THE University of Vermont MEDICAL CENTER

Pathology & Laboratory Medicine

Communiqué

IN THIS ISSUE

Holiday Hours for Blood Draw Lab Sites

These lab collection sites will be closed for the following Monday holidays: Memorial Day, Independence Day and Labor Day.

Lab Collection Site	May 30 Memorial Day	July 4 Independence Day	September 5 Labor Day
Main Campus	Closed	Closed	Closed
Fanny Allen MOB	Closed	Closed	Closed
One South Prospect	Closed	Closed	Closed

Recent Test Updates

UVMMC Occult Blood: Update to Acceptable Specimen Type

Effective 6/1/2022, the UVMMC Clinical Microbiology Laboratory **will no longer accept** feces submitted in **sterile containers** for testing. The only acceptable specimen for occult blood testing requests will be inoculated **Hemoccult SENSA cards**. Delayed inoculation of the Hemoccult SENSA cards (i.e. when done in the laboratory from a sterile container of feces) decreases sensitivity of the testing and has not been validated by the manufacturer.

Affected Orderables:

Orderable Name	Epic Code	Atlas Code	Mayo Access ID
Occult Blood, Feces, Screening	LAB694	SOCCB	N/A
Occult Blood Diagnostic, Feces	LAB697	OCCB	N/A

Specimen Requirements:

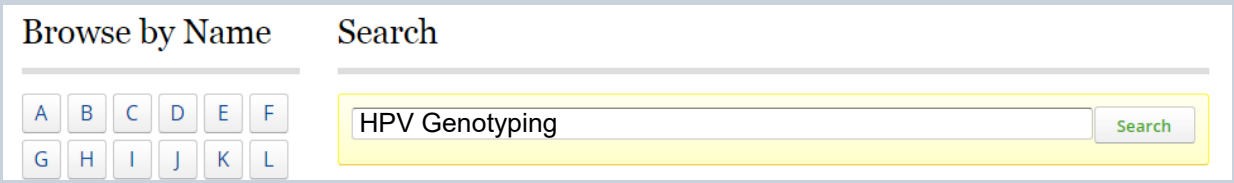
Current Acceptable Specimen Types	Specimen	Temperature	Notes
Inoculated Hemoccult SENSA Card	Feces	Ambient	Inoculated cards must be received in the lab within 14 days of collection.
Sterile Container	Feces	Refrigerate	

Updated Acceptable Specimen Type	Specimen	Temperature	Notes
Inoculated Hemoccult SENSA Card	Feces	Ambient	The cards must be inoculated immediately or within 2 hours of collection and inoculated cards must be received within 14 days of collection

For questions or concerns, please contact Dr. Wojewoda at (802) 847-5140.

TEST CATALOG

To view a complete listing of tests available at the University of Vermont Medical Center, please visit UVMlabs.testcatalog.org



Laboratory Operations

Scheduled Phlebotomy Visits at the Medical Office Building—Patients must call (802)-847-8864 to make an appointment.

Blood draws at the Fanny Allen Campus MOB (Medical Office Building) Lab in Colchester must be scheduled in advance.

This laboratory site is open for sample collections by appointment only between the hours of 8:00am—4:30pm, Monday-Friday. Patients should call (802) 847-8864 to schedule.

Our labs at the Ambulatory Care Center, Main Campus and 1 South Prospect Street in Burlington will remain walk-in sites for the time-being.

It is very important that providers place complete lab orders for testing **before** the patients arrive for their scheduled phlebotomy appointment. When patients arrive at the Medical Office Building Lab without orders, it causes delays for patients as laboratory staff work to determine which specimens to collect. Depending on how your clinic/office places lab orders, this can mean several different things:

- Filling out a paper lab requisition and giving it to your patient to bring to their phlebotomy appointment
- Faxing a complete lab requisition to Lab Customer Service (802-847-5905) for lab orders to be placed in our EPIC system
- Placing an electronic lab order via your in-house EMR and submitting it to UVMMC electronically (applies only to interfaced clients)
- Placing and signing a future lab order via EPIC (applies only to EPIC users)

Lab orders are valid 30 days before and 90 days after the expected collection date. If a patient arrives for sample collection outside this window, we will call the ordering provider to confirm the order is still valid.

SPECIMEN PICK UP AND DROP OFF PROCESS AT THE FANNY ALLEN CAMPUS MEDICAL OFFICE BUILDING

Patients can pick up or drop off collection kits without an appointment. Please let patients know that if they are picking up a collection kit, and intend to provide a specimen(s) for that kit in the same visit, they must make a scheduled appointment.

Thank you in advance for your diligence and consideration in placing lab orders for your patients to ensure a smooth collection experience at the MOB. If you have any questions please contact Lab Customer Service by calling (802) 847-5121.

Pediatric Blood Draws Topical Anesthetic Reminder

PLEASE NOTE: TOPICAL ANESTHETIC USE PRIOR TO A BLOOD DRAW REQUIRES TIME TO WORK

It is not uncommon to require or request application of topical anesthetic prior to performing a blood draw on pediatric patients. After application, patients must wait a certain amount of time before the anesthetic is fully effective.

Please inform your patients (or their parents/guardians) that -

- EMLA (Cream or Patch) – Requires 45-60 minutes for full effect
- Synera Patch – Requires a minimum of 35 minutes for full effect

The ACC offers these comfort measures between the hours of 8:30 am and 3:30 pm Monday through Friday.

Laboratory Operations

Butterfly vs Straight Needles for Venipuncture

Recently, when performing supply audits we noticed an increased use of butterfly needles vs straight needles. The change in the ordering pattern lead us to wonder why and to write a short review of some things to consider when selecting a needle when performing a venipuncture on a patient to collect a sample for laboratory testing.

Needle Size

We hear both patients and phlebotomists frequently say that they prefer a butterfly because the needle is smaller. While a butterfly needle might be shorter in length, generally speaking the difference in the width, or the size of the hole the needles creates, is minimal. Butterflies are usually 22, 23 or 25 gauge, while straight needles are 21 or 22 gauge.

Venipuncture needles have an end that is cut on the diagonal and sharpened to a point. This makes the insertion into the skin easier, minimizing the tug and tear on the patients skin and reducing pain. Regardless of the needle gauge the point where the needle punctures the skin is the same size.

