Cleveland Clinic

Cleveland Clinic Laboratories

Technical Update • November 2018

Cleveland Clinic Laboratories is dedicated to keeping you updated and informed about recent testing changes. This Technical Update is provided on a monthly basis to notify you of any changes to the tests in our catalog.

Recently changed tests are bolded, and they could include revisions to methodology, reference range, days performed, or CPT code. Deleted tests and new tests are listed separately. For your convenience, tests are listed alphabetically and order codes are provided.

To compare the new information with previous test information, refer to the online Test Directory at clevelandcliniclabs.com. Test information is updated in the online Test Directory on the Effective Date stated in the Technical Update. Please update your database as necessary.

For additional detail, contact Client Services at 216.444.5755 or 800.628.6816, or via email at clientservices@ccf.org.

Test Update Page #	Summary of Changes by Test Name	Order Code	Name Change	New Test	Test Discontinued	Special Information	Specimen Requirement	Component Change(s)	Methodology	Reference Range	Days Performed/Reported	Stability	CPT	Fee
3, 24	Adenosine Deaminase, Serum						■				■			■
21	ALL NGS Panel Bone Marrow			■										
21	ALL NGS Peripheral Blood			■										
3	Apolipoprotein, A-1										■	■		
3	Apolipoprotein A-1 & B											■		
3	Apolipoprotein, B										■	■		
4	Arsenic, Blood						■	■			■	■		
4	Aspergillus fumigatus Antibody IgG		■				■	■		■	■	■		
4	Bicarbonate (HCO3), Urine							■						
5	Cadmium Exposure Panel, OSHA						■	■				■		
5–6	Cadmium, Whole Blood						■					■		
6	Calprotectin, Fecal										■			
6	C. difficile Culture w/ reflex Cytotoxin Cell Assay												■	
6	Chlamydia Antibodies Evaluation						■	■				■		
24	Chlamydia psittaci IgG, IgM, IgA Abs				■									
21	Chronic Lymphoproliferative Disorder NGS Bone Marrow			■										
21	Chronic Lymphoproliferative Disorder NGS Peripheral Blood			■										
6	COL3A1 Gene Sequencing (Blood)											■		
7	Complement C 1						■	■			■	■		
7, 24	Complement Component Level 3A						■	■			■	■		■
7	Complement Component Level 4A						■	■			■	■		

Test Update Page #	Summary of Changes by Test Name	Order Code	Name Change	New Test	Test Discontinued	Special Information	Specimen Requirement	Component Change(s)	Methodology	Reference Range	Days Performed/Reported	Stability	CPT	Fee
8	C-Peptide									■		■		
8	Duchenne/Becker Muscular Dystrophy (DMD) Deletion/Duplication with Reflex to Sequencing										■			
8	Eosinophil Cationic Protein					■	■		■	■	■	■		
8	Galactose-alpha-1,3-galactose IgE					■	■			■				
8	Galectin-3					■	■							
8, 24	Hantavirus IgG & IgM Abs					■	■			■	■	■		■
9	Heavy Metals Screen, Whole Blood					■	■		■	■	■	■		
9–10	Heavy Metals, Urine					■	■			■	■			
10–11	Heavy Metals with Cadmium, Ur					■	■			■	■			
11	Heavy Metals with Cadmium, Whole Blood					■	■		■	■	■	■		
12	Herpesvirus 6 Human IgG & IgM Abs					■	■	■	■	■	■	■		
24	Histoplasma Antibodies, CSF													■
12	HIV-1 Western Blot										■			
12	Hypercoagulation Diagnostic Interpretive Panel						■							
12	IgA										■			
12	IgM										■			
12	Infliximab or Biosimilar Activity and Neutralizing Antibody		■			■	■							
12	Insulin											■		
13	Lead, Urine 24 Hour					■	■			■				
21	Leukemic Blood Cancer Chromosome Microarray + SNP			■										
14, 24	Lidocaine					■	■		■	■		■		■
14, 24	Lipoprotein Electrophoresis					■							■	■
14	Lupus Anticoagulant Diagnostic Interpretive Panel							■					■	
14–15	Mercury, Blood					■	■			■	■	■		
15–16	Mercury, Urine 24 Hour					■	■			■	■			
16	Mexiletine									■				
21	Mycobacterium tuberculosis (MTB) and Rifampin Resistance Detection by PCR			■										
22	Myeloid NGS Panel Bone Marrow			■										
22	Myeloid NGS Panel Peripheral Blood			■										
16	NF1/SPRED1 Comprehensive by NGS					■	■				■	■	■	
24	Nuclear Antibody by IFA, IgG				■									
24	Perphenazine				■									
16	Pneumococcal IgG Antibodies, 14 Serotypes					■	■				■			
17	Prader-Willi/Angelman Methylation					■	■	■	■		■	■		
22	Products of Conception Microarray + SNP			■										
17	Propafenone					■	■	■	■	■	■	■	■	
18	Prothrombin Time Mixing Study									■				
18	Pseudocholinesterase, Total, Serum		■			■	■		■		■			
18	PTT Incubated Mixing Study									■				

Test Update Page #	Summary of Changes by Test Name	Order Code	Name Change	New Test	Test Discontinued	Special Information	Specimen Requirement	Component Change(s)	Methodology	Reference Range	Days Performed/Reported	Stability	CPT	Fee
22–23	Respiratory Panel by PCR			■										
24	Respiratory Viral Panel by PCR				■									
18	SCA1 DNA test									■	■			
19	SCA2 Expansion Analysis									■	■			
19	SCA3 DNA Test									■	■			
19	SCA6 DNA Test									■	■			
19	SCA17 DNA Test									■	■			
19, 24	Sotalol					■	■	■	■	■	■	■	■	■
20	Thallium, Urine					■	■			■	■			
24	Vitamin B7 (Biotin)													■
20	Voltage-Gated Calcium Channel IgG Autoantibodies											■		
20	Von Willebrand Multimer								■					

