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EpiNotes

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Serology Syphilis Tests: Surveillance Implications of the Reverse Algorithm

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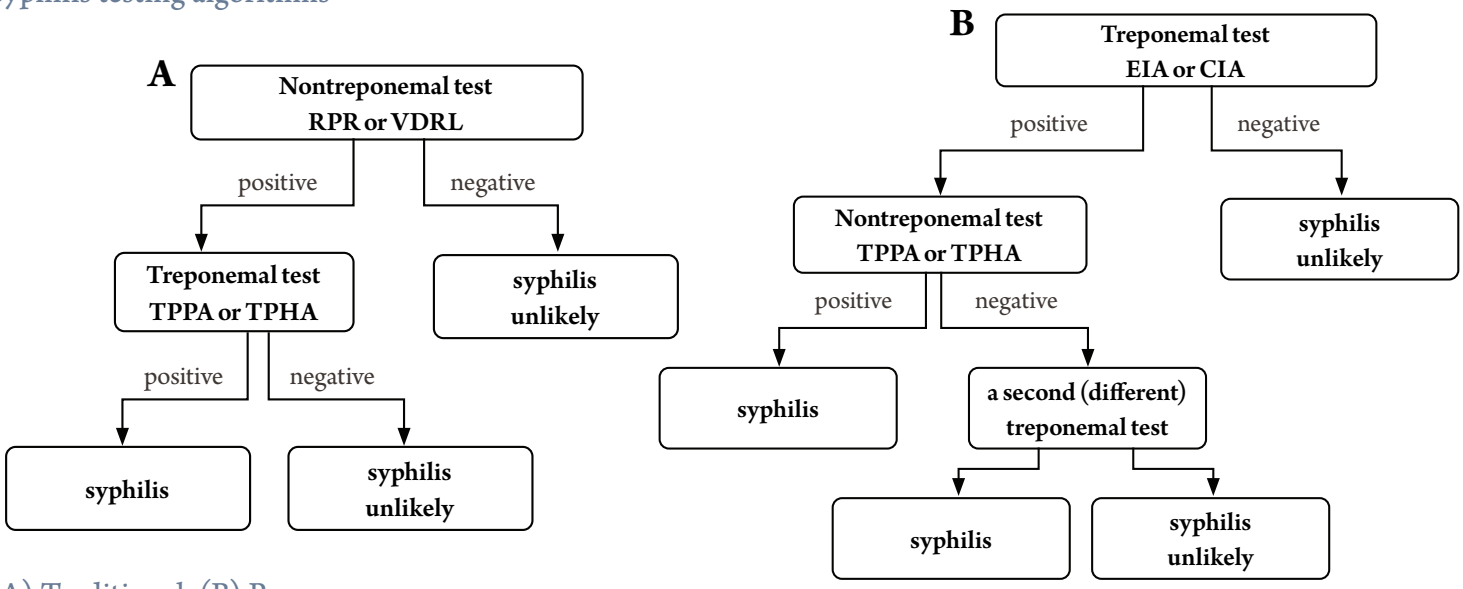
In 2024, the Centers for Disease Control and Prevention (CDC) provided new recommendations that included serologic testing and methods for the identification of the causative bacteria, Treponema pallidum[1]. These recommendations are made with consideration that newer serologic tests allow for more laboratory automation that result in reduced time and labor required for syphilis screening.

The surveillance of syphilis requires the compilation of sexual history, clinical signs and symptoms, laboratory tests, and treatment history. The collection of this information is done through clinical laboratory reports, case interviews, provider records, case contact interviews, and treatment history search.

Syphilis laboratory tests are divided into two categories, non-treponemal and treponemal tests. Non-treponemal tests are not specific for the Treponema pallidum bacteria, while treponemal tests are specific for the Treponema pallidum bacteria. Both types of tests should be used sequentially to assist in distinguishing between an untreated infection or a past infection that has been successfully treated. Having both treponemal and non-treponemal results available at the same time, and on a timelier basis, is an advantage for syphilis surveillance. Nontreponemal tests are generally manually performed, but automated tests have now become commonplace.

The sequence of syphilis testing in the traditional algorithm is for a non-treponemal test (RPR, VDRL) to be first performed as a screening test and the positives followed up with a treponemal test. In the reverse [new] algorithm, a treponemal test is first performed and a positive result is followed up with a non-treponemal test.

