Syphilis Laboratory Interpretation

TEST				INTERPRETATION		
Syphilis Screen (Screening Test e.g. EIA, CMIA, CLIA)	RPR (Non Treponemal)	TP-PA (Treponemal)	FTA-ABS (Treponemal)	Most Likely Interpretation (RESULTS SHOULD BE INTERPRETED IN CONJUNCTION WITH HISTORY AND CLINICAL FINDINGS) (see Canadian Guidelines on STIs-2010 edition; www.phac-aspc.gc.ca)	Alternative Causes for Reactive Serological Tests: False Positive Results for Non Treponemal Tests * (RPR)	Alternative Causes for Reactive Serological Tests: False Positive Results for Treponemal Tests * (SCREEN (e.g. EIA, CMIA, CLIA)/TP-PA/FTA-ABS)
Reactive	Reactive (dilutions may vary)	Reactive	Test not done	(a) Infectious syphilis (primary, secondary, early latent), especially if titre > 1:8 & history of symptom(s), contact with an infected partner, or other risk factors OR (b) Late latent syphilis or latent syphilis of unknown duration, especially if titre <1:8 & no history of treatment OR (c) Old treated syphilis OR (d) ** In persons from endemic countries, yaws (e.g. Caribbean), pinta (e.g. Central America), or bejel **PLAN:** repeat blood work in 2-4 weeks to assist with staging or diagnosis	**INFECTIOUS** • bacterial endocarditis (e.g. rheumatic heart disease) • chancroid • chickenpox • infectious mononucleosis (e.g. EBV) • leprosy (e.g. Hansen's disease) • lymphogranuloma venereum (LGV) • malaria • mumps • mycoplasma pneumonia • pneumoncoccal pneumonia • rickettsial disease • tuberculosis • viral hepatitis • viral pneumonia • other treponemal infections: yaws, pinta, or bejel ** **NON INFECTIOUS** • advancing age • chronic liver disease (e.g. hepatitis) • connective tissue disease (e.g. rheumatoid arthritis) • immunizations • injection drug use • malignancy • multiple myeloma • pregnancy • ulcerative colitis	**INFECTIOUS** • brucellosis • genital herpes • infectious mononucleosis (e.g. EBV) • leprosy • leptospirosis • lyme disease • malaria • other treponemal infections: yaws, pinta, or bejel ** **NON INFECTIOUS** • advancing age • chronic liver disease (e.g. hepatitis) • drug addiction • hyperglobulinemia • scleroderma • systemic lupus erythematosus • thyroiditis
Reactive	Non Reactive	Reactive	Test not done	(a) Usually late latent syphilis or latent syphilis of unknown duration, with no history of treatment OR (b) Old treated syphilis OR (c) ** In persons from endemic countries, yaws (e.g. Caribbean), pinta (e.g. Central America), or bejel OR (d) Incubating infectious syphilis (primary), especially if history of symptom(s), contact with an infected partner, or other risk factors **PLAN:** repeat blood work in 2-4 weeks to assist with staging or diagnosis • if results change, reinterpret • if results are the same consider (a), (b), or (c)		
Reactive	Non Reactive	Non Reactive/ Indeterminate	Reactive	(a) Usually incubating infectious syphilis (primary), especially if history of symptom(s), contact with an infected partner, or other risk factors OR (b) Late latent syphilis or latent syphilis of unknown duration, with no history of treatment OR (c) Old treated syphilis OR (d) ** In persons from endemic countries, yaws (e.g. Caribbean), pinta (e.g. Central America), or bejel **PLAN:** repeat blood work in 2-4 weeks to assist with staging or diagnosis • if RPR becomes reactive consider primary syphilis (especially, if titre > 1:8) • if results are the same consider (b), (c), or (d)		
Reactive	Reactive (dilutions may vary)/ Indeterminate/ Non Reactive	Non Reactive	Non Reactive	• Usually biological false positive **PLAN:** repeat blood work in 2-4 weeks to assist with staging or diagnosis • if results change reinterpret		
	Test not done	Test not done	Test not done	• No syphilis **PLAN:** if history of clinical manifestations, contact with an infected partner, or other risk factors; repeat blood work in 2-4 weeks		
Indeterminate	Indeterminate	Indeterminate	Indeterminate	**PLAN:** Repeat blood work in 2-4 weeks to assist with staging or diagnosis		

Adapted from: Public Health Agency of Canada. January 2010 Edition. Canadian Guidelines on Sexually Transmitted Infections.
* Health Canada. January 2010 Edition. Canadian STD Guidelines.
** for information regarding endemic treponemal infections, please refer to Heymann, David L. (Editor) 2004. Control of Communicable Disease Manual, 18th edition, American Public Health Association. Washington.

