



Use of Treponemal Immunoassays for Screening and Diagnosis of Syphilis

Guidance for Medical Providers and
Laboratories in California

These guidelines were developed by the
California Department of Public Health
(CDPH) Sexually Transmitted Diseases (STD)
Control Branch in conjunction with the
California STD Controllers Association and the
California Prevention Training Center
(CAPTC)

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DISCLAIMER FOR PUBLIC HEALTH CLINICAL GUIDELINES

These guidelines are intended to be used as an educational aid to help clinicians make informed decisions about patient care. The ultimate judgment regarding clinical management should be made by the health care provider in consultation with their patient, in light of clinical data presented by the patient and the diagnostic and treatment options available. Further, these guidelines are not intended to be regulatory and not intended to be used as the basis for any disciplinary action against the health care provider.

SUMMARY RECOMMENDATIONS

LABORATORIES

- Laboratories should reflex test all enzyme immunoassay (EIA) or chemiluminescence immunoassay (CIA)-positive specimens with a quantitative nontreponemal test (e.g., rapid plasma reagin (RPR) or Venereal Disease Research Laboratory (VDRL)). Results of *both* tests should be reported to providers and to local health departments to facilitate interpretation.
- If the EIA/CIA is positive and the nontreponemal test is negative (e.g., EIA-positive, RPR-negative), a reflex second treponemal test should be performed. The *Treponema pallidum*-particle agglutination assay (TP-PA) is preferred.
- Laboratories should report results from the complete panel of tests (e.g., EIA, RPR, and TP-PA), following laboratory reporting procedures specified by the local health department.

MEDICAL PROVIDERS

Interpretation of EIA/CIA serology and management recommendations

- Considerations for serology interpretation in symptomatic and asymptomatic patients as well as in high-risk populations and pregnant women can be found in Tables 1-5.

Integration of HIV and other STD testing

- All patients diagnosed with syphilis should be tested for HIV and other STDs.

Partner Management

- For patients with positive EIA serology diagnosed with syphilis, the following partner management guidelines apply according to the patient's stage of disease:
 - Primary and secondary syphilis: all sexual partners within the past 3 months should receive evaluation and empiric treatment.
 - Early latent syphilis: all sexual partners in the past 12 months should receive evaluation and treatment, as indicated.
 - Late latent syphilis: long-term sex partners should receive clinical and serologic evaluation. Long-term partners who are serologically negative *do not* need to receive presumptive treatment for syphilis.

Public Health Reporting

- Providers are required by law to report all suspected or confirmed cases of syphilis to the local health department where the patient resides within one working day.
- Providers should inform patients that they may be contacted by local health department representatives for an interview and partner services.

MEDICAL PROVIDERS (continued)

Serologic Follow-up

- Patients with EIA/CIA-positive, RPR/VDRL-positive serology diagnosed with a new syphilis infection should be treated and receive follow-up titers according to national guidelines.
- For asymptomatic patients with discordant serology (EIA/CIA-positive, RPR/VDRL-negative) who are treated for syphilis, consider repeating serologic screening in 12 months or sooner if indicated by risk.

CLINICAL CONSULTATION

For questions about management of patients with positive EIA/CIA serology results, call the STD Control Branch at 510-620-3400 and ask to speak to the clinician on call.

ACRONYMS USED IN THIS DOCUMENT

CDC:	Centers for Disease Control and Prevention
CIA:	chemiluminescence immunoassay
EIA:	enzyme immunoassay
FTA-ABS:	fluorescent treponemal antibody-absorption test
MSM:	men who have sex with men
RPR:	rapid plasma reagin
TP-PA:	Treponema pallidum particle agglutination assay
VDRL:	Venereal Disease Research Laboratory

I. INTRODUCTION

In the past decade, laboratories throughout California have increasingly employed automated treponemal enzyme immunoassays (EIA) or chemiluminescence assays (CIA) as the initial screening tests for syphilis. This guidance provides screening algorithms based on initial testing with the EIA/CIA; gives recommendations for management of patients with EIA/CIA-positive serology in order to assist clinicians and laboratorians; and addresses management of special populations, including pregnant women and HIV-infected individuals. Further guidance on reporting procedures for clinicians and public health follow-up related to EIA/CIA testing will also be addressed.

