

An Overview of Syphilis in West Virginia

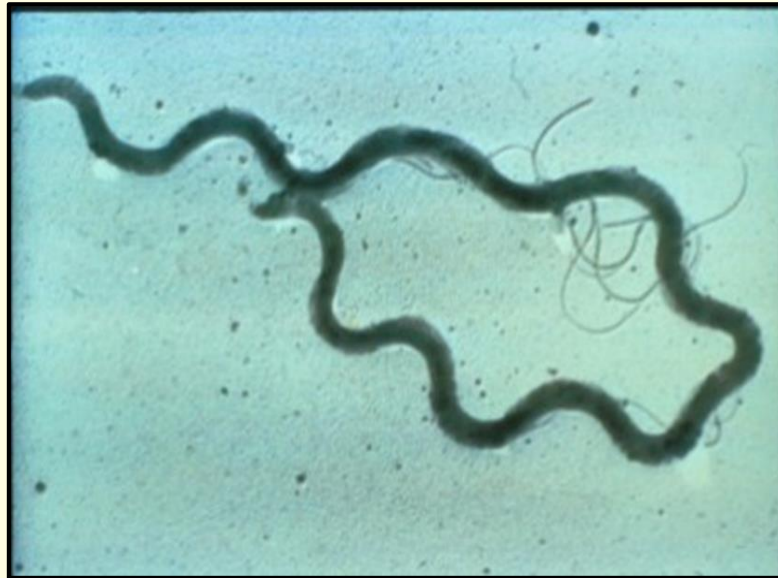
September 2022



Syphilis Background

- Syphilis is caused by the bacteria *Treponema pallidum*
- Occurs in stages and can cause serious health effects without adequate treatment
 - Early syphilis (ES) is when most transmission occurs
- **Transmitted by:**
 - Direct contact with a syphilitic sore (chancre) during anal, vaginal, or oral sex
 - Direct contact with condyloma lata or mucous lesions during anal, vaginal, or oral sex
 - Transplacental (from mother to baby)
- **Congenital syphilis** is reportable to DHHR **within 24 hours**
- All adult **syphilis** is reportable to DHHR **within seven days**

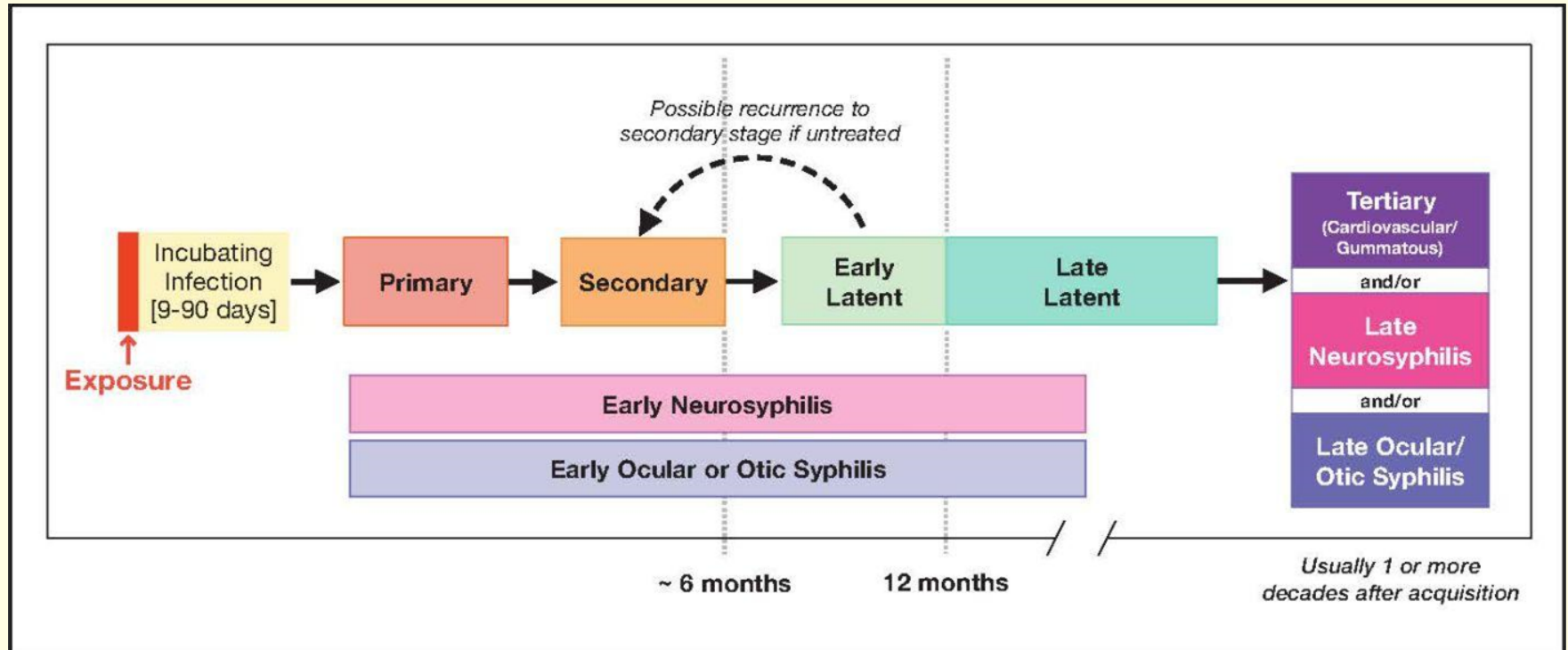
Stages of Syphilis



Stages of Syphilis (cont'd)

- **Primary:** One or more painless ulcerative lesions (i.e., chancre) that develops 9-90 days after infection
- **Secondary:** Localized or diffuse mucocutaneous lesions that occur 3-6 weeks following the primary stage
- **Early Latent:** Asymptomatic stage (less infectious) that occurs 12 months after infection
- **Late/Tertiary Syphilis:** Infection lasting greater than 12 months where transmission is unlikely to occur

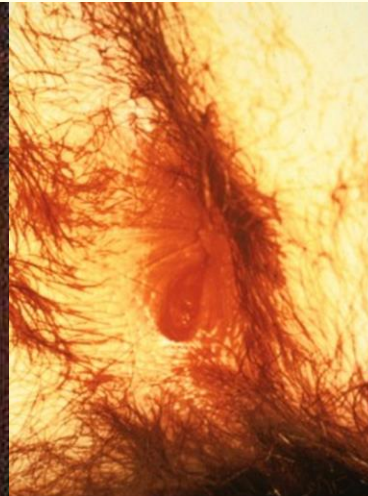
Progression of Untreated Syphilis



Primary Syphilis

- **Primary** is marked by **single or multiple ulcerative lesions** on the genitals, mouth, or anus of an individual.
 - Occurs at the point of inoculation within 9-90 days
- The chancre is **indurated, with a raised edge**
- The chancre is **not painful**, but can be tender in places like the mouth or on the tongue
- They are moist in the center, teeming with spirochaetes
 - **Most infectious** stage of syphilis

