Syphilis Serology Supplemental Information

Syphilis is a disease caused by infection with the spirochete *Treponema pallidum*. Serological tests greatly aid in the diagnosis of syphilis. Serologic assays used to screen patients for syphilis are non-treponemal tests. The non-treponemal test performed by the South Dakota Public Health Laboratory is the Rapid Plasma Reagin test (RPR). Quantitative RPR results may be used to monitor therapy for *T. Pallidum* infections.

Confirmation of reactive screening test results (RPR) is obtained with specific treponemal tests for syphilis. The *Treponema pallidum*-Particle Agglutination test (TP-PA) is the South Dakota Public Health Laboratory's primary confirmatory test for *T. Pallidum*-specific antibody. Suspected biologically false-positive results sometimes produced in the RPR test may be investigated with a TP-PA test. The Fluorescent Treponema Antibody Stain (FTA) also detects *T. Pallidum*-specific antibody. The TP-PA is **not a screening procedure** and is only performed when required for proper patient management.

Specimen Acceptance Policy

Testing for syphilis, non-treponemal and treponemal-specific, is available to all health care providers.

South Dakota does not require premarital testing for syphilis.

Type of Specimen Required

Refer to Chart V-2.

Chart V – 2
Serological Tests for Syphilis

	Test	Specimen Required	Application of Test
Nontreponemal Tests	RPR	Whole, clotted blood, or serum	Screening (for example, prenatal or STD clinics), monitoring treatment.
Treponemal Antibody Tests**	TP-PA	Whole, clotted blood or serum	Detection of false-positive RPR results, monitoring of infants for possible congenital syphilis.

** Treponemal antibody tests will not routinely be performed on specimens that produce negative results on the screening test (RPR). An exception is that the TP-PA will be performed at the provider's request on specimens that may produce negative RPR results but are from patients (birth to 15-months-old) who may have congenital syphilis.

Specimen Collection

Draw one blood tube on each patient, even for those requiring a confirmatory test. Additional tubes are unnecessary.

WHOLE, CLOTTED BLOOD OR SERUM

Draw at least 5 to 7 ml of blood into a red-stoppered vacuum tube allowing the tube to fill completely. Allow the tube to stand at room temperature to ensure complete clotting of blood. Blood should not be taken for 1 hour after a meal to avoid chylous serum.

Store the specimen in a refrigerator (2 to 8^0C) until it is sent to the laboratory. If serum is to be sent, separate the serum from the blood clot by centrifuging the whole, clotted blood at 1,500 to 2,000 rpms at room temperature for 10 minutes. Pipette the serum into a new red-stoppered vacuum tube or plastic screw-capped vial. Submit at least 2 ml of serum.

Interpretation of Laboratory Results

Screening (RPR)

Normal:	Non-reactive
Abnormal:	Reactive

Confirmatory(TP-PA)

Normal:	Non-reactive, if no prior infection
	Reactive, if documented previous infection
Abnormal:	Reactive

Positive reactions will occur within 10 to 90 days following exposure or 7 to 10 days after onset of primary lesion.

Biological false-positive readings may occur normally or may also indicate the presence of serious disease other than syphilis. Possible causes for biological false-positive RPR results:

Narcotic addiction
Aging
Terminal malignancy
Viral diseases, e.g., chickenpox, measles,
Infectious mononucleosis, pneumonia, etc.
Malaria
Hepatitis
Leprosy
Pregnancy
Rheumatoid arthritis
Systemic lupus erythematosus

Reporting Procedure and Interpretation

Results of the non-treponemal tests for syphilis and the TP-PA performed on serum is available within 3 working days of receipt of the specimen.

Patients with primary syphilis may have a non-reactive RPR and/or TP-PA. However, these tests will usually soon become reactive. Most patients treated for primary syphilis will have a reversion of the nontreponemal tests to non-reactive within two to three years. The TP-PA test will usually remain reactive after treatment. Non-reactive serologic tests and normal clinical evaluations do not exclude incubating syphilis.

The results of all specimen requests are reported to the provider who submitted the specimen. In addition, the Office of Disease Prevention and the STD control coordinator are sent reports on positive specimens.

Criteria for Unacceptable Specimens

1. The specimen is not properly identified with the patient's name.
2. The patient identifier on the specimen does not match that on test request form.
3. The specimen is broken or leaked in transit.
4. The specimen is extensively hemolyzed, lipemic (chylous), extremely turbid, or grossly contaminated with bacteria.
5. Whole, clotted blood collected more than 5 days prior to receipt by the laboratory.
6. The quantity of the specimen received is not sufficient to allow accurate completion of test requested. (QNS-Quantity Not Sufficient.)
7. No test request form was received with the specimen, or no specimen was received with the request form.
8. The specimen did not arrive in appropriate temperature transport range.