



ADVANCING INTEGRATED HEALTHCARE

# Best Practices in Addressing Sexually Transmitted Infections (STI) in Primary Care: ECHO® Learning Series

## Session two: Syphilis

Date: October 23, 2024

*PLEASE NOTE: Project ECHO case consultations do not create or otherwise establish a provider-patient relationship between any clinician and any patient whose case is being presented in a project ECHO setting*

*Care Transformation Collaborative of RI*

# Agenda

Time	Topic	Presenter
7:30-7:35 AM	Welcome, Introductions, Overview	Yolanda Bowes, CTC-RI
7:35-8:00 AM	Syphilis	Erica Hardy, Warren Alpert Medical School of Brown University, Women & Infants Hospital, and Care New England
8:00-8:20 AM	Case Presentation	Beth Lange, MD FAAP
8:20-8:30 AM	Discussion & Questions	Yolanda Bowes, CTC-RI

# Welcome

- The didactic portion of today's session will be recorded for educational purposes and to enhance quality improvement.
- Case presentations will not be recorded, in consideration of confidentiality and respect for sensitive information.
- Please refrain from sharing any protected health information (PHI) or other sensitive information during the session.
- We kindly ask all participants to be respectful of their peers by adhering to the following guidelines:

- Please enable your video when possible, so we can foster a more engaging & collaborative environment
- Enter your name and organization in the chat box upon joining the session

Introduce Yourself



- Please keep your microphone muted when not actively speaking to minimize background noise & interruptions

Microphones



# Best Practices in Addressing Sexually

## Transmitted Infections (STI) in Primary Care

### Quality Improvement Initiative



- CTC-RI, with support from UnitedHealthcare, is offering the chance to receive \$7,000 in funding for up to six primary care practices (pediatric, adult, family medicine, and college health).
- This 6-month Quality Improvement Initiative aims to enhance chlamydia and gonorrhea screening rates and implement best-practice STI strategies. Practices that meet improvement benchmarks based on baseline data are also eligible for an additional \$1,500 stipend.

**Application Deadline: November 15, 2024, by 5:00 PM.**

For more information on project goals, background, and requirements, please read the full [Call For Applications Document](#).

# Case Presentation Schedule



ADVANCING INTEGRATED HEALTHCARE

Date	Topic	Didactic Presenter	Case Presenter
9/25/24	Sexual Health & Confidentiality <i>Health Disparities, Sexual History, Counseling</i>	Jack Rusley MD, MHS	
10/23/24	Syphilis	Erica Hardy, MD, MMSc	Dr. Elizabeth Lange
*11/20/24	HIV and PrEP	Philip A Chan, MD, MS	
*12/10/24	Chlamydia & Gonorrhea	Matthew Perry, MD, ScM	
1/22/25	Hepatitis C	Alan Epstein, MD	
2/26/25	Other STIs	Katherine Hsu, MD, MPH, FAAP	



## Erica J. Hardy, MD, MMSc

Dr. Hardy is an Associate Professor of Medicine and Obstetrics & Gynecology, in the Division of Obstetric Medicine and Infectious Disease at the Warren Alpert Medical School of Brown University. Her clinical and research interests include infectious disease, especially the peripartum period, sexually transmitted infections, and trauma-informed acute medical care and follow up of the sexual assault survivor. She has ongoing research examining syphilis trends in pregnant people, education of providers in the care of survivors of sexual violence, and HIV and STI prevention in the obstetrics and gynecology setting.

# DIAGNOSIS & MANAGEMENT OF SYPHILIS: A Clinical Review

iECHO  
OCTOBER 23, 2024

Erica J. Hardy, MD, MMSc

Director, Division of Infectious Disease

Women & Infants Hospital and Care New England

Associate Professor of Medicine, Associate Professor of Obstetrics and Gynecology

Warren Alpert Medical School of Brown University

Providence, RI

# DISCLOSURES

- I have no financial disclosure with a commercial entity producing healthcare related products or services
  
- **Note:** The use of cisgender centric language is not meant to exclude trans men, trans women, non-binary, intersex, or gender fluid people who may be affected by syphilis and may be used in this presentation when discussing research cited based on the specific populations included in the research



# OBJECTIVES

- Describe the epidemiology of syphilis and congenital syphilis
- Describe the risk factors for congenital syphilis among pregnant persons
- Describe the screening recommendations for syphilis, including in pregnancy
- Be familiar with the guideline recommendations for treatment and follow up of syphilis and describe resources for finding this information in your clinical practice

# RESOURCES FOR STIs:

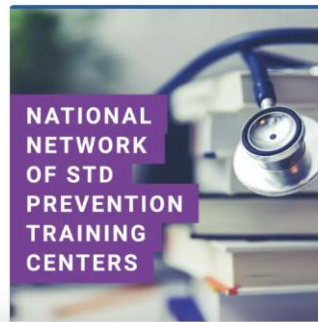
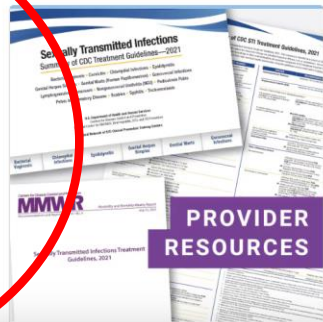
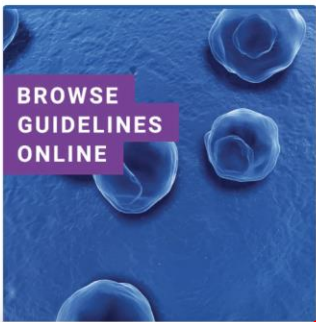
## STI Treatment Guidelines

2021 RECOMMENDATIONS NOW AVAILABLE

[Print](#)

CDC's Sexually Transmitted Infections (STI) Treatment Guidelines, 2021 provides current evidence-based prevention, diagnostic and treatment recommendations that replace the 2015 guidance. The recommendations are intended to be a source for clinical guidance. Healthcare providers should always assess patients based on their clinical circumstances and local burden.

 **STI Treatment Guide Mobile App**  
Now available for Apple and Android devices.



## STI Treatment Guide Mobile App



**STI Treatment Guide Mobile App**

More Comprehensive  
More Integrated  
More Features

Download CDC's free app for iPhone and Android devices.



- Provides STI/STD clinical consultation services within 1-5 business days, depending on urgency, to clinicians nationally
- Consultation request is linked to your regional PTC's STI/STD expert faculty
- Just a click away: [www.STDCCN.org](http://www.STDCCN.org)
- Also embedded in Treatment Guidelines App!