Primary Syphilis (cont'd)



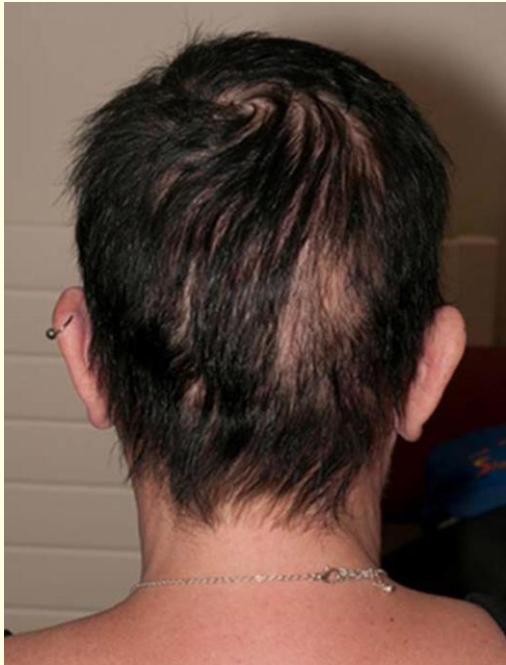
Secondary Syphilis

- Occurs 3-6 weeks after appearance of primary chancre
 - Primary and secondary symptoms can be concurrent, especially among immunocompromised patients
- Secondary syphilis is marked by a variety of possible symptoms that can imitate other diseases
- The patient can have a **body rash**, typically on the torso, but can also be on the hands and feet (palmar-plantar rash).
 - The rash is diffuse, macular-papular, and non-itchy
- Other symptoms of secondary are:
 - Swollen lymph nodes
 - Fever and flu-like symptoms
 - Patchy hair loss (Alopecia)
 - Oral mucous patches
 - Large, fleshy genital warts (condyloma lata)

Secondary Syphilis (cont'd)



Secondary Syphilis (cont'd)



Alopecia



Mucous Patches

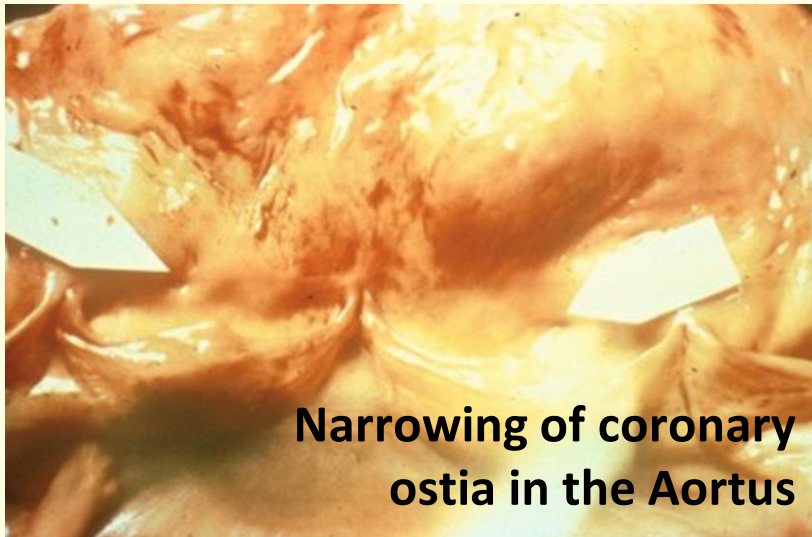


Condyloma lata



Late/Tertiary Syphilis

- Late or tertiary syphilis occurs after 10 or more years after initial infection without any treatment
- Clinical manifestations of late syphilis include:
 - Cardiovascular Disease
 - Gummatous disease of skin or other organs
 - Late neurological complications

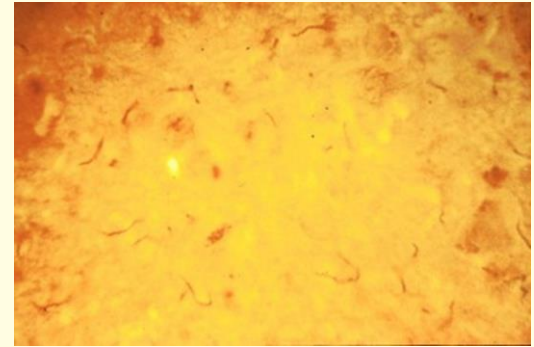


**Narrowing of coronary
ostia in the Aortus**



Ulcerating Gumma

- Neurosyphilis can happen **at any point** in the disease when spirochetes invade neural tissue
- All syphilis patients should be screened for the following:
 - Visual disturbances (blurry or missing spots of vision)
 - Sudden and persistent eye pain
 - Hearing loss
 - Difficulty keeping one's balance while standing
 - Headache that will not go away with medication
- If neurosyphilis is suspected, **refer the patient immediately** to an emergency room, ophthalmologist, or neurologist for further evaluation (based off of severity of symptoms)
 - Send lab results to the referred provider



Congenital Syphilis

- Congenital syphilis (CS) is the vertical transmission of syphilis from mother to baby *in utero*
- CS can cause stillbirth, birth defects, or later disability in children
- CS is a preventable disease, given prompt treatment and follow-up during pregnancy
- Screening Recommendations:
 - Test at first prenatal visit
 - Test at 28-32 weeks gestation
 - Test at delivery
- Any child born to a mother with a history of syphilis should be **tested at delivery**



Testing for Syphilis



Two different serology test types are necessary to verify active syphilis infection:

