Inside Diagnostics Ontario

The Diagnostic Newsletter for Healthcare Providers

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AUGUST 2017

LifeLabs®

Detection of Parasites in Stool Samples by PCR

Diarrheal diseases are extremely common in the developed and developing worlds and are major causes of morbidity and mortality, affecting millions of individuals each year. The aetiologies of diarrhea include viruses, bacteria and parasites. Of parasites, Entamoeba histolytica, Giardia lamblia and Cryptosporidium sp. are considered to be the most common.

Our data at LifeLabs in Ontario show an overall prevalence of Intestinal parasitic pathogens (IPP) ranging from 4.6 to 5.8%. Protozoa accounted for 85% of IPPs while helminths for 15%. Distribution of protozoa were: Dientamoeba fragilis 59.6%, Giardia lamblia 24.7%, Entamoeba histolytica/dispar 11.4%, Cryptosporidium sp. 2.3%, Cyclospora sp. 2.0%.

Seasonality was observed with Cyclospora sp and Cryptosporidium sp., peaking in mid-summer (May-July) and late summer (July to September), respectively.

Among helminths, pinworm represented 67%, Ascaris lumbricoides 7.4%, Trichuris trichura 5.6%, hookworm 4.5%, Strogyloides stercoralis 4.4%, Taenia sp.2.3%, Hymenolepis nana 2.9%, Diphyllobothrium sp. 2.4%, Schistosoma mansoni 1.9%, Clonorchis sinensis 1.1%, Trichostrongylous sp. 0.5%, and Fasciola/Fasciolopsis 0.2%,.

Beginning August 8. 2017 LifeLabs Medical Laboratories will introduce the latest PCR technology for detection of parasites in stool samples.

PCR testing will replace the current traditional microscopic method of testing. This new technology offers high sensitivity for protozoa pathogen detection and a faster turnaround time for reporting of our results. It detects six most common protozoa parasites: Giardia lamblia, Entamoeba histolytica, Cryptosporidium spp., Blastocystis hominis, Dientamoeba fragilis and Cyclospora cayetanensis.

The PCR method can distinguish between E. histolytica and E. dispar. It will not detect helminths.

The current SAF containers will be replaced by Copan Fecal swabs. Supplies will be ready by August 1st for ordering.

PCR will be our first line test for suspected parasitic diarrhea. Microscopy will continue to be provided for certain indications, including immunocompromised patients, immigrant/refugee screening or if Helminthic infestation is suspected. Please specify the indication on the requisition and send samples in SAF if microscopy is needed.

For PCR, please submit one sample collected in the Copan Fecal swabs.

How to order the test using OHIP requisition, how to order supplies of Copan fecal swabs and Instructions for patients for how to collect samples using Copan fecal swabs are available on our website at www.lifelabs.com

Points to Remember

- **Parasitic diarrhea caused by protozoa is much more common than helminths**
- **New PCR technology for detection of protozoan parasitic infection in stool samples is available in August 2017**
- **New collection device using Copan fecal swab is required for the PCR test.**
- **More information about how to order the test and the fecal swabs is available on the website.**

By Huda Almohri MD ,FRCPC
Ontario Deputy Medical Director
Discipline Head, Microbiology

Fecal Calprotectin Testing

Fecal Calprotectin is a protein which is present in abundance in the cytosol of neutrophils. Its presence in stool reflects inflammatory activity in the intestinal mucosa. Increased fecal calprotectin can be detected in Inflammatory Bowel Disease (IBD), Coeliac disease, infectious colitis, necrotizing enterocolitis, intestinal cystic fibrosis, and colorectal cancer.

Fecal Calprotectin is an effective test for differentiation of Inflammatory Bowel Disease (IBD) from Irritable Bowel Syndrome (IBS). The test is a viable alternative to colonoscopy for patients demonstrating the symptoms of IBD, and it is also effective in monitoring patients for relapse of IBD.

In August 2017 Fecal Calprotectin will be available as an in-house test at LifeLabs and we anticipate a substantial reduction in turn-around time to 4 -7 days.

Fecal Calprotectin testing is performed on a random stool collection.

Results are quantitative with a cut-off for IBD of 50 ug/g. Due to lack of standardization of testing methods, the cut-off for relapse is method dependent: **the proposed optimal cut-off for relapse of IBD for the Diasorin assay used by LifeLabs is 125 ug/g** (Clin. Biochem. 2016, 49 (1), 268-273). With the new method, results up to 500 ug/g are comparable to the previous (referred out) method, while previous values greater than 1000 ug/g can now be up to 3 times higher. It should be noted that intake of non-steroidal anti-inflammatory drugs (NSAIDS) increases Fecal Calprotectin, possibly leading to false positive results.