**Dr. Amit Achhra**  
ID, Yale



**Dr. Kevin L. Ard**  
ID, Mass General  
Hospital



**Dr. Philip A. Chan**  
ID, Brown



**Dr. Erica Hardy**  
Med-Peds/ID,  
Brown/  
Women&Infants



**Dr. Katherine K. Hsu**  
Pedi ID, Boston Med  
Ctr/MDPH



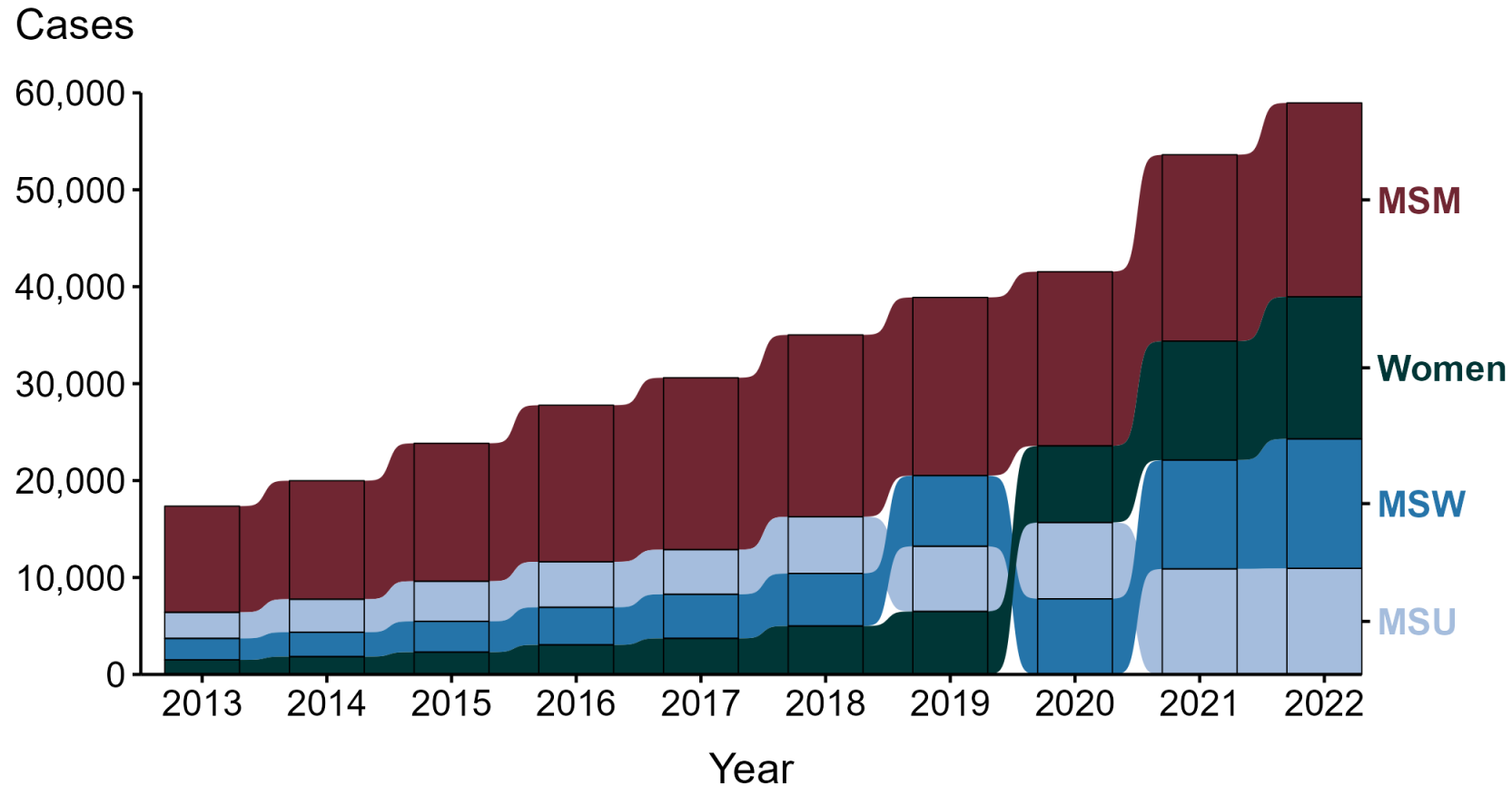
**Dr. Devika Singh**  
ID, U of Vermont



**Dr. Zoon Wangu**  
Pedi ID,  
UMass/MDPH

# EPIDEMIIOLOGY OF SYPHILIS

# Primary and Secondary Syphilis — Reported Cases by Sex and Sex of Sex Partners, United States, 2013–2022



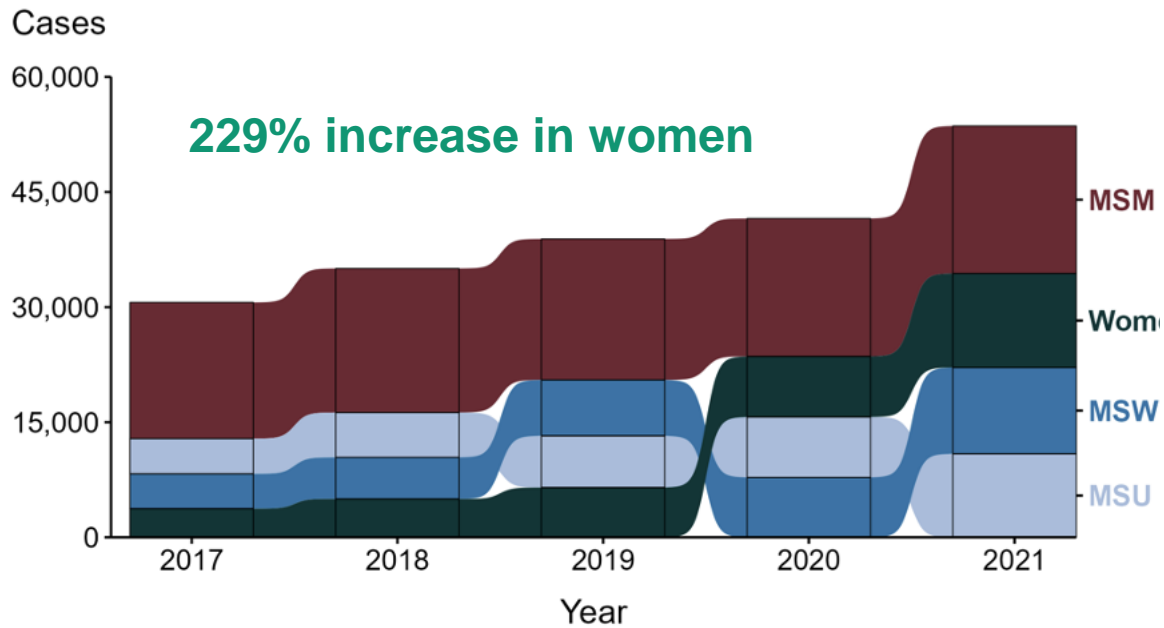
**ACRONYMS:** MSM = Men who have sex with men; MSU = Men with unknown sex of sex partners; MSW = Men who have sex with women only



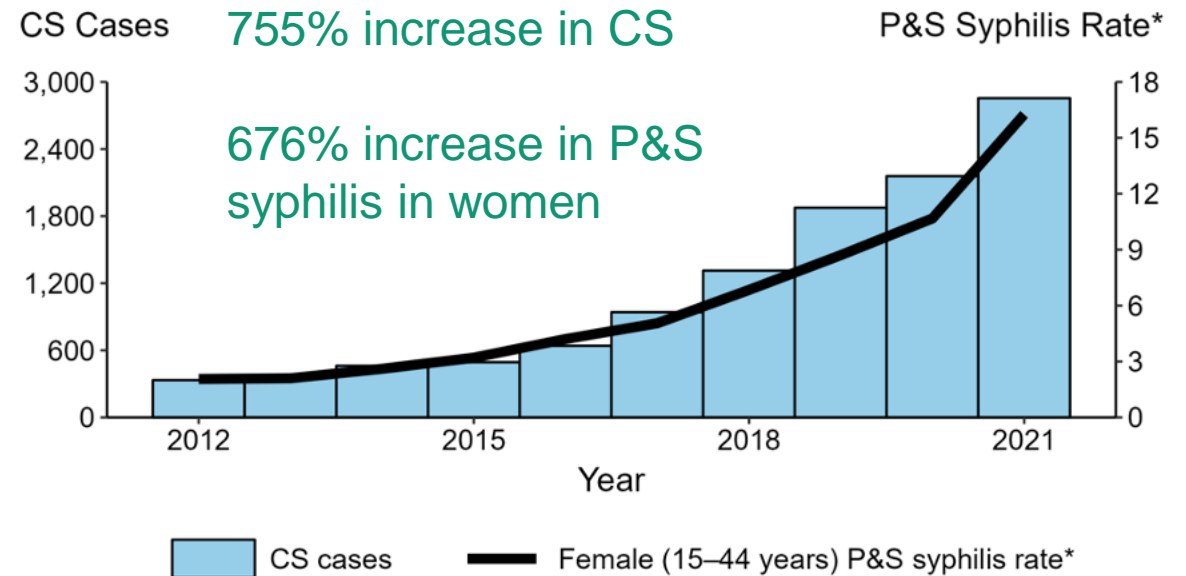
# EPIDEMIOLOGY OF CONGENITAL SYPHILIS

# Congenital syphilis rates increasing with rates of primary & secondary syphilis in US women

Primary and Secondary Syphilis — Reported Cases by Sex and Sex of Sex Partners, United States, 2017–2021



Congenital Syphilis — Reported Cases by Year of Birth and Rates of Reported Cases of Primary and Secondary Syphilis Among Women Aged 15–44 Years, United States, 2012–2021



**ACRONYMS:** MSM = Gay, bisexual, and other men who have sex with men; MSU = Men with unknown sex of sex partners; MSW = Men who have sex with women only

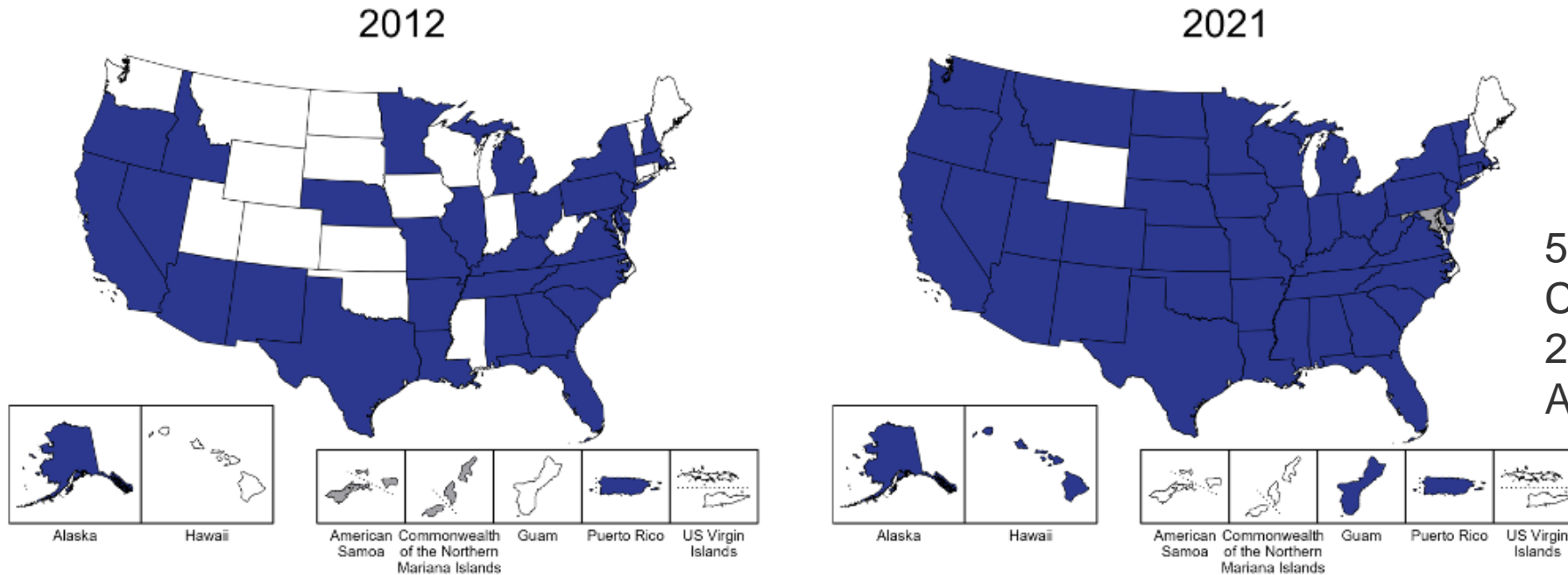
**NOTE:** Over the five year period, 0.2% of cases were missing sex and were not included.

