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Health Care Providers' Newsletter

*June 2018*

# Health Care Providers' Conference

**Thursday evening, 2nd August 2018**

**Oak Bay Beach Hotel, Victoria, BC (Vancouver Island)**

LifeLabs invites physicians, nurses and other healthcare practitioners to an evening educational event designed to bridge the information gap between laboratory medicine and clinical practice.

Often seen as a "black box," we aim to demystify the laboratory and to establish better access to laboratory medicine expertise. We will use case studies to provide practical clinical pearls for health care providers (particularly those providing primary care, such as GPs and NPs) and we will also explore how evolving laboratory medicine practice will improve the quality of clinical care for all our patients.

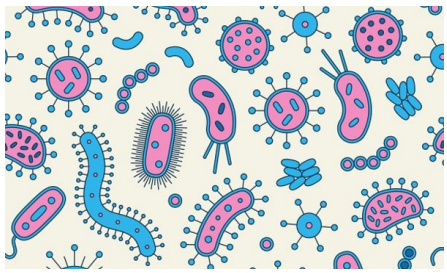
Our speaker list is being finalized but we are following a fast-paced, case-based format this year from a variety of local experts, with time for Q&A after each presenter. Topics that will be covered include diagnostic dilemmas and management of common cases at the intersection of clinical practice and each of our lab disciplines: Microbiology and Infectious Diseases, Hematology, Biochemistry and Toxicology.

Free registration is required with space for 100 attendees. Registrants beyond that number will be waitlisted. This educational event is not accredited by the RCPSC or the CFPC but qualifies as 2 hours of an unaccredited Group Learning Activity.

The venue opens at 5:30pm, with a gourmet buffet dinner and the conference will start at 6:00pm. All conference attendees will receive a complimentary gift and one major prize giveaway to a lucky attendee.

To learn more or register, please visit our conference website at www.lifelabs.com/annual-conference.

# 2018 Antibiograms now available on our website!



## *Helicobacter pylori* stool Antigen

*Kent Dooley, PhD, FCACB, Clinical Chemist*

As of July 16, 2018 LifeLabs will be performing *Helicobacter pylori* Stool Antigen testing at our Victoria Reference Laboratory. Testing is available through any LifeLabs Patient Service Center in BC.

*H. pylori* infection is a common treatable cause of peptic ulcer disease. Since untreated *H. pylori* infections are associated with increased risk for gastric cancer it is important to make the diagnosis. There are 4 ways to diagnose *H. pylori* infection:

1) Endoscopy and Biopsy

This includes histology, culture and the rapid urease test. This is an invasive and expensive procedure

2) Urea Breath Test

Based on detection of the enzyme urease which is produced by *H. pylori*. The patient is required to ingest a drink containing stable isotope-labeled urea. Urease converts the urea to $CO_2$ and ammonia. A breath sample is then collected and the amount of stable isotope-labeled $CO_2$ is determined. This is considered the gold standard among non-invasive tests for detecting active *H. pylori* infection.

3) *H. pylori* Stool Antigen Test

Detects the presence of antigen in a random stool specimen. This test has been found to be of comparable specificity and sensitivity to the Urea Breath Test for detecting active *H. pylori* infection.

4) *H. pylori* Serology

Serology is the least expensive test but suffers from an inability to distinguish active disease from past infection.

Lifelabs now provides both stool antigen and Urea Breath Tests for the diagnosis of active *H. pylori* infection. Having both the stool antigen and urea breath test available provides patients a choice. The *H. pylori* Stool Antigen Test and the Breath Test have similar diagnostic performance with sensitivities of ~95% and specificities of ~ 95%.

Any test for active *H. pylori* infection will require the patient to refrain from the following medications: antibiotics (4 weeks), bismuth preparations (2 weeks), proton pump inhibitors (7 days), H2 receptor antagonists (1 day), antacids (1 day)

It should be noted that the positivity rate for *H. pylori* in BC, by either methodology is approximately 15%, which is relatively low from a global perspective. Even with a specificity of 95% for either test, this low positivity rate yields a positive predictive value of less than 67% . Thus, astute clinical assessment is important for increasing the pre-test probability and improving the diagnostic power of these tests.

See also: https://www2.gov.bc.ca/gov/content/health/practitioner-professional-resources/bc-guidelines/dyspepsia

## New Urine Drug Confirmation Assay

*Jan Palaty, PhD, FCACB, Clinical Chemist*

A new urine drug confirmation method using mass spectrometry will go into production on June 25th, for both medical and legal samples. Cut-offs will remain largely unchanged, but the number of drug targets will increase to include additional opioids (*e.g.* Tramadol), novel fentanyl analogues, benzodiazepines (*e.g.* Etizolam, Flubromazepam), Z-drugs (*e.g.* Zolpidem) and stimulants (*e.g.* cathinones).

