

Lab Updates

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Fractional Excretion of Sodium (FENa)



THE FENa MEASURES THE PERCENT OF FILTERED SODIUM that is excreted in the urine. It is the most accurate screening test to differentiate between prerenal disease and acute tubular necrosis (ATN), the two most common causes of acute kidney injury. A value below 1% suggests prerenal disease, where the re-absorption of almost all of the filtered sodium represents an appropriate response to decreased renal perfusion. A value between 1 and 2% may be seen with either disorder, while a value above 2% usually indicates ATN.

FENa is calculated as below.

$$\frac{\text{Urine Sodium/ Serum Sodium}}{\text{Urine Creatinine/ Serum Creatinine}} \times 100$$

Specimens should be obtained before onset of treatment. Urinary obstruction, chronic uremia, and certain diuretics can increase FENa values. The advantage is that a timed urine specimen is not necessary for this test.

Effective July 16, 2007, the FENa test will be available and the mnemonic for this test is 'FENA'. Both serum and urine specimens are required.

If you have questions, comments or suggestions, please contact:

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Changes in Epstein-Barr Virus (EBV) Serology Testing:

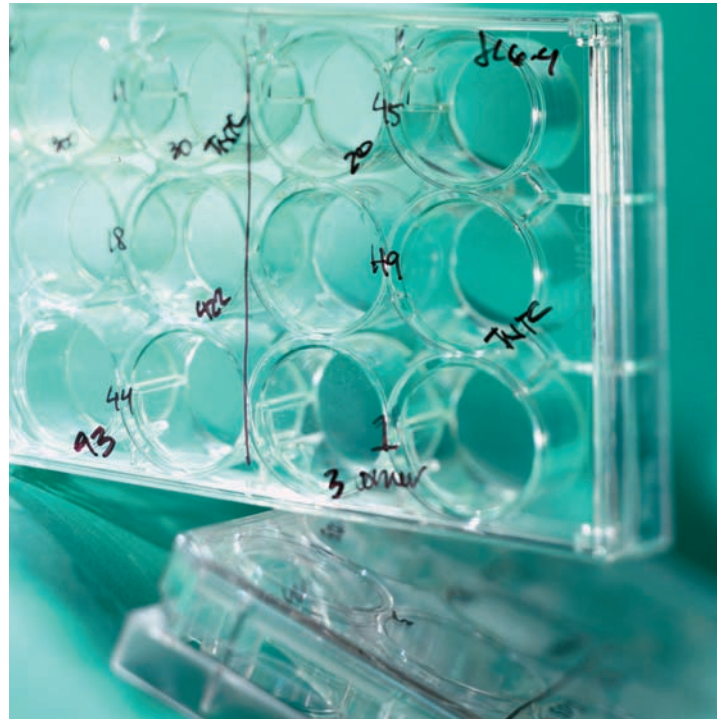
EBV is a member of the herpesvirus family and one of the most common human viruses. The virus occurs worldwide, and most people become infected with EBV sometime during their lives. In the United States, as many as 95% of adults between 35 and 40 years of age have been infected. Infants become susceptible to EBV as soon as maternal antibody protection (present at birth) disappears. In the United States and in other developed countries, many persons are not infected with EBV in their childhood years. When infection with EBV occurs during adolescence or young adulthood, it causes infectious mononucleosis 35% to 50% of the time.

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Changes in Epstein-Barr Virus (EBV) Serology Testing *(continued)*

The majority of primary EBV infections throughout the world are sub clinical and hidden. EBV can cause a number of primary infections, can lead to complications, and can induce a variety of malignancies. EBV is the primary agent of infectious mononucleosis (IM), persists asymptotically for life in nearly all adults, and is associated with the development of B cell lymphomas, T cell lymphomas, Hodgkin disease and nasopharyngeal carcinomas in certain patients.

Infection with EBV is characterized by development of the specific antibodies to antigenic components of the virus. These antigens appear at different stages of infection and differ in lytic versus latent infection. Antibodies to EBV antigens measured for clinical purposes are those to viral capsid antigen (VCA), early antigens (EAs), and Epstein-Barr nuclear antigen (EBNA). They include IgM and IgG antibodies to the viral capsid antigen (VCA), IgG antibodies to the D early antigen (EA-D), and antibodies to the nuclear antigen (EBNA). During a primary EBV infection each of these EBV antibodies appears independently on its own time schedule.



- ✓ The VCA-IgM antibody appears first and then tends to disappear after about 4 to 6 weeks.
- ✓ The VCA-IgG antibody emerges, is at its maximum at 2 to 4 weeks, then drops slightly, stabilizes, and is present for life.
- ✓ The EA-D-IgG antibody appears during the acute infection phase and then tends to disappear within 3 to 6 months, but about 20% of those infected will continue to have detectable quantities of the EA-D antibody for several years after the EBV infection has resolved.
- ✓ The EBNA antibody does not usually appear until the acute infection has resolved. It usually develops about 2 to 4 months after the initial infection and then is present for life.