Each needle gauge has an inner (ID) and outer diameter (OD). A 21 gauge needle has an outer diameter of 0.82mm and ID of 0.51mm. A 23 gauge needle will have an OD of 0.64mm and ID of 0.34mm.

The inner diameter is important when considering the quality of the blood sample and the speed of the blood flow. For some patients being able to quickly collect the sample and get out of there reduces their distress.

Straight needles connect directly to the vacuum tube through a Luer lock, with a flexible end hiding another needle that punctures the rubber stopper at the top of the tube. While butterflies connect via a flexible piece of tubing leading to the same end connection to the tube. The tubes themselves have a vacuum inside that creates the 'pull' that brings the blood into the tube during collection. The flexible tubing creates a dead space for the vacuum and requires an extra blood volume be collected to fill the tubing. The flexible tubing can also create an increased risk of needle sticks for the phlebotomist.

For the majority of adults, straight needles should be considered the first choice for blood sample collection, as they allow for a faster sample collection, are less prone to clotting and less prone to cause hemolysis of the sample. They also have a lower risk of needle stick for the phlebotomist.

Butterflies are ideally used on patients with delicate skin or thinner, less stable veins. Typically the elderly and pediatric populations.

Choosing the correct vein, the right tube type for the test, the collection device and needle size all rely on the phlebotomists' professional judgement in balancing the quality of the blood sample, the comfort of the patient, safety for themselves and even the availability and cost in these days of supply chain shortages.

Overall, straight needles generally offer greater safety against needle sticks, have less hemolysis and clotting, and do not usually cause any increased discomfort for the patient. That said, butterfly needles should be on hand and used for their specific, beneficial purposes in the appropriate subset of the population.

We would encourage everyone to consider the benefits of straight needles before turning immediately to a butterfly for every patient.

Laboratory Operations

Ordering Lab Supplies

Providing supplies to facilitate the collection and transport of lab specimens is one of the services that we offer as a community hospital lab. The normal turnaround time for supply delivery is 48 hours. This allows our inventory control staff the time to review and package supply orders on a daily basis.

UVMMC Lab Supply department is staffed Monday through Friday, 6am to 3pm. Any STAT requests made outside those hours will be filled the next day or as time allows.

UVMMC clinics should primarily order their lab collection supplies via Premier Connect. Community providers should order their supplies by faxing their lab supply forms to the Lab Supply department at 847-7869.

We would ask that you monitor your inventory on a regular basis given the turn around time for completing orders. For questions, please call Lab Outreach at 847-5121.

UVMMC Laboratories Successful Inspection by the College of American Pathologists

On March 11, 2022, most sections of the UVMMC laboratory underwent a very successful College of American Pathologists (CAP) inspection. The inspection team consisted of laboratory colleagues from several different parts of the country with the core group coming from St. Jude Children's Research Hospital in Memphis, Tennessee. The inspection team had access to our policies and procedures in MediaLab for 2 weeks prior to coming on site. This allowed the inspectors more time in the laboratory for observation of practice and conversation with staff.

Our laboratory is inspected on over 3,000 standards and during this inspection received deficiencies on less than 20 checklist items!! The inspection team shared many compliments as they presented their findings to the laboratory team at the summation conference. Some examples: "Phenomenal lab where it is clear the lab staff care about the quality of work the lab produces", "Excellent lab", "Everyone cares about patient care and quality" and "The technologists go above and beyond". This demonstrates the resilience and dedication of our laboratory team that has weathered a pandemic and a cyberattack within the past 2 years.

Our Blood Bank Transfusion Services will be inspected against the Association for the Advancement of Blood and Biotherapies (AABB) and the CAP checklist for Transfusion services at the end of April or beginning of May. Additionally, the AABB will be assessing the Stem Cell Processing Lab against the AABB standards for Cellular Therapy also in early May. We have every reason to believe these inspections will be as successful as the inspection of our other laboratory sections.

Compliance Updates

Disclosure of Medicare Regulations

Annually, the Laboratory is required by the Office of Inspector General to provide a copy of our "Disclosure of Medicare Regulations" statement to our provider clients. This disclosure explains Medicare regulations as they pertain to ordering and billing of laboratory tests. Included in the statement is a list of the National and Local Coverage Decision policies as well as Preventive Services Policies. Links to the individual policies can be found on the UVMMC Pathology and Laboratory Medicine webpage under the Compliance Updates header. Here is the direct link to the Disclosure of Medicare Regulations, which can also be found under the Compliance Updates header.

Please contact Laboratory Compliance Staff with any questions (802) 847-5121.

Compliance Heads Up:

Please check before you select!

When ordering packaged testing, please verify the additional testing ordered is not a component of the panel already ordered.

For example, BMPs and CMP's contain BUN and Creatinine. Do not order a BMP or CMP with an additional BUN or Creatinine.

If a POC dip is performed, do not order a UA with sediment. Please only order a urine sediment with or without micro if indicated.

LAB9896	URINE SEDIMENT (MICRO) WITH REFLEX TO CULTURE University of Vermont Medical Center
ARKUMI	URINE SEDIMENT (MICRO) WITHOUT REFLEX TO CULTURE, AUTOMATED University of Vermont Medical Center

NEW LABORATORY CUSTOMER SERVICE HOURS

Karen Cross, Customer Service Representative

We have changed our weekend Customer Service hours and we are open the same hours on both Saturday and Sunday.

New Saturday Hours: 7:00 a.m. to 3:30 p.m.

New Sunday Hours: 7:00 a.m. to 3:30 p.m.

Monday – Friday Hours: 6:00 a.m. to 9:00 p.m.

Previously Distributed Test Updates

Reference Range Changes for Dilute Viper Venom (DVV)

Beginning May 3, 2022, the normal reference ranges will be updated for the lupus anticoagulant screen (LA screen) and lupus anticoagulant confirm (LA confirm) tests using the dilute Russell viper venom time (dRVVT) paired assay methodology.