You will also notice a difference in the reporting format, which will include quantitation for most drugs. This feature will be particularly useful to distinguish previous from new use when monitoring patients who have recently stopped using a particular drug.

Lastly, the reporting cut-offs will now be stated on the report. Wherever possible, these will be the same as those used for legal drug testing.

## Discontinuation of Peritoneal Fluid for Cell Count

*Clinton Ho, MD, FRCPC, Hematopathologist*

Effective immediately, LifeLabs BC will no longer perform or accept samples for a peritoneal fluid cell count owing to the very small number of such requests we receive. Please make alternative arrangements for this test as needed for your patients. If patients present to a Patient Service Center (PSC) with such a request, they will be redirected to their local hospital laboratory.

If there are any questions or concerns, please phone 1-800-431-7206 and ask for a Hematopathologist.

1) Acanthocytes 2) Basophilic stippling (coarse) 3) Howell-Jolly bodies 4) Sickle cells

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# Hematology Reporting Changes & RBC Morphology Grading

*Anil Mangal, MD, FRCPC, Hematopathologist*

In its efforts to continually improve laboratory testing and promote better healthcare and patient management practices, LifeLabs is planning to implement newer Multiparameter Automated Hematology Analyzers (Sysmex XN Series) in all the Lifelabs testing Laboratories throughout BC, in a phased approach over the next few months: Lower Mainland (BRL) July 2018; Vancouver Island (VRL), Terrace and Prince George August 2018 and Kamloops and Kimberley September 2018.

These next generation diagnostic analyzers provide advanced clinical parameters: Leukopoietic indicators [Immature granulocytes with every differential]; Erythropoietic indicators [NRBC with every CBC, Reticulocyte Hemoglobin (Ret-He) and Immature Reticulocyte Fraction IRF)]; Thrombopoietic Indicators [Immature Platelet Fraction (IPF) and a Fluorescent Platelet count (PLT-F) designed for very low platelet counts].

Reference ranges will remain the same **except the following:**

**Immature Platelet fraction (IPF):**
New reference range 1.0 – 11.2%.

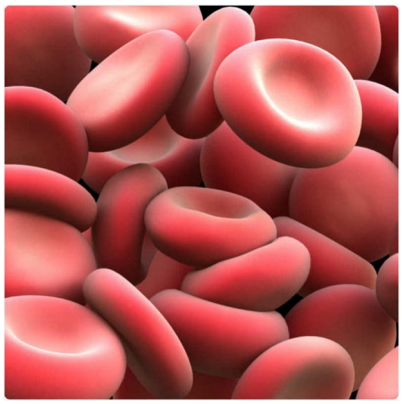
**Nucleated Red Blood Cells (NRBC):**
Any value above 0.0 is abnormal.
New reference range is 0.0 x10*9/L.

**White Blood Cells (WBC):**
Lowest reportable WBC now 0.2 x 10*9/L.
Anything lower will be reported as <0.2 x 10*9.

**Platelets:**
Lowest reportable platelets now 2 x 10*9/L.
Anything lower will be reported as <2 x 10*9/L.

**RBC morphology grading:** 4+ will be eliminated, and reported as follows:

| RBC morphology | 1+ | 2+ (mod) | 3+ (Many) |
|---|---|---|---|
| Macrocytes | 10-19% | 20-29% | >29% |
| Microcytes | 10-19% | 20-29% | >29% |
| Hypochromic | | 20-29% | >29%% |
| Polychromatic | | 4-10% | >10%% |
| Bite Cells | 1-4% | 5-20% | >20% |
| Irregularly Contracted Cells (ICC) | 1-4% | 5-20% | >20% |
| Schistocytes | 1-4% | 5-20% | >20% |
| Spherocytes | 1-4% | 5-20% | >20% |



**RBC morphologic changes** shall be reported as "Present" only when following criteria are met:

| | |
|---|---|
| Acanthocytes Present | If ≥10% |
| Agglutination RBC Present | If present |
| Basophilic Stippling Present | If intermediate or Coarse |
| Burr Cells Present | If ≥ 10% |
| Eliptocytes Present | If ≥ 10% |
| Howell Jolly Bodies (HJB) Present | If > Rare (1 or 2 per slide) |
| Ovalocytes Present | If any |
| Pappenheimer Bodies Present | If > Rare (1 or 2 per slide) |
| Rouleaux Present | If moderate or marked |
| Sickle Cell Present | If any |
| Stomatocytes Present | If ≥ 10% |
| Target Cells Present | If ≥ 10% |
| Tear Drop Present | If ≥ 5% |

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Lifelabs is following the International Clinical Society of Hematology (ICSH) recommendations for the standardization of nomenclature and grading of peripheral blood cell morphologic features. The above-noted modified RBC Morphology grading (1+ to 3+), would provide the clinicians with useful information regarding the status of any abnormalities in the peripheral blood which would be easy to follow in their patient management. The RBC Morphologic grading contains a two-tiered grading system, for 2+ (moderate) and 3+ (many). Some RBC morphologic changes are reported in small numbers, since their presence is clinically significant (eg. HJB, Sickle cell, RBC agglutination, etc.), while others are only reported by Lifelabs if they exceed specified threshold (eg. Acanthocytes, Burr Cells ≥ 10%).