II. SYPHILIS TESTING IN CALIFORNIA

According to the California Clinical Laboratory Survey, from 2000 to 2012, the number of EIA/CIA tests reported by California laboratories increased from zero to nearly 500,000. EIA/CIA tests accounted for 20 percent of the 2.5 million syphilis tests ordered in 2012. These trends reflect the steady adoption of screening and testing algorithms involving initial use of EIA/CIA. During the same time period the use of the RPR declined, but still comprised 65 percent of all syphilis tests ordered.¹

III. LABORATORY PROCEDURES AND REPORTING

- Laboratories utilizing EIA or CIA treponemal tests should reflex all specimens with positive EIA/CIA results to a quantitative nontreponemal test (i.e., RPR, VDRL). If the EIA/CIA is positive and the nontreponemal test is also positive, the laboratory should report *both* results to the provider and the local health department within one working day of the nontreponemal test result, as required by law.
- A quantitative nontreponemal test and titer should be performed to facilitate future clinical management.
- If the EIA/CIA is positive and the nontreponemal test is negative (discordant results), a reflex second treponemal test should be performed.
- *Treponema pallidum* particle agglutination assay (TP-PA) is preferred as a reflex second treponemal test over the fluorescent treponemal antibody absorbed test (FTA-ABS).
- To improve communication with providers and ensure ease of interpretation, laboratories should report the results from the complete panel of tests (e.g., EIA, RPR, and TP-PA), following laboratory reporting procedures specified by the local health department.

IV. FOR PROVIDERS: INTERPRETATION OF TREPONEMAL EIA/CIA SEROLOGY RESULTS

Clinicians are faced with a significant diagnostic challenge when the initial EIA/CIA testing is positive but subsequent RPR/VDRL testing is negative (discordant serology). It may be challenging to determine whether these test results represent cases of prior treated syphilis, early or latent syphilis, or false positive screening tests. Notably, treponemal tests such as EIA/CIA often remain positive for life, even when a patient has been adequately treated. Though a second treponemal test (TP-PA) can be helpful in resolving discrepancies, some laboratories do not routinely perform this test.²

- For patients determined to have new syphilis or treatment failure, refer to the Centers for Disease Control (CDC) STD Treatment Guidelines at www.cdc.gov/std for treatment and follow-up recommendations.
- Considerations for interpretation of EIA results in symptomatic and asymptomatic patients can be found in Tables 1 and 2.
- Considerations for interpretation of discordant serology in special populations including 1) high-risk populations, such as gay men and other men who have sex with men (MSM); 2) low risk populations, such as geriatric populations; and 3) pregnant women can be found in Tables 3, 4, and 5, respectively.

Table 1: Interpretation of treponemal EIA/CIA results in symptomatic patients (e.g., genital ulcer or rash)

<i>Assess for prior history/treatment for syphilis, perform sexual risk assessment, and conduct physical exam (i.e., skin, oral, anogenital, ocular, neurologic). If high-risk (e.g., MSM, HIV-infected, sexual contacts to syphilis) with symptoms suggestive of primary/secondary syphilis, treat presumptively at the time of presentation prior to serology results.</i>				
EIA or CIA	RPR or VDRL	TP-PA or FTA/ABS*	Possible Interpretations[†]	Recommended Actions
Positive	Positive	Not done or Positive or Negative	Probable early syphilis Prior syphilis (treated or untreated)	<ul style="list-style-type: none"> • Treat for appropriate stage of syphilis (primary or secondary). • Obtain quantitative RPR/VDRL on the day of treatment and at recommended intervals to monitor response. • Consult www.cdc.gov/std/treatment/ for recommendations re: treatment and follow-up serology.
Positive	Negative	Positive	Probable early syphilis Prior syphilis (treated or untreated)	<ul style="list-style-type: none"> • Treat for appropriate stage of syphilis (primary or secondary). • Obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred.
Positive	Negative	Not done or Negative	Possible early syphilis Prior syphilis (treated or untreated) False positive EIA – alternative diagnosis	<ul style="list-style-type: none"> • Reassess patient. If alternate diagnosis favored or confirmed by laboratory testing, no further action necessary. • If clinical suspicion for syphilis persists, treat for appropriate stage of syphilis. • If treatment given, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred.
Negative	Not done or Negative	Not done or negative	Syphilis unlikely	<ul style="list-style-type: none"> • No further action necessary.

Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay; MSM-men who have sex with men.

* If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

[†] Likelihood of interpretation depends on patient’s risk factors for syphilis and past medical history.

