LifeLabs®

INSIDE Diagnostics ONTARIO

NOVEMBER 2022

THE NEWSLETTER FOR
HEALTHCARE PROVIDERS

LifeLabs to Offer Electronic Reports of LifeLabs Genetics Panorama™ Test Results

We are pleased to share that we will be offering electronic reports of LifeLabs Genetics Panorama™ Non-Invasive Prenatal Screening Test (NIPT) results in Ontario this fall, and in B.C. in early 2023.

LifeLabs has been offering Panorama NIPT since 2013 using fax reporting. Panorama™ NIPT is a highly accurate prenatal screen that uses a blood sample from the mother as early as 9 weeks into pregnancy to analyze DNA from the placenta for certain chromosome conditions that could affect the baby's development. It detects specific whole extra or missing chromosomes, fetal sex, microdeletions (loss of specific small regions of chromosomes), and whether twins are identical or fraternal (zygosity). For example, for Down Syndrome, the detection rate is >99% and positive predictive value is 95%. For Trisomy 18, the detection rate is >99% and positive predictive value is 91%.

Starting October 24, 2022, this implementation of electronic reporting will offer you and your patients an improved experience in managing health information by receiving test results electronically rather than through manual faxes. Initially, we will only be providing electronic reports for Panorama™ NIPT results in the LifeLabs Genetics portfolio, but we expect to expand the availability of electronic reports for other Genetics' tests in the future.

Panorama™ tests that are currently eligible for electronic reporting include:

- Panorama™ Basic Test (assessing chromosomes 13, 18, 21, X and Y and triploidy, with an option to add on fetal sex)
- Panorama™ Basic Test + 22q11.2 deletion syndrome
- Panorama™ Basic Test + microdeletion extended panel (analyzing 22q11.2, 1p36, Cri-Du-Chat, Prader-Willi and Angelman syndromes)

POINTS TO REMEMBER:

- As a health care provider, you can subscribe to LifeLabs' Launchpad service and opt-in to receive electronic reporting. Or, if you are already subscribed to an external EMR provider that is integrated with LifeLabs, you will be able to access Panorama™ NIPT reports through that EMR system.
- Patients who are registered to receive test results through MyCareCompass will be able to access Panorama™ reports within 5 calendar days of the report being released to the ordering health care provider. This is to ensure the health care provider has enough time to review and interpret the report before consulting with the patient.
- If you have elected to receive reports by fax and would prefer to continue as is, we will be retaining the faxing process. Furthermore, the clinical process for reporting results will remain the same as well.

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LifeLabs Offering FIB-4 Index:

A Non-Invasive Marker for the Evaluation of Fibrosis in NAFLD Patients

NON-ALCOHOLIC FATTY LIVER DISEASE

Non-alcoholic fatty liver disease (NAFLD) is a common cause of chronic liver disease worldwide[1]. The estimated prevalence of NAFLD in North America is approaching 30% for adults[2-5]. NAFLD is expected to increase; following the trajectory of increasing obesity[6,7,] and it will probably emerge as the leading cause of end-stage liver disease in the coming decades which warrants the attentions of health care providers[1,8]

NAFLD is recognized as the hepatic component of metabolic syndrome[9]. Sedentary lifestyle and high caloric intake set the groundwork for disease development in adults and children[1]. Diabetes and obesity are well established risk factors for NAFLD[10]. Importantly, NAFLD was also related to other etiologies where "lean NAFLD" was observed in non-obese individuals[1].

NAFLD is a spectrum of functionally distinct and progressive liver disorders that encompass simple steatosis, nonalcoholic steatohepatitis (NASH), fibrosis and, ultimately, cirrhosis[9]. Simple steatosis, the most indolent form, is characterized by the histologic accumulation of fat within hepatocytes. In some patients, this form can develop into borderline NASH characterized by weak inflammation, which can further develop into NASH (steatosis and strong necro-inflammation)[8].