1. Treponemal

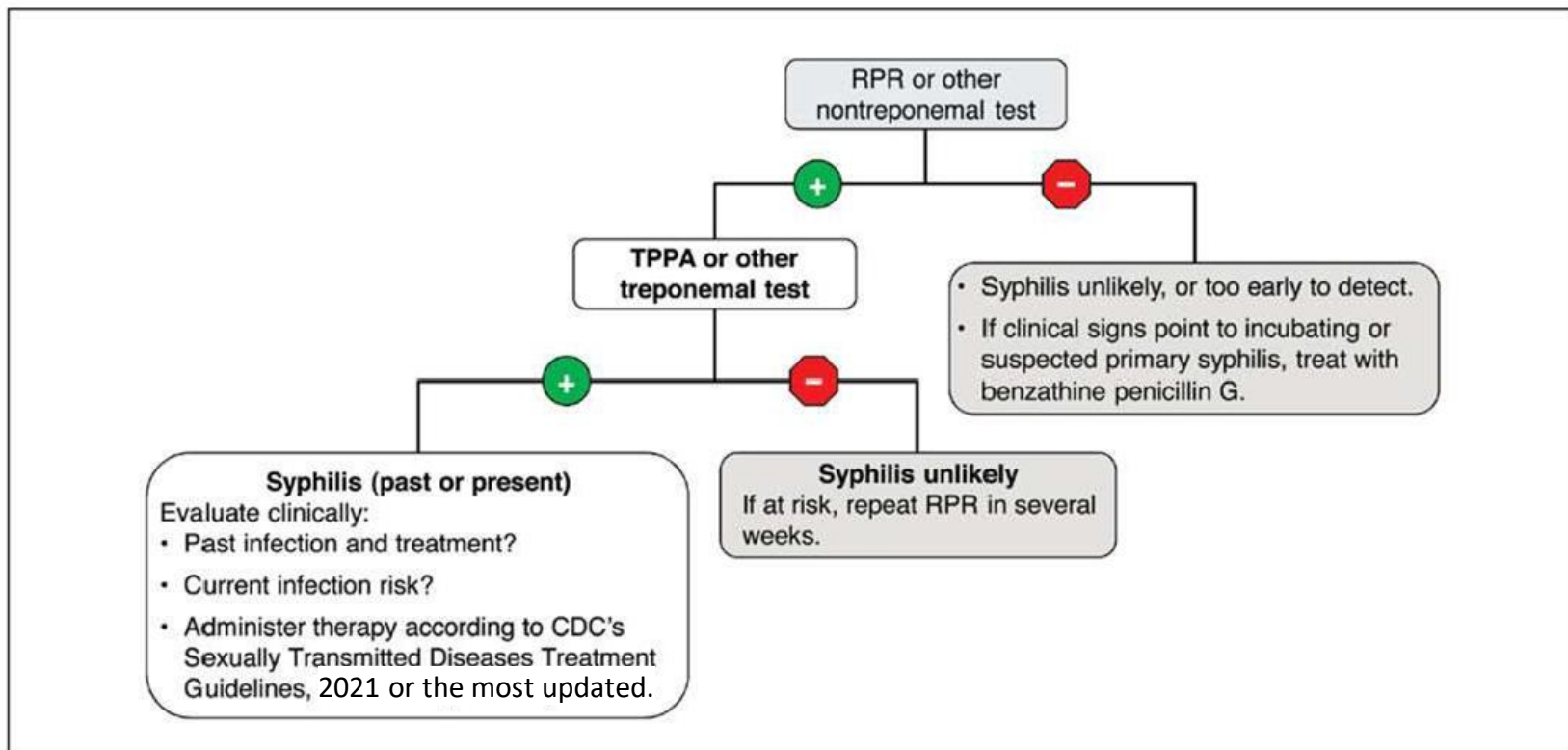
- *T. pallidum* particle agglutination (TP-PA)
- Fluorescent treponemal antibody absorption (FTA-ABS)
- Enzyme immunoassay (EIA)
- Chemiluminescence immunoassay (CIA)

2. Non-Treponemal: *quantitative and qualitative*

- Rapid plasma reagin (RPR)
- Venereal Disease Research Laboratory (VDRL)

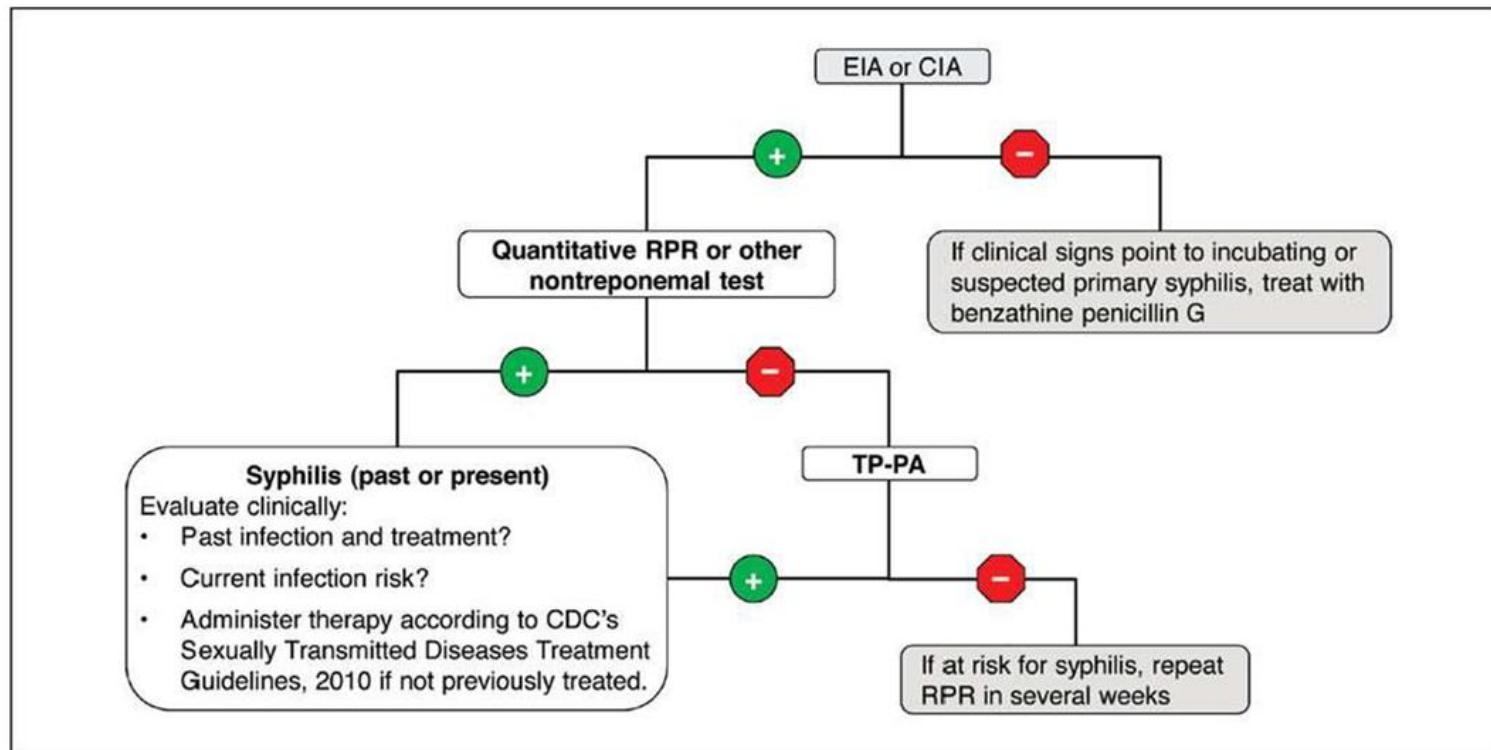
Traditional Testing Algorithm

- Most common sequence of syphilis testing
- Initial nontreponemal test is highly sensitive, thus leading to more false-positive results



