

Lab Focus

April 2005—monthly insert to 'Scope from Fairview Clinical Laboratories

Sound bites. . . .

New Physician Order Form for Blood Components at Fairview-University

Fairview-University's blood bank will introduce a new physician order form for blood components to address errors related to the order of irradiated blood components. The criteria for irradiation will be included on the form.

Irradiated Components Indicated:

- Stem cell (BMT, cord, or blood) transplantation
- Hodgkin's disease
- Treatment with purine analog drugs (e.g. fludarabine, cladribine, pentostatin) or alemtuzumab (CamPath®) in past 12 months
- Congenital immunodeficiency syndromes
- Intrauterine transfusions
- Solid tumors in pediatric patients on chemotherapy
- Critically ill newborn with uncertain immune status, up to 4 months of age (NICU)

Irradiated Components Not Usually Indicated:

- Acute or chronic leukemia
- Non-Hodgkin's lymphoma
- Solid tumors treated with intensive chemotherapy or radiotherapy (adults)
- Organ transplant recipients
- Exchange transfusions
- Otherwise healthy preterm or low birth weight neonate

Irradiated Components Not Indicated:

- HIV infection/AIDS
- Severe leukopenia, lymphopenia, pancytopenia
- Patients on chronic high dose steroids
- Use of other immune suppressants such as azathioprine, cyclosporine, MMF (e.g. for autoimmune disorders)
- Aplastic anemia

*Ted Eastlund, MD
Medical Director
Fairview-University Medical Center*

Chromogenic Factor X Level Now Offered

The chromogenic factor X assay is useful in the management of patients with Lupus anticoagulant receiving warfarin therapy and for patients on argatroban who are transitioning to warfarin.

Lupus anticoagulants (LA) cause a paradoxical prolongation of the coagulation screening tests, including prothrombin time (PT) and consequently INR. Therefore, INR results are not valid to adjust warfarin therapy for patients with lupus anticoagulant. Studies indicate chromogenic factor X levels give more reliable results to assess the antithrombotic effect of warfarin.

A chromogenic factor X level of 20 to 40 percent inversely correlates with INR of 2 to 3 for patients receiving warfarin. Chromogenic factor X levels below 20 percent indicate an INR greater than 3, and levels above 40 percent indicate an INR less than 2.

A chromogenic factor X level is also recommended for patients converting from argatroban to warfarin. Argatroban is a synthetic direct thrombin inhibitor, and prolongs the PT as well as the chromogenic factor X level. Chromogenic factor X levels can tell clinicians if warfarin is at the therapeutic level or not. Again, a chromogenic factor X level of less than 40 percent corresponds to an INR of greater than 2. As soon as the chromogenic factor X level is less than 40 percent, argatroban can be discontinued since adequate anticoagulation is achieved by warfarin.

The chromogenic factor X level assay should not be confused with Heparin Xa level. A chromogenic factor X level measures factor X

activity; the range in normal individuals is 60 to 140 percent. Heparin Xa level measures the amount of heparin present in the plasma and is expressed in U/mL. The chromogenic factor X level is performed in the Special Coagulation laboratory, Monday through Thursday, 7 a.m. to 8 p.m., on Friday 7 a.m. to 3:30 p.m., and Saturday 9 a.m. to 2 p.m.

*Agnes Aysola, MD
Coagulation Medical Director
Fairview-University Medical Center*

Urinary Protein Measurements

The first voided urine collected upon awakening is the best specimen when trying to characterize urinary protein excretion because it is the most concentrated. Although both timed and random urine collections are acceptable for urine protein electrophoresis and immunofixation, timed urine collections are not necessary in most cases.

With electrophoresis, each protein identified (including monoclonal proteins) is reported as a percentage of the total protein. With immunofixation, only the character of the proteins seen, e.g., types of heavy and light chains for intact immunoglobulins or of light chains for monoclonal proteins (i.e., Bence Jones proteins) are reported without quantitation.

To monitor for recurrence of light chain-secreting multiple myeloma, first order immunofixation on a first voided urine; to quantitate excretion order urine protein and electrophoresis on a timed urine.

*Michael Steffes, MD, PhD
John Eckfeldt, MD, PhD
Fairview-University Medical Center*

Reflex Laboratory Testing at Fairview Laboratories

Federal regulations require laboratories to communicate to physicians, whether or not additional services are included in a test order. This occurs in two ways:

- 1) Confirmatory tests, which are considered community standard of practice, are implied in the order; and
- 2) Medical directors at each site have identified specific tests that will reflex to additional testing when established criteria or algorithm are met.

Reflex testing protocols are reviewed and approved by the site's Medical

Staff Executive Committee annually. Please review the table below detailing the approved reflex testing by site. Direct questions to the site medical director of the laboratory.

This is the final in a series of articles related to laboratory testing, billing and medical necessity processes.

Fairview Laboratory Services Reflex Testing	FLRMC	FNRH	FRWH	FRH	FSH	F-UMC	Metro Clinics
Abnormal TSH ordered as TSH Reflex reflexes to Free T4	X	Inpatients only	X	X	X	X	X
UA reflexes to include microscopic if indicated	X	X	X	X	X	Riverside reflex University all	X
Positive UA reflex to culture				ED including all peds less than 5 y, L&D and Home Care only	ED peds, Home Care, Hospice and Home Infusion only		X
Triglycerides greater than 400 and less than 1000 reflexes to Direct LDL			X				
Positive Hepatitis A Antibody reflexes to Hepatitis A IgM Antibody	X	X	X	X	X	X	X
Positive Hepatitis B Core Antibody reflexes to HbsAg or Hep B Core Ab or Hep B Core IgM	X	X	X	X	X	X	X
Positive Antinuclear Cytoplasmic Antibody reflexes to MPO and PR3	X	X	X	X	X	X	X
ASCUS Pap test reflexes to HPV	X	X	X	X	X	X	X

Carol Hill for the Laboratory Compliance Committee

AMA Organ and Disease Related Panels

Correction from Dec 2004 issue; the potassium was omitted from some of the panels.

AMA Organ and Disease Related Panels Offered at Fairview	Electrolyte	Basic Metabolic	Renal Function	Hepatic Function	Comprehensive Metabolic	Lipid
Albumin			X	X	X	
Alkaline phosphatase				X	X	
ALT				X	X	
AST				X	X	
Bilirubin, direct				X		
Bilirubin, total				X	X	
Calcium		X	X		X	
Carbon dioxide (CO2)	X	X	X		X	
Chloride	X	X	X		X	
Cholesterol, total						X
Creatinine		X	X		X	
HDL (high density cholesterol)						X
Glucose		X	X		X	
Phosphorus			X			
Potassium	X	X	X		X	
Protein, total				X	X	
Triglycerides						X
Sodium	X	X	X		X	
Urea nitrogen (BUN)		X	X		X	

Carol Hill for the Laboratory Compliance Committee