\* Per 100,000

# Distribution by US state – 2012 - 2021

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

31 states



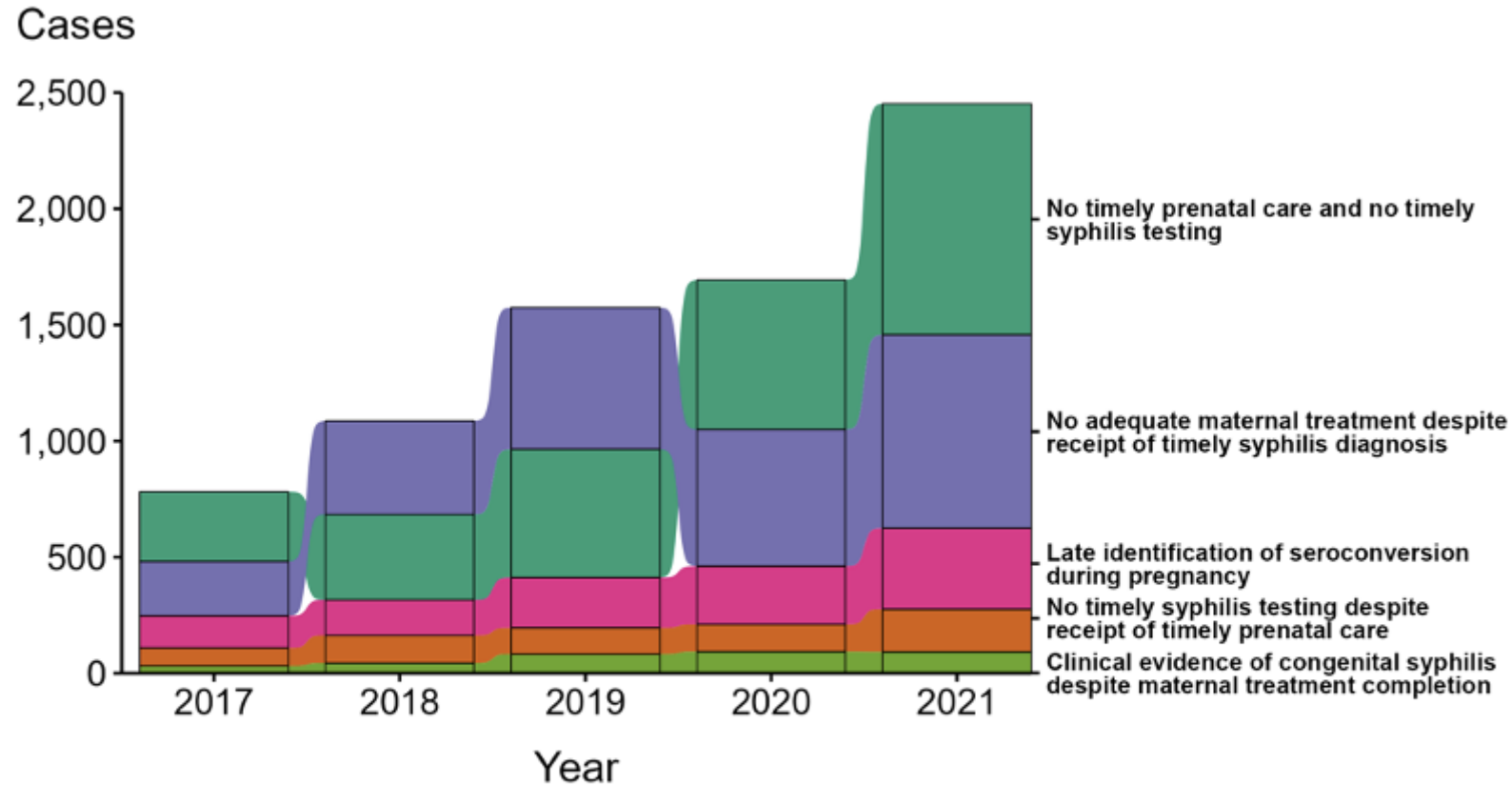
2,855 cases  
77.9/100k births  
46 states

5 states, 58%  
CS cases in  
2021: TX, CA,  
AZ, FL, LA

Reported Cases ■ ≥1 case □ No cases ■ Unavailable



# 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.

# **SYPHILIS SCREENING**

# SYPHILIS SCREENING RECOMMENDATIONS

<b>Men Who Have Sex With Women</b>	<ul style="list-style-type: none"><li>• Screen asymptomatic adults at increased risk (history of incarceration or transactional sex work, <a href="#">geography</a>, race/ethnicity, and being a male younger than 29 years) for syphilis infection<sup>2,7</sup></li></ul>
<b>Men Who Have Sex With Men</b>	<ul style="list-style-type: none"><li>• At least annually for sexually active MSM<sup>2</sup></li><li>• Every 3 to 6 months if at increased risk<sup>2</sup></li><li>• Screen asymptomatic adults at increased risk (history of incarceration or transactional sex work, geography, race/ethnicity, and being a male younger than 29 years) for syphilis infection<sup>2,7</sup></li></ul>
<b>Transgender and Gender Diverse People</b>	<ul style="list-style-type: none"><li>• Consider screening at least annually based on reported sexual behaviors and exposure<sup>2</sup></li></ul>
<b>Persons with HIV</b>	<ul style="list-style-type: none"><li>• For sexually active individuals, screen at first HIV evaluation, and at least annually thereafter<sup>2,6</sup></li><li>• More frequent screening might be appropriate depending on individual risk behaviors and the local epidemiology<sup>2</sup></li></ul>

<https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm>

# SYPHILIS SCREENING RECOMMENDATIONS



## Syphilis

### Sexually Transmitted Infections Treatment Guidelines, 2021

<b>Women</b>	<ul style="list-style-type: none"><li>• Screen asymptomatic women at increased risk (history of incarceration or transactional sex work, geography, race/ethnicity) for syphilis infection<sup>2,7</sup></li></ul>
<b>Pregnant Women</b>	<ul style="list-style-type: none"><li>• All pregnant women at the first prenatal visit<sup>8</sup></li><li>• Retest at 28 weeks gestation and at delivery if at high risk (lives in a community with high syphilis morbidity or is at risk for syphilis acquisition during pregnancy [drug misuse, STIs during pregnancy, multiple partners, a new partner, partner with STIs])<sup>2</sup></li></ul>

# RISK FACTORS FOR SYPHILIS IN PREGNANCY

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## Risk factors and adverse outcomes associated with syphilis infection during pregnancy

Moti Gulersen, MD, MSc; Erez Lenchner, PhD; Yael Eliner, MD, MPH; Amos Grunebaum, MD; Lisa Johnson, MD; Frank A. Chervenak, MD; Eran Bornstein, MD

- Large US cohort of live births (CDC Natality Live Birth database)
- 2016-2019
- 15,341,868 live births included → 17,408 (0.11%) complicated by syphilis
- **Evaluated sociodemographic risk factors and adverse pregnancy outcomes associated with syphilis during pregnancy**

# RISK FACTORS ASSOCIATED WITH SYPHILIS IN PREGNANCY

Associated with increased risk of syphilis in pregnancy	aOR or RR
Concurrent gonorrhea	aOR 7.24 (95%CI 6.79-7.72)
Low educational attainment (< high school)	aOR 4.40 (95%CI 3.93-4.92)
Non-Hispanic Black race/ethnicity	aOR 3.81 (95%CI 3.65-3.98)
Medicaid insurance	aOR 2.13 (95%CI 2.03-2.23)
Initiation of prenatal care:	
• 2 <sup>nd</sup> trimester	RR 2.07 (95%CI 2.00-2.15)
• 3 <sup>rd</sup> trimester	RR 2.58 (95%CI 2.44-2.72)
• No prenatal care	RR 3.98 (95%CI 3.67-4.21)



# RIDOH Healthcare Professional Advisory

January 26, 2023

## Cases of Congenital Syphilis Increasing in Rhode Island, Universal Prenatal Testing Recommended

The Rhode Island Department of Health (RIDOH) is advising providers of an increase in congenital syphilis cases in Rhode Island and nationally. In the last two years, RIDOH has received its first reports of congenital syphilis in over 10 years.

**EPIDEMIOLOGY:** In 2022, among the 10,709 births in Rhode Island, there were five infants diagnosed with congenital syphilis based on maternal, infant, stillbirth, or a combination of criteria as defined by the CDC. Since 2020, less than 10 total cases have been reported; prior to 2020 no cases of congenital syphilis were reported since 2009. Nationally, there has been a sharp increase in congenital syphilis. Rhode Island's 2020-22 cases were met by maternal criteria (i.e., a woman with no treatment or inadequate treatment >30 days prior to delivery).

Nationally, there has been a sharp rise in congenital syphilis. Congenital syphilis tripled in recent years in the U.S., with more than 2,000 cases reported in one year since 1994. Infectious syphilis rates in the U.S. are increasing since the mid-2000s. From 2012 through 2021, the rate of congenital syphilis increased nationwide. Infectious syphilis is defined as infection within the past year (including latent stages) when people are most likely to transmit the infection to others.

