UC Health LABORATORY

Lab Update

May 2012 **Laboratory Phone: 585-LABS** Vol. 3 No. 10

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PATIENT SERVICE CENTER LOCATIONS

Business Center: 8am – 430pm
* Closed for Lunch: 12:15pm – 1pm
Drake Center: 730am - 4 pm
*Closed for Lunch: 1145am-1230pm
West Chester Hospital: 730am - 4 pm
* Closed for Lunch: 1145am-1230pm

TEST MENU

If you are interested in the availability or information of a particular test, please contact the Customer Service Department at 585-LABS.

MICROBIOLOGY

Collection of Sterile Body Fluids

There are three guidelines that will improve the yield of cultures.

1) Submit fluid for culture in sterile tubes or containers. Sterile tubes (Lawson #416372) are recommended. Alternatively use an anaerobic transport jar (Porta-Cul, Lawson #134649 or 134648). When filling the jar, do not inject the fluid into the pre-reduced gel, as it cannot be retrieved from the gel. Do not place fluid for culture in lavender topped tubes or other tubes containing anticoagulants, as many of them have antimicrobial properties.
2) Submit at least 1 cc of fluid per type of culture ordered, e.g., if routine bacterial culture, fungal culture and AFB culture are all ordered, submit submit at least 3 cc of fluid.
3) NEVER submit fluid for culture using a swab.

ESwab Collection Device for Cultures

ESwabs are comprised of a flocked swab and a tube of 1 ml of liquid amies media. ESwabs are designed to optimize specimen collection for aerobic bacteria and anaerobic bacteria.

- The ESwab shaft is scored for ease and consistency of tip breakage into the modified liquid Amies transport medium.
- A swab capture mechanism in the cap locks the broken swab shaft into the cap when it is fully closed.

- ESwab replaces the blue gel swab for all routine cultures, Staph aureus and VRE screens.
- ESwabs **DO NOT** replace the collection device for the following cultures:
  - Genital culture (Blue swab)
  - AFB culture (Specimen only – no swab)
  - Fungus culture (Specimen or Blue swab)
  - Viral culture (viral transport UTM media)
  - Strep screen (Red swab)
  - Strep A DNA probe (Red swab)
  - Strep B DNA probe (Red swab)
- Refer to the specimen label for correct swab.
- Follow the collection instructions.

ESwabs available on nursing units or through the Business Center warehouse. (Lawson number 467488).

Rapid S. Pneumo Antigen Testing

On May 29, 2012, the Microbiology Laboratory will begin to offer a rapid test for *Streptococcus pneumoniae* antigen, as an adjunct to conventional microbiologic methods for diagnosing pneumococcal infections.

The test is an immunochromatographic assay (ICT)

that detects C-polysaccharide, which is present in the cell walls of all serotypes of *S. pneumoniae*. Published research with this test indicates two clinical scenarios in which it may be of use in patient management. The first is testing CSF for antigen in patients with meningitis. The second is in patients with community-acquired pneumonia, especially those patients with concomitant bacteremia.

In studies in high prevalence populations, use of the ICT on patients with culture negative meningitis significantly increased the identification of cases of *S. pneumoniae* meningitis, particularly among those who had received prior administration of antibiotics (1). In lower incidence populations, similar to what would be expected in UC Health, detection of *S. pneumoniae* antigen in CSF of patients with pneumococcal meningitis was both sensitive and specific (95% and 100%) when compared with culture and Gram stain of CSF (2,3). In order to see high sensitivities and specificities in practice, authors stressed that patient selection, based on both clinical and lab findings, was an important key.

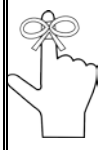
The other clinical setting in which the *S. pneumoniae* antigen test has shown utility is in early identification of *S. pneumoniae* as the etiologic agent of community-acquired pneumonia patients with bacteremia (4). Testing urine by ICT in a published meta-analysis yielded an overall sensitivity and specificity of 74% and 94%, respectively, when compared with blood cultures and Gram stain/culture of sputum. Again, patient selection played a large part in the reported performances in the individual studies, with sensitivities ranging from 50 – 100% and specificities ranging from 84-100% (5). Urine from pneumonia patients, who were not bacteremic, showed sensitivities averaging 10-15% lower than bacteremic patients, and lower specificity.