Test Changes

Test Name	Order Code	Change	Effective Date
Adenosine Deaminase, Serum	SAD	**Special Information: Allow blood to clot for 30 minutes prior to centrifugation. Hemolyzed specimens will be rejected. Ambient temperature specimens and specimens outside of listed stability are unacceptable.** **Days Performed: Varies (one day/week)** **Reported: 8**–10 days	11/6/18
Apolipoprotein, A-1	APOA	**Stability:** Ambient: **1 day** Refrigerated: **7** days Frozen: **14 days** **Days Performed: Monday**–Saturday **Reported:** 1–**3 days**	11/5/18
Apolipoprotein A-1 & B	APOAB	**Stability:** Ambient: **1 day** Refrigerated: **7** days Frozen: **14 days**	11/5/18
Apolipoprotein, B	APOB	**Stability:** Ambient: **1 day** Refrigerated: **7 days** Frozen: **14** days **Days Performed: Monday**–Saturday **Reported:** 1–**3 days**	11/5/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Arsenic, Blood	ASB	**Special Information: Patient demographics (Heavy Metals) form is required to meet State Health Department requirements. Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician) and avoid shellfish and seafood for 48 to 72 hours. Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected. Heparin anticoagulant and clotted specimens are unacceptable. This test is New York DOH approved.** **Clinical Information:** Indication: Toxicity-arsenic poisoning. Potentially toxic range: ≥ 600 µg/L. Blood arsenic is for the detection of recent exposure poisoning only. Blood arsenic levels in healthy subjects vary considerably with exposure to arsenic in the diet and the environment. A 24-hour urine arsenic is useful for the detection of chronic exposure. **Elevated results may be due to skin or collection-related contamination, including the use of a non-certified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of blood arsenic, confirmation with a second specimen collected in a certified metal-free tube is recommended.** **Specimen Requirement:** 7 mL whole blood in an EDTA **(royal blue)** tube; Minimum: **0.5 mL;** HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician) and avoid shellfish and seafood for 48 to 72 hours; Send blood in original tube;** Ambient **Stability:** Ambient: **Indefinitely** Refrigerated: **Indefinitely** Frozen: Unacceptable **Reference Range:** 0.0–**12.0 µg/L** **Days Performed: Sunday**–Saturday **Reported:** 2–**4** days	11/12/18
Aspergillus fumigatus Antibody IgG	ASPIGG	**Test Name:** Previously Aspergillus fumigatus Antibody, IgG by ELISA **Special Information: Hemolyzed,** lipemic or **icteric** specimens are unacceptable. This test is New York DOH approved. **Note:** *Clinical Information will be removed.* **Specimen Requirement: 0.5 mL** serum from a **serum separator (gold) tube;** Minimum: **0.2 mL;** Separate serum from cells ASAP or within 2 hours of collection and transfer to standard aliquot tube; Refrigerated **Stability:** Ambient: After separation from cells: 48 hours Refrigerated: After separation from cells: 2 weeks Frozen: After separation from cells: 1 year **Methodology: Quantitative ImmunoCAP Fluorescent Enzyme Immunoassay** **Reference Range:** 0.00–**90.00 mcg/mL;** Negative–No significant level of Aspergillus fumigatus IgG antibody detected **90.01–99.99 mcg/mL:** Equivocal–Questionable presence of Aspergillus fumigatus IgG antibody ≥ **100.00 mcg/mL:** Positive–A. fumigatus IgG antibody detected; Single criterion in determination of allergic bronchopulmonary aspergillosis (ABPA) **Days Performed: Sunday** **Reported:** 2–**9** days	11/12/18
Bicarbonate (HCO3), Urine	UBICRB	**Specimen Requirement:** 4 mL random urine in a **clean** container; Minimum: **0.3 mL**; Separate specimens must be submitted when multiple tests are ordered; Immediately upon collection, mix and transfer 4 mL urine to a standard transport tube; Do not expose to air; Critical Frozen	11/1/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Cadmium Exposure Panel, OSHA	CADEXR	**Special Information: Patient demographics (Heavy Metals) form is required to meet State Health Department requirements.** Both blood and urine must be submitted for testing. Patient Preparation: To avoid contamination, please collect specimens at the beginning of work shift. **Urine: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician). High concentrations of iodine may interfere with elemental testing. Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** Blood and urine should be collected the same day. **Blood: Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected. Heparin anticoagulant and clotted specimens are unacceptable. Urine:** Specimens collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media are unacceptable. Specimens transported in non-trace element-free transport tubes (with the exception of the original device) are unacceptable. Specimens containing blood or fecal materials will be rejected. This test is New York DOH approved. **Specimen Requirement:** 40 mL random urine in a clean container; Minimum: **2 mL (Total urine minimum is 2 mL; Note: 1 mL required for urine B-2 microglobulin, 0.5 mL for urine cadmium, 0.5 mL for urine creatinine); Patient Prep: Refer to Special Information;** Collect urine using spot technique (single void) in an open-top urine collection cup; Container must be trace metal-free; Pour off three aliquots from random specimen; For B-2-Microglobulin pour off 3 mL urine, adjust pH to 6–8 using 1 M HCl or 5% NaOH, label for B-2-Microglobulin testing, and freeze ASAP; Refrigerate other two aliquots; Label one 7 mL aliquot for Cadmium (using trace element-free tube, ARUP supply #43116) and one 2 mL aliquot for Creatinine testing *AND* 7 mL whole blood in an EDTA (royal blue) tube; Minimum: 0.5 mL; **HEAVY METALS FORM REQUIRED to meet State Health Department requirements;** MULTIPLE SPECIMEN TYPES ARE REQUIRED FOR THIS TEST; (Both urine and blood should be collected on the same day); **Send blood in original tube;** Refrigerated **Stability:** Ambient: Blood: Indefinitely; Urine for Beta-2-Microglobulin: 8 hours; Urine for Cadmium: 1 week; Urine for Creatinine: 2 days Refrigerated: Blood: Indefinitely; Urine for Beta-2-Microglobulin: 48 hours; Urine for Cadmium: 2 weeks; Urine for Creatinine: **1 month** Frozen: Blood: **Unacceptable;** Urine for Beta-2-Microglobulin: 2 months; Urine for Cadmium: 1 year; Urine for Creatinine: 6 months	11/12/18
Cadmium, Whole Blood	CADMWB	**Special Information:** Patient demographics form (Heavy Metals Form) is required to meet State Health Department requirements. Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician). Always use an alcohol swab to cleanse the venipuncture site. Avoid iodine-containing disinfectants. Use only stainless steel phlebotomy needles, and use non-powder gloves when handling and collecting. **Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected.** Heparin anticoagulant is unacceptable. **Clotted** specimens will be rejected. This test is New York DOH approved. *(continued on page 6)*	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Cadmium, Whole Blood *(continued from page 5)*		**Clinical Information:** Blood cadmium can be used to monitor acute toxicity, and in combination with cadmium and urine and B-2 microglobulin is the preferred method for monitoring occupational exposure. Symptoms associated with cadmium toxicity vary based upon route of exposure and may include tubular proteinuria, fever, headache, dyspnea, chest pain, conjunctivitis, rhinitis, sore throat and cough. Ingestion of cadmium in high concentration may cause vomiting, diarrhea, salivation, cramps, and abdominal pain. **Elevated results may be due to skin or collection-related contamination, including the use of a non-certified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of blood cadmium, confirmation with a second specimen collected in a certified metal-free tube is recommended.** **Stability:** Ambient: **Indefinitely** Refrigerated: **Indefinitely** Frozen: Unacceptable	
Calprotectin, Fecal	CALPRO	**Reference Range:** Normal (0–99 Years): **< 50.0 µg/g** Borderline (0–99 Years): **50.0**–120.0 µg/g; Test should be re-evaluated in 4–6 weeks Abnormal (0–99 Years): **> 120.0 µg/g**	Effective immediately
C. difficile Culture w/ reflex Cytotoxin Cell Assay	CDCULT	**CPT:** 87075 x 1, **(If positive, add 87076)**	11/12/18
Chlamydia Antibodies Evaluation	CIGIM	**Special Information: Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens. Label specimens plainly as 'acute' or 'convalescent.' Contaminated, hemolyzed, or hyperlipemic sera will be rejected. This test is New York DOH approved.** **Clinical Information: Used to differentiate between Chlamydophila species (C. psittaci, C. pneumoniae). Differentiate early IgM response to infection from persistent low-level titer. Because of cross-reactivity, a C. pneumoniae-specific reaction will exhibit titers two-fold or greater than C. trachomatis or C. psittaci serology. This has limited value in the diagnosis of most oculogenital (e.g., eyes, genitalia) chlamydial infections.** **Specimen Requirement:** 1 mL serum from a serum separator (gold) tube; Minimum: **0.15 mL; Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens; Label specimens plainly as 'acute' or 'convalescent;'** Separate serum from cells ASAP or within 2 hours of collection **and transfer into standard aliquot tube;** Refrigerated *OR* **1 mL** serum from a plain no additive (red) tube; Minimum: **0.15 mL; Parallel testing is preferred and convalescent specimens must be received within 30 days from receipt of acute specimens; Label specimens plainly as 'acute' or 'convalescent;'** Separate serum from cells ASAP or within 2 hours of collection **and transfer into standard aliquot tube;** Refrigerated **Stability:** Ambient: After separation from cells: **48 hours** Refrigerated: After separation from cells: 2 weeks Frozen: After separation from cells: 1 year **(Avoid repeated freeze/thaw cycles)**	1/3/19
COL3A1 Gene Sequencing (Blood)	COL3	**Stability:** Ambient: 3 days Refrigerated: **14** days Frozen: Unacceptable	Effective immediately