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Table 2: Interpretation of treponemal EIA/CIA results in asymptomatic patients (routine screening)

<i>Assess for prior history/treatment for syphilis, perform sexual risk assessment, and conduct physical exam (i.e., skin, oral, anogenital, ocular, neurologic).</i>				
EIA or CIA	RPR or VDRL	TP-PA or FTA/ABS*	Possible Interpretations†	Recommended Actions
Positive	Positive	Not done or Positive or Negative	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis	<ul style="list-style-type: none"> • If previously untreated, treat for appropriate stage of syphilis. • If treatment given, obtain quantitative RPR/VDRL on the day of treatment and at recommended intervals to monitor response. • If previously treated and sustained 4-fold increase in titer, manage as treatment failure versus re-infection. • If previously treated with recommended therapy and 4-fold decrease in titer, no further action necessary. • Consult www.cdc.gov/std/treatment/ for recommendations re: treatment and follow-up serology.
Positive	Negative	Positive	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis	<ul style="list-style-type: none"> • If previously untreated, treat for appropriate stage of syphilis. • If treatment given because incubating syphilis suspected, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary.
Positive	Negative	Negative	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • If previously untreated and patient at risk for syphilis, repeat testing in 2-4 weeks. If RPR/VDRL and TP-PA still negative, no further action necessary. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary.
Positive	Negative	Not done	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • If previously untreated and patient low-risk or risk is uncertain, ask laboratory re: send-out procedures to obtain second treponemal test. • If previously untreated and patient is high-risk, treat for appropriate stage of syphilis. • If treatment given because incubating syphilis suspected, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary.
Negative	Not done or Negative	Not done or negative	Syphilis unlikely	<ul style="list-style-type: none"> • No further action necessary.

Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay; MSM-men who have sex with men.

* If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

† Likelihood of interpretation depends on patient's risk factors for syphilis and past medical history.

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Table 3: Interpretation of discordant treponemal EIA/CIA results in asymptomatic high-risk populations (e.g., HIV-infected, MSM)

<i>Assess for prior history/treatment for syphilis, perform sexual risk assessment, and conduct physical exam (i.e., skin, oral, anogenital, ocular, neurologic). If any signs or symptoms of syphilis, see Table 1 for management.</i>				
EIA or CIA	RPR or VDRL	TP-PA or FTA/ABS*	Possible Interpretations[†]	Recommended Actions
Positive	Negative	Positive	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis	<ul style="list-style-type: none"> • If previously untreated, treat for appropriate stage of syphilis. • If treatment given because incubating syphilis suspected, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary. • If HIV-infected and staged as having late latent syphilis, evaluate for symptoms of neurosyphilis. Those with neurologic symptoms should undergo immediate cerebrospinal fluid (CSF) examination. CSF examination is not needed routinely unless symptoms/signs are present.
Positive	Negative	Negative	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • If previously untreated and at risk for syphilis, either repeat testing in 2-4 weeks or consider treatment for appropriate stage of syphilis. • If repeat testing chosen and RPR/VDRL and TP-PA still negative, no further action necessary. • If treatment given because incubating syphilis suspected, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary.
Positive	Negative	Not done	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • If previously untreated and at risk for syphilis, either repeat testing in 2-4 weeks or consider treatment for appropriate stage of syphilis. • If repeat testing chosen and RPR/VDRL still negative, no further action necessary. • If treatment given because incubating syphilis suspected, obtain quantitative RPR/VDRL on the day of treatment. If RPR/VDRL negative, repeat in 2-4 weeks to see if seroconversion occurred. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary.

Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay; MSM-men who have sex with men.

* If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

[†] Likelihood of interpretation depends on patient's risk factors for syphilis and past medical history.

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Table 4: Interpretation of discordant treponemal EIA/CIA results in low-risk populations (e.g., dementia in geriatric populations, non-specific neurologic symptoms in the general population)

