

Inside Diagnostics

The Diagnostic Newsletter for Healthcare Providers

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LifeLabs PSC Holiday Hours

Please be advised of LifeLabs Patient Collection Centers (PSC) Holiday Hours:

Thursday, December 24, 2015	Open until noon
Friday, December 25, 2015	CLOSED
Saturday, December 26, 2015	CLOSED
Sunday, December 27, 2015	CLOSED
*Monday, December 28, 2015	Open regular hours
Tuesday, December 29, 2015	Open regular hours
Wednesday, December 30, 2015	Open regular hours
Thursday December 31, 2015	Open until noon
Friday January 1, 2015	CLOSED
*Saturday January 2, 2015	Open regular hours

*Check the specific location in our location finder for details as not all sites are open

Turnaround Times for Panorama Test Results During the Holiday Season:

During the following holiday periods customers may experience a delay of 1 to 2 days in getting results for Panorama tests:

- Between December 24th and January 4th (Christmas and New Year's)

The Genetics Helpline reached at: **1 844 363 4357 (1 84 GENE HELP)** will have modified hours during the holiday period between December 24th and January 2nd. If customers have urgent inquiries please email: Ask.Genetics@LifeLabs.com. This email address will be monitored regularly during the holiday season.

If you have any questions or concerns regarding our holiday hours of service or related questions, please contact us at: 1 844 363 4357 (1 84 GENE HELP) or Ask.Genetics@LifeLabs.com

Melisa Collection and Testing During the Holiday Season:

During the week between Christmas and New Years' Day, there will be limited collection and testing for Melisa. Testing will depend on whether the patient is in Ontario or Alberta. Please ensure patients are only scheduled for collection during the days listed below:

- Ontario December 22nd to 23rd or December 29th to 30th
- Alberta December 22nd or December 29th

Flow Cytometry Collection and Testing During the Holiday Season:

- Specimen collection and testing **will not occur on December 24th, 2015 and December 31st, 2015.**

Wishing Everyone a Safe and Happy Holiday Season

Integration Update

Integrating LifeLabs And Former CML Patient Service Centres

Since October 2013, LifeLabs has been working to bring LifeLabs Medical Laboratory Services and CML HealthCare together.

One key step in this integration has been to convert former CML collection centres to LifeLabs Patient Service Centres (PSCs). The transition of locations in Northeastern Ontario, Southwestern Ontario, and Eastern Ontario was completed in the fall, redirecting testing from CML to LifeLabs regional laboratories. Shifting specimen analysis in these areas to LifeLabs regional laboratories has provided the expected benefits of improved turn-around-times and specimen integrity.

The next step in the integration process will be complete in the spring of 2016 when the LifeLabs Laboratory

Information System (LIS) is implemented in the remaining 110 CML locations and in the laboratory on Kennedy Road in Mississauga. This means that all test results will be reported through the LifeLabs LIS. Health-care Providers who currently receive results through an EMR from CML, but not from LifeLabs, will be contacted to initiate the connection to LifeLabs LIS with their EMR vendor. In addition, once the LIS transition is complete, the former CML and LifeLabs Customer Care Centres will merge and operate 24/7 to provide service to all LifeLabs' clients from communicating alert and critical results to ensuring all queries are addressed promptly.

As we transition the LIS, you will see updated LifeLabs signage in the community. You may also notice that we have a new look and feel with new

colours. LifeLabs new logo is easier to see and read, making us more visible in the hundreds of communities where we operate.

LifeLabs has also recently deployed technology solutions that help us better manage patient wait times at former CML locations. In the spring, LifeLabs will be enhancing our patients' healthcare experience by also offering appointment booking to our patients at former CML locations.

LifeLabs is aware that any change can introduce disruption to our patients and clients. The goal of our integration efforts is to implement a seamless transition to a single platform of service. If you have any questions, please contact our Customer Care Centre at 1-877-675-3637 or via email at ContactUs@LifeLabs.com.



By Pam Williams
Director, Client Services North



Therapeutic Drug Monitoring (TDM)

What Is The Appropriate Timing For The Sample Collection?

Therapeutic drug monitoring (TDM) represents a means to obtain clinically useful information about the drug concentration(s) in blood to assess the drug efficacy or toxicity, identify drug-drug interactions or altered drug metabolism, ensure patient compliance, and assess the appropriateness of drug dosing.