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Complement C 1	COMPC1	**Note:** *The following alias names will be added: Complement (C1 Function), Hemolytic Assay (C1 Function)* **Special Information: Critical Frozen. Thawed specimens are unacceptable. Specimens stored at minus 20 °C are unacceptable. Serum from a plain (no additive) red top tube is the only acceptable specimen type. Gel separator tubes are not acceptable. Send frozen serum Priority Overnight via FedEx in a well-insulated container on dry ice. Separate specimens must be submitted when multiple tests are ordered.** **Specimen Requirement:** 1 mL serum from a plain no additive (red) tube; Minimum: **0.25 mL (Note: Preferred volume is 1 mL);** Allow blood to clot for 20–60 minutes at room temperature **or 37 °C,** then centrifuge and aliquot serum **into standard aliquot tube** and freeze **immediately on dry ice or at minus 70 °C; Do NOT draw gel separator tubes; Separate specimens must be submitted when multiple tests are ordered; Critical Frozen** **Stability:** Ambient: Unacceptable Refrigerated: Unacceptable Frozen: **Frozen at minus 70 °C** for 1 year **Reference Range: 116,373–264,072 Units/mL** **Days Performed: First Thursday** **Reported:** 29–**31** days	11/5/18
Complement Component Level 3A	COMP3A	**Special Information:** Critical Frozen. **Thawed specimens or specimens stored at minus 20 °C are unacceptable. Plasma from an EDTA (lavender) tube is the only acceptable specimen type. Send frozen plasma Priority Overnight via FedEx in a well-insulated container on dry ice.** Separate specimens must be submitted when multiple tests are ordered. **Note:** *Clinical Information will be removed.* **Specimen Requirement:** 1 mL plasma from an EDTA (lavender) tube; Minimum: 0.5 mL **(Note: Preferred volume is 1 mL); Mix well; Centrifuge at room temperature within 30 minutes of collection,** then transfer the plasma to a standard aliquot tube and freeze immediately on dry ice or at minus 70 °C; Separate specimens must be submitted when multiple tests are ordered; Critical Frozen **Stability:** Ambient: Unacceptable Refrigerated: Unacceptable Frozen: Frozen at minus 70 °C for **1 year** **Reference Range: 0–780 ng/mL** **Days Performed: First and third Thursday** **Reported:** 22–**24** days	11/5/18
Complement Component Level 4A	COMP4A	**Special Information:** Critical Frozen. **Thawed specimen or specimens stored at room temperature prior to shipment are unacceptable. Plasma from an EDTA (lavender) tube is the only acceptable specimen type. Send frozen plasma Priority Overnight via FedEx in a well-insulated container on dry ice.** Separate specimens must be submitted when multiple tests are ordered. **Note:** *Clinical Information will be removed.* **Specimen Requirement:** 1 mL plasma from an EDTA (lavender) tube; Minimum: 0.5 mL **(Note: Preferred volume is 1 mL); Mix well; Centrifuge at room temperature within 30 minutes of collection,** then transfer plasma to a standard aliquot tube and freeze immediately: Plasma may be frozen at minus 20 °C, then transferred to **dry ice for shipment** within 6 hours OR immediately frozen on dry ice or at minus 70 °C **or below;** Separate specimens must be submitted when multiple tests are ordered; Critical Frozen **Stability:** Ambient: Unacceptable Refrigerated: Unacceptable Frozen: Minus 70 °C for 1 year; **Minus 20 °C for 6 hours** **Reference Range: 0–2830 ng/mL** **Days Performed: First and third Thursday** **Reported: 19–21** days	11/5/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
C-Peptide	CPEPT	**Stability:** Ambient: **1 day** Refrigerated: **7 days** Frozen: **14** days **Reference Range:** 0.8–**3.9 ng/mL**	1/3/19
Duchenne/Becker Muscular Dystrophy (DMD) Deletion/ Duplication with Reflex to Sequencing	DBMDYS	**Days Performed:** Varies **Reported: 15–44** days	11/12/18
Eosinophil Cationic Protein	EOSPRO	**Special Information: Plasma is unacceptable. Hemolyzed specimens will be rejected.** **Specimen Requirement:** 1 mL serum from a serum separator (gold) tube; Minimum: **0.25 mL; Collect blood by venipuncture using serum separator tube; Gently invert tube several times; Do not shake or vortex; Allow to clot at room temperature for 60–120 minutes, then centrifuge for 10 minutes (1000-1300 x g) at room temperature; Transfer 1 mL serum to standard aliquot tube;** Frozen **Stability:** Ambient: **After separation from cells:** 48 hours Refrigerated: **After separation from cells: 5 days** Frozen: **After separation from cells: 30 days** **Methodology: Fluorescent Enzyme Immunoassay (FEIA)** **Reference Range: < 17.8 µg/L** **Days Performed: Sunday** **Reported: 2–9** days	11/12/18
Galactose-alpha-1, 3-galactose IgE	13GAL	**Special Information: Lipemic samples may lead to rejection.** **Specimen Requirement:** 1 mL serum from a serum separator (gold) tube; Minimum: 0.5 mL; **Transfer serum to standard aliquot tube;** Refrigerated *OR* 1 mL serum from a **plain no additive (red) tube;** Minimum: 0.5 mL; **Transfer serum to standard aliquot tube;** Refrigerated **Reference Range: < 0.10 kU/L**	Effective immediately
Galectin-3	GAL3	**Special Information:** Plasma or **visibly** hemolyzed specimens are unacceptable. Specimens stored or transported at room temperature for more than 48 hours are not acceptable. This test is New York DOH approved. **Specimen Requirement:** 1 mL serum from a **plain no additive (red) tube;** Minimum: 0.2 mL; Allow specimen to clot completely at room temperature, then separate serum from cells ASAP or within 2 hours of collection and transfer to standard aliquot tube; **Do not draw serum separator tubes;** Frozen	11/12/18
Hantavirus IgG & IgM Abs	HANTAB	**Clinical Information: Detects antibodies against recombinant Hantavirus antigens of both old world and new world Hantavirus types. The immune response to Hantavirus infection is not type-specific, therefore, cross-reactivity may occur. All Hantavirus IgM-positive samples from US residents will be sent to a Public Health Laboratory for Sin Nombre Virus (SNV)-specific IgM testing. Samples that are Hantavirus IgG positive but IgM negative will not be subjected to further type-specific testing, since the lack of IgM rules out acute infection.** **Specimen Requirement: 0.5 mL** serum from a **plain no additive (red) tube;** Minimum: **0.5 mL;** Centrifuge, aliquot and refrigerate; Refrigerated *OR* **0.5 mL** serum from a serum separator (gold) tube; Minimum: **0.5 mL;** Centrifuge, aliquot and refrigerate; Refrigerated **Stability:** Ambient: **7** days Refrigerated: **14 days** Frozen: **30 days** **Reference Range:** Hantavirus IgG Antibody: **Negative** Hantavirus IgM Antibody: **Negative** **Days Performed: Monday, Wednesday, Saturday** **Reported: 2–8** days	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Heavy Metals Screen, Whole Blood	HEVMET	**Special Information:** Patient demographics (Heavy Metals) form is required to meet State Health Department requirements. **Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours. Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected. Heparin anticoagulant is not acceptable. Clotted specimens are unacceptable. Mercury is volatile; concentration may decrease over time. If the specimen is drawn and stored in the appropriate container, the arsenic and lead values do not change with time. This test is New York DOH approved.** **Specimen Requirement:** 7 mL whole blood in an EDTA **(royal blue)** tube; Minimum: **0.5 mL;** HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours;** Transport specimen in original collection tube; Ambient **Stability:** Ambient: **1 week** Refrigerated: **1 week** Frozen: Unacceptable **Methodology:** Inductively Coupled Plasma / Mass Spectrometry (ICP-MS) **Reference Range:** Lead: 0.0–4.9 µg/dL Arsenic, Blood: 0.0–**12.0 µg/L** Mercury, Blood: **0.0–10.0 µg/L** **Days Performed: Sunday**–Saturday **Reported:** 2–**5** days	11/12/18