The normal levels of Fecal Calprotectin in young children and infants can be substantially higher than for older children and adults. **Though not thoroughly evaluated in this age group, the test is likely to be clinically less sensitive for infants and young children.** For infants 3 - 6 months of age, normal values can be up to 10 times higher than the adult cut-off and for children 6 months to 3 years of age normal values can be up to 4 times the adult cut-off. (Scand. J. Clin. Lab. Invest. 2014, 74, 254-258).

This test is not currently covered by the Ontario Health Insurance Plan (OHIP) but may be covered by a patient's extended health insurance plan.
Please contact LifeLabs Contract Services at 604-507-5234 to find out about the current fee for the test.

By Kent Dooley PhD, FCACB
Clinical Biochemist

Changes to Routine Chemistry Tests at Belleville LifeLabs Laboratory

LifeLabs is introducing new instrumentation for Routine Chemistry testing at its regional laboratory in Belleville.

This represents the final stage in the standardization of routine chemistry methods and test reporting across LifeLabs locations in Ontario.

Transition to the new line of instruments (from Siemens Advia to Roche Cobas) takes place on July 31st 2017. At that time, a message will appear on lab reports to indicate that the change has taken place.

Due to this change in instrumentation, the reference intervals have been reviewed and will change for some tests. Please refer to the reference intervals accompanying the patient report for result interpretation.

Please contact the LifeLabs Customer Care Centre 1-877-849-3637 for all enquiries.

We welcome your feedback!

By Danijela Konforte PhD, FCACB
Clinical Biochemist

Standardization Of Medical Urine Drugs Of Abuse (DOA) Immunoassay Screen Panel Menu Across Lifelabs Locations In ON

In August 2017 LifeLabs is introducing changes to the menu of drugs included in the medical urine DOA screen panel. This represents one of the final projects in the standardization of testing across all LifeLabs locations in Ontario.

Changes to medical urine DOA screen panel menu (will only impact legacy LifeLabs clients):

- DOA screen panel will include 7 drugs: Amphetamines, Benzodiazepines, THC, Cocaine Metabolite, Opiates, Oxycodone, and Methadone metabolite (EDDP)
- To order please request 'Urine Drug Screen Panel' on the OHIP requisition under OTHER
- Each of the above listed drugs can also be ordered individually
- Urine Barbiturate screen will be removed from the panel. It will be tested only when specifically requested on the OHIP requisition
- pH and creatinine testing for determination of possible sample tampering will be performed and reported if ordered - to order please request 'pH/creatinine' next to urine drug screen order on OHIP requisition under OTHER

There is no change to the testing methods, analytical performance, or detection cut-offs for any of the above-mentioned drugs.

By Danijela Konforte PhD, FCACB
Clinical Biochemist

What's the Big Diff?

"CBC and Diff" has long been the traditional terminology used when a physician orders a Complete Blood Count (CBC) with a total white cell differential count. Previous to the 1990's, ordering the "Diff" was necessary because the total CBC values were generated by an automated process while the white differential was counted manually. Therefore, the white cell "Diff" was a separate test worthy of a separate request.

But things have changed...
Since the mid 1990's the CBC, including the white cell differential count, has been an entirely automated process. Today if a CBC is ordered, it is implied that the white cell differential count will be included. Additionally, the technology used to determine the CBC values has become increasingly sophisticated over the years. Due to advances in computer processing that allows these instruments to analyze and store data, the accuracy and precision of CBC analyzers has dramatically improved. CBC analyzers not only count the cells, they sort, categorize, and identify abnormal cell populations (e.g.: blasts, lymphoma cells, nucleated red blood cells) as well as flag samples with other quantitative abnormalities (e.g.: platelet clumps).

A CBC order also includes a peripheral smear, if necessary...
In the same way that a CBC order implies that a "Diff" will be performed, a CBC order also includes a peripheral smear exam if required according to pre-set rules. The sophistication of these instruments allows the programming of certain "flagging" rules - at LifeLabs these rules are based on published guidelines (see references). The instrumentation's technology combined with the application of these programmed rules determine if a sample is abnormal and therefore worthy of a blood film exam or if the sample is within normal limits. If a blood film is ordered on a patient sample but no flags are generated by the instrument, then a blood film exam will not be performed.

