MLS: Laboratory Update
Discordant Results from Reverse Sequence Syphilis Screening
February 18, 2011

Purpose of this Message: To make the laboratory community aware of a recent Morbidity and Mortality Weekly Report (MMWR) regarding the discordant findings from a CDC study of the performance of reverse sequence screening for syphilis.

Reference
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6005a1.htm?s_cid=mm6005a1_e&source=govdelivery

BACKGROUND
CDC recommends syphilis serologic screening with a nontreponemal test, such as the rapid plasma reagin (RPR), unheated serum reagin (USR) or Venereal Disease Research Laboratory (VDRL) test, to identify persons with possible untreated infection; this screening is followed by confirmation using one of several treponemal tests [fluorescent treponemal antibody absorption (FTA), Treponema pallidum particle agglutination (TP-PA)]. Recently, the availability of automatable treponemal enzyme and chemiluminescence immunoassays (EIA/CIA) has led some laboratories to adopt a reverse sequence of screening in which a treponemal EIA/CIA is performed first, followed by testing of reactive sera with a nontreponemal test.

What is already known on this topic?
Reverse sequence syphilis screening identifies a large proportion of patients with reactive treponemal enzyme or chemiluminescence immunoassays (EIA/CIA) and nonreactive nontreponemal test results, causing uncertainty about patient management.

What is added by this report?
Data from five laboratories that tested 140,176 serum specimens with reverse sequence syphilis screening indicated that, among patients with reactive EIA/CIA results, 56.7% had nonreactive nontreponemal test results and among these discordant sera, 12.2% - 60.0% were nonreactive with a second treponemal test, suggesting they were false-positive results.

What are the implications for public health practice?
CDC continues to recommend traditional screening using a nontreponemal test followed by testing of reactive sera with a treponemal test. When reverse sequence screening is used, CDC recommends reflexively testing all sera that produce reactive EIA/CIA results with a quantitative nontreponemal test and reflexively testing sera with discordant results (i.e., reactive EIA/CIA and nonreactive RPR/VDRL test) with a confirmatory Treponema pallidum particle agglutination assay (TP-PA). All test results should be reported promptly and concurrently to the clinician and public health department.

Testing at the MDH-PHL
MDH-PHL provides confirmatory testing for syphilis by unheated serum reagin (USR) and fluorescent treponemal antibody absorption (FTA), and may be transitioning to Treponema pallidum particle agglutination (TP-PA) in the near future. Turn-around-time for all tests – is up to two days after receipt of specimen.
When to send specimens for confirmation testing to MDH:
For laboratories performing only an EIA/CIA screen, please send all reactive sera to MDH-PHL for confirmation by USR and FTA.

For laboratories performing an EIA/CIA screen then reflexing to a nontreponemal test, please send sera to MDH-PHL for USR and FTA confirmation if the EIA/CIA is reactive and the nontreponemal test is negative.

For laboratories performing only a nontreponemal screen, please send all reactive specimens to MDH-PHL for USR and FTA confirmation.

For laboratories performing a nontreponemal screen followed by a treponemal confirmation test, there is no need to submit any specimens for confirmation. However, these results are reportable to MDH.

MDH Contacts
For laboratory-related questions, please call MDH Virology laboratory at: 651-201-5248; or Dave Boxrud, Virology Supervisor at 651-201-5257; dave.boxrud@state.mn.us

For any questions regarding the diagnosis of syphilis including testing algorithms or interpretations as well as to report a case of syphilis, please call MDH Syphilis Surveillance Laboratory Coordinator, Cindy Lind-Livingston at 651-201-4024; cindy.lind@state.mn.us

Thank you,

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**Please forward this to all appropriate personnel within your institution and Health System**

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