Women at higher risk for syphilis infection include those living in high-prevalence communities, those living with HIV, those entering prenatal care late, and those with a history of commercial sex work. Substance use and being unhoused contribute to poor adherence to clinical care. Providence, Kent, and Newport counties have exceeded the rate of primary and secondary syphilis of 4.6 per 100,000, which is considered a threshold for consideration as a high-prevalence community. <https://www.cdc.gov/nchhstp/atlas/syphilis/index.html>

Women at higher risk for syphilis infection include those living in [high-prevalence communities](#), those living with HIV, those entering prenatal care late, and those with a history of incarceration or commercial sex work. Substance use and being unhoused contribute to poor adherence to clinical care. Providence, Kent, and Newport counties have exceeded the rate of primary and secondary syphilis of 4.6 per 100,000, which is considered a threshold for consideration as a high-prevalence community. <https://www.cdc.gov/nchhstp/atlas/syphilis/index.html>

County	State	Rate per 100,000	Offer syphilis testing to all sexually active people aged 15-44 years*
Bristol	RI	0.0	No
Kent	RI	9.7	Yes
Newport	RI	0.0	No
Providence	RI	13.1	Yes
Washington	RI	0.0	No

# SYPHILIS DISEASE



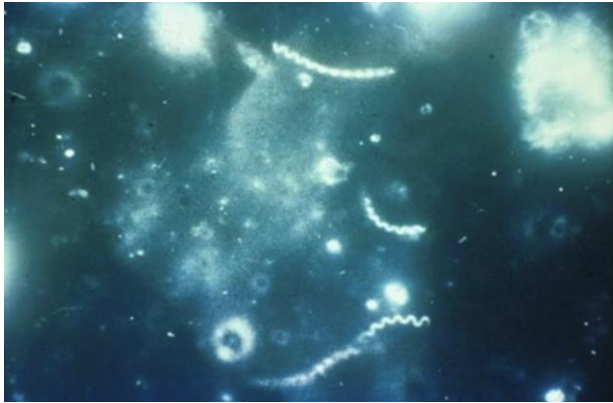
# SYPHILIS DISEASE

- Systemic disease caused by *Treponema pallidum*
- Divided into 3 stages based on clinical findings - treatment and follow up is based on these stages

# STAGES OF SYPHILIS

Stage of disease	Time course	Clinical signs/symptoms
Primary	10-90d after infection (average 3 weeks)	Chancre (painless)
Secondary	6 weeks – 6 months	Skin rash (75-100%) Mucous membrane ulcerations (5-30%), fever, LAD, HA, pharyngitis, fatigue
Latent	Months - years	No symptoms
<ul style="list-style-type: none"> <li>• Early</li> <li>• Late</li> </ul>	<p>&lt;12 months</p> <p>&gt;=12 months</p>	<p>Asymptomatic</p> <p>Asymptomatic</p>
Tertiary (15% of untreated)	10-20 years	Damage to brain, eyes, ears, heart, bone, liver, joints

# SYPHILIS PHYSICAL EXAM FINDINGS



# RECOGNIZE NEUROSYPHILIS

- *T. pallidum* invades the CNS
- Can occur at **ANY STAGE OF DISEASE**
- May be more common in people living with HIV (PLWH)
  - Early (months to years after infection)
    - ❖ Meningitis, stroke, vasculitis, cranial nerve manifestations, ocular (uveitis, optic neuritis, neuroretinitis)
  - Late (decades after infection) – RARE
    - ❖ General paresis - severe neuropsychiatric disorder caused by meningoencephalitis
    - ❖ Tabes dorsalis - slow demyelination of posterior columns of spinal cord (proprioception, vibration, discriminative touch)

# SCREENING QUESTIONS FOR NEUROSYPHILIS

## Screening Questions for Neurosyphilis (Including Ocular and Ootosyphilis)

Questions	
<u>Symptoms of Ootosyphilis</u>	
1) Have you recently had new trouble hearing?	<input type="checkbox"/> Yes – refer to ENT <input type="checkbox"/> No
2) Do you have ringing in your ears?	<input type="checkbox"/> Yes – refer to ENT <input type="checkbox"/> No
<u>Symptoms of Ocular syphilis</u>	
3) Have you recently had a change in vision?	<input type="checkbox"/> Yes – refer to ophthalmology <input type="checkbox"/> No
4) Do you see flashing lights?	<input type="checkbox"/> Yes – refer to ophthalmology <input type="checkbox"/> No
5) Do you see spots that move or float by in your vision?	<input type="checkbox"/> Yes – refer to ophthalmology <input type="checkbox"/> No
6) Have you had any blurring of your vision?	<input type="checkbox"/> Yes – refer to ophthalmology <input type="checkbox"/> No
<u>Symptoms of neurosyphilis</u>	
7) Are you having headaches?	<input type="checkbox"/> Yes <input type="checkbox"/> No
8) Have you recently been confused?	<input type="checkbox"/> Yes <input type="checkbox"/> No
9) Has your memory recently gotten worse?	<input type="checkbox"/> Yes <input type="checkbox"/> No
10) Do you have trouble concentrating?	<input type="checkbox"/> Yes <input type="checkbox"/> No
11) Do you feel that your personality has recently changed?	<input type="checkbox"/> Yes <input type="checkbox"/> No
12) Are you having a new problem walking?	<input type="checkbox"/> Yes <input type="checkbox"/> No
13) Do you have weakness or numbness in your legs?	<input type="checkbox"/> Yes <input type="checkbox"/> No

Consider evaluation and treatment or referral for neurosyphilis in patients with new persistent headache rated as moderate or greater, new change in vision or hearing, new and persistent change in personality memory or judgment, new numbness in both legs, or new gait incoordination

# OVERVIEW CONGENITAL SYPHILIS

- **Congenital syphilis: An infection with *Treponema pallidum* acquired in a fetus or infant when a pregnant person has untreated or inadequately treated syphilis**
- Effective prevention and detection of congenital syphilis relies upon identifying syphilis among pregnant people and providing effective treatment and follow up

# CONGENITAL SYPHILIS

- Vertical transmission can occur at any stage of infection – but risk much higher during primary and secondary syphilis
  - Early syphilis (60-100% transmission)
  - Early latent (40% transmission)
  - Late latent (8% transmission)
- **Untreated fetal infection – 40% result in stillbirth**
- Wide spectrum of disease in infant

# CONGENITAL SYPHILIS :



## Obstetric complications:

- Miscarriage
- Stillbirth
- Preterm birth
- Low birth weight

## Neonatal complications:

- Bone deformities
- Severe anemia
- Hepatosplenomegaly
- Jaundice
- Blindness/deafness
- Meningitis



# SYPHILIS TESTING

# SYPHILIS TEST CHARACTERISTICS

## Nontreponemal antibodies

i.e. RPR, VDRL

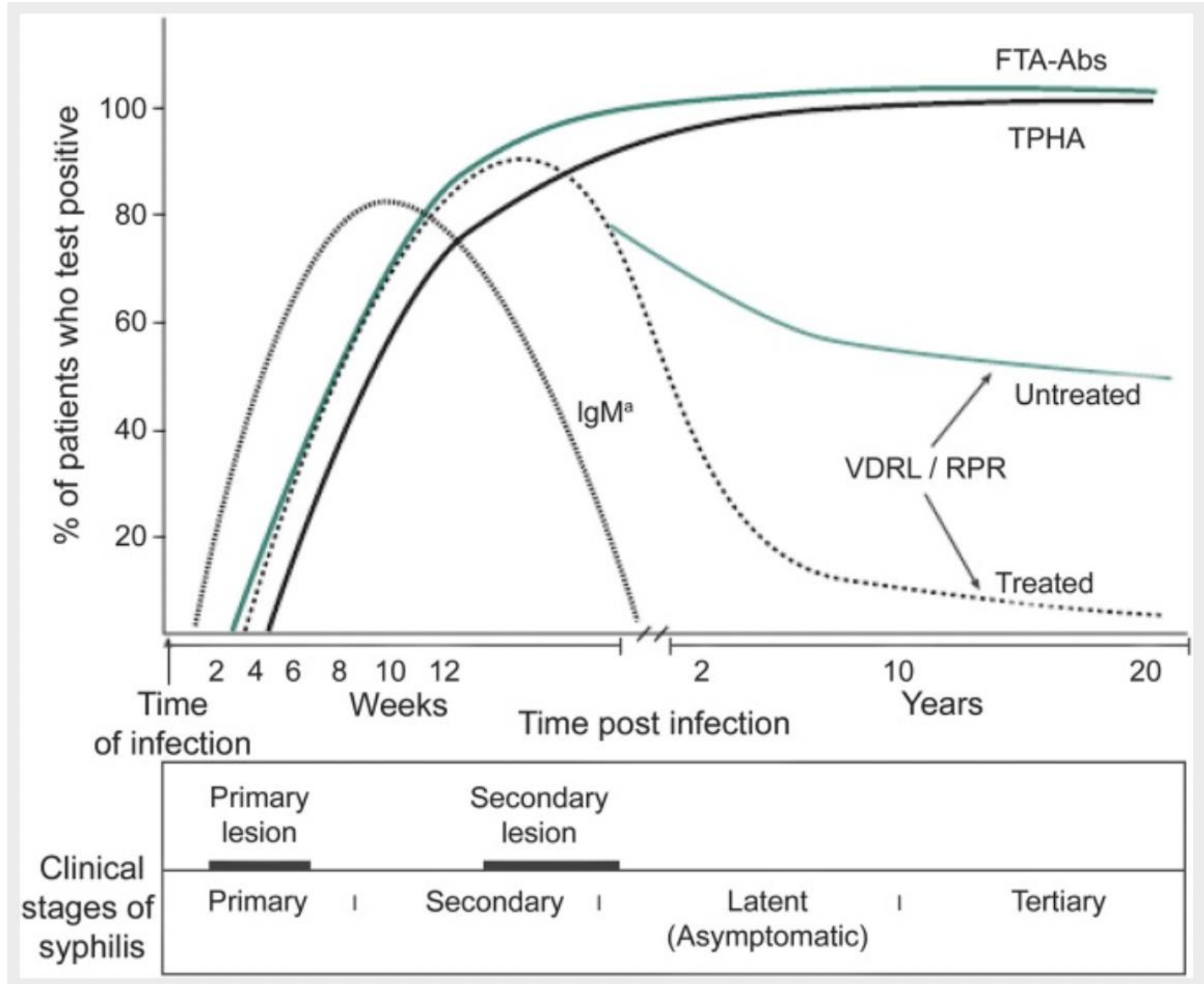
- Nonspecific to *T. pallidum* (antibodies directed against lipoidal antigens - damaged cells from ?treponemes)
- Quantitative (titers correlate with disease activity)
- **Reactivity declines with time (less sensitive in early & late disease)**
- False positives (viral, malignancy, pregnancy, autoimmune)
- False negatives (Prozone effect)