Heavy Metals, Urine	UTXM3	**Special Information: Patient demographics (Heavy Metals) form is required to meet State Health Department requirements.** Specimens with a total arsenic concentration between 35–2000 µg/L will be fractionated at an additional cost to determine the proportion of organic, inorganic, and methylated forms of arsenic present. PATIENT PREP: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48–72 hours. High concentrations of iodine may interfere with elemental testing. **Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** Urine specimens collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media are not acceptable. Acid preserved urine, specimens contaminated with blood or fecal material, and specimens transported in non-trace element-free transport tubes (with the exception of the original device) are unacceptable. ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection. This test is New York DOH approved. **Specimen Requirement:** 8 mL 24-hour urine (well-mixed) in a clean container; Minimum: 2 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements;** Specimen must be collected in a plastic container; **Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure;** Transfer aliquot into a trace metal-free transport tube (ARUP supply #43116); Refrigerated *(continued on page 10)*	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Heavy Metals, Urine *(continued from page 9)*		*OR* 8 mL random urine in a clean container; Minimum: 2 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements;** Specimen must be collected in a plastic container; **Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure;** Transfer aliquot into a trace metal-free transport tube (ARUP supply #43116); Refrigerated **Reference Range:** Creatinine Urine per volume: Not established Creatinine, per 24 hour: **Refer to report** Arsenic–per volume (µg/L) (0–99 Years): 0.0–34.9 µg/L (Based on Biological Exposure Index) Arsenic–per24h (µg/day) (0–99 Years): 0.0–49.9 µg/d Arsenic–ratio to CRT (µg/g CRT) (0–99 Years): 0.0–29.9 µg/g crt Mercury, Urine per volume: 0.0–**5.0 µg/L** Mercury, Urine per 24 hours: 0.0–**20.0 µg/d** Mercury, Urine ratio to creatinine (0–99 Years): 0.0–20.0 µg/g crt Lead, ratio to creatinine: 0.0–**5.0 µg/g crt** Lead, per 24h (µg/day): 0.0–8.1 µg/d Lead, per volume (µg/L): 0.0–**5.0 µg/L** Arsenic Fractionated, Organic: Refer to report Arsenic Fractionated, Total Inorganic: Refer to report Arsenic Fractionated, Methylated: Refer to report **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	
Heavy Metals with Cadmium, Ur	UTXM4	**Special Information: Patient Demographics (Heavy Metals) form is required to meet State Health Department requirements.** Specimens with a total arsenic concentration between 35–2000 µg/L will be fractionated at an additional cost to determine the proportion of organic, inorganic, and methylated forms of arsenic present. Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48–72 hours. High concentrations of iodine may interfere with elemental testing. **Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** Urine specimens collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media are not acceptable. Acid preserved urine, specimens contaminated with blood or fecal material, and specimens transported in non-trace element-free transport tubes (with the exception of the original device) are unacceptable. ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection. This test is New York DOH approved. **Specimen Requirement:** 8 mL 24-hour urine (well-mixed) in a clean container (No preservatives); Minimum: 2 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure;** Specimen must be collected in a plastic container; Transfer aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated *(continued on page 11)*	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Heavy Metals with Cadmium, Ur *(continued from page 10)*		*OR* 8 mL random urine in a clean container (No preservatives); Minimum: 2 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure;** Specimen must be collected in a plastic container; Transfer aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated **Reference Range:** Creatinine Urine per volume: Not established Creatinine, per 24 hour: **Refer to report** Arsenic–per volume (µg/L) (0–99 Years): 0.0–34.9 µg/L (Based on Biological Exposure Index) Arsenic–per24h (µg/day) (0–99 Years): 0.0–49.9 µg/d Arsenic–ratio to CRT (µg/g CRT) (0–99 Years): 0.0–29.9 µg/g crt Cadmium Urine per Volume (µg/L) (0–99 Years): 0.0–1.0 µg/L Cadmium, Urine-per 24 hour (0–99 Years): 0.0–3.2 µg/d Cadmium, Urine-ratio to CRT (0–99 Years): 0.0–3.2 µg/g crt Mercury, Urine per volume: 0.0–**5.0 µg/L** Mercury, Urine per 24 hours: 0.0–**20.0 µg/d** Mercury, Urine ratio to creatinine (0–99 Years): 0.0–20.0 µg/g crt Lead, ratio to creatinine (µg/g CRT): 0.0–**5.0 µg/g crt** Lead, per 24h (µg/day): 0.0–8.1 µg/d Lead, per volume (µg/L): 0.0–**5.0 µg/L** Arsenic Fractionated, Organic: Refer to report Arsenic Fractionated, Total Inorganic: Refer to report Arsenic Fractionated, Methylated: Refer to report **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	
Heavy Metals with Cadmium, Whole Blood	HEVMT4	**Special Information:** Patient demographics (Heavy Metals) form is required to meet State Health Department requirements. Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48 to 72 hours. **Mercury is volatile; concentration may decrease over time. If the specimen is drawn and stored in the appropriate container, the arsenic, cadmium, and lead values do not change with time. Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected. Heparin anticoagulant is not acceptable. Clotted specimens are unacceptable. This test is New York DOH approved.** **Specimen Requirement:** 7 mL whole blood in an EDTA **(royal blue)** tube; Minimum: **0.5 mL;** HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours;** Transport specimen in original collection tube; Ambient **Stability:** Ambient: **1 week** Refrigerated: **1 week** Frozen: Unacceptable **Methodology:** Inductively Coupled Plasma / Mass Spectrometry (ICP-MS) **Reference Range:** Arsenic, Blood: 0.0–**12.0 µg/L** Cadmium, Blood (0–99 Years): 0.0–5.0 µg/L Mercury, Blood: **0.0–10.0 µg/L** Lead: 0.0–4.9 µg/dL **Days Performed: Sunday**–Saturday **Reported:** 2–**4** days	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Herpesvirus 6 Human IgG & IgM Abs	HV6ABS	**For Interfaced Clients Only: Test build may need to be modified** **Includes:** Herpesvirus 6 IgG Ab Herpesvirus 6 IgM Ab **HV6 Interpretation** **Special Information: Specimens other than serum will be rejected.** **Clinical Information: HHV-6 is a distinct herpes virus that typically causes a self-limiting illness in individuals who are not immunocompromised. In some patients, especially if immunocompromised, HHV-6 can cause febrile convulsions in infants, encephalitis mononucleosis-like symptoms, and hepatitis.** **Specimen Requirement: 0.5 mL** serum from a **plain no additive (red) tube;** Minimum: **0.1 mL; Ambient** *OR* **0.5 mL** serum from a **serum separator (speckled or tiger top) tube;** Minimum: **0.1 mL; Ambient** **Stability:** Ambient: **7** days Refrigerated: **14 days** Frozen: **30 days** **Methodology:** Immunofluorescence **Reference Range:** Herpesvirus 6 IgG Ab: **< 1:10 titer** Herpesvirus 6 IgM Ab: **< 1:20 titer** **Days Performed:** Tuesday–Saturday **Reported:** 2–**4** days	11/26/18
HIV-1 Western Blot	HIV1CO	**Days Performed:** Varies **Reported:** 2–**6** days	11/12/18
Hypercoagulation Diagnostic Interpretive Panel	HYPER	**Specimen Requirement:** 2 mL serum from a serum separator (gold) tube; Minimum: 1 mL; Indicate clearly which tube is plasma and which tube is serum; Submit Coagulation Consultation Patient History Form; Frozen *AND* 4 mL whole blood in an EDTA (lavender) tube; Minimum: 2 mL; Refrigerated *AND* 6 mL plasma from a 3.2% sodium citrate (light blue) tube; Minimum: 3 mL; Frozen	Effective immediately
IgA	IGA	**Days Performed: Monday**–Saturday **Reported:** 1–**3 days**	11/5/18
IgM	IGM	**Days Performed: Monday**–Saturday **Reported:** 1–**3 days**	11/5/18
Infliximab or Biosimilar Activity and Neutralizing Antibody	IFXNEU	**Test Name:** Previously Infliximab and Infliximab-dyyb Activity and Neutralizing Antibody **Special Information: Patient Prep: Collect specimens before infliximab or biosimilar treatment.** This test measures the capacity of infliximab to neutralize TNF-activity. Additionally, infliximab neutralizing antibodies (Nab) are titered (reporting the highest dilution of patient sera in which Nab activity is detected). Contaminated, hemolyzed, icteric, or lipemic specimens are unacceptable. This test is New York DOH approved. **Specimen Requirement:** 1 mL serum from a serum separator (gold) tube; Minimum: 0.5 mL; Collect specimens before infliximab **or biosimilar** treatment; Separate serum from cells ASAP or within 2 hours of collection; Transfer 1 mL serum to standard aliquot tube; Refrigerated	11/12/18
Insulin	INSULN	**Stability:** Ambient: 8 hours Refrigerated: **7** days Frozen: **14 days**	1/3/19