As a reminder, the LA Screen and LA Confirm using the dRVVT test methodology is only one component in a panel of tests used to determine the presence or absence of a lupus anticoagulant. The panel is the Lupus Anticoagulant Cascade (LAB3629). Final determination of the dRVVT results is based on a LA Ratio, and **the cut-off value for the LA Ratio re-mains unchanged at 1.1.**

Dilute Viper Venom (DVV) Reference Ranges:

Affected Orderable:

Orderable Name	Epic Code	Atlas Code	Mayo Access ID	JTC Link
Lupus Anticoagulant Cascade	LAB3629	LACASC	FAH5675	https://uvmlabs.testcatalog.org/show/LAB3629-1

Testing	Age	Current Ref Ranges	Updated Ref Ranges
LA Screen Test	>=18 years	31.9 - 47.0 seconds	25.2 - 42.2 seconds
LA Confirm Test	>=18 years	27.4 - 34.7 seconds	25.4 - 33.2 seconds
DVV Heparin Removed	>=18 years	31.9 - 47.0 seconds	25.2 - 42.2 seconds
LA Confirm , Heparin Removed	>=18 years	27.4 - 34.7 seconds	25.4 - 33.2 seconds
DVV Screen, 50/50 Mix	>=18 years	31.9 - 37.0 seconds	25.2 - 42.2 seconds

LA Ratio: <=1.16

Please contact Dr. Andrew Goodwin at 802.847.2377 for any questions or concerns.

Update to UVMMC Blood Culture Reporting

Effective 1/26/2022, the UVMMC Clinical Microbiology Laboratory discontinued reporting the number and type of blood culture bottles that are positive. The determination of blood culture contamination should be based on the number of sets positive with usual skin flora (coagulase negative Staphylococci, viridans Streptococci, Corynebacteria) and ***not*** the number of bottles that are positive, as 2 bottles within 1 set can be contaminated. In addition, the type of bottle that the organism grows in does not help presumptively identify it. This follows microbiology reporting guidelines and was vetted by the Infectious Disease Practice Committee. The Verigene assay (rapid molecular identification) will still be performed, if indicated.

There are no build changes to the test, Bacterial Culture, Blood, or to the ordering process.

Test Name	Epic Code	Atlas Code	Mayo Access ID
Bacterial Culture, Blood	LAB2516	BRC	FAH5264

For questions, please contact the Medical Director of Microbiology, Christina Wojewoda, MD at Christina.Wojewoda@uvmhealth.org.

Previously Distributed Test Updates

New Molecular Vaginitis/Vaginosis Assay

Effective 3/21/22, UVMMC began offering the Molecular Vaginitis/Vaginosis Assay, to diagnose Bacterial Vaginosis, vaginal Candidiasis and Trichomonas.

This test will be replacing the Vaginitis Exam (VAGEX), comprised of a scored Gram Stain for the determination of Bacterial Vaginosis and the presence or absence of yeast along with a Trichomonas antigen test.

We are making this change to align with the CDC recommended NAAT (Nucleic Acid Amplification Test) test for detecting *T. vaginalis*. Additionally, the new assay offers increased sensitivity and specificity for the diagnosis of Bacterial Vaginosis (BV) and the assay will single out *C. glabrata* so that appropriate antifungal treatment can be selected as this organism is more azole resistant.

This assay will require a vaginal swab collected in the Aptima Multitest Collection kit (orange label pink swab). The current, ESwab collection kit will no longer be a viable collection device.

Test Build Information:

New Orderable Name	**Epic Code**	**Atlas Code**	**Mayo Access ID**	**LOINC Code**
Molecular Vaginitis/Vaginosis Assay	LAB17401	LAB17401	FAH6068	92703-8
New Reportables	**Epic Code**	**Atlas Code**	**Mayo Access ID**	**LOINC Code**
Candida species group	12301019308	12301019308	FAH6069	62460-1
Candida glabrata	12301019309	12301019309	FAH6070	69563-5
Trichomonas vaginalis	12301019310	12301019310	FAH6071	62461-9
BV (Bacterial Vaginosis)	12301019311	12301019311	FAH6072	69568-4
Specimen Information	**Specimen**	**Temperature**	**Collect**	**Stability**
Aptima (orange vial/foil cap)	Vaginal	Ambient/Refrig	Swab	30 days
CPT Code Description	**CPT Code**			
Candida species, amplified probe technique	87481			
Trichomonas vaginalis	87661			
BV (Bacterial Vaginosis)	81513			
Current Orderable Name	**Epic Code**	**Atlas Code**	**Mayo Access ID**	**LOINC Code**
Vaginitis Exam	LAB1380	VAGEX	FAH5868	43391-2
Specimen Information	**Specimen**	**Temperature**	**Collect**	**Stability**
Bacterial/Yeast Collection Kit (ESwab)	Vaginal	Refrigerate	Swab	24 hours
CPT Code Description	**CPT Code**			
Gram Smear for Clue Cells and Yeast	87205			
Trichomonas	87808			

For more info regarding this new assay please see the UVMMC Test Catalog (Test Code 17401) https://uvmlabs.testcatalog.org/show/LAB17401

Previously Distributed Test Updates

Tick-Borne Illness Update

With the warming weather upon us, testing for tick-borne illnesses is increasing. Clinical suspicion of tick-borne disease should be based on patient characteristics including illness during tick season with symptoms such as fever, chills, headache, muscle aches, joint pain, neck pain, skin rash, Bell's palsy, heart rhythm disturbances, hypotension, jaundice, sepsis, and possible tick exposure. If these criteria are met there is risk for Lyme disease, anaplasmosis, and babesiosis. Endemic areas for Lyme disease, anaplasmosis, and babesiosis include the Northeastern and Upper Midwestern United States, into Canada.

If the patient presents with a classic erythema migrans "bullseye" rash, no testing is necessary, treatment for Lyme can be initiated while monitoring for symptoms of additional tick-borne illness. If there is no rash and clinical suspicion is high testing may be appropriate and should include a Lyme serology test, which reflexes to confirmation IgG and IgM testing if the initial serology testing is positive or equivocal. Lyme serology can be insensitive in the first few weeks of infection, so repeat testing might be warranted. If there is concern for Babesia, a blood parasite exam should be ordered to look for the presence of Babesia in the red blood cells. If there is concern for Anaplasma, the best test is a PCR.

THE APPROPRIATE TESTING FOR EACH DISEASE IS:

Lyme disease (Borrelia burgdorferi): Lyme Antibody (Lab test code: LYMAB, EPIC test code: LAB3035)

Babesiosis: Parasite Exam, Blood (Lab test code: BPEX, EPIC test code: LAB2545).