## Treponemal antibodies

i.e. Treponemal antibody by EIA, CIA (IgG, IgM), TPPA, FTA

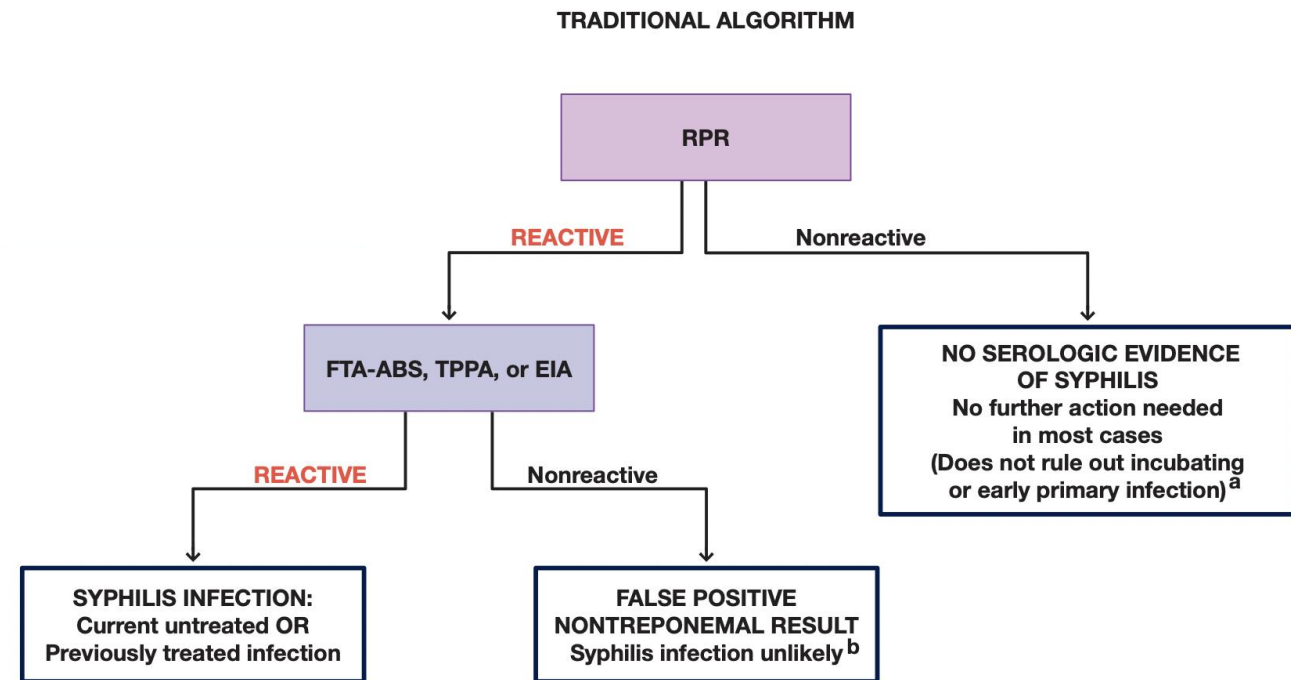
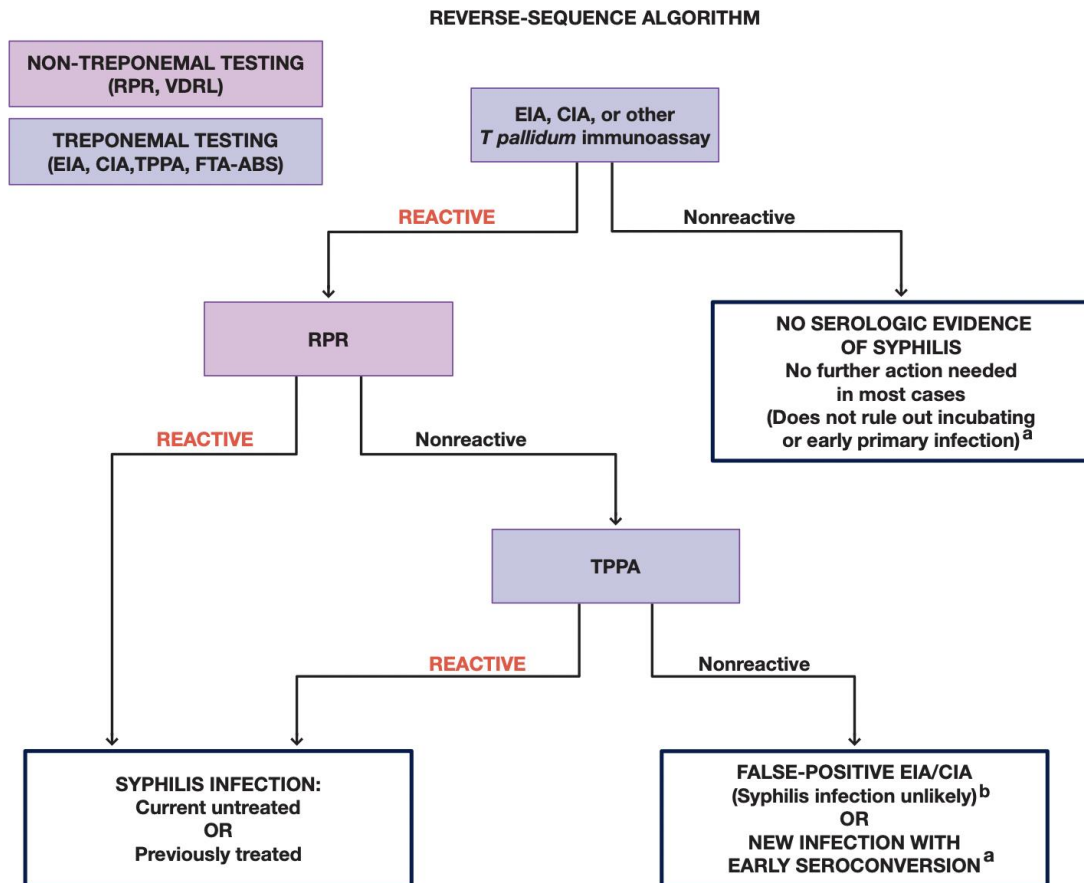
- Specific to *T. pallidum* (antibodies directed against *T. pallidum* proteins)
- Qualitative
- **Reactivity persists over time (despite treatment)**
- 15-20% revert to nonreactive if treated early in primary disease

# Syphilis tests



Diagnostic tools for preventing and managing maternal and congenital syphilis: an overview. Bull World Health Organ 2004;82:439-446

# TRADITIONAL AND REVERSE SCREENING TESTING ALGORITHMS



# How does testing work in RI?

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- First test gets done in house:

“Treponemal antibody”

“Treponemal antibody IgG/IgM”

If positive trep ab,  
gets sent to the  
RIDOH state lab:



- State labs runs the following:

This is reported in the EMR as:

“Syphilis confirmatory testing”:

**Treponemal antibody** (yes, same test again)

**RPR**

**TPPA** (if indicated based on above results)

# Testing algorithm:

Lifespan:

## Treponema pallidum IgG and IgM Ab

Information displayed in this report may not trend or trigger automated decision support

**Treponema pallidum IgG and IgM Ab**

Component  
Ref Range & Units  
**Treponema pallidum IgG IgM Ab** >8.0\*  
0.0 - 0.8 AI

Treponema IgG and IgM Comment	Antibody Index (AI)	Footnote
Comment Reference Range		
Negative: < or = 0.8	No Syphilis IgG/IgM antibodies detected. Patient is presumed not to have had syphilis infection.	
Equivocal: 0.9 - 1.0	Equivocal result: Reflex to RPR test	
Positive: > or > 1.1	Reactive: Reflex to RPR test	



Confirmatory testing from RI State Lab:

**Syphilis Confirmatory Testing**

Newer results are available. Click to view them now.

Component  
Ref Range & Units  
**Syphilis Treponemal Serology** Reactive †

Comment: Syphilis testing is performed using U.S. Food and Drug Administration cleared assays, namely the Architect Syphilis TP Assay, RPR and Venereal TP-PA. The performance characteristics of these assays were verified by the Rhode Island State Health Laboratories. The Centers for Disease Control's syphilis disease algorithm should be followed to interpret the combined laboratory results and should be used in conjunction with the patient's clinical symptoms, medical history, and other clinical/laboratory findings to determine an overall clinical diagnosis. Note that reactive test results could represent a new syphilis infection but could also represent previously treated disease. Please call the RI state health laboratory for further classification.

Providers must report a patient information on syphilis cases (all stages including neurosyphilis and congenital syphilis) within two working days using the RIDOH sexually transmitted disease notification case report form (<http://www.rh.gov/divisions/infectious/disease/reportable.php>).

Syphilis Indirect (RPR) Non-Reactive

Comment: Note that reactive test results could represent a new syphilis infection but could also represent previously treated disease. Please call the RI state health laboratory for further classification.

