

{Coming Soon:}

MCL to perform on-site testing for vitamin D



In the months ahead, Mercy Clinical Laboratory (MCL) will begin performing on-site testing for vitamin D. This important fat-soluble nutrient functions in the regulation of serum calcium levels and can be absorbed through diet or exposure to natural sunlight.

Historically, vitamin D has been recognized for bone and mineral homeostasis and the prevention of rickets, but more recent research has also found vitamin D to be important in the prevention of cardiovascular disease, hypertension, cancer, diabetes mellitus, multiple sclerosis and recurrent falls in the elderly. Unfortunately, many Americans do not eat enough food rich in vitamin D nor get enough sun exposure to ensure optimal serum levels.

Using the Liaison® Total-D assay by chemiluminescence immunoassay (CLIA) technology, MCL will soon be able to quantitatively determine circulating 25-hydroxyvitamin D, improving turnaround times for physicians and patients.



A member of Mercy Health Network

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MCL SUPPLY ORDER UPDATE

MCL supplies the necessary items for specimen collection and transport to MCL for laboratory testing. To place an order, complete an MCL Supply Order Form and fax it to MCL Client Services at (515) 643-8832.

If the order is faxed by noon, your supplies typically will be delivered the next business day. Orders sent with the MCL courier will arrive after the noon cutoff, so an additional day will be added to the delivery schedule.

“Emergency” orders (supply items you are in desperate need of right now) can be placed by calling MCL Customer Services at (515) 643-8832 for special handling.

2010 FEE SCHEDULES & MEDICARE MEDICAL NECESSITIES UPDATE

Updates to the MCL Fee Schedule and the MCL Medicare Medical Necessity Manual are now available. These documents will be distributed to clients in January. To request additional copies of the updates, please call MCL Marketing at (515) 247-4492.

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MCL Newsletter



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Mercy's blood transfusion utilization program saves money, improves health outcomes

The Joint Commission has required health care organizations to monitor blood usage since 1961 and has long encouraged hospitals to establish transfusion boards to review blood transfusion practices. Although the use of these committees diminished in the 1990s, new regulatory requirements – combined with new patient safety concerns – have led many hospitals to rethink the need for comprehensive blood transfusion utilization programs.

In 2009, Mercy Medical Center – Des Moines implemented an interactive blood utilization program, led by Medical Director of Laboratory Services Dr. Dale Andres, in an effort to reduce the number of unnecessary hospital blood transfusions. Because the blood supply is always limited (Mercy typically has just a two-day supply for most types) and the inappropriate use of blood and blood components can lead to unnecessary health risks for patients, Mercy launched a carefully monitored utilization program to improve blood transfusion practices.

Currently, Six Sigma Black Belt Matt Garcia from Mercy's Six Sigma Department is tracking blood utilization on a monthly basis. In March, April and May 2009, 100 percent of hospital blood transfusions were reviewed within a few weeks of patient discharge. While findings are kept strictly confidential, this blood utilization program has enhanced communication between lab professionals and dispensing physicians, and has enabled Mercy to identify blood utilization patterns and provide feedback to end users and clinical departments about those patterns.

Since the program's implementation, Mercy has seen a decrease in the use of unnecessary blood and blood component transfusions



In 2009, Mercy implemented an interactive blood utilization program. As a result of the program's monitoring and feedback, Mercy has decreased the number of unnecessary hospital blood transfusions, reduced costs and improved patient outcomes.

throughout the organization. As a result, the hospital has saved money on the costs associated with processing, administering and managing complications arising from blood transfusions and, more importantly, has decreased the number of medical errors. That not only improves Mercy's compliance with The Joint Commission's patient safety goals, but it ensures Mercy's patients are receiving the highest quality medical care available.

While blood transfusions are critical to the well-being of many patients, transfusion remains a high-risk procedure. However, by implementing a blood utilization program like Mercy's, hospitals can improve transfusion practices, save money and improve patient outcomes.