Anaplasma: Ehrlichia/Anaplasma, Molecular Detection, PCR, Blood (Lab test code: EHRL, EPIC test code: LAB3614).

SEND OUT TESTING IS DISCOURAGED FOR THE FOLLOWING TESTS:

Tick-Borne Disease Antibodies Panel, Serum.

Tick-Borne Panel, Molecular Detection, PCR, Blood

Lyme Disease, Molecular Detection, PCR

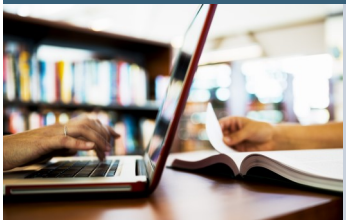
Lyme Disease, Molecular Detection, PCR, Blood

Babesia microti IgG Antibodies, Serum

Babesia species, Molecular Detection, PCR, Blood (except for kidney donors)

Please let us know if you have any questions, 847-5121.

LAB AMBASSADOR



Do you have a technical or operations question for the lab?

Contact LabAmbassador@UVMHealth.org for assistance!

Previously Distributed Test Updates

Testosterone, Total & Free and Sex Hormone Binding Globulin to be Performed at Mayo

Effective April 7, 2022, due to supply chain issues, the UVMMC laboratory will temporarily send Testosterone, Total and Free, S. and Sex Hormone Binding Globulin testing to Mayo Medical Laboratories. Siemens notified us on Friday, April 1, 2022, that the reagents for these assays are backordered at least until at least the end of the month.

A **notable difference** is that Mayo requires a **Red Top** tube for its Testosterone, Total and Free, S. testing, whereas the current test uses a SST.

UVMMC tests to be temporarily inactivated:

	Test Name	Epic Code	Atlas Code
1.	Testosterone, Total and Free, S.	LAB173	FTES2
2.	Sex Hormone Binding Globulin	LAB839	SHBG2

Mayo Medical tests:

1.	Test Name	Epic Code	Atlas Code	Mayo Test ID	Order LOINC
	Testosterone, Total and Free, S.	LAB17495	LAB17495	TGRP	58952-3
	Result Component	**Epic Code**	**Atlas Code**	**Mayo Test ID**	**LOINC**
	Testosterone, Free, S.	12301014202	12301014202	3631	2991-8
	Testosterone, Total, S.	12301014203	12301014203	8533	2986-8

2.	Test Name	Epic Code	Atlas Code	Mayo Test ID	Order LOINC
	Sex Hormone Binding Globulin	LAB17496	LAB17496	SHBG1	13967-5
	Result Component	**Epic Code**	**Atlas Code**	**Mayo Test ID**	**LOINC**
	Sex Hormone Binding Globulin	12301019616	12301019616	SHBG1	13967-5

If you have any questions or concerns, please reach out to UVMMC Laboratory Customer Service at (802) 847-5121.

Previously Distributed Test Updates

Reference Range Updates for Chemistry Testing

On 4/2/22, the clinical laboratories of UVMHN (AHMC, CVMC, CVPH, ECH, PMC, and UVMMC) will be updating primarily pediatric reference ranges for the analytes listed in the table below. This change is part of the UVMHN standardization of laboratory reporting and reference ranges as part of the wave 3 Epic Go-Live. This update means EPIC will appropriately flag abnormal laboratory values based on the new age appropriate reference ranges.

Test Name	Epic Code	Atlas Code	Mayo Access ID
Albumin	LAB45	ALB	FAH4973
Alkaline Phosphatase	LAB112	ALKP	FAH4842
ALT	LAB132	ALT	FAH264
Ammonia	LAB47	AMMON	FAH281
AST	LAB131	AST	FAH263
Bilirubin, Total	LAB50	TBIL	FAH5243
Blood Gas, Arterial	LAB3031	N/A	N/A
Blood Gas, Cord Blood Arterial	LAB3033	N/A	N/A
Blood Gas, Cord Venous	LAB3173	N/A	N/A
Blood Gas, Venous	LAB3032	N/A	N/A
BUN	LAB140	BUN	FAH4985
Calcium	LAB53	LAB53	FAH4962
Cholesterol	LAB60	CHOL	FAH4958
Cholesterol, HDL	LAB101	HDL	FAH243
Creatinine	LAB66	CREAT	FAH5382
Ferritin	LAB68	FER	FAH147
GGT	LAB85	GGT	FAH242
IgA	LAB1077	IGAS	FAH5813
IgG	LAB71	IGGS	FAH5812
IgM	LAB72	IGMS	FAH5814
Ionized Calcium	LAB2039	ICAL	FAH5668
Iron	LAB94	IRON	FAH130
Iron Binding Capacity	LAB829	IBC	FAH131
LDH	LAB96	LDH	FAH257
LDL, Direct	LAB3245	DLDL	FAH5519
LH	LAB87	LH	FAH150
Lipase	LAB99	LIPA	FAH166
MG	LAB103	MG	FAH5203
NT-proBNP	LAB106	NTBNP	FAH5502
Osmolality, Urine	LAB107	UOSM	FAH221

Reference Range Updates for Chemistry Testing (cont)

Previously Distributed Test Updates

Reference Range Updates for Chemistry Testing

Test Name	Epic Code	Atlas Code	Mayo Access ID
Phosphorus	LAB113	PHOS	FAH207
Potassium	LAB114	K	FAH258
Potassium, Urine 24 hr	LAB436	UK24	FAH5873
Progesterone	LAB529	PROG	FAH162
Prolactin	LAB531	PROL	FAH155
Protein Total, Serum	LAB118	TP	FAH5010
PSA (Prostate Specific Antigen), Diagnostic	LAB116	PSA	FAH202
Rheumatoid Factor	LAB206	RFS	FAH5810
Sex Hormone Binding Globulin	LAB839	SHBG2	FAH5764
Sodium, Urine 24 Hr	LAB446	UNA24	FAH5874
T3, Free	LAB137	FREET3	FAH5786
T3, Total	LAB136	TT3	FAH5785
T4, Free	LAB127	FRET4	FAH5788
T4, Total	LAB126	TT4	FAH5787
Testosterone	LAB124	TESTO2	FAH5763
Testosterone, Total and Free	LAB173	FTES2	FAH5762
Thyroid Stimulating Hormone	LAB129	TSH3	FAH5790
Total Protein, CSF	LAB195	CTP	FAH119
Transferrin	LAB133	TRFS	FAH5818
Triglyceride	LAB134	TRIG	FAH4959
Uric Acid	LAB141	URIC	FAH4964
Uric Acid, Elitek	LAB2061	EURIC	N/A
*Cholesterol/Non-HDL Calculated	N/A	N/A	N/A
*LDL Calculated	N/A	N/A	N/A

*NOT an orderable test. See Lipid Panel, LAB18, LPR, FAH4957

To access the exact values for each age appropriate reference range, you can review the test/analyte of interest by searching the EPIC Procedure Catalog and selecting the Reference Range Tab. For non-EPIC utilizing sites, the new reference ranges can be accessed by searching the performing laboratory's Test Directory/Menu, such as https://uvmlabs.testcatalog.org.

