

Blood Testing for Syphilis

Quick reference guide for different types of blood testing for syphilis and recommended usage.

Syphilis is a sexually transmitted infection (STI) caused by a bacteria called *Treponema Pallidum*. It can be treated with penicillin or other antibiotics. The only way to know if a patient has syphilis is with a blood test. The blood test detects antibodies that may reflect infection with *T. Pallidum*.



What types of tests are there?

There are two broad types of serologic (blood) tests for syphilis (STS), which are used for detecting a syphilis infection.

- Non-treponemal tests detect antibodies that can be in the host (person with syphilis) and in the syphilis bacteria itself. Common non-treponemal tests include Venereal Disease Research Laboratory (VDRL) or Rapid Plasma Reagin (RPR).
- Treponemal tests detect antibodies that are specific to syphilis bacteria. Common treponemal tests include Fluorescent Treponemal Antibody (FTA) or Treponema Pallidum Particle Agglutination (TPPA).

Both types of tests are used in conjunction with each other to detect if a person has a current, untreated infection, or a past infection that was successfully treated. This series of tests, non-treponemal and treponemal, can be performed using either the traditional sequence or reverse sequence testing.



Which method should I use for my patients?

There are two methods of testing people for syphilis. The first is the traditional sequence testing. This starts with a non-treponemal test and confirms a positive result with a treponemal test. It is crucial to note that when using this testing method, it may cause a false negative with some pregnant people with syphilis.

The other method is reverse sequence testing. It starts out with the treponemal antibody test and then uses a non-treponemal test, and sometimes may use a TPPA test, to confirm. This testing sequence is more likely to be accurate for pregnant people with syphilis. Ask your laboratory what method of testing is used. It is recommended that all pregnant people first be tested with a treponemal antibody test.





Traditional algorithm flow chart

1. Non-treponemal test is performed.

If test is reactive, proceed to 2.

If the test is non-reactive, proceed to 3.

2. Non-treponemal test is reactive.

Perform confirmation testing with a treponemal test.

If test is reactive, proceed to 4.

If test is non-reactive, proceed to 3.

3. Test is non-reactive.

Patient is unlikely to have syphilis.

4. Confirmation testing with treponemal test is reactive.

The patient is considered to have been exposed to syphilis. An evaluation for stage of infection or previous infection is performed.



Reverse algorithm flow chart

1. Treponemal test is performed.

If test is reactive, proceed to 2.

If the test is non-reactive, proceed to 4.

2. Confirmation testing with a quantitative non-treponemal test is performed.

If test is reactive, proceed to 5.

If the test is non-reactive, proceed to 3.

3. A second treponemal assay is performed.

If test is reactive, proceed to 5.

If the test is non-reactive, proceed to 4.

4. Test is non-reactive.

The patient is unlikely to have syphilis.

5. Test is reactive.

The patient is considered to have been exposed to syphilis. An evaluation for stage of infection or previous infection is performed.

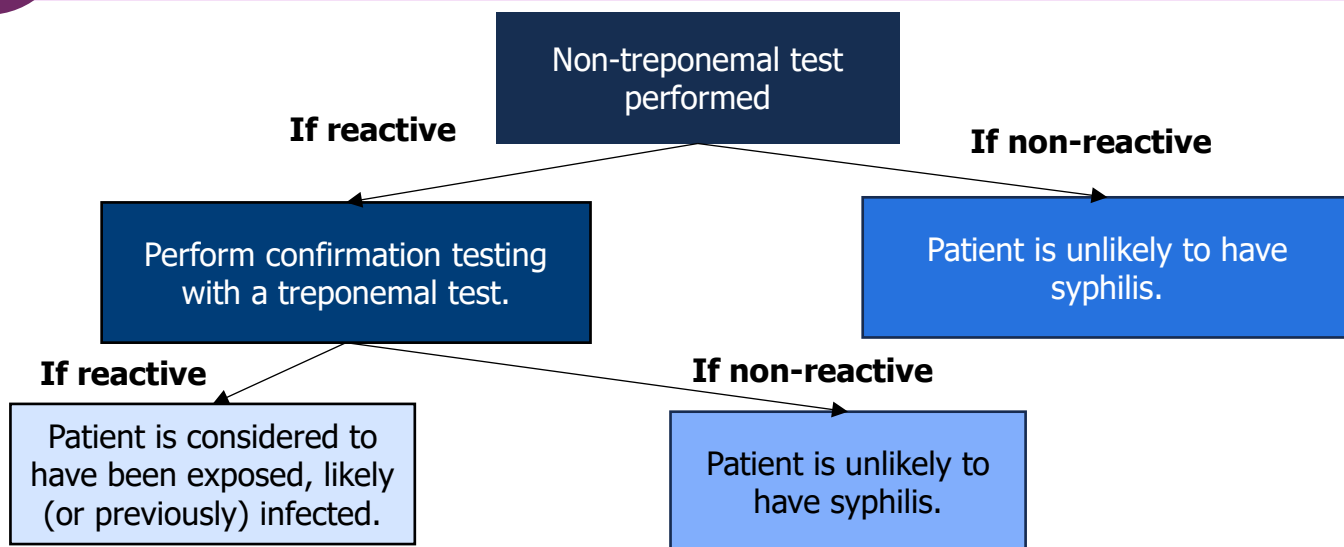
For testing and treatment guidance for syphilis and congenital syphilis, visit the [CDC STI Treatment Guidelines](https://www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf) (www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf). For laboratory guidance, visit [the CDC Laboratory Recommendations for Syphilis Testing](https://www.cdc.gov/mmwr/volumes/73/rr/rr7301a1.htm) (www.cdc.gov/mmwr/volumes/73/rr/rr7301a1.htm).