Using a combination of these EBV antibody tests, the status of EBV infection can be determined whether it is a current, recent, or past.

EBV Infection	VCA-IgM	VCA-IgG	EBNA-IgG
Negative	Neg	Neg	Neg
Very Early	Pos/Neg	Pos/Neg	Neg
Acute/Established	Pos	Pos	Neg
Recent/Transitional	Pos	Pos	Pos/Neg
Past	Neg	Pos	Pos

Effective July 11, 2007, the EBV serology testing will be performed using a multiplex flow immunoassay. There are no changes in specimen requirements. The current mnemonic "EBV" includes VCAIGM, VCAIGG and EBNA IGG. Should you require Early Antigen IgG, please order mnemonic "EBVEARG."

Changes in Lyme Serology Testing:



Effective June 29, 2007, Lyme serology testing will be performed using an automated chemiluminiscent immunoassay. There are no changes in specimen collection requirements.

This test is intended for qualitative presumptive detection of IgG and IgM antibodies to VlsE (Variable major protein like sequence expressed) protein antigen of *Borrelia burgdorferi* in human serum.

The Lyme serology test should be used only on samples from patients with signs and symptoms that are consistent with Lyme disease. All positives and equivocal test results are confirmed by Western Blot. Positive test results provide evidence of exposure to *Borrelia burgdorferi* and can be used to support clinical diagnosis of Lyme disease. Negative results should not be used to exclude Lyme disease.

Testing for Shellfish Allergy:

IgE-mediated sensitivities to shellfish is relatively common, especially with adults in certain geographic areas. The term shellfish refers to any edible animal in the mollusk or crustacean family. Mollusks are subdivided in to three groups: Gastropods (abalone and snail), Cephalopods (squid and octopus) and Pelecypods (clam, cockle, muscle, scallop and oyster). The crustaceans include crab, crayfish, lobster, shrimp and prawn. Although allergic reactions generally involve the ingestion of shellfish, inhalation exposures are very important in occupational environments. These exposures can be from the steam and processing fluid in cooking and from the dust when dried fish product is used.

Effective June 23, 2007, a Shellfish Allergen Profile (Mnemonic "ASH") is available to screen for sensitivity in those patients with a positive history to the shellfish group. This panel includes representatives of commonly eaten species in the shellfish group. These shellfish allergens can also be ordered individually. All of the specific IgE's are performed by ImmunoCAP FEIA methodology. The specimen requirement is one SST/ serum tube.

This panel includes following shellfish allergens:

AF23	CRAB
AF24	SHRIMP
AF37	BLUE MUSSEL
AF80	LOBSTER
AF207	CLAM
AF290	OYSTER
AF258	SQUID
AF320	CRAYFISH
AFSC	SCALLOP
QIE	IGE QUANTITATIVE



If you have questions, comments or suggestions, please contact:

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Ms. R. Ambacher, Manager at 508-334-7316 or via email at Ambacher@ummhc.org

Changes in Varicella-Zoster Serology Testing:

Effective July 5, 2007, Varicella-Zoster serology testing is performed using an automated chemiluminiscent immunoassay. There are no changes in specimen collection requirements. This test is intended for qualitative presumptive detection of specific IgG to Varicella-Zoster

virus in human serum. This test was previously performed by a semi automated EIA method. This assay can be used as an aid in the determination of previous infection of varicella-zoster virus.

Changes in C-Peptide Testing:

The manufacturer of the C-Peptide testing has made significant performance improvements in their assay. As a result this assay has greater lower end sensitivity (0.1 ng/mL) and precision. Previously the low end sensitivity was 0.5 ng/mL. There are no changes in specimen

collection requirements and turn around time. The reference range will be changed to 0.9-7.1 ng/mL.

Effective August 27, 2007, C-peptide testing will be reported using this new and improved assay.

Update on DVT D-Dimer Assay



The **DVT D-dimer assay** will be performed on new equipment starting August 20, 2007. As a result, the **new cut off level will be 1.1 mg/L**. All levels below 1.1 should be interpreted as negative, thus ruling out thromboembolism in the context of algorithms for patients with low or intermediate probability of DVT or pulmonary embolism. Levels equal to or greater than 1.1 should be considered positive.

If you have questions, comments or suggestions, please contact:

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New Patient Service Center Opens in Rhode Island

We are one of the largest laboratory providers in New England

UMass Memorial Laboratories will be opening a Patient Service Center (phlebotomy draw station) at 106 Nate Whipple Highway, Cumberland, Rhode Island.

The vision of UMass Memorial Laboratories is:

- To be one of the top ten academic medical center-based laboratories in the United States by 2008, as well as
- To be a leading provider of laboratory services throughout New England, meeting the needs of patients and providers in the region



106 Nate Whipple Highway, Cumberland, RI

The Cumberland Patient Service Center is located at 106 Nate Whipple Highway, Cumberland Rhode Island. The hours are Monday through Friday 7:00am-3:30pm, closed 12:00pm-12:30pm. The phone number at the Cumberland PSC is 401-658-1594.

