UC Health LABORATORY

Lab Update

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LabUpdate is a periodic publication of the Clinical Laboratories of UC Health. By way of this publication, lab users are provided: 1) updated operational information relevant to the practice of laboratory medicine within UC Health facilities, and 2) didactic material generally applicable to laboratory medicine.

LAB UPDATE

University Hospital Clinical Laboratory

If you are interested in the on site availability of a particular test, please contact the Laboratory Client Services Department at 584-0696 or via email to Jenny Ford at jennifer.ford@uchealth.com

COAGULATION

Therapeutic Heparin Range Change

Yearly the laboratory receives a new sequestered lot of reagents for routine Coagulation testing. Upon lot validation of the new shipment of PTT reagent, the Laboratory and Pharmacy departments have determined a need to change the therapeutic heparin PTT (hPTT) range and critical limits. This was determined by performing a Brill- Edwards plot of heparin PTT and Anti XA values for heparinized patients. The Brill-Edwards curve for 2012 indicates a change in the therapeutic heparin PTT range.

Effective September 5, 2012:
Therapeutic heparin PTT range
90-130 seconds
Critical value for heparin PTT
>165.0 seconds

Updates will be seen in Last Word, paper order sets, and flow sheets. All other Normal reference ranges for PT/INR, PTT, and Fibrinogen will remain the same.

For any questions please contact Cate Cronin MT (ASCP) in the laboratory at 584-5027.

CHEMISTRY

Urine Drug Screen: a Quick Reference Guide

Medical screening for drugs of abuse is primarily focused on determining what drugs or combinations of drugs a person may have taken so that he can receive the proper treatment. The overall effect on a particular person depends on the response of his body to the drugs, on the quantity and combination he has taken, and when each was taken. For instance, MDMA (3,4-methylenedioxy- N –methylamphetamine) (also known as “Ecstasy”) is initially a stimulant with associated psychedelic effects, but it also causes Central Nervous System (CNS) depression as it is metabolized and cleared from the body. In many cases, drugs have been combined and/or taken with ethanol (alcohol). If someone drinks ethanol during this time period, they will have two CNS depressants in their system, a potentially dangerous combination.

Those who may be tested for drugs for medical reasons include:1) Someone in the emergency room who is having acute health problems that the doctor thinks may be drug-related: unconsciousness, nausea, delirium, panic, paranoia, increased temperature, chest pain, respiratory failure, seizures, and/or headaches; 2) Someone in the emergency room who has been in an accident, when the doctor suspects that drugs and/or alcohol may have been involved; 3) someone who the doctor suspects may be using drugs; 4) Those who are being monitored for known drug use. This may include both legal and illegal drug use. It may be general testing or specific for the substance that has been abused; 5) Pregnant women thought to be at risk for drug abuse or neonates exhibiting certain characteristic behaviors.

If a result is positive during initial drug screening, then it means that the person has a substance in his body that falls into one of the drug classes and is above the established cut-off level. If the sample is confirmed as positive after secondary testing, such as positive for marijuana, then the person has taken this drug. In some cases, this result can be tied to a window of time that the person took the substance and roughly to the quantity but, in most circumstances, that information is not necessary. Interpretation of when and how much drug was consumed can be challenging because the concentration of many drugs varies, as does their rate of metabolism from person to person. If the drug or drugs is not present or is below the established cut-off, then the result is usually reported as "not detected" or "none

detected." A negative result does not necessarily mean that the person did not take a drug at some point. The drug may be present below the established cutoff, the drug may have been already metabolized and eliminated from the body, or the test method does not detect the particular drug present in the sample.

Effective mid September, the Clinical Laboratory will convert test kits to the QuickTox® Drug Screen Dipcard Test. Turn around time will remain the same. The QuickTox kit offers the advantage of differentiating between amphetamines (AMP) and methamphetamines (MET) and it will be able to detect methadone (MTD), ecstasy (MDMA) and oxycodone (OXY). The QuickTox test provides visual qualitative results for the rapid detection of multiple drugs and drug metabolites in human urine at or above the following cut-off: COC, cocaine (300 ng/mL), OPI, opiates (300 ng/mL), MET, methamphetamines (500 ng/mL), THC, 11-nor-Δ-9-tetrahydrocannabinol (50 ng/mL), AMP, amphetamines (1000 ng/mL), PCP, phencyclidine (25 ng/mL), BZO, benzodiazepines (300 ng/mL), BAR, barbiturates (300 ng/mL), MTD, methadone (300 ng/mL), MDMA, 3,4-methylenedioxy- N –methylamphetamine (500 ng/mL), OXY, oxycodone (100 ng/mL), and TCA, tricyclic antidepressants (1000ng/mL).