<i>Assess for prior history/treatment for syphilis, perform sexual risk assessment, and conduct physical exam (e.g., skin, oral, anogenital, ocular, neurologic). If any signs or symptoms of syphilis, see Table 1 for management.</i>				
EIA or CIA	RPR or VDRL	TP-PA or FTA-ABS*	Possible Interpretations[†]	Recommended Actions
Positive	Negative	Positive	Latent syphilis Prior syphilis (treated or untreated) Unlikely early (incubating) syphilis	<ul style="list-style-type: none"> • If previously untreated, treat for appropriate stage of syphilis. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary. • For geriatric patients with dementia, cerebrospinal fluid evaluation is not universally recommended and should be performed only if provider is suspicious for neurosyphilis.
Positive	Negative	Negative	Latent syphilis Prior syphilis (treated or untreated) Unlikely early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • In low risk populations, isolated positive EIA/CIA are likely to be false positives. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary. • If previously untreated, consider repeat serology in 2-4 weeks. If both RPR and TP-PA remain negative, no further action necessary.
Positive	Negative	Not done	Latent syphilis Prior syphilis (treated or untreated) Unlikely early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • In low risk populations, isolated positive EIA/CIA are likely to be false positives. • If previously treated, negative clinical exam, and no recent risk of exposure, no further action necessary. • If previously untreated, either ask laboratory re: send-out procedures to obtain second treponemal test or consider repeat serology in 2-4 weeks. If both RPR and second treponemal test remain negative, no further action necessary.

Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay; MSM-men who have sex with men.

* If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

[†] Likelihood of interpretation depends on patient’s risk factors for syphilis and past medical history.

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Table 5: Interpretation of discordant treponemal EIA/CIA results in asymptomatic pregnant women

Initial evaluation of all pregnant women with discordant serology should include obtaining a history of prior syphilis diagnosis and treatment, sexual risk assessment, and physical exam (i.e., skin, oral, anogenital, ocular, neurologic). If any signs or symptoms of syphilis, see Table 1 for management.

All pregnant women at high risk for syphilis or who live in areas of high syphilis morbidity should receive screening during the first trimester, third trimester (~28 weeks gestation), and at delivery.

EIA or CIA	RPR or VDRL	TP-PA or FTA-ABS*	Possible Interpretations [†]	Recommended Actions
Positive	Negative	Positive	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis	<ul style="list-style-type: none"> • If previously untreated, treat for appropriate stage of syphilis. • If treatment given, obtain RPR/VDRL on day of treatment. If RPR/VDRL negative, repeat RPR/VDRL at 28-32 weeks gestation. If RPR/VDRL positive, then consult www.cdc.gov/std/treatment/ for recommendations re: treatment and follow-up serology. • If previously treated, negative clinical exam, and no recent risk of exposure, repeat RPR/VDRL at 28-32 weeks gestation.
Positive	Negative	Negative	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • In low risk pregnant women, isolated positive EIA/CIA are likely to be false positives. • If previously untreated, repeat testing in 2-4 weeks. If RPR/VDRL and TP-PA still negative, no further action necessary. • If previously treated, negative clinical exam, and no recent risk of exposure, repeat RPR/VDRL at 28-32 weeks gestation.
Positive	Negative	Not done	Latent syphilis Prior syphilis (treated or untreated) Early (incubating) syphilis False positive EIA	<ul style="list-style-type: none"> • In low risk pregnant women, isolated positive EIA/CIA are likely to be false positives. • Ask laboratory re: send-out procedures to obtain second treponemal test (preferred). • If second treponemal test cannot be obtained, repeat testing in 2-4 weeks. If RPR/VDRL still negative, no treatment needed. Repeat RPR/VDRL at 28-32 weeks gestation. • If previously treated, negative clinical exam, and no recent risk of exposure, repeat RPR/VDRL at 28-32 weeks.
Negative	Not done or Negative	Not done or negative	Syphilis unlikely	<ul style="list-style-type: none"> • No further action necessary.

Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay; MSM-men who have sex with men.

* If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

[†] Likelihood of interpretation depends on patient's risk factors for syphilis and past medical history.

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V. CONGENITAL SYPHILIS

- In pregnant women without risk factors for syphilis, an isolated positive EIA (EIA+/RPR-/TP-PA-) is likely to be a false positive result.⁴ The predictive value of a positive EIA (the chance that a positive EIA truly represents disease) is reduced in low-risk populations.
- If a pregnant woman with discordant serology (EIA+/RPR-) remains RPR/VDRL negative throughout pregnancy, then the newborn should receive an RPR/VDRL at birth, but does not require a comprehensive laboratory and radiologic evaluation.
- If the mother becomes RPR-positive during pregnancy, the infant will need to be evaluated and possibly treated depending on the gestational age at diagnosis. Recommendations for evaluation/treatment of infants with congenital syphilis can be found at <http://www.cdc.gov/std/tg2015/congenital.htm>.
- Due to transplacental passage of maternal treponemal antibodies, EIA/CIA are **NOT recommended** for diagnosis of congenital syphilis in the neonate. Nontreponemal tests (RPR and VDRL) continue to be recommended for neonatal syphilis diagnosis. Diagnostic recommendations and interpretation of neonatal nontreponemal titers can be found in the 2015 CDC STD Treatment Guidelines: <http://www.cdc.gov/std/tg2015/congenital.htm>.