Testing performed by RIDOH	Interpretation
Syphilis Interpretation	Inconclusive
Syphilis Interpretation	Treponemal antibodies not confirmed. Inconclusive for syphilis infection; potential early infection or false positive. If clinically indicated, please submit new specimen in 2 weeks for testing.
Syphilis Interpretation	Note: If needed, please call the RI State Health Laboratory for further classification.
Syphilis Interpretation	Performed by: RI Department of Health 60 Dore St Providence, RI 02904
Syphilis Ab by TP-PA	Non-Reactive

Resulting Agency

CNE:

## Treponema Pallidum Antibody(Syphilis)

**Treponema Pallidum Antibody(Syphilis) (CNE)**

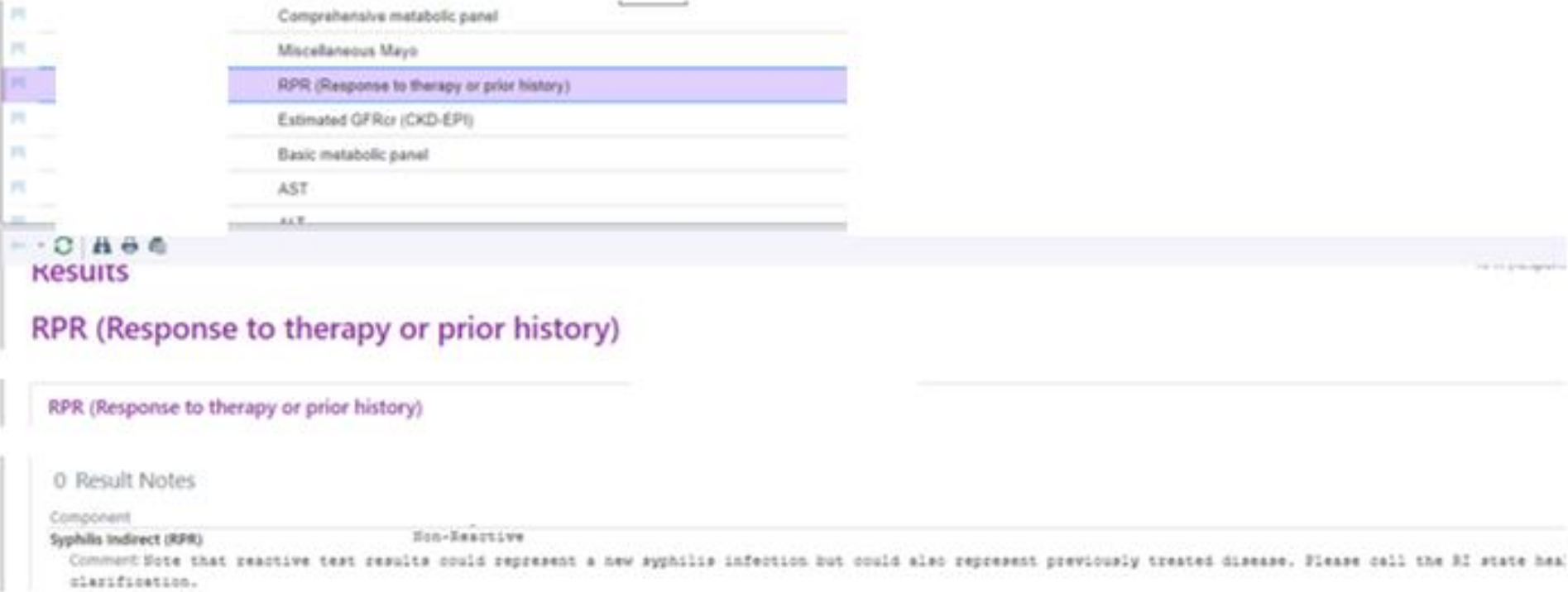
Newer results are available. Click to view them now.

Component  
Ref Range & Units  
**Treponema pallidum Ab** Reactive †  
Nonreactive

Comment: Sample sent to RIDOH for confirmatory testing

Resulting Agency

# Ordering syphilis testing in a patient with history of syphilis, or following with treatment:



The screenshot displays a medical software interface. At the top, a list of test orders is shown, with 'RPR (Response to therapy or prior history)' highlighted in purple. Below this, the 'RESULTS' section is visible, showing the title 'RPR (Response to therapy or prior history)'. Underneath, there is a section for '0 Result Notes'. A table below the notes shows the component 'Syphilis Indirect (RPR)' with a result of 'Non-Reactive'. A comment below the table reads: 'Note that reactive test results could represent a new syphilis infection but could also represent previously treated disease. Please call the RI state health classification.'

Component	Result
Syphilis Indirect (RPR)	Non-Reactive

Comment: Note that reactive test results could represent a new syphilis infection but could also represent previously treated disease. Please call the RI state health classification.

# TESTING IN SETTING OF SYPHILIS HISTORY

- In a person with a history of syphilis interpretation of serology is challenging
- Treponemal tests remain persistently positive (treponemal antibodies by EIA, CIA, TPPA, FTA-ABS) **so testing for new infection must be performed with an RPR** (a non-treponemal test)
  - Might be labeled in your EMR as “Other than general screening” e.g.
- In this case **you need to know prior titers** – is there a new significant increase? Treatment documentation? Symptoms? New exposures or other risks?

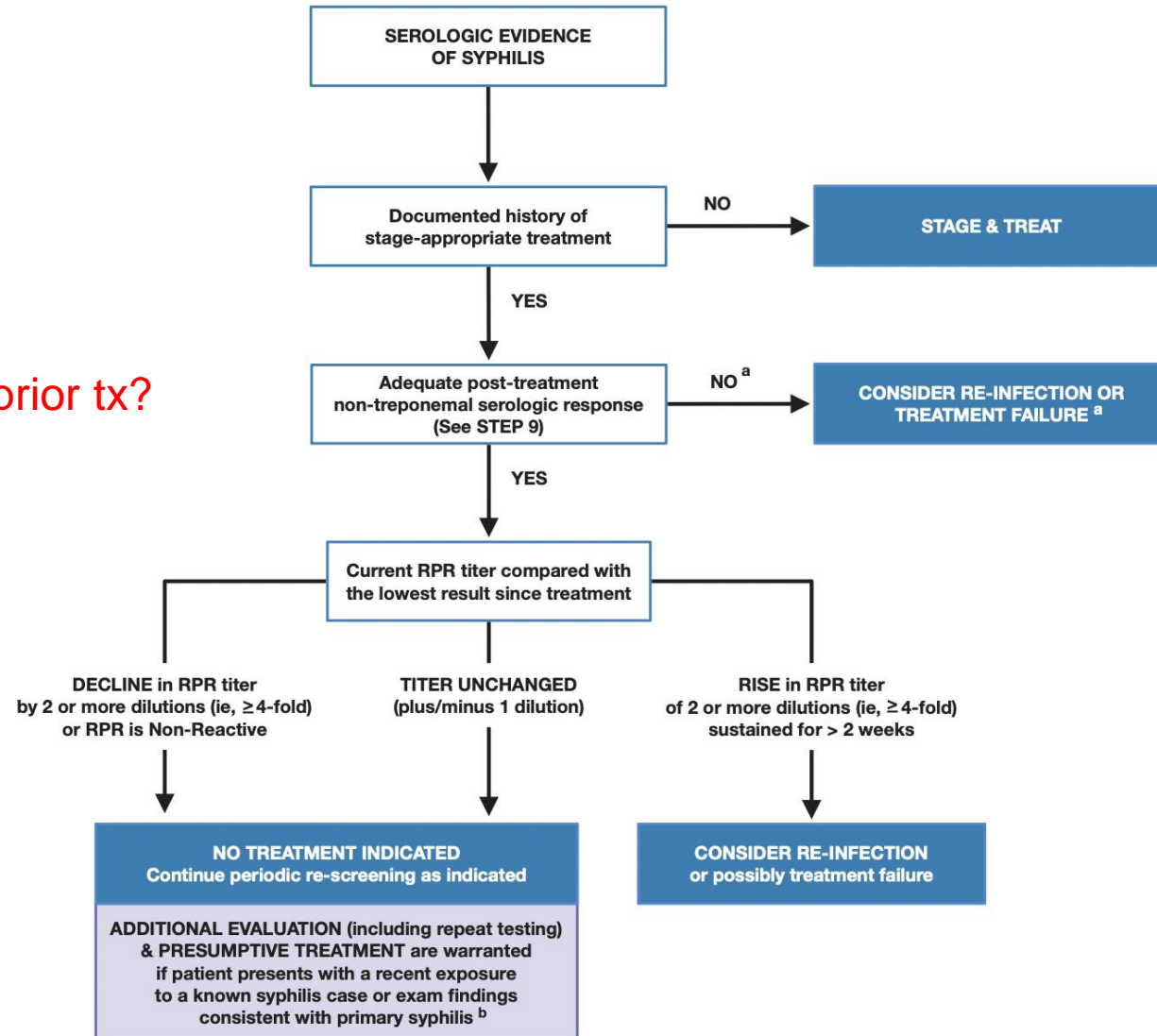


# EVALUATION IN PERSON WITH HISTORY OF SYPHILIS

History of treatment?

Adequate response to prior tx?

RPR compared to prior?



# **SYPHILIS TREATMENT**

# SYPHILIS TREATMENT PRINCIPLES

## ➤ Penicillin G for ALL stages of disease

- The preparation, dose, duration, depend on stage and clinical manifestation of disease
- **Primary, secondary and early latent:** benzathine penicillin G 2.4 million units IM x 1 (a depot product)
- **Late latent or tertiary:** benzathine penicillin G 2.4 million units IM weekly x 3 doses
- **Neurosyphilis, including otic and ocular:** IV penicillin G (not benzathine) daily x 10-14 days

## ➤ Penicillin ALLERGY in NONPREGNANT persons

- Doxycycline 100mg po BID (14 days for primary or secondary syphilis, 28 days for late latent syphilis)
- Optimal dosing and duration of ceftriaxone has not been defined (although ceftriaxone 1 g daily IM or IV x 10 days is effective for primary and secondary syphilis)

## ➤ Penicillin G ONLY effective drug in pregnancy

- In pregnancy, *must* desensitize in setting of allergy
- Missed doses >9 days are not acceptable for pregnant people receiving therapy for late latent syphilis
- Optimal interval is 7 days for pregnant people
- Non-pregnant people: 10-14 days between doses might be acceptable before restarting the sequence (7-9 day interval is preferred)

# FOLLOWING RPR TITERS AFTER TREATMENT

## After treatment:

- Repeat RPR at 6, 12, 24 months
- Compare titers to time of tx titer
- A 4-fold sustained increase in RPR persisting for >2 weeks, or signs & sx of primary or secondary syphilis are likely reinfected or tx failure

1 dilution (ie, twofold) rise in titer



1:2048

1:1024

1:512

1:256

1:128

1:64

1:32

1:16

1:8

1:4

1:2

1:1 (“minimally reactive”)

