Beginning October 31, 2016, the OSF System Laboratory will move from the Rapid Plasma Reagin (aka, RPR) to a syphilis IgG on the BioPlex® 2200 multiplex flow cytometry platform (Bio-Rad Laboratories, Hercules, CA, USA) as the initial screening test for diagnosis of syphilis. Since this is an automated platform with direct throughput the turnaround time for syphilis testing will be substantially improved.

Diagnosis of syphilis is primarily based on serology, since the natural course of the infection is characterized by periods without clinical manifestations. Serologic tests are categorized as either treponemal or nontreponemal. Diagnosis of infection requires two steps: screening with a sensitive serologic assay such syphilis IgG (a treponemal test) or the serum RPR (a nontreponemal test); followed by confirmation with a second test. Because the RPR is less sensitive than syphilis IgG and a highly labor intensive test, most reference laboratories have adopted the “reverse algorithm” that employs an automated treponemal assay as the initial screening test as recommended by the Centers for Disease Control and Prevention. According to this approach, a reactive treponemal screening assay is followed by a quantitative nontreponemal assay such as the RPR to diagnose active disease and to monitor response to treatment.

Nontreponemal tests, such as Venereal Disease Research Laboratory (VDRL) and RPR, have low specificity but are necessary to monitor therapy. The BioPlex® 2200 uses Luminex™ methodology to provide measurement of syphilis anti-IgG antibody levels using a fully automated random access analyzer.

The test code for the syphilis IgG on the BioPlex® 2200 is LAB 4611. All positive syphilis IgG tests will reflex to RPR (with titer) for confirmation of diagnosis. Patients with known history of syphilis infection may continue to be followed with serial RPR tests as in the past with the current test LAB 1421 (RPR screen, titer if positive). Lab test codes LAB 1423 (RPR screen only) and LAB 1422 (RPR titer only) will be inactivated.

Any questions or concerns may be addressed to your OSF clinical client representative or to:

John Farrell, MD – Medical Director of Clinical Microbiology & Serology Labs
OSF System Laboratory
(309) 624-9127

Syphilis Serology Algorithm

**Syphilis IgG Antibody with Reflex (Screening T. pallidum Antibody Test) (LAB4611)**

- **Positive**
  - **Rapid Plasma Reagin Screen, Reflex Titer if Positive, is Performed**
    - **Positive**
      - Syphilis, old or new. Treatment indicated if not previously treated. Retreatment indicated if titer has increased four-fold or more.
    - **Negative**
      - Patient's history of syphilis unknown

- **Negative**
  - No serological evidence of syphilis. Recent infection cannot be ruled out

- **Patient has known history of syphilis**
  - Past, successfully treated syphilis. No follow-up needed.

- **Patient's history of syphilis unknown**
  - Perform second treponemal assay, TP-PA (GENOR, Mayo code TPPA) (New test order)
    - **Positive**
      - Treatment indicated, unless a history of treatment exists.
    - **Negative**
      - No treatment, or a third treponemal test can be used to resolve discrepancy between the two treponemal test results. Contact OSF lab for test order guidance.