Syphilis testing algorithms



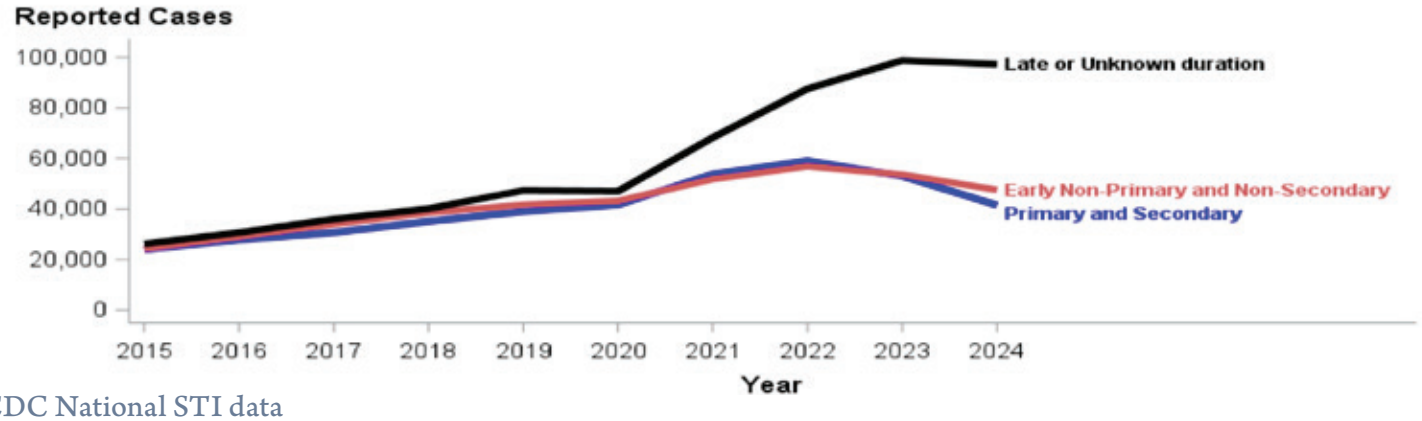
(A) Traditional, (B) Reverse

The national laboratories have been strong advocates for the reverse algorithm. The developments in automation of syphilis tests have been a significant factor for this since non-treponemal tests, which were more cumbersome and labor intensive, are now being effectively automated.

Both traditional and reverse algorithms are now acceptable. The choice of either test sequence should be based on laboratory resources, test volume, and the population served.

The initial testing with a Treponemal test, as conducted in the reverse algorithm, may lead to more surveillance cases of syphilis. By itself, a positive Treponemal result does not indicate a current active case of syphilis, but rather an indication of syphilis exposure at some point in time. Lack of treatment records, or a knowledge of those with spontaneous recovery, may influence the surveillance numbers seen in the syphilis category "Late or Unknown duration."