VI. INTEGRATION OF HIV AND OTHER STD TESTING

- All patients diagnosed with syphilis should be offered testing for HIV, as syphilis can increase the risk of HIV acquisition and transmission. Rates of HIV co-infection in syphilis-infected MSM are almost 50 percent.⁵
- Women diagnosed with syphilis should receive screening for other STDs including gonorrhea and chlamydia.
- MSM who are diagnosed with syphilis should receive site-specific screening for gonorrhea and chlamydia, depending on sexual exposure (urine, oropharynx for receptive oral sex, rectum for receptive anal sex).

VII. PARTNER MANAGEMENT

- Partner management for patients diagnosed with positive EIA/CIA serology will depend largely on staging evaluation of the index patient. Staging is based on the patient's current signs/symptoms, prior history of treatment, sexual risk assessment, and serologic test results and must be made on a case-by-case basis.
- According to current national guidelines, partner management recommendations vary according to the patient's stage of disease (see Table 6).³

Table 6. Partner Management Recommendations

Syphilis Stage	Partner Management Recommended
Primary and secondary syphilis	All sexual partners within the past 3 months should receive evaluation and empiric treatment.
Early latent syphilis	All sexual partners within the past 12 months should receive evaluation and treatment, as indicated.
Latent syphilis of unknown duration <i>and</i> RPR/VDRL $\geq 1:32$	Manage the same as early latent syphilis.
Late latent syphilis	Long-term sex partners should receive clinical and serologic evaluation. Long-term partners who are serologically negative <i>do not</i> need to receive presumptive treatment for syphilis.

VIII. SEROLOGIC FOLLOW-UP

- Patients with EIA/CIA-positive, RPR/VDRL-positive serology diagnosed with syphilis should receive follow-up nontreponemal titers according to national guidelines. Guidelines for serologic follow-up are available from the CDC at: <http://www.cdc.gov/std/tg2015/syphilis.htm>.
- For asymptomatic patients with discordant serology (EIA/CIA-positive, RPR/VDRL-negative) who are treated for syphilis, consider repeating serologic screening in 12 months or sooner if indicated by risk.

IX. PUBLIC HEALTH REPORTING

Because complete case reporting is essential to maintain the accuracy and quality of syphilis surveillance systems, the following are recommendations to providers for reporting syphilis cases diagnosed using the EIA/CIA-based algorithms:

- Providers are required by law to report suspected or confirmed cases of syphilis to the local health jurisdiction where the patient resides (Title 17, California Code of Regulations, §2500) within one working day of identification. Providers should follow the local health department's specified procedures for reporting, including providing the patient's name, address, other demographic information, ordering provider address, and likely stage of syphilis (i.e., primary, secondary, early latent, late latent).
- In clinical situations in which there is evidence of treatment failure or repeat infection (i.e., 4-fold increase in quantitative nontreponemal titer), then the case should be reported as such.

- Providers are required to report new cases of syphilis, but do not need to report follow-up serology results for patients who have been previously treated and reported.
- Providers who receive positive test results for a patient whose treatment history is not known should report these patients as possible cases.