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Lead, Urine 24 Hour	ULEADQ	**Special Information: Patient demographics (Heavy Metals) form is required to meet State Health Department requirements.** Indicate total volume and collection time interval (if applicable) on tube and requisition. Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medications (upon the advice of their physician). High concentrations of iodine may interfere with elemental testing. **Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately, if tested within 14 days of collection. Urine collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media and acid preserved samples are unacceptable. Specimens contaminated with blood or fecal material, and specimens transported in non-trace element-free transport tubes (with the exception of the original device) are unacceptable. This test is New York DOH approved. **Specimen Requirement:** 8 mL 24-hour urine (well-mixed) in a clean container; Minimum: 1 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications upon the advice of their physician; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure; Must** collect in plastic container; Transfer aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated *OR* 8 mL random urine in a clean container; Minimum: 1 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications upon the advice of their physician; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure; Must** collect in plastic container; Transfer aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated **Reference Range:** Lead, per volume (µg/L): 0.0–**5.0 µg/L** Lead, per 24h (µg/day): 0.0–8.1 µg/d Lead, ratio to creatinine (µg/g CRT): 0.0–**5.0 µg/g crt** Creatinine, 24–Hour Urine Male 3–8 Years: 140–700 mg/d 9–12 Years: 300–1300 mg/d 13–17 Years: 500–2300 mg/d 18–50 Years: 1000–2500 mg/d 51–80 Years: 800–2100 mg/d 81–99 Years: 600–2000 mg/d Female 3–8 Years: 140–700 mg/d 9–12 Years: 300–1300 mg/d 13–17 Years: 400–1600 mg/d 18–50 Years: 700–1600 mg/d 51–80 Years: 500–1400 mg/d 81–99 Years: 400–1300 mg/d	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Lidocaine	LIDO	**Special Information:** Collect **12 hours** after **initiating prophylactic lidocaine therapy, and daily thereafter during lidocaine treatment. Do not collect in a gel separator tube.** **Specimen Requirement: 1 mL** plasma from a sodium or lithium heparin (green) tube; Minimum: **0.5 mL; Do not collect in a gel separator tube; Centrifuge and transfer plasma to a CCL tube and refrigerate;** Refrigerated *OR* **1 mL** serum from a plain no additive (red) tube; Minimum: **0.5 mL; Do not collect in a gel separator tube; Centrifuge and transfer serum to a CCL tube and refrigerate;** Refrigerated **Stability:** Ambient: **After separation from cells: 7 days** Refrigerated: After separation from cells: **7 days** Frozen: After separation from cells: **14 days** **Methodology: Homogenous Enzyme Immunoassay (HEIA)** **Reference Range:** 0–99 Years: **1.5**–5.0 **µg/mL**	11/27/18
Lipoprotein Electrophoresis	LIPOEL	**Special Information: Do NOT freeze. Patient should fast for 12–15 hours prior to testing. Heparin, body fluids and frozen samples are unacceptable. This test is New York DOH approved.** **Clinical Information: Useful for determining the Fredrickson classification of individuals with hyperlipoproteinemia, and most useful for identifying the Type III phenotype. An HDL cholesterol < 40 mg/dL is low and constitutes a coronary heart disease risk factor. An HDL cholesterol > 60 mg/dL is a negative risk factor for coronary heart disease.** **CPT: 80061 x 1,** 83700 x 1	11/12/18
Lupus Anticoagulant Diagnostic Interpretive Panel	LUPUSP	**For Interfaced Clients Only: Test build may need to be modified** **Includes:** APTT Anticardiolipin Ab IgG, IgM and IgA Beta 2 Glycoproteins IgG and IgM Hexagonal Phase Phospholipid neutralization Dilute Russell Viper Venom Time (DRVVT) Platelet Neutralization Prothrombin Time (PT) PT Screen APTT Screen Immediate PTT 1:1 Mix Incubated PTT 1:1 Mix Thrombin Time **Anti Xa Inhibitor Assay** **CPT:** 85390 x 1, **85520 x 1,** 85597 x 1, 85610 x 1, 85613 x 2, 85670 x 1, 85730 x 3, 85732 x 3, 86146 x 2, 86147 x 3	1/8/19
Mercury, Blood	MERC2	**Special Information:** Patient demographics (Heavy Metals) form is required to meet State Health Department requirements. Indications: Toxicity-Mercury poisoning. Patient Preparation: Diet, medication, and nutritional supplements may introduce interfering substances. Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician), and avoid shellfish and seafood for 48–72 hours. **Specimens collected in tubes other than royal blue (EDTA), or specimens transported in containers other than royal blue (EDTA) tubes or trace element-free transport tubes will be rejected. Heparin anticoagulant is unacceptable. Clotted specimens are not acceptable. This test is New York DOH approved.** *(continued on page 15)*	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Mercury, Blood *(continued from page 14)*		**Clinical Information: Preferred test for the assessment of acute mercury exposure. Blood mercury levels predominantly reflect recent exposures, and they are most useful in the diagnosis of acute poisoning as blood mercury concentrations rise sharply and fall rapidly over several days after ingestion. Blood concentrations in unexposed individuals rarely exceed 20 µg/L.** The reference interval relates to inorganic mercury concentrations. Dietary and non-occupational exposure to organic mercury forms may contribute to an elevated total mercury result. **Clinical presentation after toxic exposure to organic mercury may include dysarthria, ataxia and constricted vision fields with mercury blood concentrations from 20 to 50 µg/L. Elevated results may be due to skin or collection-related contamination, including the use of a non-certified metal-free collection/transport tube. If contamination concerns exist due to elevated levels of blood mercury, confirmation with a second specimen collected in a certified metal-free tube is recommended. Mercury is volatile; concentration may decrease over time.** **Specimen Requirement:** 7 mL whole blood in an EDTA **(royal blue)** tube; Minimum: **0.5 mL;** HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patient should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours;** Transport in original collection tube; Ambient **Stability:** Ambient: **1 week** Refrigerated: **1 week** Frozen: Unacceptable **Reference Range: 0.0–10.0 µg/L** **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	
Mercury, Urine 24 Hour	UMERC3	**Special Information: Patient demographics (Heavy Metals) form is required to meet State Health Department requirements.** Total volume and collection time interval must be indicated. Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, non-essential over-the-counter medication (upon the advice of their physician), and avoid shellfish and seafood for 48-72 hours. High concentrations of iodine may interfere with the elemental testing. **Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimen adequately, if tested within 14 days of collection. Urine collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media and acid preserved samples are unacceptable. Specimens contaminated with blood or fecal material, and specimens transported in non-trace element free transport tubes (with the exception of the original device) are unacceptable. This test is New York DOH approved. **Specimen Requirement:** 8 mL 24-hour urine (well-mixed) in a clean container; Minimum: 1 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure; Must** collect in a plastic container, then aliquot into a trace metal-free transport tube (ARUP supply #43116); Refrigerated *(continued on page 16)*	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Mercury, Urine 24 Hour *(continued from page 15)*		*OR* 8 mL random urine in a clean container; Minimum: 1 mL; Refrigerate during collection; HEAVY METALS FORM REQUIRED **to meet State Health Department requirements; Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications upon the advice of their physician, and avoid shellfish and seafood for 48 to 72 hours; High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure; Must** collect in a plastic container, then aliquot into a trace metal-free transport tube (ARUP supply #43116); Refrigerated **Reference Range:** Mercury, Urine per volume: 0.0–**5.0 µg/L** Mercury, Urine per 24 hours: 0.0–**20.0 µg/d** Mercury, Urine ratio to creatinine (0–99 Years): 0.0–20.0 µg/g crt Creatinine, Ur per 24 hour: Refer to report Creatinine, Ur per volume: Not established **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	
Mexiletine	MEX	**Reference Range:** Therapeutic Range: **0.5**–2.0 **µg/mL**	11/12/18