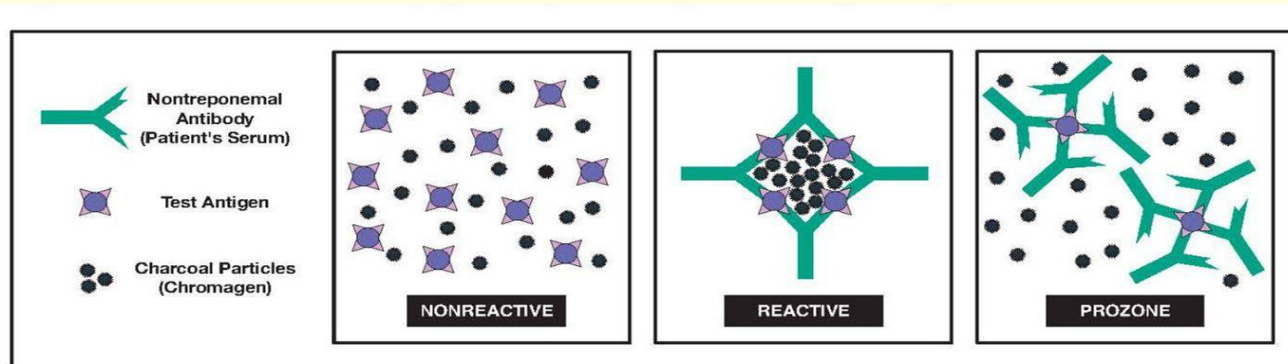
Reverse Testing Algorithm

- Recommended by the Centers for Disease Control and Prevention
- Initial treponemal test is highly specific, and detects more incubating and primary syphilis cases



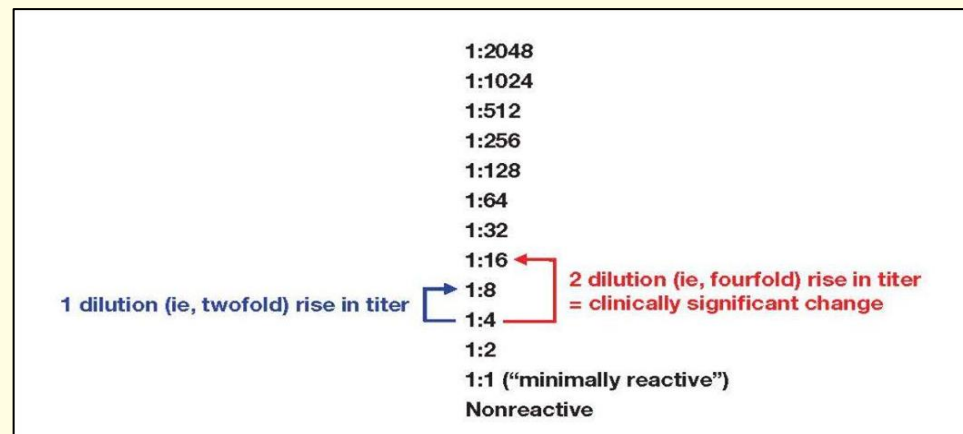
Serologic Testing Limitations

- Once infected, treponemal antibody tests remain positive
 - Exception is a patient who is treated at a very early stage
 - To determine reinfection, monitor the RPR titer for a 2-dilution/fourfold increase
- False positives may occur with the RPR due to autoimmune disease, drug use, pregnancy, etc.
- False negatives may occur with the RPR during secondary syphilis due to the prozone reaction, as there is so much antibody in the sample, it will not react with the reagent
 - If secondary is suspected and RPR is negative, request the lab to dilute the sample before beginning the test



Interpreting Titers for Reinfection

- For patients with a history of syphilis, the quantitative nontreponemal test results must be monitored
- A sustained **2-dilution/fourfold increase** or higher in titer demonstrates a clinically significant difference
 - Whether the rise is due to reinfection or treatment failure, the penicillin regimen needs to be repeated
 - Only compare titers from the same serologic test type
- All positive syphilis results must be reported so that providers can call the state health department to access patient titer history