Steatosis and NASH are highly dynamic and most likely reversible (Figure 1). Once NASH is developed, disease becomes less reversible and there is more tendency to develop fibrosis, end-stage liver disease and HCC[8,11] which warrants early management of the disease[1,8].

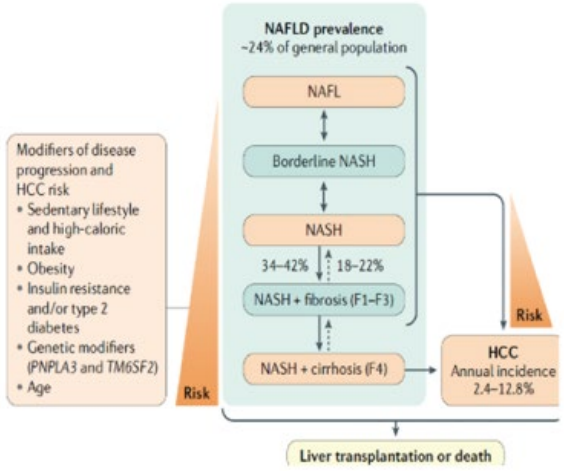

Figure. 1 *The sequential pathophysiological states of NAFLD (adopted from Anstee et al.[8]).*

CLINICAL MANAGEMENT OF PATIENTS WITH NAFLD, INCLUDING USE OF NON-INVASIVE MARKERS SUCH AS FIB-4 (FIBROSIS-4) INDEX

Given the high prevalence of NAFLD, patient management by specialists is not feasible. Screening for increased risk of advanced fibrosis is essential for triaging NAFLD patients for specialist care and better management[12]

Liver biopsy is the gold standard for identifying fibrosis; but it has its limitations[13,14]. Alternative non-invasive markers have been developed[15,16]. Of these, Fibrosis-4 index (FIB-4) is a simple and inexpensive marker that is calculated from

AST, ALT, platelet count and age[13]. FIB-4 index was originally developed for the assessment of advanced liver fibrosis in patients with HCV with(out) HIV dual infection[13,14]. Later, Shah *et al.* demonstrated the clinical utility of FIB-4 in the evaluation of fibrosis in NAFLD patients; where it outperformed other non-invasive markers[15]. Recently, the American Association of Clinical Endocrinology (AACE) recommended using FIB-4 index as the preferred initial test to assess the risk of fibrosis in NAFLD patients[17]. A FIB-4 score of <1.30 showed high negative predictive value for the identification of advanced fibrosis, whereas a score of > 2.67 showed high positive predictive value. Importantly, using FIB-4 index with these threshold values was estimated to save 78% of liver biopsies in the studied cases[15]. FIB-4 score should be used with caution in patients <35 or >65 years old, as the score showed lower diagnostic accuracy within these age groups[18].

For better management of our patients, LifeLabs started offering FIB-4 index in November 2022.

What you need to know about ordering, specimen collection and Reporting of FIB-4:

- Health care providers will be able to order FIB-4 index by indicating "FIB-4, FIB-4 index, FIB-4 score, fibrosis index or fibrosis score" on the OHIP requisition.
- ALT, AST, and complete blood count must be also ordered on the same requisition.
- Specimen collection requirement are similar to ALT, AST, and complete blood count.
- FIB-4 index will be reported with a comment indicating the risk of advanced fibrosis:
  - **<1.3:** Low risk for advanced liver fibrosis
  - **1.30 – 2.67:** Indeterminate risk for advanced liver fibrosis. May warrant further testing
  - **>2.67:** High risk for advanced liver fibrosis. Warrants further testing.