NF1/SPRED1 Comprehensive by NGS	NFIB1	**Special Information:** Do not ship on ice. **A completed 'NF1/SPRED1 Phenotypic Checklist' must be included with the specimen.** **Specimen Requirement:** 6 mL whole blood in an EDTA (lavender) tube; Minimum: 3 mL; A completed 'NF1/SPRED1 Phenotypic Checklist' must be included with the specimen; Collect 2 EDTA lavender top tubes; Ambient *OR* Extracted DNA; **Minimum volume of 25 µL** at 3 µg, O.D. value at 260:280 nm ≥ 1.8; A completed 'NF1/SPRED1 Phenotypic Checklist' must be included with the specimen; Ambient **Stability:** Ambient: **Whole blood: 7 days; Extracted DNA: 48 hours** Refrigerated: **Whole blood: 7 days; Extracted DNA: Indefinitely** Frozen: Whole blood: Unacceptable; **Extracted DNA: Indefinitely** **Days Performed:** Monday–Friday **Reported: 26–28** days **CPT: 81405 x 1,** 81408 x 1, 81479 x 2	11/6/18
Pneumococcal IgG Antibodies, 14 Serotypes	PNEUMG	**Special Information: Post-immunization specimen should be drawn 30 days after immunization and, if shipped separately, must be received within 60 days of pre-immunization specimen. Plasma or other body fluids will be rejected. Contaminated, hemolyzed, or severely lipemic specimens are unacceptable. This test is New York DOH approved.** **Specimen Requirement:** 1.5 mL serum from a serum separator (gold) tube; Minimum: **0.25 mL; Post-immunization specimen should be drawn 30 days after immunization and must be received within 60 days of pre-immunization specimen; Label specimens clearly as 'Pre' or 'Post;'** Separate serum from cells ASAP or within 2 hours of collection **and transfer into standard aliquot tube;** Refrigerated **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Prader-Willi/ Angelman Methylation	PRADER	**For Interfaced Clients Only: Test build may need to be modified** **Special Information: Counseling and informed consent are recommended for genetic testing. This test is New York DOH approved.** **Clinical Limitation: Molecular mechanisms not affecting methylation patterns that may result in Angelman Syndrome (AS) or Prader-Willi syndrome (PWS) will not be assessed. Diagnostic errors can occur due to rare sequence variations.** **Clinical Information: Preferred initial diagnostic test for Angelman syndrome or Prader-Willi syndrome. Background information: Characteristics of AS: Developmental delays by 6-12 months of age, seizures, microcephaly, movement or balance disorder, minimal or absent speech, and a distinctive behavioral phenotype, which includes a happy demeanor with frequent laughter, hand flapping, and excitability. Prevalence: 1 in 15,000. Inheritance: Varies, depending on the molecular genetic mechanism. Cause: Absence of maternal expression of the UBE3A gene. Molecular Genetic Mechanisms: Microdeletions in the AS/PWS critical region (68%), UBE3A mutations (11%), paternal uniparental disomy of chromosome 15 (7%), imprinting center defects (3%), unbalanced chromosome translocation (< 1%), and unknown (10%). Methodology: Bisulfite conversion and PCR amplification to detect methylation using melting curve analysis. Clinical Sensitivity: 78%. Analytical Sensitivity and Specificity: 99%. Characteristics of PWS: Neonatal hypotonia, hyperphagia, obesity, global developmental delay, mild intellectual disability, hypogonadism, and a distinctive behavioral phenotype, which includes temper tantrums, stubbornness, manipulative behavior, and obsessive-compulsive behavior. Prevalence: 1 in 15,000. Inheritance: Varies, depending on the molecular genetic mechanism. Cause: Absence of the paternally contributed PWS/AS critical region of chromosome 15q11.2-q13. Molecular Genetic Mechanisms: Microdeletions in the PWS/AS critical region (70-75%), maternal uniparental disomy of chromosome 15 (25-29%), imprinting center defect or balanced chromosome translocation (< 1%). Methodology: Bisulfite conversion and PCR amplification to detect methylation using melting curve analysis. Clinical Sensitivity: Over 99%. Analytical Sensitivity and Specificity: 99%** **Specimen Requirement: 3 mL** whole blood in an ACD A **or B** (yellow) tube; Minimum: **1.5 mL; Refrigerated** *OR* **3 mL** whole blood in an EDTA (lavender) tube; Minimum: **1.5 mL; Refrigerated** **Stability:** Ambient: **72 hours** Refrigerated: **1 week** Frozen: Unacceptable **Methodology:** **Methylation Sensitive** Polymerase Chain Reaction **Fluorescence Monitoring** **Days Performed:** Monday, **Thursday** **Reported: 8–11 days**	1/8/19
Propafenone	PROPA	**For Interfaced Clients Only: Test build may need to be modified** **Special Information: Use of peak serum level is recommended for patient monitoring. Blood drug level drops rapidly, leading to many negative results at the trough. Peak serum concentration occurs 3–4 hours post dose. Separator tubes are unacceptable. This test is New York DOH approved.** **Specimen Requirement: 2 mL** serum from a plain no additive (red) tube; Minimum: **0.7 mL;** Do not use serum separator tubes; **Transfer serum into standard aliquot tube;** Refrigerated *OR* **2 mL** plasma from an EDTA (lavender) tube; Minimum: **0.7 mL;** Do not use plasma separator tubes; **Transfer plasma into standard aliquot tube;** Refrigerated **Stability:** Ambient: **2 weeks** Refrigerated: **2 weeks** Frozen: **8 months** **Methodology: High Performance** Liquid Chromatography **(HPLC)** **Reference Range: Refer to report** **Days Performed: Varies** **Reported: 4–10** days **CPT: 80375 x 1, (G0480, if appropriate)**	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Prothrombin Time Mixing Study	PTMIX	**Reference Range:** PT Screen 0–1 Days: 7.9–14.8 sec 2–5 Days: 7.4–14.2 sec 6–30 Days: 7.2–13.3 sec 1–3 Months: 7.2–13.2 sec 4–11 Months: 8.3–12.9 sec 1–99 Years: **< 13.1 sec** PT 1:1 Mix 0–99 Years: **< 13.1 sec**	12/18/18
Pseudocholinesterase, Total, Serum	PCHE	**Test Name:** Previously Pseudocholinesterase **Note:** *The following alias names have been added: Butyrylcholinesterase; Cholinesterase (Pseudo), Total; Serum Cholinesterase (Pseudochol)* **Special Information:** Specimens must be drawn prior to surgery or greater than two days following surgery. Do not draw in the recovery room. **Mild or grossly hemolyzed specimens will be rejected.** **Specimen Requirement: 1 mL** serum from a serum separator (gold) tube; Minimum: **0.25 mL; Serum gel tubes should be centrifuged within 2 hours of collection;** Refrigerated *OR* **1 mL** serum from a plain no additive (red) tube; Minimum: **0.25 mL; Red-top tubes should be centrifuged and aliquoted within 2 hours of collection;** Refrigerated **Methodology: Photometric, Acetylthiocholine Substrate** **Days Performed:** Sunday–Saturday **Reported: 2**–3 days	Effective immediately
PTT Incubated Mixing Study	PTTIM	**Reference Range:** PT Screen 0–1 Days: 7.9–14.8 sec 2–5 Days: 7.4–14.2 sec 6–30 Days: 7.2–13.3 sec 1–3 Months: 7.2–13.2 sec 4–11 Months: 8.3–12.9 sec 1–99 Years: **< 13.1 sec** APTT Screen 0–1 Days: 28.7–45.1 sec 2–5 Days: 23.3–49.4 sec 6–30 Days: 23.5–45.6 sec 1–3 Months: 22.1–41.4 sec 4–11 Months: 25.8–35.5 sec 1–99 Years: 24.4–33.4 sec Immediate PTT 1:1 Mix 0–99 Years: < 33.2 sec Incubated PTT 1:1 Mix 0–99 Years: < 35.0 sec Thrombin Time 0–1 Days: < 17.4 sec 2–5 Days: < 17.9 sec 6–30 Days: < 17.9 sec 1–3 Months: < 18.2 sec 4–11 Months: < 19.1 sec 1–99 Years: < 18.6 sec Heparin Anti Xa 0–99 Years: Therapeutic range: 0.3–0.7 (standard nomogram) IU/mL 0–99 Years: < 0.10 IU/mL 0–99 Years: Stroke or low dose protocol: 0.2–0.5 IU/mL	12/18/18
SCA1 DNA test	SCA1	**Reference Range:** **SfaNI Site Absent: Normal ≤ 35; Borderline 36–38; Positive ≥ 39** **SfaNI Site Present: Normal ≤ 44; Positive ≥ 45** **Days Performed:** Monday–Friday **Reported: 15–22** days	11/26/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
SCA2 Expansion Analysis	SCA2	**Reference Range:** Normal: ≤ 31 **Borderline: 32** **Positive: ≥ 33** **Days Performed:** Monday–Friday **Reported: 15–22** days	11/26/18
SCA3 DNA Test	SCA3	**Reference Range:** Normal: **≤ 44** **Borderline: 45–59** **Positive: ≥ 60** **Days Performed:** Monday–Friday **Reported: 15**–29 days	11/26/18
SCA6 DNA Test	SCA6	**Reference Range:** Normal: **≤ 18** **Borderline: 19** **Positive: ≥ 20** **Days Performed:** Monday–Friday **Reported: 15–22** days	11/26/18
SCA17 DNA Test	SCA17	**Reference Range:** Normal: **≤ 40** **Borderline: 41–48** **Positive: ≥ 49** **Days Performed:** Monday–**Friday** **Reported: 15–22** days	11/26/18
Sotalol	SOTAL	**For Interfaced Clients Only: Test build may need to be modified** **Special Information:** Separator tubes are unacceptable. **This test is New York DOH approved.** **Specimen Requirement:** 1 mL serum from a plain no additive (red) tube; Minimum: **0.22 mL; Do not draw serum separator tubes;** Separate serum from cells **ASAP or** within 2 hours of collection **and transfer into standard aliquot tube;** Refrigerated *OR* 1 mL plasma from an EDTA (lavender) tube; Minimum: **0.22 mL; Do not draw plasma separator tubes;** Separate plasma from cells **ASAP or** within 2 hours of collection **and transfer into standard aliquot tube;** Refrigerated **Stability:** Ambient: **2 weeks** Refrigerated: 1 month Frozen: 1 month **Methodology: High Performance** Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) **Reference Range: Refer to report** **Days Performed: Varies** **Reported: 4–11** days **CPT: 80375 x 1, (G0480, if appropriate)**	11/12/18