Drugs that require monitoring are those with the following characteristics:

- Chronic administration
- Narrow therapeutic index
- Variable pharmacokinetics, particularly zero-order kinetics
- Blood concentration correlates well with therapeutic and toxic effects
- Symptoms of toxicity are similar to those of disease
- Polypharmacy.

Examples of commonly monitored drugs are presented in Table 1.

Table 1. Drugs Commonly Subjected to Therapeutic Drug Monitoring:

Category	Example
Cardioactive drugs	Digoxin
Aminoglycosides and other antibiotics	Gentamicin Tobramycin Vancomycin
Antiepileptics	Carbamazepine Phenytoin Primidone Valproate
Bronchodilators	Theophylline
Immunosuppressants	Cyclosporine Methotrexate Sirolimus Tacrolimus
Psychiatric drugs	Lithium Antidepressants (e.g. amitriptyline, desipramine) Antipsychotics (e.g. clozapine, olanzapine)

Sample Collection Requirements for TDM

The sample collection time for TDM is extremely important to produce clinically useful information which will result in appropriate and timely action, with minimal patient inconvenience and cost.

Two important reminders on the timing of collection for therapeutic drug specimens follow.

1. Trough vs. Peak Samples

Most commonly, the appropriate TDM specimen is one collected immediately prior to the next dose (trough specimen), when the drug concentration is at its minimum. This is true for most orally administered drugs, as post-administration blood levels are significantly affected by individual drug absorption and distribution rates, and thus not reproducible.

Sometimes, the peak medication levels are also required (peak specimen). Peak levels are important for intravenously (i.v.) or intramuscularly (i.m.) administered drugs that are almost completely eliminated between doses, or when drug accumulation is suspected due to decreased clearance (e.g. renal failure). For such drugs (e.g. aminoglycosides), determination of both peak and trough concentrations is recommended.

Please, advise your patients of the appropriate timing to present for blood collection - just before their next dose for the trough, and immediately (i.v. administration) or one hour (i.m. administration) after their next dose for the peak specimen.

The LifeLabs on-line appointment system is available to help patients plan their blood collection appointment with this information in mind.

Before blood collection, staff at the collection centre will record the time since last dose (in hours), which will be included in the patient report. If the trough specimen is required but the patient has recently taken the drug, the patient will be advised that the best time for blood collection is just before the next dose. If the patient declines to return at the appropriate time, the blood will be collected, and the time since last dose included in the report.

2. Time to Steady-State - important consideration with introduction of new drug or dose adjustment

When introducing a new drug or adjusting the dose, it is not generally useful to measure serum drug levels until

the patient has reached a steady state, when intake and elimination of the drug are in equilibrium. Many factors influence the time required to reach the steady state, but, from a practical point of view, steady state occurs at a time interval equivalent to five times the drug elimination half-life ($5 \times t_{1/2}$). This time differs by drug and can range from e.g. 2 days for primidone, to 5 days for phenytoin, to more than 2 weeks for phenobarbital. It is therefore recommended that you verify the elimination half-life of the drug and time to steady state prior to advising the patient of the most appropriate timing of blood collection for TDM.

POINTS TO REMEMBER

- When a TDM test is requested, remind patients to have their blood collected immediately before the next dose for the trough specimen, or after the next dose (immediately for i.v. or 1 hour later for i.m. administration) for the peak specimen.
- The LifeLabs on-line appointment system can help patients plan their blood collection appointment.
- When introducing a new drug or adjusting the dose, the timing for collection of the first TDM specimen should be equivalent to five drug elimination half-lives, which is the time required for the drug concentration to reach steady state.

By Kika Veljkovic, PhD, FCACB
Clinical Biochemist, LifeLabs ON

REFERENCES:

1. Buxton IL, Benet LZ. Chapter 2. Pharmacokinetics: The Dynamics of Drug Absorption, Distribution, Metabolism, and Elimination. In: Brunton LL, Chabner BA, Knollmann BC, eds. Goodman & Gilman's The Pharmacological Basis of Therapeutics. 12th ed. New York: McGraw-Hill; 2011. <http://www.accessmedicine.com/content.aspx?aID=16658120>. Accessed May 24, 2013.
2. Broussard LA, Hammett-Stabler C. Chapter 41. Therapeutic Drug Monitoring. In: Clarke W, ed. Contemporary Practice in Clinical Chemistry, 2nd ed. Washington: AACC Press; 2011.