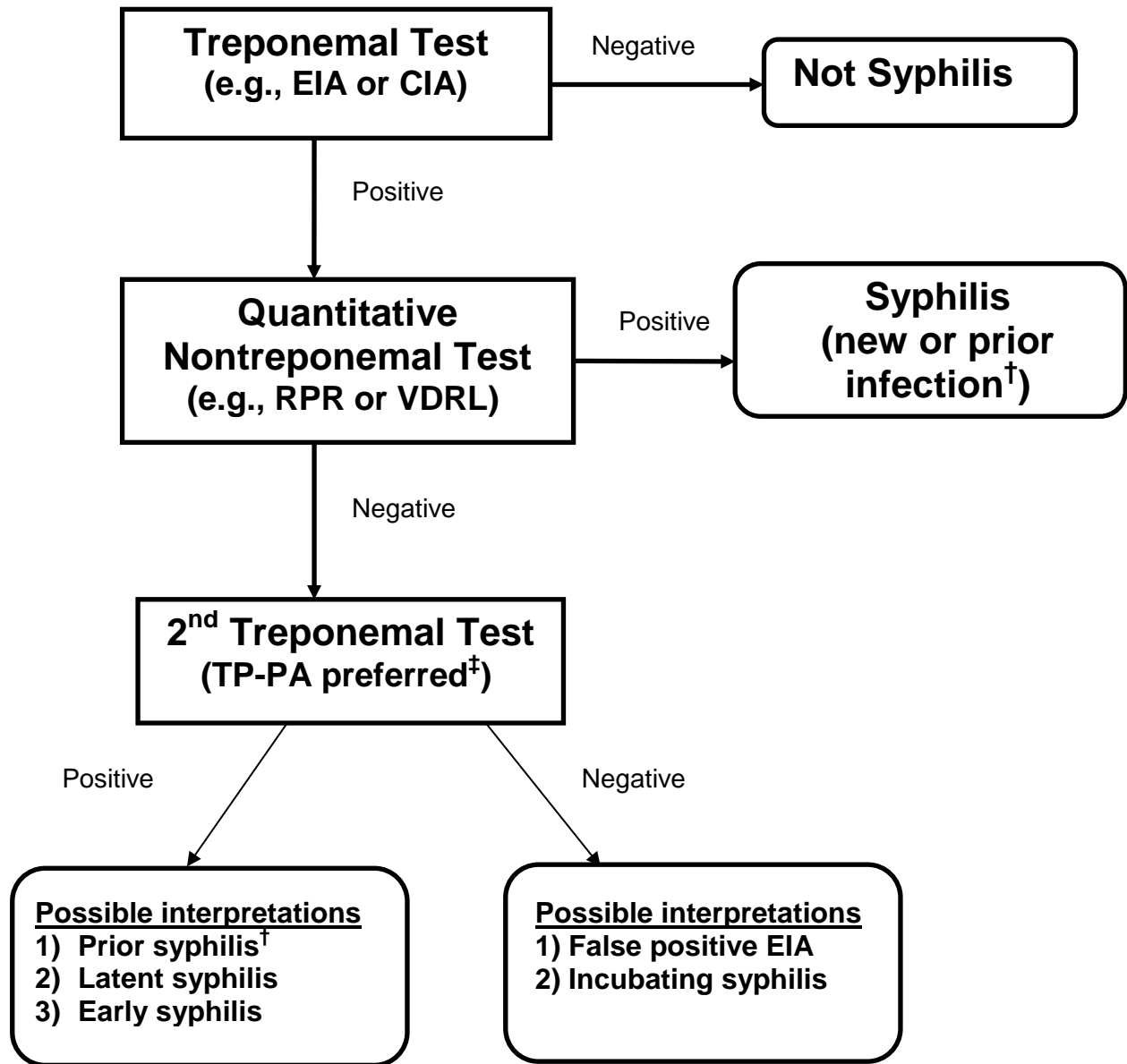
X. CLINICAL CONSULTATION

Medical providers and public health professionals in California with questions about management of patients with positive or discordant EIA/CIA serology results may submit a consult to the STD Control Branch and California Prevention Training Center at www.stdccn.org or call 510-620-3400 to consult with the clinician on call.

XI. REFERENCES

1. Sexually Transmitted Diseases Testing in California, 2012 Clinical Laboratory Survey. California Department of Public Health, STD Control Branch. Online: <http://www.cdph.ca.gov/data/statistics/Pages/STDDData.aspx>. Accessed February 2016.
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**Attachment A:
California Algorithm for Syphilis Screening with Treponemal Immunoassays***



Abbreviations: EIA-enzyme immunoassay; CIA-chemiluminescence immunoassay; RPR-rapid plasma reagin; VDRL-Venereal Disease Research Laboratory; TP-PA-Treponema pallidum particle agglutination assay.

* Recommended algorithm. Algorithm used by local laboratory may vary. Check with your local laboratory director.

†Results may be positive for prior syphilis regardless of whether infection was initially treated or untreated.

‡ If TP-PA not available, FTA-ABS (fluorescent treponemal antibody-absorption test) may be used, but sensitivity and specificity are lower than that of TP-PA.

Please see Tables 1-5 of this document for specific guidance based on interpretation of test results.

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