinic Medical Director
Northwest Portland Area Indian Health Board
jmera@salud.unm.edu

AK ID ECHO

Alaska Infectious Disease ECHO:
HCV, HIV, PrEP and common STIs

- Second Tuesday of every month from noon-1:00 PM AKST
- Jan. 9: Syphilis 101 presented by Jonathan Iralu, MD
- www.anthc.org/ak-id-echo // akidecho@anthc.org

AK LD ECHO

Alaska Liver Disease ECHO

- Third Thursday of Dec. from noon-1:00 PM AKST
- Dec. 21: 2023 Liver Disease ECHO Wrap Up, Resources, Cases and Q&A
- www.anthc.org/ak-ld-echo // akldecho@anthc.org

Indian Country ECHOs

- www.IndianCountryECHO.org
  - Multiple ECHOs hosted by the Northwest Portland Area Indian Health Board

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

ALASKA NATIVE TRIBAL HEALTH CONSORTIUM

Evaluation and Continuing Education Credit

JOINTLY ACCREDITED PROVIDER™
INTERPROFESSIONAL CONTINUING EDUCATION

Approved Provider Statements:

In support of improving patient care, Alaska Native Medical Center (ANMC) is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

The ANMC Joint Accreditation CE Program Portfolio additionally supports Behavioral Health (APA), Social Work (ASWB-ACE), and Dietitians (CPEU).

To claim Continuing Education credit:

- The QR code will connect to the electronic evaluation to claim the CE credit certificate for today's AK ID ECHO.
- A PDF certificate of credit will be automatically emailed to the address provided in the electronic evaluation form.
- The evaluation link will be sent out via email to all registered participants.
- https://forms.gle/18t4EgvN2WdnM4P77

AK ID ECHO Contacts

ANTHC Staff

- Leah Besh PA-C, Program Director: labesh@anthc.org
- Lisa Rea RN, Case Manager: ldrea@anthc.org
- Jennifer Williamson, Program Coordinator: jjwilliamson@anthc.org

ANTHC Early Intervention Services/HIV Program: 907-729-2907

ANTHC Liver Disease and Hepatitis Program: 907-729-1560

Northwest Portland Area Indian Health Board // www.indiancountryecho.org

- David Stephens, Director Indian Country ECHO: dstephens@npaihb.org
- Jessica Leston, Clinical Programs Director: jleston@npaihb.org

ALASKA NATIVE
TRIBAL HEALTH
CONSORTIUM

Thank you!

AK ID ECHO is supported by a grant from the Northwest Portland Area Indian Health Board and funding is provided from the HHS Secretary's Minority HIV/AIDS Fund.