Nonreactive

## Adequate response to treatment:

### Primary & Secondary Syphilis

- 4-fold decline in 6-12m

### Late latent and beyond

- 4-fold decline in titers by 24m

2 dilution (ie, fourfold) rise in titer  
= clinically significant change



# WHAT IF TITERS FAILURE TO DECLINE?

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- Repeat RPR at 6, 12, and 24 months.
- A fourfold sustained increase in RPR titer persisting for >2 weeks or who experienced signs or symptoms attributable to primary or secondary syphilis were likely reinfected or experienced treatment failure.
- Retreat and evaluate for HIV
- If neurologic findings, or no sexual exposure within the year, CSF exam recommended

# WHAT IF TITERS FAIL TO DECLINE?

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- Optimal management of persons who have less than a fourfold decrease in titers 24 months after treatment (i.e., an inadequate serologic response) is unclear, especially if the initial titer was <1:8.
- At a minimum:
  - additional clinical and serologic follow-up, check HIV.
  - If neurologic symptoms or signs are identified, CSF
  - If additional follow-up cannot be ensured or if an initially high titer (>1:32) does not decrease at least fourfold 24 months after treatment, retreatment with weekly injections of benzathine penicillin G 2.4 million units IM for 3 weeks is recommended.
  - Because treatment failure might be the result of unrecognized CNS infection, CSF examination can be considered in such situations where follow-up is uncertain or initial high titers do not decrease after 24 months.

# FOLLOW UP IN PREGNANCY

- Documentation is vital! Check a pretreatment RPR titer if there is significant time between diagnosis and treatment.
- *If diagnosed and treated before 24 weeks*, titers should *not* be repeated *before 8 weeks* after treatment
  - Can repeat titers AFTER 8 weeks from treatment, AND:
  - *Should repeat titers again at delivery*
- *If diagnosed and treated after 24 weeks*, *repeat titers at delivery*
- Majority will not achieve 4-fold decrease before delivery
  - 4-fold increase in titer after treatment, sustained >2 weeks is concerning for reinfection or treatment failure
  - “Unless symptoms and signs exist of primary or secondary syphilis, follow up titers should not be repeated until approximately 8 weeks after treatment.”

# SYPHILIS EXPOSED INFANT

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- Treatment decisions must be based on:
  - Syphilis in the birthing person & adequacy of prenatal treatment
  - Clinical & lab evidence of syphilis in the neonate
  - Comparison of birthing person (at delivery) and neonatal RPR titers (same test, same laboratory) – NOT cord blood - can be falsely positive
- **Pediatric infectious disease consult** during delivery admission
- Treponemal tests (trep antibody/IgG/IgM, etc) not recommended – can represent passive transfer of maternal Ab until >15 months of age



# TESTING CASE SCENARIOS

# Results summary for common scenario:

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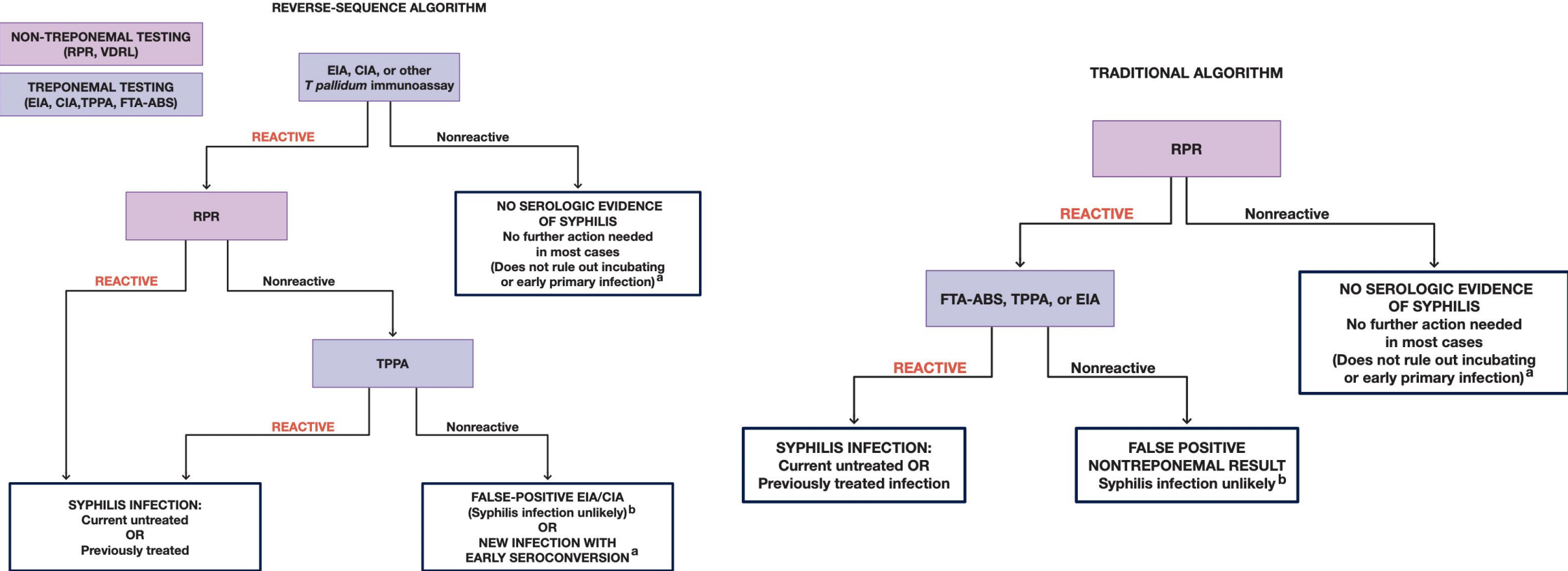
Initial syphilis testing / screening:

- Treponemal antibody reactive

”Confirmatory testing”:

- Treponemal antibody reactive
- RPR nonreactive
- TPPA reactive

# TRADITIONAL AND REVERSE SCREENING TESTING ALGORITHMS



# Results summary for common scenario:

Syphilis - STI Treatment Guidelines  
([cdc.gov](https://www.cdc.gov)) :

Hospital lab:

- Treponemal antibody reactive

RI State Lab:

- Treponemal antibody reactive
- RPR nonreactive
- TPPA reactive

What if the TPPA non-reactive?

If a second treponemal test is positive (e.g., EIA reactive, RPR nonreactive, TP-PA reactive), persons with a history of previous treatment will require no further management unless sexual history indicates a reexposure. In this instance, a repeat nontreponemal test 2–4 weeks after a confirmed medical history and physical examination is recommended to evaluate for early infection. Those without a history of treatment for syphilis should be offered treatment. Unless a medical history or results of a physical examination indicate a recent infection, previously untreated persons should be treated for syphilis of unknown duration or late latent syphilis.

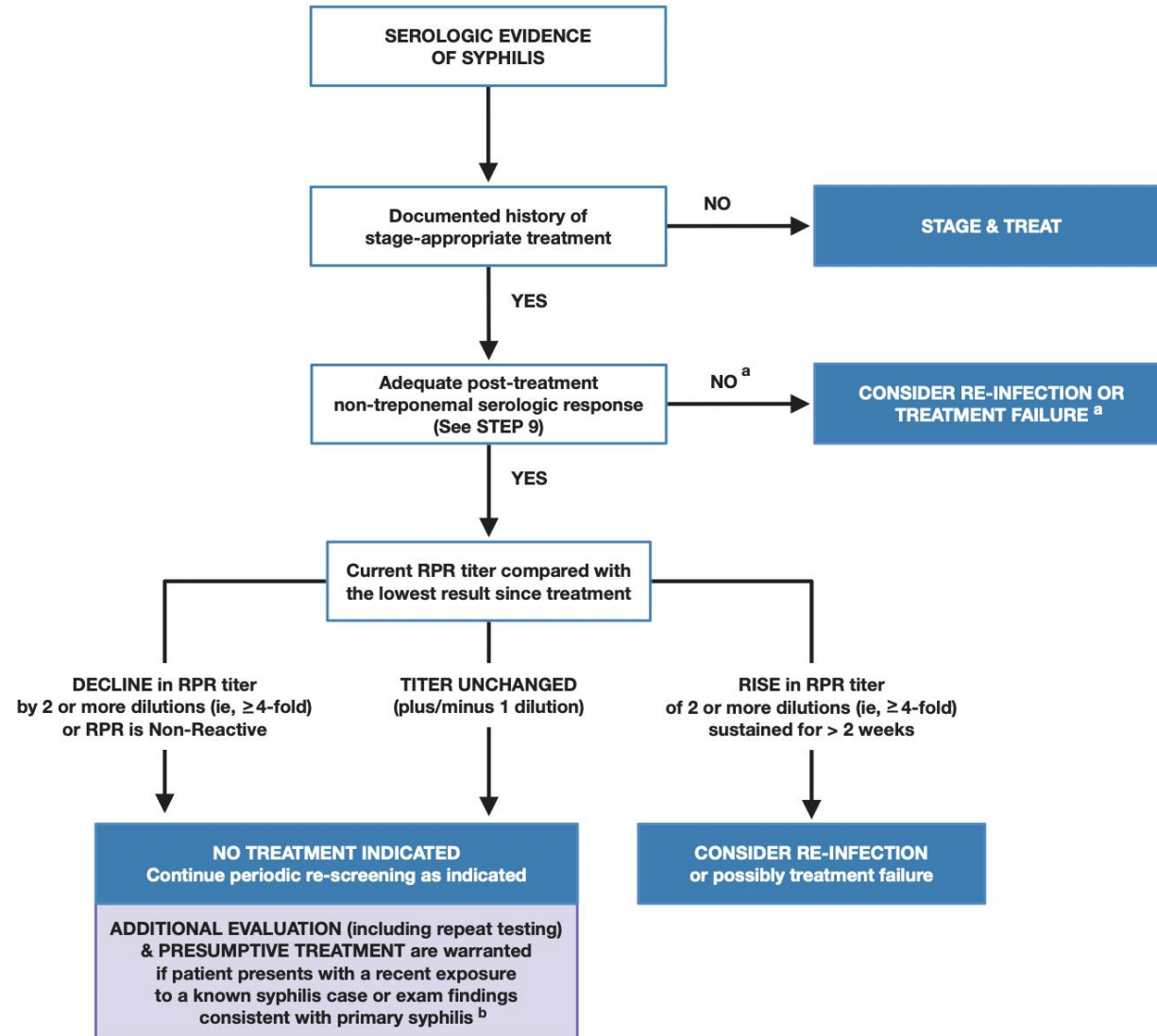
If the second treponemal test is negative (e.g., EIA reactive, RPR nonreactive, TP-PA nonreactive) and the epidemiologic risk and clinical probability for syphilis are low, further evaluation or treatment is not indicated.