Test Changes (Cont.)

Test Name	Order Code	Change	Effective Date
Thallium, Urine	UTHAL	**Special Information:** Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances. Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician). High concentrations of iodine may interfere with elemental testing. **Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure. Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure.** ARUP studies indicate that refrigeration of urine alone, during and after collection, preserves specimens adequately if tested within 14 days of collection. Record total volume and collection time interval on tube and requisition. Unacceptable Conditions: Urine collected within **72 hours** after administration of **iodinated or** gadolinium-based contrast media, acid preserved urine, specimens contaminated with blood or fecal material, specimens transported in non-trace element-free transport tubes (with the exception of the original device). This test is New York DOH approved. **Specimen Requirement:** 8 mL 24-hour urine (well-mixed) in a metal-free clean container; Minimum: 1 mL; Refrigerate during collection; **Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician); High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure**; Must collect specimen in plastic container; Record total volume and collection time interval on container and requisition; Transfer urine aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated *OR* 8 mL random urine in a metal-free clean container; Minimum: 1 mL; Refrigerate during collection; **Patient Prep: Diet, medication, and nutritional supplements may introduce interfering substances; Patients should be encouraged to discontinue nutritional supplements, vitamins, minerals, and non-essential over-the-counter medications (upon the advice of their physician); High concentrations of iodine may interfere with elemental testing; Collection of urine specimens from patients receiving iodinated or gadolinium-based contrast media should be avoided for a minimum of 72 hours post-exposure; Collection from patients with impaired kidney function should be avoided for a minimum of 14 days post-contrast media exposure;** Must collect specimen in plastic container; Record total volume on container and requisition; Transfer urine aliquot into a trace element-free transport tube (ARUP supply #43116); Refrigerated **Reference Range:** Thallium, Urine per volume: 0.0–**2.0 µg/L** Thallium, Urine (24-hour): 0.0–0.4 µg/d Thallium, Urine ratio to creatinine: 0.0–**2.0 µg/g crt** Creatinine Urine per volume: Not established Creatinine, per 24 hour: **Refer to report** **Days Performed:** Sunday–Saturday **Reported:** 2–**4** days	11/12/18
Voltage-Gated Calcium Channel IgG Autoantibodies	VOLTCA	**Stability:** Ambient: After separation from cells: **72** hours Refrigerated: After separation from cells: 2 weeks Frozen: After separation from cells: **1 month**	11/12/18
Von Willebrand Multimer	VWFMUL	**Methodology: Gel** Electrophoresis	12/17/18