JOINTstat™ Test For Early RA Detection

JOINTstat™ test is used to help diagnose people with Rheumatoid Arthritis (RA). **Combined with Rheumatoid Factor (RF) and Anti-CCP, JOINTstat is able to increase detection up to 78% in RA patients compared to 57% detected by RF alone.** JOINTstat also helps detect patients with a progressive disease.

The test measures 14-3-3eta, a protein involved in joint damage that leads to debilitation in patients with RA. High levels of 14-3-3eta protein indicate that the patient should be referred to a rheumatologist. Used in early detection of RA, the addition of JOINTstat (to RF and anti-CCP) increases the sensitivity for early diagnosis in RA to 78%.¹ Studies have shown that JOINTstat blood levels change over time which corresponds with joint damage risk and therapy response.²⁻⁵

In Ontario, JOINTstat requires a separate requisition form. The test is not currently covered by OHIP, but may be covered by the patient's private insurance. The separate requisition for ordering JOINTstat alone can be accessed from our website: <http://www.lifelabs.com/files/PDFs/JOINTstat-requisition.pdf>

RHEUMATOID ARTHRITIS DIAGNOSTIC PANEL

Also available **RA Diagnostic Panel** to maximize your ability to diagnose early RA and monitor response to therapy. Together with RF and Anti-CCP, JOINTstat detects RA in up to **37% more patients.**

Tests	Clinical Indication
Rheumatoid Factor	Diagnosis and monitoring of Rheumatoid Arthritis (RA). Typically ordered for patients with symptoms of RA.
Anti-CCP	Diagnosis and monitoring of RA. Anti-CCP helps diagnose RA in someone who has joint inflammation with symptoms that suggest but do not yet meet the criteria of RA. It may be ordered along with RF or if the RF result is negative.
JOINTstat™	Diagnosis and monitoring of RA. JOINTstat is a marker produced by joints that help further improve early detection of RA. It also helps detect patients with a progressive form of the disease.
RA Diagnostic Panel is available at a discounted price.	

How to order RA Diagnostic Panel:

Complete a general laboratory requisition with the panel name (RA Diagnostic Panel) written in the section "Other Tests." Instruct the patient to bring this requisition with them to an Ontario LifeLabs or CML Patient Service Center.

References:

1. [Maksymowych WP, Naides SJ, et al. Serum 14-3-3D is a Novel Marker that Complements Current Serological Measurements to Enhance Detection of Patients with Rheumatoid Arthritis. J Rheumatol. 2014 Nov;41(11):2104-13.]
2. [Boire G, Carrier N, et al. 14-3-3D Predicts Radiographic Progression in Recent-Onset Polyarthritis Patients. Ann Rheum Dis 2014; 73(Suppl 2).]
3. [van Schaardenburg D, Maksymowych WP, et al. 14-3-3D is an independent predictor of radiographic changes in early RA and higher titres inform a higher likelihood of joint damage progression. Ann Rheum Dis 2014; 73(Suppl2):THU0244.]
4. [van Schaardenburg D, Maksymowych WP, Marotta A. Lower Levels of 14-3-3D Predict DMARD Associated DAS Remission at 1 Year Follow Up. Ann Rheum Dis 2014; 73(Suppl2).]
5. [Britsemmer K. 14-3-3 eta is an early RA biomarker that is modifiable with standard DMARDs and corresponds with improvements in clinical variables. Ann Rheum Dis 2013; 72(Suppl 3):388.]

By Simran Chahal
Marketing Manager, Business Development

Quality Corner

Labeling Of Patient Specimens - Reminder!

LifeLabs can only accept patient specimens that are clearly labeled with the patients full name (as it appears on their health card) AND a second identifier: patient date of birth or health card number.

Specimens that are not labeled with 2 unique identifiers may be rejected and not tested. Patient specimen identification is critical for quality patient care. Misidentification or mislabeling of a patient specimen poses a significant risk.

Please label specimens with 2 identifiers, date of collection and source or type of specimen before the patient leaves the examination or treatment room and ensure the label matches the accompanying requisition. For more information please contact 1-877-849-3637 or email us: ContactUs-ON@LifeLabs.com.

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