Syphilis — Cases[2] by Stage and Year, USA, 2015-2024



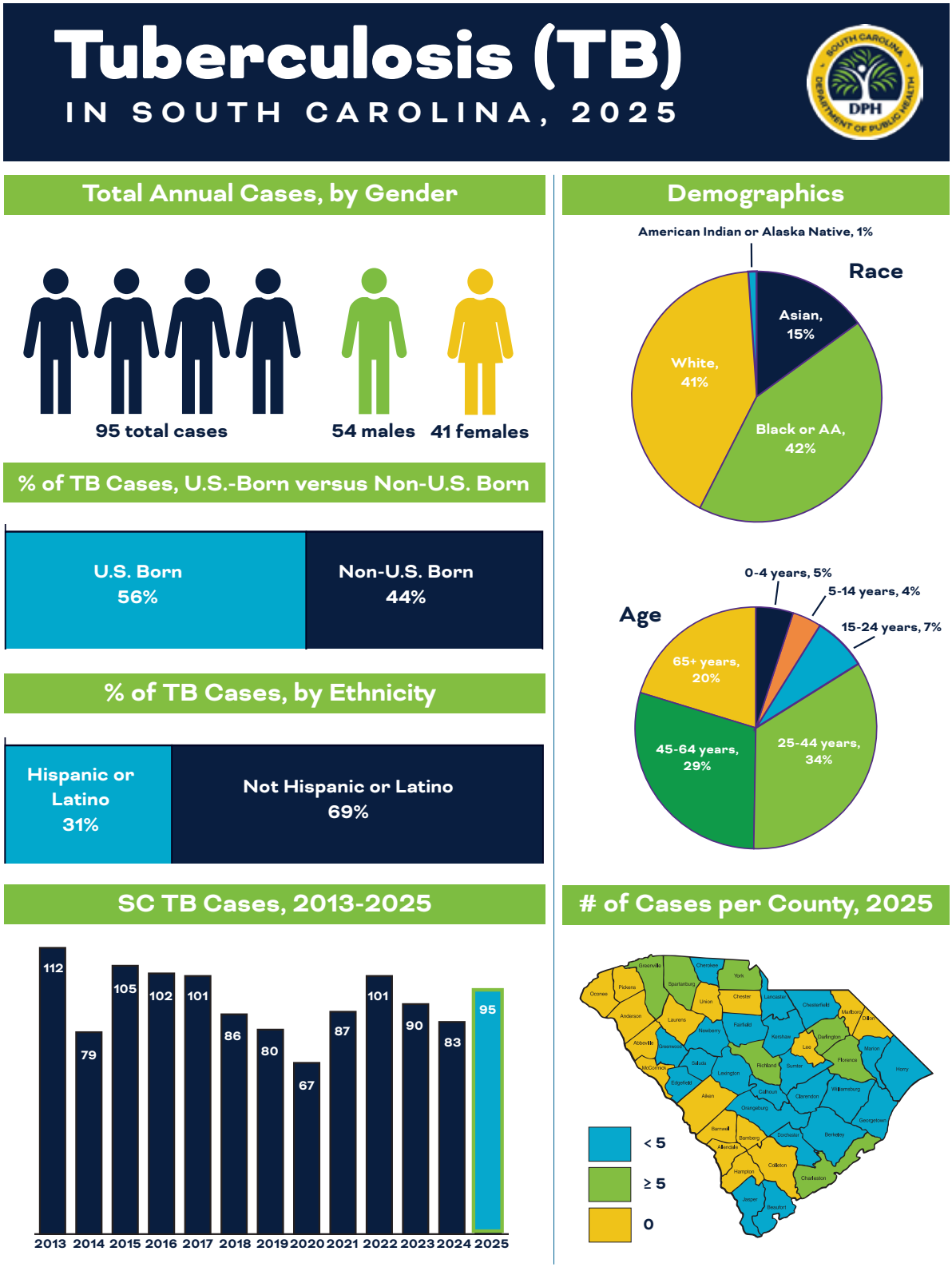
[2]CDC National STI data

1. Papp JR, Park IU, Fakile Y, Pereira L, Pillay A, Bolan GA. CDC Laboratory Recommendations for Syphilis Testing, United States, 2024. MMWR 2024.

2. Centers for Disease Control and Prevention. Sexually Transmitted Infections Surveillance 2024. Atlanta: U.S. Department of Health and Human Services; 2025.

Tuberculosis (TB) in South Carolina, 2025

Tuberculosis (TB) is a bacterial disease found primarily in the lungs. It is spread from person to person through the air. There are medications to treat TB that work for most people. As shown in the infographic, there were 95 reported TB cases in South Carolina in 2025.



The STORC Trial: New Hope for HCV Treatment During Pregnancy

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Current hepatitis C treatment guidelines support screening for Hepatitis C Virus (HCV) during pregnancy, but antiviral treatment has typically been deferred until after delivery, since there are no FDA-approved medications currently available for treatment during pregnancy (Infectious Diseases Society of America, 2023). The Sofosbuvir/Velpatasvir Treatment of Chronic Hepatitis C During Pregnancy (STORC) clinical trial aims to establish the safety of Sofosbuvir/Velpatasvir (SOF/VEL), also known as Epclusa, in pregnancy.

During the STORC trial, 100 pregnant participants in the second or third trimester of pregnancy are administered one SOF/VEL tablet daily for 12 weeks to treat HCV. They are also followed for 12 weeks postpartum, and their infants are followed from birth through one year (Chappell, Sofosbuvir/Velpatasvir Treatment of Chronic Hepatitis C During Pregnancy (STORC), 2022). Although the study is not expected to conclude until 2027, initial results have been promising.

In the first half of the study, SOF/VEL has been shown to maintain its efficacy in curing HCV, with 100% of participants who completed treatment achieving sustained viral remission (n=35). There have been no safety concerns to date, and no perinatal transmissions have occurred. There are several potential benefits to curing HCV during pregnancy, including reduced risk of cholestasis, fetal growth restriction, and preterm birth. Treating and curing HCV during pregnancy also reduces the risk of community transmission, and can potentially improve psychological well-being (Chappell, Safety, Tolerability, and Outcomes of SofosbuviR/Velpatasvir in Treatment of Chronic Hepatitis C Virus during Pregnancy: Interim results from the STORC study, 2024).

The potential risks of SOF/VEL while breastfeeding are still undetermined, and more research is needed. However, the STORC trial may ultimately support changing HCV treatment guidelines to include pregnant people.

References

Chappell, C. (2022). Sofosbuvir/Velpatasvir Treatment of Chronic Hepatitis C During Pregnancy (STORC). Retrieved from National Library of Medicine: **https://clinicaltrials.gov/study/NCT05140941**

Chappell, C. (2024). Safety, Tolerability, and Outcomes of SofosbuviR/Velpatasvir in Treatment of Chronic Hepatitis C Virus during Pregnancy: Interim results from the STORC study. Retrieved from National AIDS Treatment Advocacy Project: **https://www.natap.org/2024/AASLD/AASLD_14.htm**

Infectious Diseases Society of America. (2023). HCV in Pregnancy. Retrieved from HCV Guidelines: **https://www.hcvguidelines.org/guidance/hcv-in-pregnancy/**

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