Lastword Test Code:
URINE DRUG SCREEN-STAT

MICROBIOLOGY

Community-Acquired Diarrhea Testing

Beginning in late September, community acquired diarrhea testing will be in-sourced to the UC Health Microbiology Laboratory. A panel of culture and antigen detection assays to identify the most common bacterial and parasitic causes of community-acquired diarrhea will be offered. The first test is Stool Culture plus STEC which includes culture for *Salmonella*, *Shigella*, *Campylobacter*, *E. coli* O157, *Aeromonas* and *Plesiomonas*, as well as an immunoassay for STEC (Shiga toxin-producing *E. coli*). The second test (GIACRYAG) is an immunoassay for the presumptive identification of *Giardia* and *Cryptosporidium*.

Requests for these tests will be restricted to patients in their first 72 hours of hospitalization; exceptions will require pre-approval. After 72 hours in the hospital, patients who acquire diarrhea should be tested for *Clostridium difficile* (CDDNA), if an infectious cause is suspected. Testing will be performed daily on first and second shifts. The stool culture protocol is designed to aid in the diagnosis of the most common causes of bacterial diarrhea.

The classic stool pathogens, *Salmonella* and *Shigella*, as well as *Campylobacter* and *E. coli* O157, will be targeted using selective and differential medium to isolate them from stool. In 2010, the Centers for Disease Control recommended that all stools that are submitted for bacterial culture be tested for the presence of toxigenic *E. coli*. The STCP has incorporated a lateral flow immunoassay for the Shiga-like toxin that is associated with isolated, as well as epidemic cases of *E. coli* diarrhea. *E. coli* O157:H7 is most frequently isolated of the enterohemorrhagic *E. coli*'s (EHECs), those toxigenic strains that may cause bloody diarrhea and are associated with the development of hemolytic uremic syndrome. Because differential culture techniques only target O157, the lab is testing for Shiga-like toxin, to detect other serotypes that are also toxigenic, such as O104 that caused the large outbreak in Europe. Although the stool pathogens *Aeromonas* and *Plesiomonas* are not as well-known as some other enteropathogens, they can cause profuse diarrhea, and they are isolated frequently in this geographic area.

If you require stool culture for *Yersinia* or *Vibrio*, based on your patient's history, please specify that in your order, as those tests will continue to be sent out.

CDC data from 2010 shows that *Giardia* and *Cryptosporidium* were the two parasites found most frequently in stool exams, with incidences in Ohio of 7.6 – 10 and >3.6 per 100,000, respectively. The stool antigen test for *Giardia* and *Cryptosporidium* is superior to visual examination of the stool for both organisms for several reasons. Cysts of *Giardia* are passed intermittently in the stool, so stool from several consecutive days may need to be examined in order to see the parasite. The antigen detected in the GIACRYAG test is released from the parasite continuously, so testing more than one sample is rarely required. *Cryptosporidium* oocysts are not detected in routine O&P exams due to their failure to stain with trichrome or iron hematoxylin, the two parasite stains used in most labs. Therefore, unless special stains are ordered or an antigen test is employed, *Cryptosporidium* will be missed; this has led to underdiagnosis of cryptosporidiosis. Because *Giardia* and *Cryptosporidium* have similar clinical presentations that feature watery diarrhea, the tests for the organisms will be offered together, rather than separately.

If you have questions, please contact Dr. Rhodes at 584-3923 or Vicki Stegner at 584-6014.

MISCELLANEOUS

West Nile Virus Antibody Testing Delays

There is a nationwide shortage of reagents for IgG/IgM Antibody testing for West Nile Virus. LabCorp is prioritizing testing for CSF (TC# 138966) at this time. Serum testing will be temporarily suspended until further notice. The laboratory will continue to update hospital staff as information on availability is shared with us. Please call Lab Customer Service with questions at 585-LABS.