The test will be available from 6 am until 11 pm, seven days a week. This rapid turnaround time, within one hour (CSF) or two hours (urine) following receipt of the specimen in Microbiology, will allow patients who test positive for *S. pneumoniae* antigen, to be quickly changed to more directed therapy, rather than being maintained on broad spectrum, empiric therapy.

Lastword Ordering Information

STREP PNEUMO AG, CSF
STREP PNEUMO AG, URINE

C. Difficile New Testing Schedule



Effective April 21, 2012

- Monday-Friday: 9am and 9pm
- Saturday/Sunday/Holidays: 1pm

SPECIAL TESTING

FETAL FIBRONECTIN

Rapid fetal fibronectin is a qualitative test for the detection of fetal fibronectin in cervical specimens. Cervical specimens for fetal fibronectin are collected with the Hologic specimen collection kit only and must be sent to the laboratory directly. Obtain the specimen prior to any physical exam. Specimens should be taken from the posterior fornix of the vagina or the ectocervical region of the external cervix.
Fetal fibronectin can be detected in cervicovaginal secretions of women throughout pregnancy. Fetal fibronectin is elevated in cervicovaginal secretions during the first 24 weeks of pregnancy but is diminished between 24 and 34 weeks in normal pregnancies. Detection of fetal fibronectin between 24 and 34 completed weeks gestation is reported to be associated with preterm delivery in symptomatic and asymptomatic pregnant women.

The rapid fetal fibronectin test is to be used as an aid in assessing the risk of preterm delivery in less than or equal to 7 to 14 days from the time of cervicovaginal sample collection in pregnant women with signs and symptoms of early preterm labor, intact amniotic membranes and minimal cervical dilation (<3cm), sampled between 24 and 34 weeks gestation.
The rapid fetal fibronectin test is **contraindicated** in symptomatic pregnant women with one or more of the following conditions: Advanced cervical dilation >3 cm, ruptured amniotic membranes, cervical cerclage, and moderate to gross vaginal bleeding. In asymptomatic women with one or more of the following conditions: Multiple gestations, cervical cerclage, placenta previa (partial or complete) and sexual intercourse in the preceding 24 hours.

Possible fetal fibronectin test results are Positive, Negative, and Invalid. Some interferences such as gross hemolysis, lubricants, bacteria, WBC, disinfectants, creams, soaps, and bilirubin can interfere with the rapid fetal fibronectin assay giving an Invalid result.

Fetal fibronectin testing is available 7 days per week at University Hospital laboratory

Lastword Ordering Information

FETAL FIBRONECTIN

COAGULATION

Lupus Anticoagulant panel available at University Laboratory

Lupus anticoagulants are immunoglobulins that generally interfere with phospholipid dependent *in vitro* coagulation tests; the most frequently used being the activated partial thromboplastin time (aPTT). Lupus anticoagulants are associated with numerous clinical states such as autoimmune diseases, thromboses, recurrent spontaneous abortions and infections. Their after ingestion and distributed to total body water.

presence may be persistent or transitory. Thus the importance of diagnostic tests capable of distinguishing these LA antibodies from anti-factor antibodies, factor deficiencies and medication effects. Many medications will interfere with Lupus testing, to include heparin, coumadin, and direct thrombin inhibiting drugs.

Patients should NOT be drawn for Lupus testing if they are taking these types of medications.