POINTS TO REMEMBER:

- **It is not necessary to order the "Diff" when requesting a CBC.**
- **A blood film exam will only be performed if the CBC instrumentation detects an abnormality.**

References:

1. George, T. Automated Hematology Instrumentation. In: UpToDate, Post TW (Ed), UpToDate, Waltham, MA. (Accessed on July 14, 2017).
2. Barnes PW, McFadden SL, Machin SJ, Simson E. The International Consensus Group for Hematology Review: Suggested Criteria for Action Following Automated CBC and WBC Differential Analysis. Lab Hematol. 2005;11(2):83-90
3. Laboratory Guidelines. College of Physicians and Surgeons of Saskatchewan. 2014.

By Miranda Wozniak MD, FRCPC
Ontario Deputy Medical Director
Discipline Head, Hematology

Lifelabs Introduces Foundations For Our Future: 2016 Report To Our Community

LifeLabs is thrilled to share with you Foundations For Our Future, LifeLabs' 2016 Report to Our Community. This Report shares stories that are meant to be celebrated as well as the impact LifeLabs is making in the lives of Canadians.

In this Report, you will find stories about our commitment to excellence, how we are leaders in innovation, the ways we are building strong communities, and you'll learn about our employees. We hope you enjoy reading these stories and learning about the Foundations for Our Future.

Find the report online at: www.lifelabs.com/community-report

By Corporate Communications Office

Lifelabs Employees Now Fully Trained In Canada's First Serving Customers With Autism Program, And Accepting Patients At The Goodlife Pacific Autism Family Centre

LifeLabs is thrilled to announce that employees at all LifeLabs patient service centres (PSC) across Ontario and B.C. are fully trained in the Serving Customers with Autism (SCA) program, the first program of its kind in Canada.

In addition to this nation-wide training the PSC within the GoodLife Pacific Autism Family Centre in Richmond, B.C., is now open and accepting patients. This unique PSC design, along with the SCA program protocols, will

contribute significantly to a positive health care experience for patients with Autism Spectrum Disorder (ASD) and all related disorders.
It is estimated that 1 in 68 children are currently diagnosed with ASD, and that ASD is the fastest growing and most commonly diagnosed neurological disorder in Canada. For people with ASD, having a medical procedure such as blood collection can be a traumatic experience. This can result in a delayed collection and a possible delay in treatment decisions. In

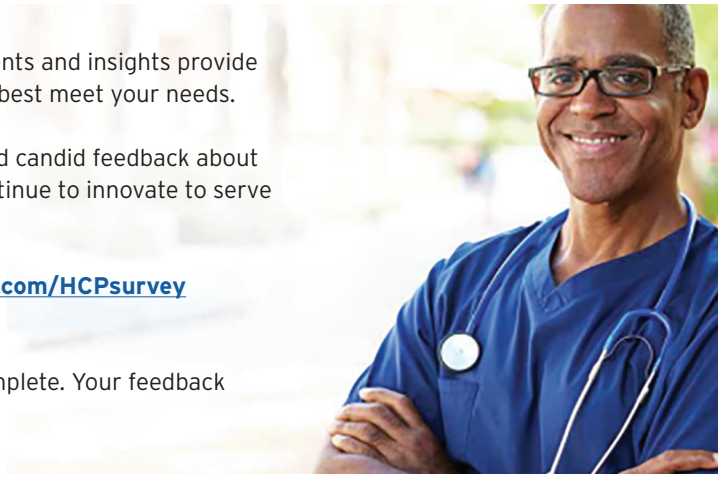
extreme cases, patients may even require sedation which results in even longer delays and brings additional risks to the patient, and cost to the health care system.

Researched and designed by LifeLabs and the Holland-Bloorview Kids Rehabilitation Hospital in Toronto, as well as research from around the globe and the Pacific Autism Family Network, the SCA program provides LifeLabs' staff with appropriate skills and essential tools like soothing light options, the ability to play videos, and the use of many other calming tools and techniques to make for a stress-free, tailored visit at all LifeLabs PSCs.

For more information please visit lifelabs.com/autismprogram

By Corporate Communications Office

Coming Soon: Lifelabs' Annual Health Care Provider Survey



LifeLabs is serious about continuous improvement and your comments and insights provide us with invaluable information on how we can evolve our service to best meet your needs.

Starting on August 29, you will be invited to provide your honest and candid feedback about what we are doing well, where we can improve, and how we can continue to innovate to serve you and your patients better.

Respondents will be entered for a chance to win. Click **www.lifelabs.com/HCPsurvey** for details!

This confidential survey should take you less than 10 minutes to complete. Your feedback matters, so let us know what you think!

LifeLabs®

For more information, please visit our site at **www.lifelabs.com**

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