The following indices will continue to be available, but each must be specifically requested:

**Immature Platelet Fraction** (IPF): provides an estimate of thrombopoiesis (similar to reticulocyte is a measure of erythropoiesis). If you need this parameter on your patient, please specifically request Immature Platelet Fraction (IPF) on the requisition.

**Reticulated Hemoglobin Content** (Ret-He): provides an early measure of functional iron deficiency because reticulocytes are the earliest erythrocytes released into blood circulation and circulates for only 1 to 2 days. Ret-He is used as a sensitive and specific indicator of iron deficiency in clinical situations with otherwise normal red cell indices. If you need this parameter on your patient, please specifically request a Reticulocyte count on the requisition.

Contact: For any additional information of clarifications, please contact LifeLab Hematopathologists at 1-800-431-7206.


References:

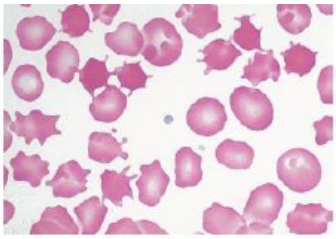
1. Saigo K, Sakota Y, Masuda Y, et al. 'Clinical Utility of new parameters provided by XE-2100 RET Channel'. *Sysmex Journal International* **2007**; 2:81-94.

2. Mast AE, Binder MA, Dietzen DJ, 'Test of the Month: Reticulocyte Hemoglobin Content'. *Am J Hematol* **2008**;83(4):307-310.

3. Palmer L, Briggs C, McFadden S, et al, 'ICSH recommendations for the standardization of nomenclature and grading of peripheral blood cell morphologic features'. Int Jnl Lab Hem **2015**, 37, 287-303.

4. Sysmex XN Series, Automated Hematology systems [Sysmex Brochures]

5. Gulati, Gene (**2009**) 'Blood Cell Morphology Grading Guide'. American Society for Clinical Pathology Press.

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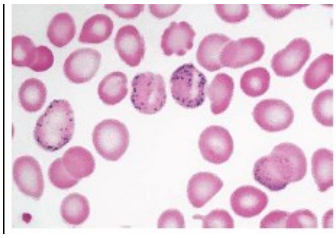

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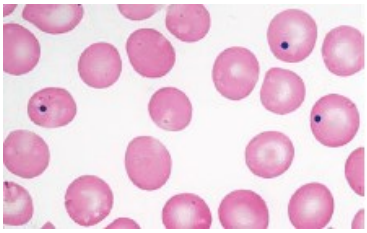

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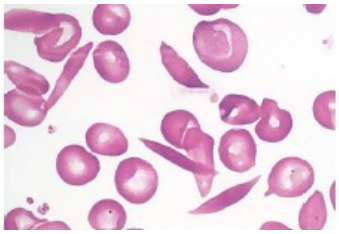

**4**

**Common patterns encountered in hematology: what's your guess? Answers on bottom of 2nd page.**

## Request for *Babesia* Serology

*Anil Mangal, MD, FRCPC, Hematopathologist*

All serology requests for *Babesia* are sent to BCCDC who refer them out for testing. Lifelabs collects and transports these samples to BCCDC together with a copy of the requisition, but please be advised that BCCDC Protocol states *Babesia* or Malaria serology shall only be performed after 3 negative blood smears on three different collection dates. This proof of three negative tests **must** be provided by the referring physicians on the requisition.

Blood smears for *Babesia* may be performed at any laboratory, including all hospital labs, but as these external results are not accessible to Lifelabs we will not be able to forward them to BCCDC. To avoid any delay or possible cancelation of serology testing by BCCDC, it is the ordering physician's responsibility, whenever requesting *Babesia* serology, to specify on the requisition when and where the **three negative** blood smears were reported (*e.g. Babesia* blood smears negative: 24 Mar. 2018 Lifelabs; 01 Apr. VGH & 10 Apr 2018 SPH). Lifelabs will then forward this requisition together with the patient sample to BCCDC for further action.

For additional information, please contact BCCDC Client Services at 1-877-747-2522 or LifeLabs' Hematopathologists at 1-800-431-7206.