Test Updates

Urinalysis, Automated

The Hematology/Urinalysis Department in the hospital laboratory went live with the Siemens CLINITEK® AUWI System on May 6. This system combines the CLINITEK Atlas® Automated Urine Chemistry Analyzer and the Sysmex UF-1000i™ Urine Cell Analyzer. Together they offer complete, unattended operation from start to finish. Urinalysis testing performed at the West End and Heights Laboratories remains unchanged.

The urine chemistry continues to be the dry pad test measurement method using the Siemens Multistix strips. The color change on these strips is measured by reflectance photometry with dual readings at reactive and reference wavelengths. The specific gravity is measured by a refractive index method. The clarity of the specimen is measured by transmitted and scattered light.

The UF-1000i is a flow cytometer which automates the urine microscopic, thereby providing efficiencies in testing by reducing hands-on-time, minimizing manual urine microscopic analyses and improving overall TAT. The UF-1000i bases its objective analysis on both physical and chemical particle properties. The UF-1000i has the following features and benefits:

- Standardizes urine microscopics
- Reliable auto identification of normal samples eliminates the need for further manual steps
- Measures formed elements in urine by fluorescent flow cytometry
- Unmatched sensitivity with fluorescence, forward scatter, impedance and cluster analysis
- Automatically classifies 10 formed elements found in
CLINITEK®
AUWI
CPT Codes
Complete UA: 81001
Routine UA: 81003
Microscopic Only: 81015

Chemical Parameters Reported:
- Clarity
- Color
- Specific Gravity
- pH
- Bilirubin
- Urobilinogen
- Ketones
- Glucose
- Protein
- Occult Blood
- Nitrate
- Leukocyte Esterase

UF-1000i Reported Parameters:
- RBC
- WBC
- Epithelial Cells
- Hyaline Casts
- Bacteria

Flagged Parameters:
- Pathological Casts
- Crystals
- Small Round Cells
- Sperm
- Yeast

urine
- Cell counting capabilities of up to 80,000 particles reduces review rate
- A separate bacteria channel for improved discrimination
- Temperature and pH normalization provides a more accurate result
- Analyzing more of the sample provides fully quantitative results that eliminates subjective interpretation

Interpretation:

Chemical (Multistix strip):
No change in reporting for Clarity, Color, Specific Gravity, pH, Bilirubin, Urobilinogen, Ketones, Glucose, Protein, Occult Blood, Nitrate and Leukocyte Esterase

Reference Ranges:
- Glucose: Negative
- Bilirubin: Negative
- Protein: Negative
- pH: 5.0-9.0
- Occult Blood: Negative
- Ketone: Negative
- Urobilinogen: 0.2-1.0 EU/dL
- Nitrite: Negative
- Leukocytes: Negative
- Specific Gravity: 1.003-1.030
- Color: Yellow, Straw, Dark Yellow or Amber
- Clarity: Clear

Confirmation testing will continue to be performed manually on all positive bilirubin results with an Ictotest. Positive protein in a urine with a pH ≥ 8.5 will be confirmed with an Exton’s Reagent test.

Microscopic:
No change in reporting except for WBC and RBC which are now reported as whole numbers and not as a range as in the manual "scope" method. Any UF-1000i™ flagged parameter(s) will be reviewed manually by scope.

Reference Ranges:
- WBC < 5 cells/hpf (numerical)
- RBC < 5 cells/hpf (numerical)
Billings Clinic Urine Drug Test Screening

There are two urine drug screening tests available. The use of each is dependent on the reason for the test and the location from which the test is ordered. Results obtained from these two drug screen are not intended to be used for legal purposes.

1. Drug Screen, Urine
   This test is for drugs of abuse (DOA) and is ordered as needed for emergent situations in ED, SDC or Psych as Test #4129. This drug screen test can also be ordered by our outside labs for the same emergent situations as Test BCL #0157. For use as a DOA test, the detection limits have been set very low. This DOA test utilizes the MEDTOXScan® Test Drugs of Abuse Test System which has a 13 test configuration on a cassette and is read on the MEDTOXScan® Reader. Results are reported as negative or presumptive positive.

2. Urine Drug Screen, Nursing POC
   This test is a drug screen performed as a Point of Care (POC) test in the physician office. It is used to establish and monitor the safe prescribing of controlled substances such as pain medication for patients on a CSA plan (Controlled Substance Agreement). The test is performed with the NexScreen Cup™. This cup is a fast, qualitative, visually read competitive immunoassay method for screening without the need for instrumentation. This method employs a mixture of antibodies and antigens to selectively identify 12 specific drugs and their principle metabolites with a high degree of sensitivity. Results of this test are reported as negative or presumptive positive.

MedTox Drug Confirmation

Confirmation of presumptive positive results obtained with either of the tests, Drug Screen, Urine (DOA) or the Urine Drug Screen, Nursing POC can be ordered through MedTox Laboratories. This confirmation testing is performed by GC/MS, LC/MS or MS/MS. MedTox Laboratories offers technical support for questions through their ToxAssure Hotline 866-593-0157.

If confirmation of a presumptive positive result is needed, the following orderable should be used:
Billings Clinic  Name of Drug Confirmed at MedTox Laboratories, Inc.

Orderable: Laboratories, Inc.

9616 Methadone Confirmation
9617 Barbiturates Confirmation
9618 Phencyclidine Confirmation
9619 Tetrahydrocannabinol Confirmation
9620 Cocaine Confirmation
9621 Propoxyphene Confirmation
9622 Opiate Confirmation
9623 Buprenorphine Confirmation
9624 Oxycodone Confirmation
9625 Benzodiazepines Confirmation
9626 Methamphetamine Confirmation
9627 Amphetamine Confirmation
9628 Tricyclics Confirmation

For any test not listed above, order the test as a Special Reference Test or call the Laboratory for assistance.

**Normal Range Changes**

**Free T4**

The Normal Range for Free T4 has been changed.

New Range: 0.7 – 1.48 ng/dL  Old Range: 0.8 – 1.9 ng/dL

For more information about Billings Clinic Laboratory please call (406) 657-4060. www.billingsclinic.com.