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Background

• Syphilis is usually diagnosed using two tests: a non-specific test, only positive during active infection, and a test for Treponema pallidum antibodies, positive for life.

• The Centers for Disease Control and Prevention (CDC) recommends screening patients with a non-specific test and confirming diagnosis with a treponemal test.

• Some laboratories are using automated treponemal tests, e.g. enzyme immunoassays (EIAs) and chemiluminescent immunoassays (CIAs), for screening due to their smaller burden on personnel and time. The diagnostic algorithm when these tests are used might produce discordant results that would not have resulted under the traditional algorithm. Discordant results can be caused by a false positive EIA/CIA, previously treated syphilis, or early primary syphilis. Clinical management of patients evaluated with EIAs/CIAs can be difficult.

• Syphilis surveillance in Connecticut is conducted primarily through mandatory laboratory reporting. Knowledge of how EIAs/CIAs are being used and reported in Connecticut is essential for identifying infectious cases, collecting accurate surveillance data and providing guidance to clinicians.

Objective

To determine the type of syphilis testing and reporting performed by Connecticut laboratories.

Methods

• In September 2011, surveys were sent to 30 laboratories: 27 major hospital laboratories, 2 commercial laboratories, and the state laboratory. All surveys were returned.

• Participants were asked about the type of syphilis testing performed and reported by their laboratory, the testing algorithm used, and the number of tests performed in 2010.

Results

• 28 of 30 laboratories surveyed perform syphilis testing. Of these, 4 use EIAs/CIAs, including a high volume commercial laboratory. Testing algorithms are not consistent among these laboratories.

• Of the 28 laboratories that perform testing, 24 report positive results within the state-mandated 48 hours but only 14 report both of the two tests needed to diagnose syphilis (non-specific and treponemal).

• 24 laboratories were able to estimate how many syphilis screening tests they performed in 2010: 196,700; 233 confirmed cases of early and latent syphilis were reported to DPH in the same year.

Conclusions

• Uptake of automated treponemal testing in Connecticut is moderate. As the use of automated testing increases so will the proportion of patients identified with discordant results. Health professionals diagnosing syphilis should understand the interpretation of these results and the need for a third test in the setting of discordant test results.

• Laboratories are not universally following Connecticut mandatory reporting laws. Education on responsibility for reporting tests, especially for referred samples, might be required.

• Health departments face several challenges in conducting laboratory surveillance for syphilis: management of discordant results, a high ratio of tests to reported cases, inconsistent testing algorithms, and inconsistent reporting. To respond to these challenges, health departments should establish standard procedures for monitoring, interpreting, and documenting reported syphilis tests.

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