Have questions? Contact the Wisconsin Department of Health Services STI Unit at 608-266-7365.

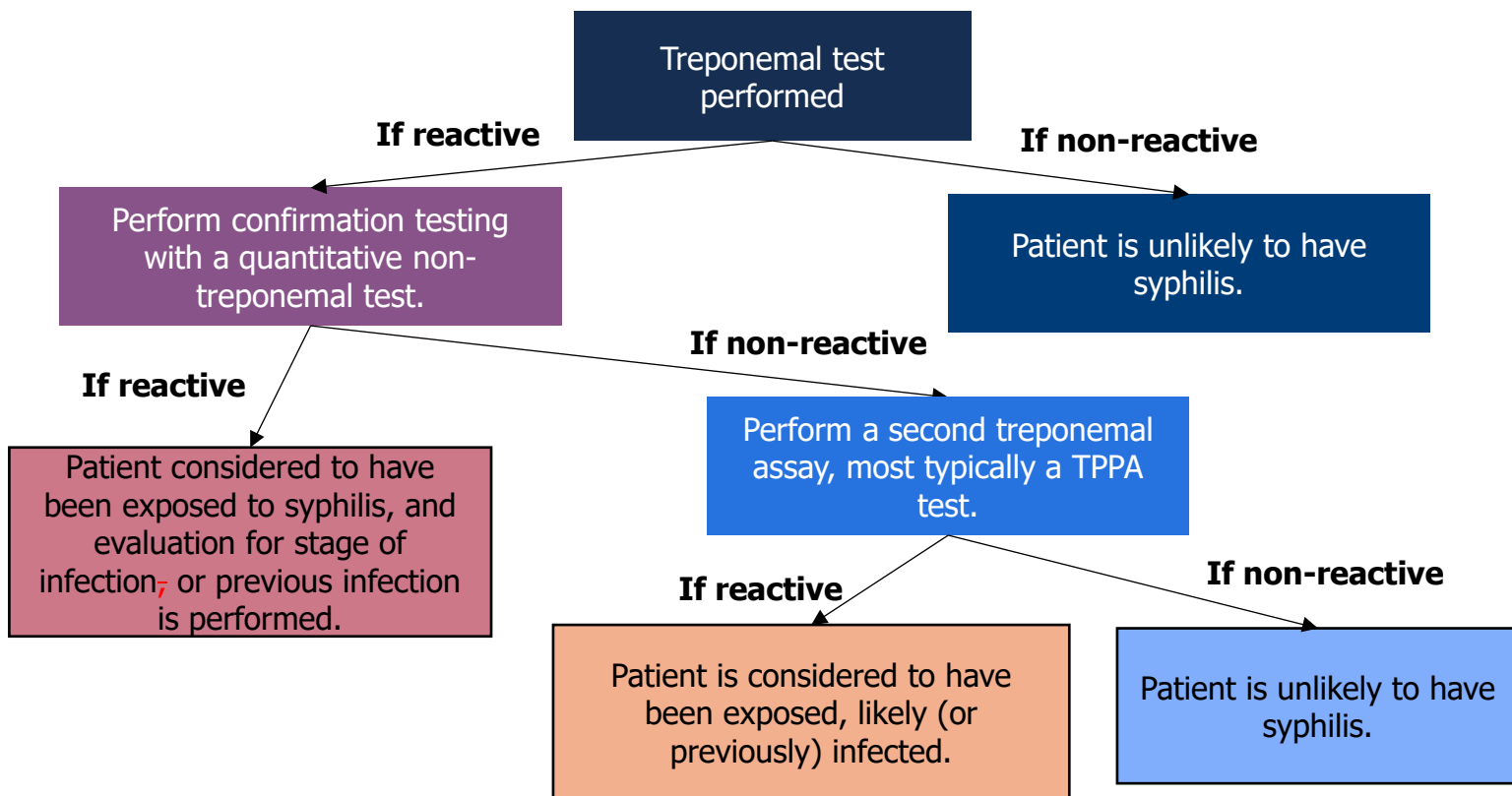




Traditional algorithm flow chart



Reverse algorithm flow chart



For testing and treatment guidance for syphilis and congenital syphilis, visit the [CDC STI Treatment Guidelines](https://www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf) (www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf). For laboratory guidance, visit [the CDC Laboratory Recommendations for Syphilis Testing](https://www.cdc.gov/mmwr/volumes/73/rr/rr7301a1.htm) (www.cdc.gov/mmwr/volumes/73/rr/rr7301a1.htm).

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