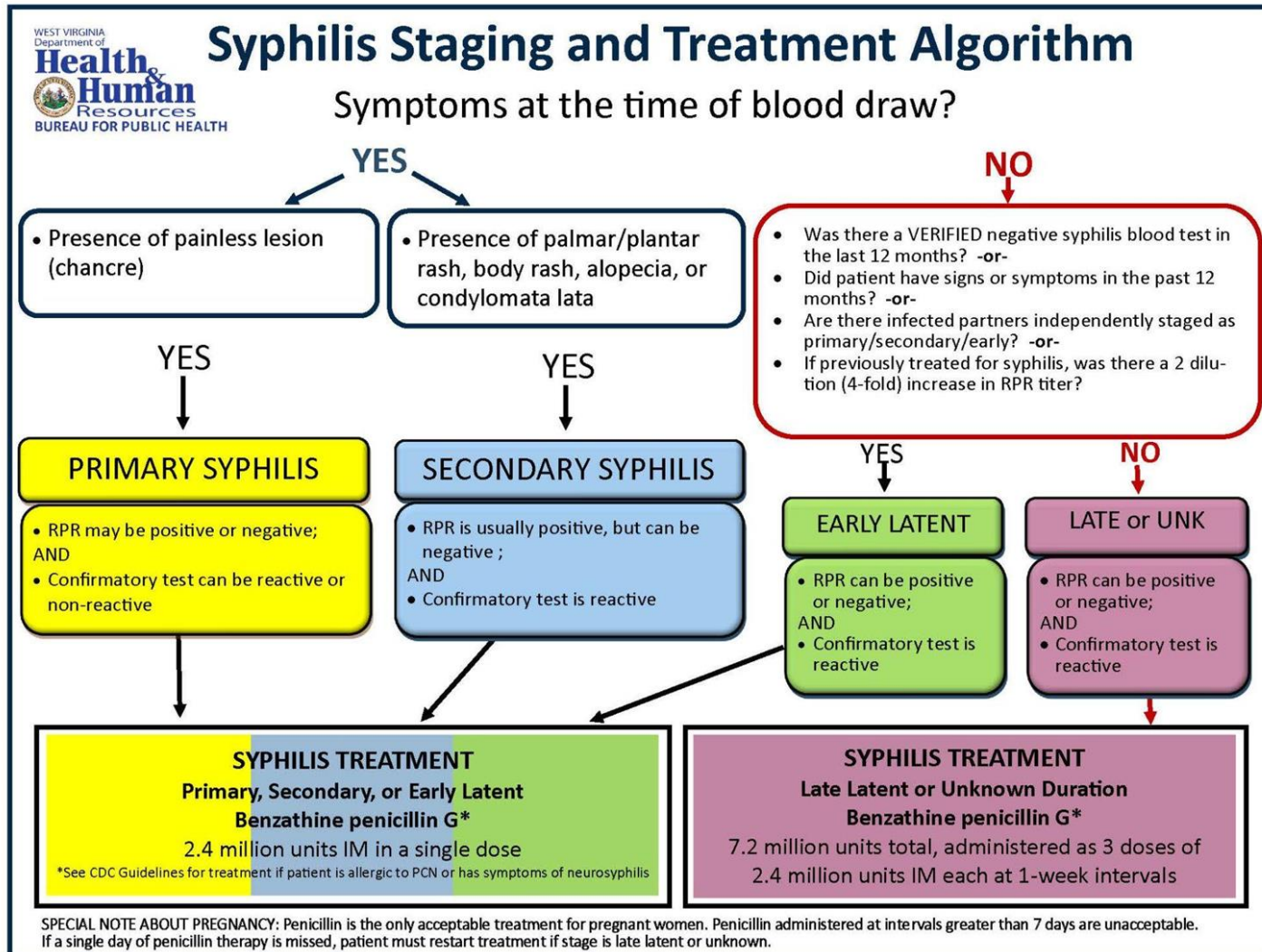
Treating Syphilis



STI Treatment Guidelines

- **Always refer to the latest Sexually Transmitted Infections (STI) Treatment Guidelines:** www.cdc.gov/std/treatment-guidelines/default.htm
- **Long-acting penicillin is the ONLY recommended treatment** for syphilis infection
- If the patient has a clinical/documentated penicillin (PCN) allergy, then doxycycline may be used as an alternative
 - **There is no alternative for pregnant patients**, so desensitization would be necessary
 - People living with HIV (PLWH) should also be considered for desensitization, as documented treatment failure with non-PCN has been reported in this population
- Appropriate treatment regimen is based on staging
- Any patient requiring three doses should be scheduled for administration seven days apart (no more than nine days)

Treatment Algorithm



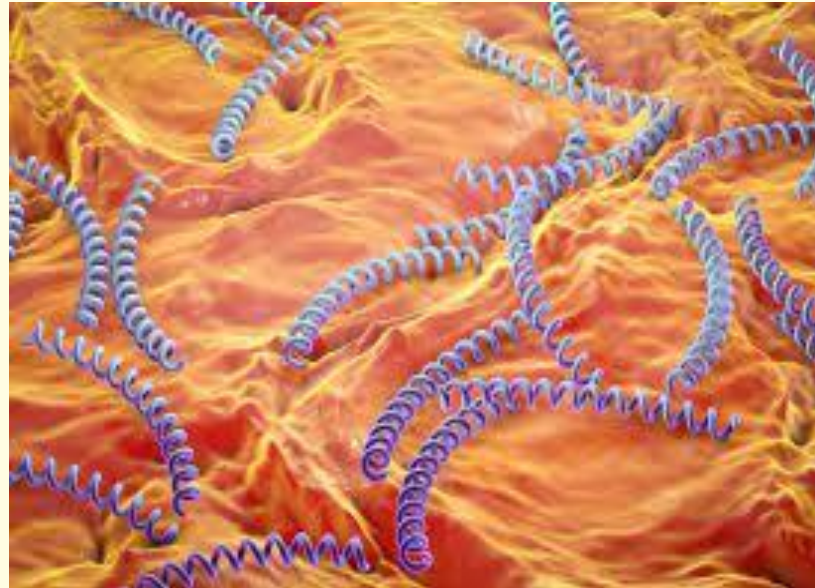
Treating Neurosyphilis

- Recommended: **aqueous crystalline penicillin G 18-24 million units per day IV**, as 3-4 million units IV every four hours or continuous infusion for 10-14 days
- Alternative: **procaine penicillin G 2.4 million units IM once daily & Probenecid 500 mg orally four times a day, both for 14 days** (when follow-up can be assured)
- **Penicillin is the ONLY recommended treatment option for neurosyphilis**
 - For PCN allergy, send patient to an allergist to undergo oral penicillin challenge and desensitization
- For late syphilis patients, additional 2.4 million units benzathine penicillin G IM once a week for 1-3 weeks after completion of neurosyphilis treatment can be considered to provide comparable duration of therapy

Treatment Considerations

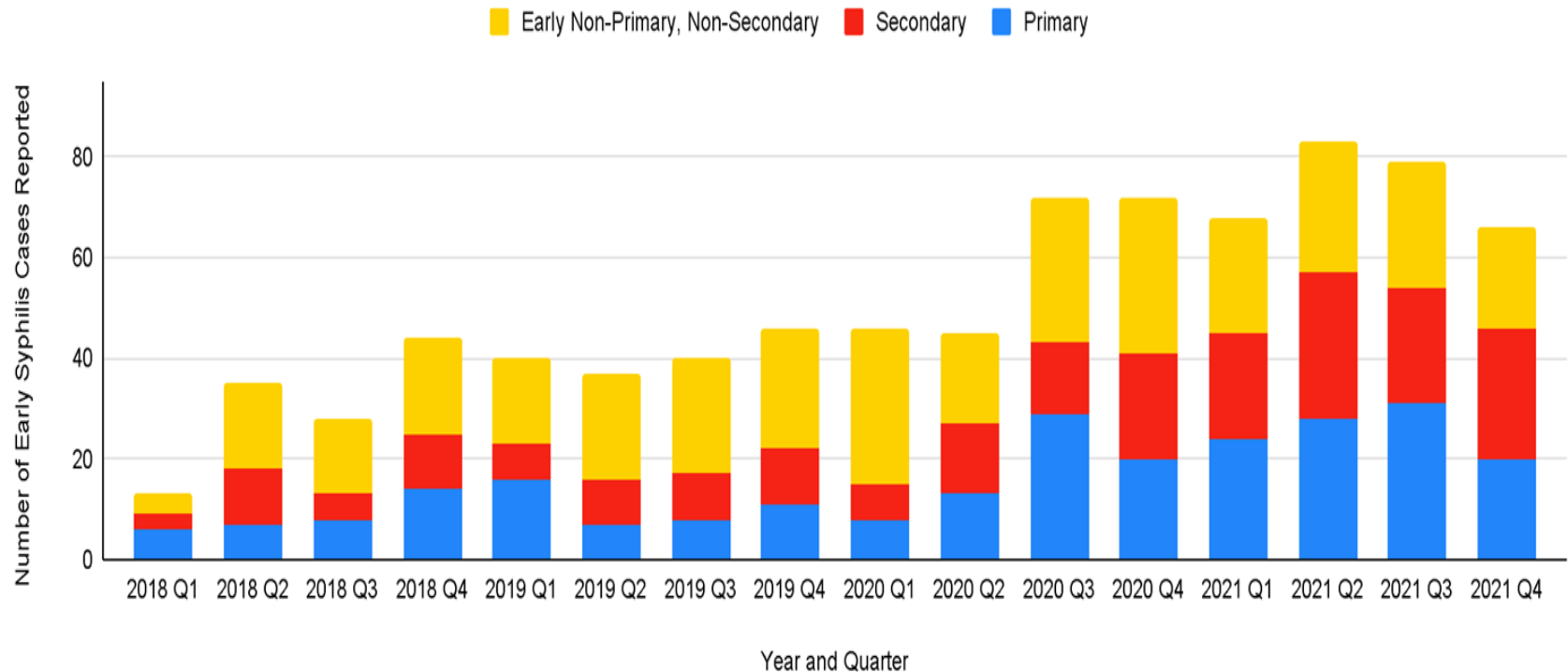
- **Presumptive treatment** should be given to patients presenting with **signs/symptoms of ES** and/or those who had **contact with a partner diagnosed with ES**
 - Treatment should be administered even if serologic test results are negative, results are not immediately available, or if follow-up is uncertain
- **Jarisch-Herxheimer Reaction:**
 - An acute febrile reaction frequently accompanied by headache, myalgia, and fever that can occur within the first 24 hours after initiation of syphilis therapy
 - Most common among patients with early syphilis with high bacterial loads
 - Can induce early labor or cause fetal distress in pregnant women, but should not prevent/delay therapy
 - Antipyretics can be used to manage symptoms, but have not been proven for prevention