POINTS TO REMEMBER:

- NAFLD is a global epidemic that affects both adults and children
- Early management of NAFLD is warranted to prevent progression to fibrosis and irreversible liver damage
- Liver biopsy is the gold standard to assess liver fibrosis, but it has its limitations
- FIB-4 index is a simple, accessible, and non-invasive marker for the assessment of the risk of liver fibrosis in NAFLD patients
- ALT, AST, and complete blood count must be ordered with FIB-4 index on the same OHIP requisition
- AST is only insured under OHIP when ordered by or based on the advice of a physician with expertise in hepatic disorders
- FIB-4 index is not insured under OHIP

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Nationwide Replacement of High-Volume Chemistry Analyzers: Immunoassays in Ontario

We are pleased to share an update on our fall and winter plans to gradually replace the Roche Cobas and Abbott Architect analyzers used nationally for chemistry testing. The testing performed on these analyzers includes clinical chemistry, immunoassays, and infectious disease (serology) assays at LifeLabs sites in Ontario. We are moving to the *Abbott Alinity* testing platform for these assays.

The first phase of this process took place in August 2022 with the move of Hepatitis and Rubella serology tests to the new *Abbott Alinity i platform*.

In the second phase, a number of immunoassays will transition to the *Abbott Alinity i* platform between **October 24th, 2022 and November 30th, 2022. Table 1** provides a list of immunoassay tests that will be moving to the new testing platform, along with a description of notable changes. Method validations were performed for all the immunoassays (noted in the **Table 1**) at LifeLabs to ensure the assays meet our clinical requirements. The test results on the new analyzers compare well with our current platform. A temporary notification will be included with all test results indicating a change in testing platform and highlighting any other significant changes, as applicable and described in **Table 1**. This notification will be provided for 3 months from the date of implementation. Please note, minor updates to interpretive comments for some of the tests will also be implemented to align with current clinical guidelines and improve interpretation of laboratory results.

We will update you on additional changes impacting the LifeLabs chemistry testing as we get closer to the next phase of implementation in early 2023.

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Table 1. Tests that are being transferred to the Abbott Alinity i platform in October 2022:

Test	Description of test change
BNP	Interpretive comments have been updated to reflect current guidelines on chronic heart failure
Cortisol (Random, AM, PM)	Reference intervals have been changed to reflect current practice guidelines.
Estradiol	The test code for Estradiol (IVF) is no longer relevant and has been discontinued. There are no changes to the current testing protocols or interpretation.
Ferritin	Reference intervals have been updated to reflect recent practice guidelines. The low limit of the reference intervals has been changed to reflect the diagnostic cut-off for iron deficiency and results will be flagged when they are below this limit. In addition, an interpretive aid is provided with all results indicating cut-offs for borderline iron deficiency in addition to diagnostic cut-off (derived from the WHO recommendations for iron deficiency).
FSH	No change
Homocysteine	Reference intervals are unchanged, with homocysteine results expected to be an average of 2 μmol/L lower than previous values. In addition, a comment has been added for patients ≤ 18 years of age to aid in assay interpretation in the absence of an established reference interval for this age group.
LH	No change
NT-proBNP	No change
Progesterone	Reference intervals are unchanged except for the post-menopausal stage reference interval, which was updated based on studies by Abbott Diagnostics.
Prolactin	No change
Monomeric Prolactin (Macroprolactin)	No change
T3 free	No change
T3 total	No change
T4 free	No change
TSH	No change
Vitamin B12	Reference interval is unchanged, but a comment including common diagnostic cut-offs has been added to enhance interpretation of Vitamin B12 deficiency.
25OH Vit D	No change
Total PSA	No change
Free PSA (PSA Ratio)	No change

Anatomical Pathology Turnaround Times

As the province enters the post-pandemic recovery, Anatomical Pathology at LifeLabs has faced an unpreceded surge in testing demand resulting in turnaround times beyond our desired targets. While this issue has been felt across labs both regionally and nationally, we continue to address the situation with additional staffing and revised workflows.

We recognize the added burden that extended laboratory turnaround time places on the clinical management of patients.

To uphold our high patient care standards, we maintain an urgent specimen turnaround time of five business days with a rigorous system in place to ensure specimens are triaged and managed according to clinical needs. Specifically for Cytology, we recommend utilizing the HPV co-testing option to ensure sample viability for HPV testing.

Thank you for your continued support in identifying urgent samples when clinically indicated.

Supported by our laboratory staff and Pathologists, we aim to get back on track to serve your needs very soon.

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