The Lupus panel with reflex test code will proceed through a series of special coagulation tests in an algorithmic type fashion. Initial tests include baseline PT, aPTT, and Thrombin time. The Thrombin time is used as an indicator of the above listed drugs which can interfere with the assay. If these drugs are detected in the sample, additional testing will not be performed. Based off of initial baseline tests the algorithm can then reflex to mixing studies. Mixing studies can help distinguish between the presence of a factor deficiency and another type of inhibitor, such as a Lupus anticoagulant. If mixing studies point towards a Lupus anticoagulant a series of confirmatory tests will then be performed. These include an aPTT-LA, a more lupus sensitive aPTT reagent. Dilute Russell viper venom (DRVV) Screen and Confirmatory tests, these results are expressed as a normalized DRVV ratio. Lastly Staclot LA which uses a hexagonal phase phospholipid reagent versus a tube without it. By comparing the difference between the two clotting times (LA Delta), the presence of Lupus anticoagulant can be identified.

All Lupus confirmatory tests must be positive to diagnose the presence of a Lupus anticoagulant. If one or more of the confirmatory tests are not positive the Lupus test result is inconclusive, suggest retesting if clinically indicated in 14 days. Lupus panel with reflex testing is performed on Monday, Wednesday, and Friday, dayshift only.

Lastword Ordering Information

LUPUS ANTICOAGULANT EVAL W/REFL

TOXICOLOGY

Ethylene Glycol testing now available at UH

Ethylene glycol along with isopropanol and methanol are compounds found in many household, automotive and industrial products. They are grouped in the category of toxic alcohols and are frequently implicated in suicidal or unintentional poisoning.

Ethylene glycol is most often found in antifreeze used as an engine coolant. Because of its sweet taste it is unintentionally consumed by animals and small children. Aversive bittering agents have been added to ethylene glycol-containing antifreeze in some states. Ethylene glycol can cause inebriation, depending on the dose, and is actually more intoxicating than ethanol. However, the absence of apparent inebriation does not exclude ingestion. Ethylene glycol is rapidly absorbed

Glycolic acid is the primary organic acid metabolite responsible formetabolic acidosis. It accumulates since there is no natural metabolic pathway for its elimination.

Our method has a limit of quantitation of 5mg/dL for both ethylene glycol and glycolic acid. Any result greater than or equal to 5mg/dL is considered to be positive for ethylene glycol and treated as a critical value. This result will be called to the requesting unit per laboratory policy.

Specimen collection requires 1 full SST. Testing performed 24 hours per day and results will be available within 2-4 hours.

Lastword Ordering information

ETHYLENE GLYCOL

SEROLOGY

Syphilis Testing

UC Health Laboratory is now offering serologic testing for syphilis on serum (SST tube). This coincides with the implementation of the CDC recommended syphilis diagnostic algorithm. The syphilis diagnostic algorithm offers as a first step, a sensitive and specific immunoassay for IgG and IgM antibodies to *Treponema pallidum.* The method for determination of these specific total antibodies to *Treponema pallidum* is a one-step sandwich chemiluminescence immunoassay (CLIA). Samples with positive antibody test results will reflex to an RPR with quantitative titer for confirmatory testing. Average turnaround time for completion of both tests will be 1-2 days. If the RPR is negative, the sample will be sent to a reference laboratory for *Treponema pallidum* particle agglutination assay (TPPA) for confirmation. Turn-around time for completion of the *Treponema pallidum* particle agglutination assay will be 4-5 days.

In our evaluation of the *Treponema pallidum* immunoassay 98% sensitivity and 100% specificity was shown on split samples. This is equivalent to published data on the performance characteristics of this test. Cerebral spinal fluids (CSF) will continue to be tested by VDRL at our reference laboratory.

Lastword Ordering Information

- For diagnosis of newly suspected cases:

SYPHILIS DIAGNOSTIC ALGORITHM

- For monitoring current therapy of diagnosed patients:

SYPHILIS TREATMENT MONITORING

- For monitoring reinfected patients:

SYPHILIS REINFECTION

More detailed information on the Syphilis Algorithm can be found under the EDU tab in Lastword. For questions on interpretation of the results of this cascade, please contact Dr. Frey at 584-3835. For technical questions, call Brenda Karr at 584-8012.