Syphilis in West Virginia



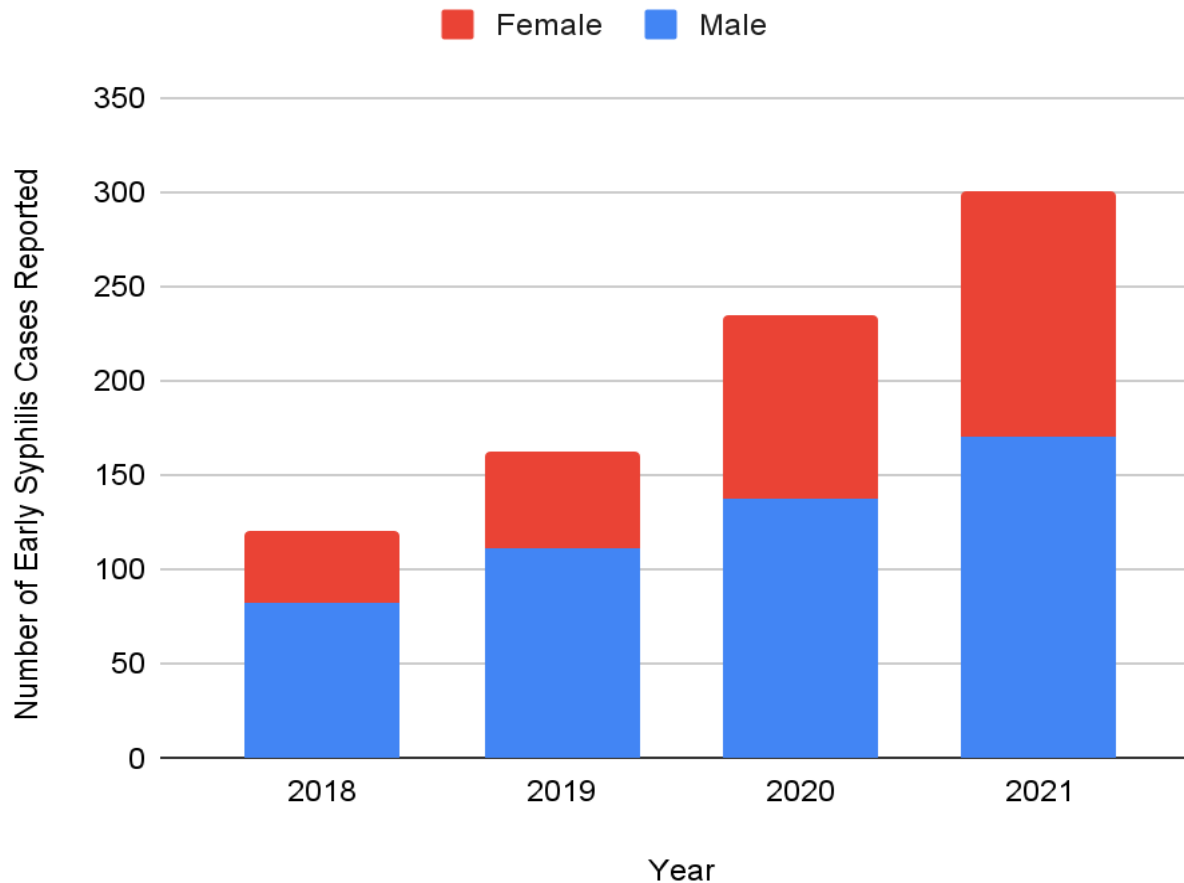
Early Syphilis by Quarter

Early Syphilis by Stage and Quarter, 2018-2021



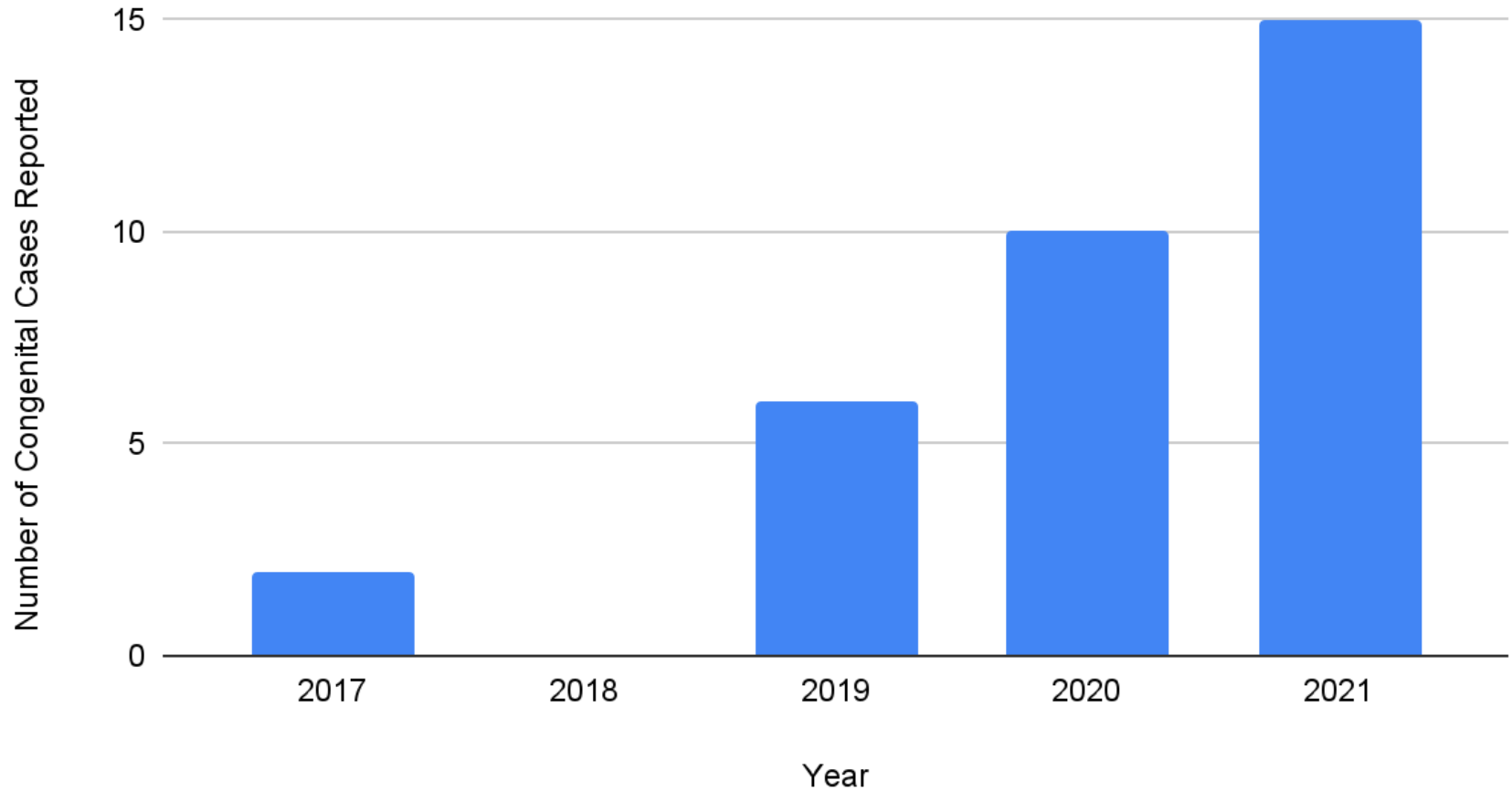
Early Syphilis by Year

Early Syphilis Cases by Sex and Year, 2018-2021



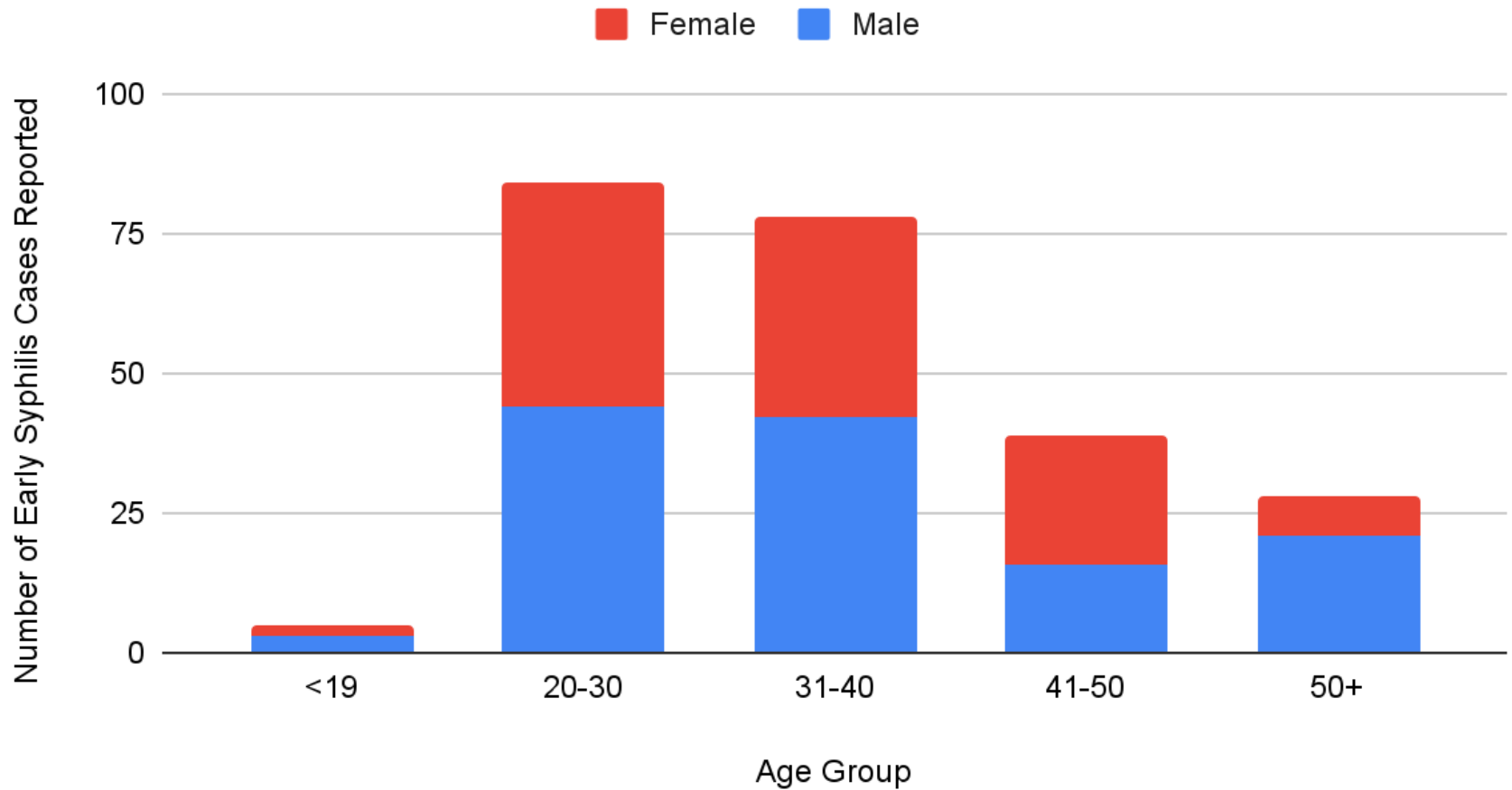
Congenital Syphilis by Year

Congenital Syphilis Cases By Year, 2017-2021

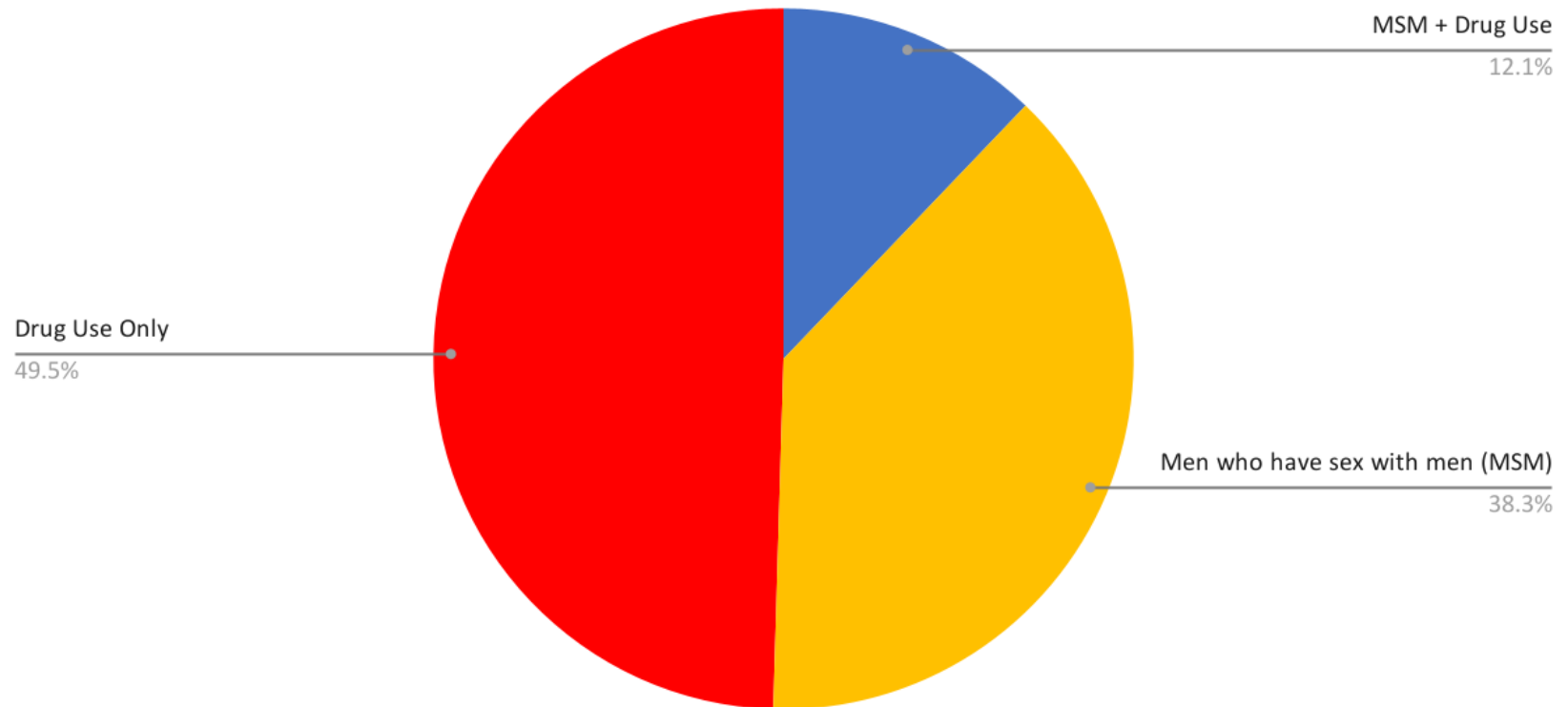


Early Syphilis by Age Group

Early Syphilis Cases by Age Group, 2020



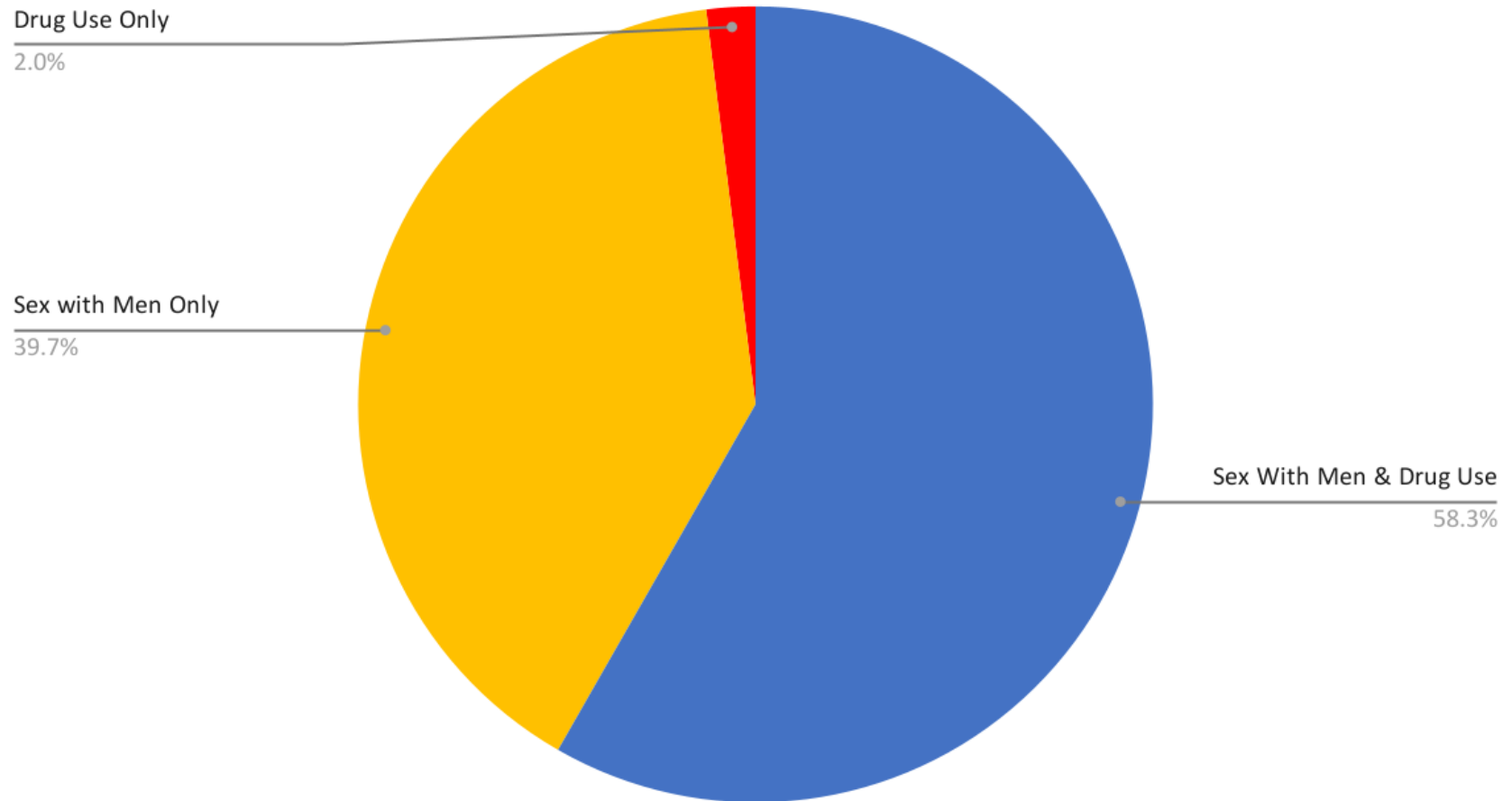
Reported Risk Factors Among Male Syphilis Cases, 2021



Does not include male syphilis cases where risk factor was not reported

Reported Risk: Women

Reported Risk Among Female Syphilis Cases, 2021



Does not include female syphilis cases where risk factor was not reported

Closing Information



Provider Recommendations

- Be aware of local outbreaks and resurgence
 - West Virginia HAN 190 Early Syphilis and Congenital Syphilis
- Report positive lab results and treatment information
 - West Virginia Department of Health and Human Resources Sexually Transmitted Disease (STD) Surveillance Unit
 - Regional Disease Intervention Specialist (DIS)
- Consult with the STD Clinical Consultation Network
 - www.stdccn.org
- Reference the updated STI Treatment Guidelines
 - www.cdc.gov/std/treatment-guidelines/default.htm
- Know the screening recommendations for high-risk populations
 - People with substance use disorder (PWSUD)
 - Men who have sex with Men (MSM)
 - Pregnant patients

References

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- The Intersection Between HIV and Syphilis in Men Who Have Sex with Men: Some Fresh Perspectives. Fraser Drummond, Rebecca Guy, John M Kaldor, Basil Donovan. *HIV Ther.* 2010;4(6):661-673

Contact Information

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