Properly filling light blue sodium citrate coagulation tubes is important

One of the more common problems with specimens sent to laboratories is the under-filling of light blue top (sodium citrate) tubes for PT/INR and other coagulation tests. Unlike most specimens, coagulation specimens are acceptable only when they are filled to the appropriate level. There is a clear band near the top of the tube that indicates the target fill level. In the "order of draw" list of specimen tubes, the sodium citrate tube is the first tube recommended to be drawn. The reason for this is to ensure that optimal chance is provided to completely fill this tube to capacity. MCL rejects under-filled coagulation specimen tubes.

Calcium in blood is an important component of the normal clotting process. In fact, calcium in times past was given the name of coagulation factor IV. The citrate anticoagulant solution in a light blue top tube prevents the specimen from clotting by binding the calcium in the blood. With the calcium bound, no clotting can occur, and the sample is stable for transport to the laboratory. For coagulation tests, clotting is initiated by adding specific amounts of activators and calcium. For example, the prothrombin time (PT) test can be represented by the following formula:

Plasma + Thromboplastin + Calcium → Clot

The time it takes for the clot to form is reported as the prothrombin time. If calcium is not added to the patient's plasma, no clotting occurs. If less than the standard amount of calcium is added, clotting occurs more slowly.

When a coagulation tube is under-filled, some of the citrate remains free in the patient's plasma. Then, when calcium is added in the coagulation test, some of it is bound by the free citrate rather than participating in clotting. Functionally, this is the same as adding too little calcium. Consequently, clot formation proceeds more slowly, the test result is erroneously high, and the physician may be misled to make a wrong therapeutic decision that places the patient at risk. The bottom line is that completely filling coagulation specimen tubes to the appropriate level helps safeguard patients against inaccurate results. Requiring properly filled tubes for coagulation testing is a quality standard that supports appropriate patient care.

MERCY CLINICAL LAB UPDATES:

Important information regarding MCL policies and procedures

► OCCULT BLOOD SAMPLE SUBMISSION PROCESS CHANGES

Effective Jan. 1, 2010, stool specimens for occult blood testing must be submitted to MCL in the Polymedco transport vial. MCL will no longer accept stool specimens for occult blood testing in plain containers or on guaiac cards. If MCL receives stool specimens for Occult Blood testing in plain containers or on guaiac cards, the Occult Blood orders will be cancelled and the specimens will need to be recollected. Stool specimens must be put into the Polymedco sampling container within four hours of collection to maintain stability.

The iFOBT test provides several advantages over the old guaiac (card) method, including:

- Ease of collection – the specimen kit is convenient and simple to use;
- Only one specimen needs to be collected and submitted for testing;
- No dietary restrictions, medication or vitamin C restrictions;
- Specificity for human hemoglobin; and
- Detection of hemoglobin from the colon or rectal area only.

The iFOBT transport vials may be ordered from the MCL Supply Department at (515) 247-4949.

► NEW HOURS, DAYS FOR ACCEPTING SEMEN ANALYSIS SPECIMENS

Mercy Clinical Laboratory (MCL) refers all semen analysis testing to Mayo Medical Laboratories. Mayo Medical Laboratories does not accept specimens on the weekends or holidays. MCL is revising the patient instruction brochure for semen analysis. Until the new version is available, please use these guidelines for patient instructions regarding the collection and delivery of semen analysis specimens:

- Specimens will only be accepted at Mercy Clinical Lab (Main Campus – Main Laboratory).
- Specimens will only be accepted 8 a.m. to noon, Monday through Thursday.
- No specimens will be accepted on Friday, Saturday, Sunday, or the day before a holiday.
- The patient must collect the semen specimen no earlier than 8 a.m.
- The Patient must complete the questions included in our Semen Analysis pamphlet.
- Patients who need to collect the specimen in the Mercy Outpatient testing area should arrive at the Outpatient/Admitting area in the main hospital between 7 and 11 a.m., Monday through Thursday.