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Syphilis Infection

STAGE	INCUBATION PERIOD	DISEASE MANIFESTATIONS	TREATMENT (for alternative treatment for penicillin-allergic patients, refer to Canadian Guidelines on STIs-2010 Edition; www.phac-aspc.gc.ca)	POST TREATMENT SEROLOGICAL MONITORING		PARTNER NOTIFICATION (time period)
				Monitoring Schedule	Adequate Response (2-tube drop = 4 fold drop e.g. from 1:32 to 1:8)	
PRIMARY (infectious)	3-90 days (average is 21 days)	Chancre, and/or regional lymphadenopathy	Benzathine penicillin G 2.4 million units IM as a single dose	3, 6, 12 months after treatment	2-tube drop at 6 months 3-tube drop at 12 months 4-tube drop at 24 months	4 months and 1 week (17 weeks) prior to the onset of symptoms
SECONDARY (infectious)	2-12 weeks	Rash, fever, malaise, lymphadenopathy, mucus lesions, condyloma lata, alopecia, (for meningitis, headaches, uveitis, and/or retinitis, refer to neurosyphilis)	Benzathine penicillin G 2.4 million units IM as a single dose	3, 6, 12 months after treatment	3-tube drop at 6 months 4-tube drop at 12 months	8 months (34 weeks) prior to the onset of symptoms
EARLY LATENT (infectious)	< 1 year	Asymptomatic	Benzathine penicillin G 2.4 million units IM as a single dose	3, 6, 12 months after treatment	2-tube drop at 12 months	1 year prior to the diagnosis
LATE LATENT SYPHILIS or LATENT SYPHILIS OF UNKNOWN DURATION (not infectious)	> 1 year	Asymptomatic	Benzathine penicillin G 2.4 million units IM weekly for 3 doses	12 and 24 months after treatment	Response will be variable	As late latent syphilis is not considered infectious, consider the assessment of marital or other long-term partners and children as appropriate
TERTIARY (not infectious) Cardiovascular Syphilis	10-30 years	Aortic aneurysm, aortic regurgitation, and/or coronary artery ostial stenosis	Benzathine penicillin G 2.4 million units IM weekly for 3 doses	12 and 24 months after treatment	• Response will be variable • Refer to STI Guidelines	Assess marital or other long term partners and children as appropriate
Neurosyphilis (can occur at any stage)	<2-20 years	Cerebrospinal examination to diagnose. Symptoms include headaches, vertigo, personality changes, dementia, ataxia, meningitis, auditory symptoms, cranial nerve abnormalities, uveitis, and/or retinitis	Penicillin G 3-4 million units IV q4h (16-24 million units/day) for 10-14 days	6, 12 and 24 months after treatment		
Gumma	1-46 years (most cases 15 years)	Tissue destruction of any organ; manifestations depend on site involved	Benzathine penicillin G 2.4 million units IM weekly for 3 doses	12 and 24 months after treatment		
HIV INFECTED (at any stage)			• Treat for stage of diagnosis. Additional doses have not been shown to be more effective for HIV+ individuals. Careful follow-up is essential as there may be increased risk of neurological complications or serologic treatment failure. Updated 2014. • Refer to STI Guidelines	3, 6, 12 and 24 months after treatment and yearly thereafter	• Response will be variable and may take longer to decline • Refer to STI Guidelines	Assess partners based on the stage of diagnosis
PREGNANT WOMAN			• accurately staging cases) in pregnancy should be treated with two doses of benzathine penicillin G 2.4 million units 1 week apart • There is no alternative to penicillin for the treatment in pregnancy • Refer to STI Guidelines			Assess partners based on the stage of diagnosis and infant should be assessed at delivery

Adapted from: Public Health Agency of Canada. January 2010 Edition. Canadian Guidelines on Sexually Transmitted Infections.
Centers for Disease Control and Prevention. 2010 STD Treatment Guidelines.