# Patient with history of syphilis

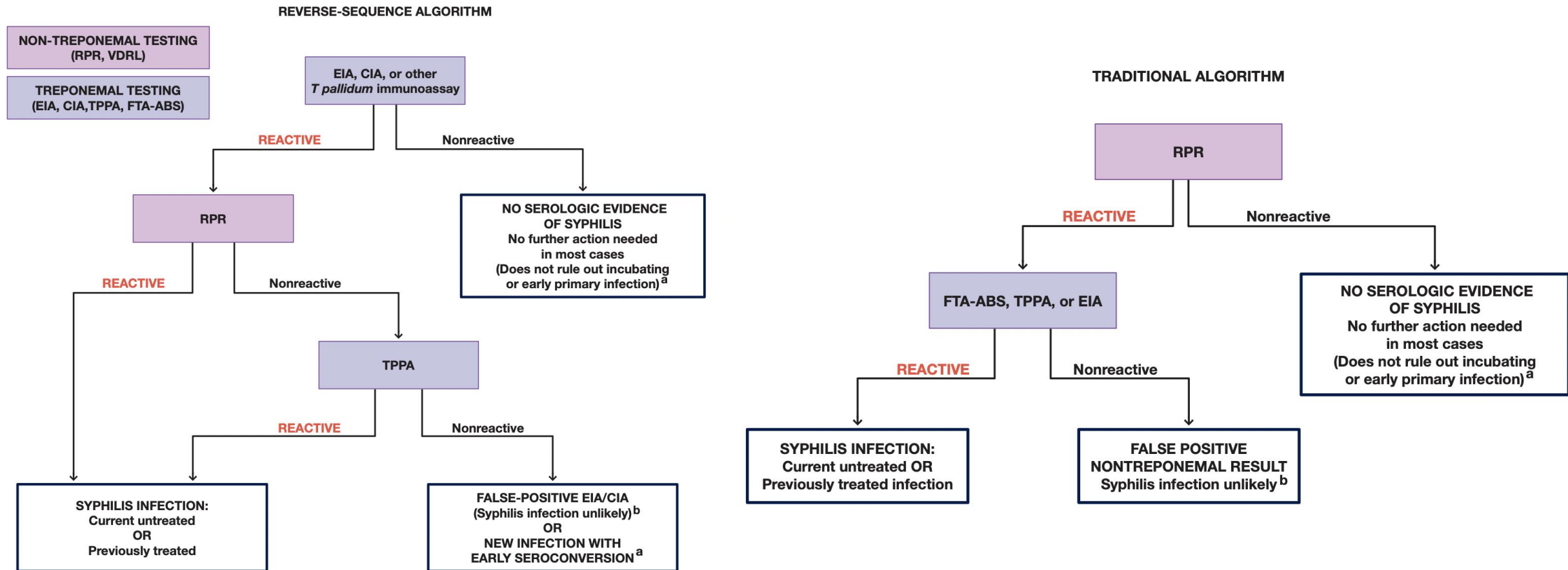
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- What order do you order to test for syphilis?
- What information do you want?

# EVALUATION IN PERSON WITH HISTORY OF SYPHILIS



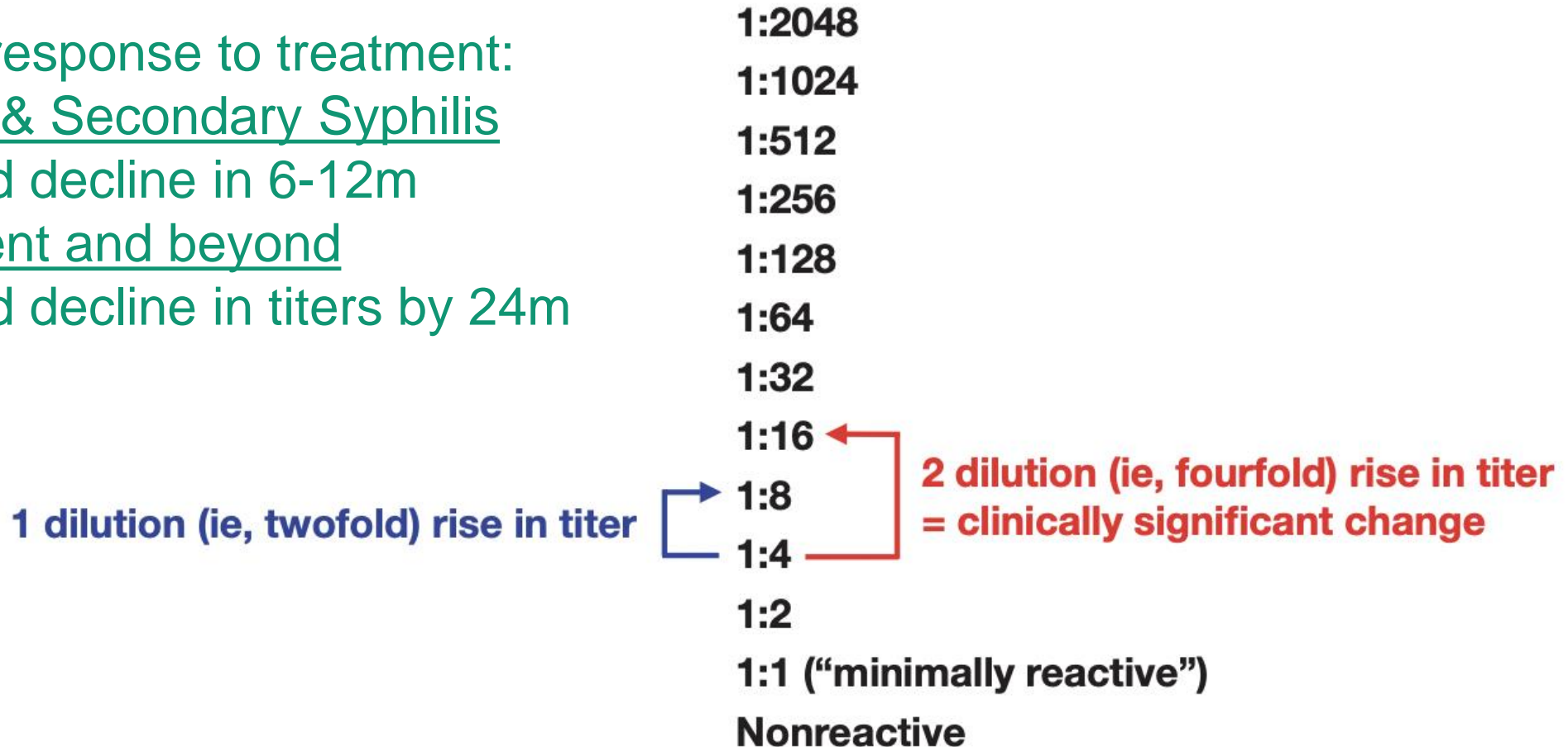
# TRADITIONAL AND REVERSE SCREENING TESTING ALGORITHMS



# RPR TITERS – CLINICALLY SIGNIFICANT CHANGE

Adequate response to treatment:

- Primary & Secondary Syphilis
  - 4-fold decline in 6-12m
- Late latent and beyond
  - 4-fold decline in titers by 24m





# CONCLUSIONS

- Syphilis in pregnant people and congenital syphilis is on the rise
- Obstetric providers play a vital role in stemming the congenital syphilis epidemic
- Preventing congenital syphilis requires addressing social determinants of health in pregnant people
- Prioritize early access to prenatal care, prompt screening, re-testing and treatment based on established risks and guidelines
- Recognize maternal risks for congenital syphilis and test/treat
- There are many challenges and innovative solutions in care access and delivery are needed

# THANK YOU

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## CME/CEU Credits - *pending*

(applied for MDs, PAs, Rx, RNs, NPs, PhD)

- CME/CEU Credits – Please request session credits when filling out the evaluation at the end of the meeting.
- Evaluation/Credit Request Form:  
[https://www.surveymonkey.com/r/STI\\_ECHOSERIES](https://www.surveymonkey.com/r/STI_ECHOSERIES)
- Evaluations must be completed to receive credit
- Certificates will be mailed ~ 1 month after event



*The AAFP is reviewing “ECHO Series Focused on Best Practices and QI,” and is pending approval if deemed acceptable for AAFP credit. Term of approval is from 9/2/24 to 9/2/25. Physicians should claim only the credit commensurate with the extent of their participation in the activity. NPs and RNs can also receive credit through AAFP’s partnership with the American Nurses Credentialing Center (ANCC) and the American Academy of Nurse Practitioners Certification Board (AANPCB).*

# Thank you!

## Next Meeting:

Date: Wednesday November 20, 2024, 7:30-8:30 AM

Session: HIV and PrEP

Evaluation/Credit Request Form: [https://www.surveymonkey.com/r/STI\\_ECHOSERIES](https://www.surveymonkey.com/r/STI_ECHOSERIES)