New Tests

Test Name	Order Code	Change	Effective Date
ALL NGS Panel Bone Marrow	ALLMRW	**Specimen Requirement:** 2 mL bone marrow aspirate in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $1250.00 (non-discountable)	11/1/18
ALL NGS Peripheral Blood	ALLPBL	**Specimen Requirement:** 4 mL peripheral blood in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $1250.00 (non-discountable)	11/1/18
Chronic Lymphoproliferative Disorder NGS Bone Marrow	LPMNGS	**Specimen Requirement:** 2 mL bone marrow aspirate in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $995.00 (non-discountable)	11/1/18
Chronic Lymphoproliferative Disorder NGS Peripheral Blood	LPPNGS	**Specimen Requirement:** 4 mL peripheral blood in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $995.00 (non-discountable)	11/1/18
Leukemic Blood Cancer Chromosome Microarray + SNP	BLLSNP	**Note:** *This test was previously announced in the August and September Technical Updates.* **Price:** $1660.00 (non-discountable)	Effective immediately
Mycobacterium tuberculosis (MTB) and Rifampin Resistance Detection by PCR	MTBRIF	**Note:** *This test was previously announced in the October Technical Update.* **Price:** $277.00 (non-discountable)	Effective immediately

New Tests (Cont.)

Test Name	Order Code	Change	Effective Date
Myeloid NGS Panel Bone Marrow	MYMNGS	**Specimen Requirement:** 2 mL bone marrow aspirate in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $1400.00 (non-discountable)	11/1/18
Myeloid NGS Panel Peripheral Blood	MYPNGS	**Specimen Requirement:** 4 mL peripheral blood in an EDTA (lavender) tube; Ambient **Stability:** Ambient: 48 hours Refrigerated: 7 days Frozen: Unacceptable **Methodology:** Next Generation DNA Sequencing **Reported:** 10 days **CPT:** 81450 x 1, G0452 x 1 **Price:** $1400.00 (non-discountable)	11/1/18
Products of Conception Microarray + SNP	POCSNP	**Note:** *This test was previously announced in the August and September Technical Updates.* **Price:** $1597.00 (non-discountable)	Effective immediately
Respiratory Panel by PCR	RPPCR	**Includes:** Influenza A Influenza A H1 Influenza A H3 Influenza B Respiratory Syncytial Virus A Respiratory Syncytial Virus B Human Metapneumovirus Rhinovirus/Enterovirus Adenovirus Parainfluenza virus 1 Parainfluenza virus 2 Parainfluenza virus 3 Parainfluenza virus 4 Coronavirus 229E Coronavirus OC43 Coronavirus NL63 Coronavirus HKU1 Human Bocavirus Chlamydophila pneumoniae Mycoplasma pneumoniae **Special Information:** Dry swabs (swabs not received in viral transport media) will be rejected. Lower respiratory specimens received in universal transport media or viral transport media will be rejected. Test is not performed on major holidays. **Clinical Information:** This test is for immunocompromised patients, severely ill adults who will be hospitalized and have evidence of a lower respiratory tract infection the etiology of which has not been determined, and children who are going to be admitted that are being evaluated for a suspected respiratory viral infection. Note: This test (the Respiratory Panel) should rarely be ordered in the outpatient setting, and if ordered, preauthorization should be strongly considered. The test is very expensive and if not covered by insurance the patient will incur a substantial charge. *(continued on page 23)*	1/8/19

New Tests (Cont.)

Test Name	Order Code	Change	Effective Date
Respiratory Panel by PCR *(continued from page 22)*		**Specimen Requirement:** One nasopharyngeal (NP) swab in Universal Transport Media (UTM); Refrigerated *OR* 1 mL bronchoalveolar (BAL) specimen in a sterile container; If aliquoting is necessary, sterile aliquot tubes must be used; Do not dilute with UTM or Viral Transport Media (VTM); Refrigerated *OR* One induced sputum specimen in a sterile container; If aliquoting is necessary, sterile aliquot tubes must be used; Do not dilute with UTM or VTM; Refrigerated *OR* One nasopharyngeal (NP) swab in VTM; Refrigerated **Stability:** Refrigerated: Stable for 7 days at 2–8 °C Frozen: NP swab in UTM: Stable for 12 months at minus 70 °C; Lower respiratory specimens in sterile container: Stable for 30 days at minus 70 °C **Methodology:** Multiplex Qualitative Real-Time PCR **Days Performed:** Sunday–Saturday **Reported:** 2–3 days **CPT:** 87486 x 1, 87581 x 1, 87633 x 1 **Price:** $1229.00	

Fee Increases

Test Name	Order Code	List Fee	CPT Code	Effective Date
Adenosine Deaminase, Serum	SAD	$189.00 (non-discountable)	84311	11/6/18
Complement Component Level 3A	COMP3A	$142.00 (non-discountable)	86160	11/5/18
Hantavirus IgG & IgM Abs	HANTAB	$210.00 (non-discountable)	86790 x 2	11/12/18
Histoplasma Antibodies, CSF	HISTCS	$92.00	86698 x 2	Effective immediately
Sotalol	SOTAL	$136.00 (non-discountable)	80375, (G0480, if appropriate)	11/12/18

Fee Reductions

Test Name	Order Code	List Fee	CPT Code	Effective Date
Lidocaine	LIDO	$107.00	80176	11/27/18
Lipoprotein Electrophoresis	LIPOEL	$85.00 (non-discountable)	80061, 83700	11/12/18
Vitamin B7 (Biotin)	VITB7	$185.00 (non-discountable)	84591	11/6/18

Discontinued Tests

Test Name	Order Code	Test Information	Effective Date
Chlamydia psittaci IgG, IgM, IgA Abs	CHLPSI	This test will no longer be available. Suggest ordering Chlamydia Antibodies Evaluation (CIGIM).	1/3/19
Nuclear Antibody by IFA, IgG	ANAIGG	This test will no longer be available. Suggest ordering ANA by IFA Screen (ANAIFS).	11/12/18
Perphenazine	PRPHEN	This test will no longer be available.	11/12/18
Respiratory Viral Panel by PCR	RVPPCR	This test will no longer be available. Suggest ordering Respiratory Panel by PCR (RPPCR).	1/8/19