If you have any questions or concerns about these changes, then please reach out to the Medical Director of Clinical Chemistry (clayton.wilburn@uvmhealth.org).

Previously Distributed Test Updates

Update to eGFR Calculation

With the Epic wave 3 Go-Live on 4/2/2022, all of the clinical laboratories in the UVM Health Network (AHMC, CVMC, CVPH, ECH, PMC, and UVMMC) will be changing the calculation of estimated glomerular filtration rate (eGFR) from creatinine to the new CKD-EPI 2021 creatinine equation that does not include a race coefficient. This will apply to all tests that report a creatinine measurement. The new equation is recommended by the National Kidney Foundation and the American Society of Nephrology's Task Force on Reassessing the Inclusion of Race in Diagnosing Kidney Disease. The new eGFR equation has similar overall performance characteristics to the older equations and has been assessed to not have potential consequences that disproportionately affect any one group of individuals. For most patients, the eGFR result will be similar, however, for some, the values may differ by more than 10%, particularly at higher values of eGFR and for younger adult ages. See the table below for a comparison of eGFR calculated by the new equation to earlier equations.

Table 2. Difference in $eGFR_{cr}$ using the CKD-EPI 2021 equation compared to earlier equations.

	Age, years		20				50				80			
	Creatinine, mg/dL		0.60	1.00	1.50	2.00	0.60	1.00	1.50	2.00	0.60	1.00	1.50	2.00
Race group	Sex	Equation	mL/min/1.73m^2											
Black (African American)	Male	2021 $eGFR_{cr}$	142	110	68	48	118	92	56	40	98	76	47	33
		2009 $eGFR_{cr}$	168	125	77	54	136	101	62	44	110	82	50	35
		Difference	**−26 (−15%)**	**−15 (−12%)**	**−9 (−12%)**	**−6 (−11%)**	**−18 (−13%)**	**−9 (−9%)**	**−6 (−10%)**	**−4 (−9%)**	**−12 (−11%)**	**−6 (−7%)**	**−3 (−6%)**	**−2 (−6%)**
		2006 MDRD[a]	>60	>60	>60	52	>60	>60	>60	43	>60	>60	55	39
		Difference				**−4 (−8%)**				**−3 (−7%)**			**−8 (−15%)**	**−6 (−15%)**
	Female	2021 $eGFR_{cr}$	132	83	51	36	109	69	42	30	91	57	35	25
		2009 $eGFR_{cr}$	152	94	58	41	123	76	47	33	100	62	38	27
		Difference	**−20 (−13%)**	**−11 (−12%)**	**−7 (−12%)**	**−5 (−12%)**	**−14 (−11%)**	**−7 (−9%)**	**−5 (−11%)**	**−3 (−9%)**	**−7 (−9%)**	**−5 (−8%)**	**−3 (−8%)**	**−2 (−7%)**
		2006 MDRD	>60	>60	54	38	>60	>60	45	32	>60	>60	40	29
		Difference			**−3 (−6%)**	**−2 (−5%)**			**−3 (−7%)**	**−2 (−6%)**			**−5 (−13%)**	**−4 (−14%)**
Non-Black (non-African American)	Male	2021 $eGFR_{cr}$	142	110	68	48	118	92	56	40	98	76	47	33
		2009 $eGFR_{cr}$	145	108	66	47	117	87	54	38	95	71	43	31
		Difference	**−3 (−2%)**	**2 (2%)**	**2 (3%)**	**1 (2%)**	**1 (1%)**	**5 (6%)**	**2 (4%)**	**2 (5%)**	**3 (3%)**	**5 (7%)**	**4 (9%)**	**2 (6%)**
		2006 MDRD	>60	>60	>60	43	>60	>60	50	36	>60	>60	45	32
		Difference				**5 (12%)**			**6 (12%)**	**4 (11%)**			**2 (4%)**	**1 (3%)**
	Female	2021 $eGFR_{cr}$	132	83	51	36	109	69	42	30	91	57	35	25
		2009 $eGFR_{cr}$	131	81	50	35	106	66	40	28	86	53	33	23
		Difference	**1 (1%)**	**2 (2%)**	**1 (2%)**	**1 (3%)**	**3 (3%)**	**3 (5%)**	**2 (5%)**	**2 (7%)**	**5 (6%)**	**4 (8%)**	**2 (6%)**	**2 (9%)**
		2006 MDRD	>60	>60	44	32	>60	59	37	26	>60	53	33	24
		Difference			**7 (16%)**	**4 (13%)**		**10 (17%)**	**5 (14%)**	**4 (15%)**		**4 (8%)**	**2 (6%)**	**1 (4%)**