► REVISIONS TO GENERAL TEST REQUISITION FORM

MCL recently revised the General Test Requisition form. Changes were made in the upper portion of the Requisition to better accommodate appropriate billing information and comply with Medicare Advance Beneficiary Notice regulations. Please take a few moments to review the form and become familiar with the changes.

► MCL AT MERCY NORTH CHANGES PT/PTT REFERENCE RANGES

MCL at Mercy North recently implemented an ACL Elite analyzer for the performance of coagulation testing. Comparison studies with the previous method demonstrated a bias for both the prothrombin time (PT) and the partial thromboplastin time (PTT). No significant bias was noted when the INR values for the PT were compared; however, due to the method bias, the reference ranges for the PT and PTT tests performed at MCL at Mercy North were changed effective Jan. 11, 2010. The previous reference range for the PT was 12.0 – 14.0 seconds; the new range is 9.0 – 12.7 seconds. The previous reference range for the PTT was 23.0 – 35.0 seconds; the new range is 22.0 – 34.0 seconds.

ADA endorses new guidelines for DIAGNOSING DIABETES

In its *Standards of Medical Care in Diabetes*, updated annually, the American Diabetes Association (ADA) officially endorses the use of hemoglobin A_{1c} (HbA_{1c}) as one of four options for diagnosing diabetes. Patients who have HbA_{1c} levels of 6.5 percent or greater are now considered diabetic, while those with levels between 5.7 and 6.4 percent are categorized as being at "Increased Risk for Diabetes" – replacing the former "Diagnosis of Pre-Diabetes" category.

According to the Dec. 29, 2009, issue of *Clinical Endocrinology News Update*, the ADA recommends the following criteria* for the diagnosis of diabetes:

1. An HbA_{1c} level of 6.5 percent or greater; or
2. A fasting plasma glucose of 126 mg/dl or greater (fasting is defined as having no caloric intake for at least eight hours); or
3. A two-hour plasma glucose of 200 mg/dl or greater during an oral glucose tolerance test; or
4. In patients with classic symptoms of hyperglycemia or hyperglycemic crisis, a random plasma glucose of 200 mg/dl or greater.

**In the absence of unequivocal hyperglycemia, criteria 1-3 should be confirmed by repeat testing.*

► IMMUNOSUPPRESSIVE DRUG TESTING METHODOLOGY REVISED

Beginning Jan. 11, 2010, MCL revised the way it tests Sirolimus, Tacrolimus and Cyclosporine from whole blood collected in an EDTA (tube with lavender top). Instead of using microparticle enzyme immunoassay (MEIA), MCL now uses chemiluminescent microparticle immunoassay (CMIA). The new method has demonstrated excellent correlation for all three analytes compared to MEIA, but CMIA has improved sensitivity to support low-dose immunosuppressive therapies that can greatly impact patient outcomes.

Comparative data for both methods is listed in the chart below. Tacrolimus and Cyclosporine had no significant bias when the two methods were compared but, due to the sensitivity of the Sirolimus test, there is a positive bias of 5 ng/ml when comparing the new CMIA method to the MEIA method. To better assist physicians in the interpretation of Sirolimus levels, MCL will report Sirolimus using the new method and – upon physician request – will concurrently provide results using the MEIA method through Feb. 12, 2010. For more information about this testing, please call Dr. Dale Andres at (515) 643-4517.

MEIA AND CMIA TESTING METHODOLOGY COMPARISON (FOR IMMUNOSUPPRESSIVE DRUGS)

Drug Name	Sensitivity Current Method (MEIA)	Therapeutic Range Current Method (MEIA)	Sensitivity New Method (CMIA)	Therapeutic Range New Method (CMIA)
Sirolimus	2.5 ng/ml	6 – 12 ng/ml	2.0 ng/ml	5 – 20 ng/ml
Tacrolimus	4.1 ng/ml	4.1 – 30 ng/ml	2.0 ng/ml	5 – 20 ng/ml
Cyclosporine	25 ng/ml	Peak N/A Trough 125 – 375 ng/ml	30 ng/ml	Peak N/A Trough 100 – 300 ng/ml