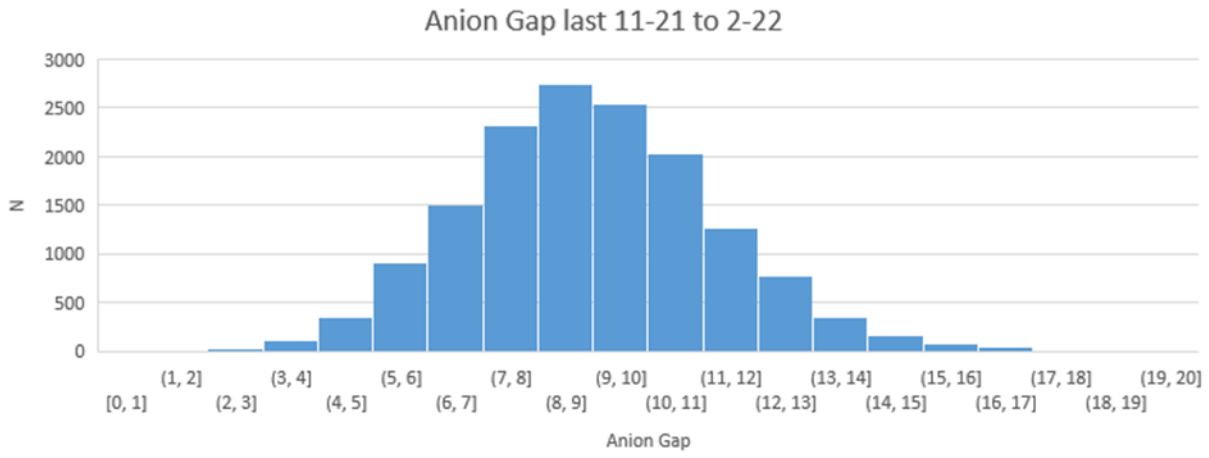
[a]The MDRD Study equation is not intended for reporting numeric eGFR values of ≥60 mL/min/1.73m^2.

Source: Miller et al. National Kidney Foundation Laboratory Engagement Working Group Recommendations for Implementing the CKD-EPI 2021 Race-Free Equations for Estimated Glomerular Filtration Rate: Practical Guidance for Clinical Laboratories, Clinical Chemistry, 2021;, hvab278, https://doi.org/10.1093/clinchem/hvab278

Previously Distributed Test Updates

Anion Gap Reference Range Change

On 2/10/2022, the UVM Medical Center updated the reference range for the calculated Anion Gap for all tests that provide the calculation. This change is part of the ongoing UVMHN standardization of laboratory reference ranges. The prior reference range for the Anion Gap was 8-16. **The NEW Reference Range for Anion Gap is 5-14**. The new gap is based on review of 15,320 outpatient results from primary care sites across the UVMHN network over the last several months. The determination of what values encompass 95% of the data was done using both Gaussian (Mean +/- 2SD) and non-Gaussian (Rank Order by percentiles) methods. For both of these methods of calculation 95% of values were 5-14. I have included a histogram plot of the outpatient Anion Gap values data reviewed for reference.



If you have any questions or concerns regarding this change, please contact the Medical Director of Clinical Chemistry at UVMMC (clayton.wilburn@uvmhealth.org).

References:

1. John Toffaletti, Chapter 36 - Contemporary practice in clinical chemistry: blood gas and critical care testing, Editor(s): William Clarke, Mark A. Marzinke, Contemporary Practice in Clinical Chemistry (Fourth Edition), Academic Press, 2020, Pages 629-649, ISBN 9780128154991, https://doi.org/10.1016/B978-0-12-815499-1.00036-3.
2. Jeffrey A. Kraut, Nicolaos E. Madias. Serum Anion Gap: Its Uses and Limitations in Clinical Medicine. CJASN Jan 2007, 2 (1) 162-174; DOI: 10.2215/CJN.03020906

Previously Distributed Test Updates

Reporting Changes to Serum/Urine Electrophoresis Testing

On April 2, 2022, the reporting structure for serum (SPEP) and urine (UPEP) protein electrophoresis studies will be updated to standardize this testing performed by the laboratories of the University of Vermont Health Network.

Prior to this change, SPEP and UPEP studies performed at CVPH had the individual protein fractions, including any detected monoclonal protein, reported in g/dL. At UVMMC, SPEP and UPEP studies had the individual protein fractions, including any detected monoclonal protein, reported as a % of total protein. Moving forward, SPEP and UPEP studies performed at either laboratory will have the individual protein fractions, including any detected monoclonal protein, reported in % of total protein ***and*** g/dL. A reference range will be applied to both the % of total protein and g/dL amount for each individual protein fraction.

Serum Test Build Information:

Epic Code	Reporting Name		Atlas Code	Mayo Access ID	Order
LAB174	SPEP with Immunotyping		SPEPIT	FAH5912	24351-9
Epic Code	**Component Name**	**Reference**	**Atlas Code**	**Mayo Access ID**	**LOINC**
12301002127	Total Protein g/dL	6.3 - 8.2	TP	FAH5010	2885-2
12301002763	Albumin %	55.8 - 66.1	CAPALB	FAH5627	13980-8
12301012436	Albumin g/dL ***(new)***	3.6 - 5.2	12301012436	FAH5951	2862-1
12301001848	Alpha-1 %	2.9 - 4.9	CAPA1	FAH5628	13978-2
12301012437	Alpha-1 g/dL ***(new)***	0.15 - 0.40	12301012437	FAH5952	2865-4
12301001849	Alpha-2 %	7.1 - 11.8	CAPA2	FAH5629	13981-6
12301012438	Alpha-2 g/dL ***(new)***	0.50 - 1.00	12301012438	FAH5953	2868-8
12301001858	Beta %	8.4 - 13.1	CAPBET	FAH5630	13982-4
12301012439	Beta g/dL ***(new)***	0.60 - 1.20	12301012439	FAH5954	2871-2
12301001949	Gamma %	11.1 - 18.8	CAPGAM	FAH5631	13983-2
12301012440	Gamma g/dL ***(new)***	0.60 - 1.60	12301012440	FAH5955	2874-6
12301002081	Monoclonal Spike %	N/A	SPESPK	FAH5632	33647-9
12301012441	Monoclonal Spike g/dL ***(new)***	N/A	12301012441	FAH5956	33358-3
12301003163	SPEP Comment	N/A	CAPCOM	FAH5633	59462-2
12301002029	Immunotyping, Serum	N/A	SERIT	FAH5634	14895-7

Reporting Changes to Serum/Urine Electrophoresis Testing (cont)

Previously Distributed Test Updates

Reporting Changes to Serum/Urine Electrophoresis Testing

Serum Test Build Information:

Epic Code	Reporting Name		Atlas Code	Mayo Access ID	Order
LAB119	SPEP, Includes Quantitation of Monoclonal Spike		SERPEP	FAH5911	24351-9
Epic Code	**Component Name**	**Reference**	**Atlas Code**	**Mayo Access ID**	**LOINC**
12301002127	Total Protein g/dL	6.3 - 8.2	TP	FAH5010	2885-2
12301002763	Albumin %	55.8 - 66.1	CAPALB	FAH5627	13980-8
12301012436	Albumin g/dL ***(new)***	3.6 - 5.2	12301012436	FAH5951	2862-1
12301001848	Alpha-1 %	2.9 - 4.9	CAPA1	FAH5628	13978-2
12301012437	Alpha-1 g/dL ***(new)***	0.15 - 0.40	12301012437	FAH5952	2865-4
12301001849	Alpha-2 %	7.1 - 11.8	CAPA2	FAH5629	13981-6
12301012438	Alpha-2 g/dL ***(new)***	0.50 - 1.00	12301012438	FAH5953	2868-8
12301001858	Beta %	8.4 - 13.1	CAPBET	FAH5630	13982-4
12301012439	Beta g/dL ***(new)***	0.60 - 1.20	12301012439	FAH5954	2871-2
12301001949	Gamma %	11.1 - 18.8	CAPGAM	FAH5631	13983-2
12301012440	Gamma g/dL ***(new)***	0.60 - 1.60	12301012440	FAH5955	2874-6
12301002081	Monoclonal Spike %	N/A	SPESPK	FAH5632	33647-9
12301012441	Monoclonal Spike g/dL ***(new)***	N/A	12301012441	FAH5956	33358-3
12301003163	SPEP Comment	N/A	CAPCOM	FAH5633	59462-2

Urine Test Build Information:

Epic Code	Reporting Name		Atlas Code	Mayo Access ID	Order
LAB205	Urine Monoclonal Protein Study (UPEP with Immunotyping), Random		UPER	FAH5642	in process
Epic Code	**Component Name**	**Reference**	**Atlas Code**	**Mayo Access ID**	**LOINC**
12301002198	Total Protein, Urine mg/dL	N/A	UTPR	FAH112	35663-4
12301001844	Albumin, Urine %	N/A	UELAB	FAH5643	17819-4
12301012529	Albumin, Urine mg/dL ***(new)***	N/A	12301012529	FAH5962	6942-7
12301001958	Globulins, Urine %	N/A	UELGL	FAH5644	in process
12301012530	Globulins, Urine mg/dL ***(new)***	N/A	12301012530	FAH5963	49047-4
12301012464	Monoclonal Spike, Urine %	N/A	12301012464	FAH5960	42483-8
12301012444	Monoclonal Spike, Urine mg/dL ***(new)***	N/A	12301012444	FAH5959	40661-1
12301003374	UPEP Comment	N/A	UPECOM	FAH5645	49301-5
12301002030	Immunotyping, Urine	N/A	URIT	FAH5646	49299-1

Reporting Changes to Serum/Urine Electrophoresis Testing (cont)

Previously Distributed Test Updates

Reporting Changes to Serum/Urine Electrophoresis Testing

Urine Test Build Information:

Epic Code	Reporting Name		Atlas Code	Mayo Access ID	Order
LAB2027	Urine Monoclonal Protein Study (UPEP with Immunotyping), 24 hour		UPE24	FAH5881	in process
Epic Code	**Component Name**	**Reference**	**Atlas Code**	**Mayo Access ID**	**LOINC**
12301002197	Total Protein, Urine 24 hr mg/24hrs	<150 mg/24hrs	UTP24C	FAH118	2889-4
12301002198	Total Protein, Urine mg/dL	N/A	UTPR	FAH112	35663-4
12301000973	Urine Volume	N/A	VOLUME	FAH108	3167-4
12301001313	Urine Collection Period	N/A	PERIOD	FAH107	13362-9
12301001844	Albumin, Urine %	N/A	UELAB	FAH5643	17819-4
12301012442	Albumin, Urine mg/24hrs	N/A	12301012442	FAH5957	6941-9
12301001958	Globulins, Urine %	N/A	UELGL	FAH5644	in process
12301012443	Globulins, Urine mg/24hrs	N/A	12301012443	FAH5958	15356-9
12301012464	Monoclonal Spike, Urine %	N/A	12301012464	FAH5960	42483-8
12301012465	Monoclonal Spike, Urine mg/24hrs	N/A	12301012465	FAH5961	42482-0
12301003374	UPEP Comment	N/A	UPECOM	FAH5645	49301-5
12301002030	Immunotyping, Urine	N/A	URIT	FAH5646	49299-1

This change will provide both the clinician and patient with more complete information about the SPEP and UPEP study without requiring any manual calculation to be performed by the clinician. If you have any questions or concerns, please reach out to the Director of Clinical Chemistry (clayton.wilburn@uvmhealth.org).

GET TEST RESULTS ONLINE!

MyChart

Did you know that your patients can get their UVM Medical Center test results online by signing up for a MyChart account?

To sign up visit: MyChart.UVMHealth.org

Previously Distributed Test Updates

Transition to Champlain Toxicology for Urine Drug Testing

As previously communicated, on Tuesday, January 18th 2022, UVM Medical Center and UVM Health Network partners began using Champlain Toxicology Lab, located in Plattsburgh, NY, for urine toxicology testing.

Available urine screens and confirmations are listed below. Each one is linked to our Joint Test Catalog where test information and build specs can be found.

Options for Routine Drug Screens

These analytes have not changed and are available individually as screens

Test Name	Epic Code	Atlas Code	Mayo Access ID
Fentanyl Screen, Urine	LAB3585	VFENT	FAH5979
Buprenorphine Screen, Urine	LAB3714	VBUP	FAH5980
Oxycodone Screen, Urine	LAB3719	VOXY	FAH5775
Cotinine Screen, Urine	LAB3723	VCOT	FAH5986
Synthetic Cannabinoids Screen, Urine	LAB3726	SYNCAN	FAH5987
Benzodiazepines Screen, Urine	LAB3727	VBNZ	FAH5988
Amphetamines Screen, Urine	LAB3728	VAMP	FAH5989
Cocaine Metabolite (Benzylecgonine) Screen, Urine	LAB3729	VCOC	FAH5990
THC Metabolites (Cannabinoids) Screen, Urine	LAB3730	VCAN	FAH5991
Barbiturates Screen, Urine	LAB3731	VBAR	FAH5992
Methadone Screen, Urine	LAB3732	VMTH	FAH5993
Specimen Tampering/Validity Panel, Urine	LAB3743	VALSCN	FAH5994
Alcohol Metabolite (EtG) Screen, Urine	LAB3745	VALC	FAH5996
Opioids Screen, Urine	LAB3734	VOPIAS	FAH6061

In addition, we have modified the routine polysubstance use drug screen:

Test Name	Epic Code	Atlas Code	Mayo Access ID
Polysubstance Use Panel, Urine	LAB3740	VPOLY	FAH5999

Analytes included:

Cotinine Screen, Urine	Benzodiazepines Screen, Urine
Methadone Screen, Urine	Alcohol Metabolite (EtG) Screen, Urine
Fentanyl Screen, U	THC Metabolites (Cannabinoids) Screen, Urine
Opioids Screen, Urine	Amphetamines Screen, Urine
Oxycodone Screen, Urine	Cocaine Metabolite (Benzylecgonine) Screen, Urine
Buprenorphine Screen, Urine	Barbiturates Screen, Urine

Transition to Champlain Toxicology for Urine Drug Testing (cont)

Previously Distributed Test Updates

Transition to Champlain Toxicology for Urine Drug Testing

The following drug screens have been discontinued:

Test Name	Epic Code	Atlas Code
Ethanol Screen, Urine	LAB3715	VETOH
Carisoprodol Screen, Urine	LAB3716	VCAR
Tapentadol Screen, Urine	LAB3717	VTAP
Propoxyphene Screen, Urine	LAB3718	VPPX
Zolpidem Screen, Urine	LAB3720	VZOLP
Tramadol Screen, Urine	LAB3721	VTRAM
Ecstasy MDMA Screen, Urine	LAB3722	VECST
Heroin Metabolite (6-AM) Screen, Urine	LAB3724	V6AM
Methadone Metabolite EDDP Screen, Urine	LAB3725	VMEDDP
Phencyclidine Screen (PCP), Urine	LAB3733	VPCP
Opioids Panel, Urine	LAB3735	VOP6
Opioids Panel Extended, Urine	LAB3736	VOP9
Depressants Panel, Urine	LAB3737	VDEP
Stimulants Panel, Urine	LAB3738	VSTIM
Opioid and Depressant Co-use Panel, Urine	LAB3739	VOPDEP
Polysubstance Use Pregnancy Panel, Urine	LAB3741	VPREG
Polysubstance Use Transplant Panel, Urine	LAB3742	VKIDT

Transition to Champlain Toxicology for Urine Drug Testing (cont)

Previously Distributed Test Updates

Transition to Champlain Toxicology for Urine Drug Testing

Confirmation tests remain as individually orderable tests. If you wish to order confirmation testing after an initial drug screen is performed, you must place an add-on order on an existing sample. As an adjunct to existing, available confirmation tests, there are several new confirmation tests available.

Updated/ New Orderable Name	Epic Code	Atlas Code	Mayo Access ID
Heroin Metabolite (6-AM) Confirmation	LAB14524	V6AMC	FAH5981
Alcohol Metabolite Confirmation Panel	LAB14527	VALCC	FAH5982
Methadone and Metabolite Confirmation Panel	LAB2397	VMETH	FAH5983
THC Confirmation	LAB2437	VTHC	FAH5984
Buprenorphine & Metabolite Confirmation Panel	LAB3040	VBUPUN	FAH5985
MDMA (Ecstasy) Confirmation	LAB3744	VECSTC	FAH5995
Fentanyl and Metabolite Confirmation Panel	LAB393	VFENTC	FAH5997
Cocaine Metabolite Confirmation	LAB968	VCOCN	FAH5998
Amphetamine Confirmation Panel	LAB15858	LAB15858	FAH6009
Ritalinic Acid Panel Confirmation	LAB3089	VRITC	FAH6005
Benzodiazepine Panel Confirmation	LAB368	VBENZ	FAH6013
Opiate Panel Confirmation	LAB417	VOPIUR	FAH6000
Barbiturate Confirmation (no changes - still performed at Mayo)	LAB365	BARBC	N/A
PCP Confirmation (new)	LAB17255	LAB17255	FAH6028
Zolpidem Confirmation (new)	LAB17256	LAB17256	FAH6029
Ketamine and Metabolite Confirmation Panel (new)	LAB17257	LAB17257	FAH6030
Naloxone and Naltrexone Confirmation Panel (new)	LAB17258	LAB17258	FAH6031
Oxycodone Confirmation Panel (new)	LAB17259	LAB17259	FAH6043
Gabapentinoid Confirmation Panel (new)	LAB17260	LAB17260	FAH6033
Muscle Relaxant Confirmation Panel (new)	LAB17261	LAB17261	FAH6034
Synthetic Opioid Confirmation Panel (new)	LAB17262	LAB17262	FAH6035
Opioids and Metabolites Confirmation Panel (new)	LAB17263	LAB17263	FAH6036

Initially, we began by utilizing a paper process between UVMMC and CTL for orders, and our staff transcribed Atlas orders to the new CTL specific test codes. Results for Atlas orders are now interfaced and the test build information for Atlas clients is included with this communication.

Going forward, we plan to expand the number of available confirmation panels offered by Champlain Toxicology Lab. We will also be exploring possible drug screens with reflex to confirmation testing included where medical necessity warrants that process.

If you have any questions or concerns please reach out to Dr. Clayton Wilburn, Medical Director of Clinical Chemistry (clayton.wilburn@uvmhealth.org).

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Syringe Disposal

The University of Vermont Medical Center does not accept sharps for disposal from patients. Chittenden Solid Waste District (CSWD) will accept needles that are packaged according to the instructions outlined in their pamphlet “GET THE POINT: Be safe with syringes and other sharps”. CSWD also has bright orange stickers to attach to a syringe container to warn handlers to be careful. These items are available at any CSWD location. You can also order them so that they are available for patients at your office 872-8111 or visit www.cswd.net

Patient Instruction Brochures

We have several brochures for patients that need to collect samples at home. The following are available on online by visiting UVMHealth.org/MedCenterLabServices or you can contact Lab Customer Service to receive some via mail.

- Feces Sample Collection
- Fecal Occult Blood Collection
- Sputum Sample Collection
- Urine Sample Collection