How embarassing...

Our May newsletter requested feedback to a questionnaire either by email or fax. Unfortunately, we gave the wrong fax number.

The correct fax number is: (250) 862-2843.

Please accept our apologies for any inconvenience.

Farewell

It has been my pleasure to be a part of Valley Medical Laboratories since February 2000. I have had the pleasure of working with a highly skilled and dedicated group of laboratory technologists, assistants, and support staff. And working for a wonderful group of pathologists.

I am grateful for having had the opportunity to continue to interact with the medical community after leaving practice in 1998. I am particularly grateful for the editorial assistance I have had with our newsletter from a variety of local specialists over the years. Never was a request for assistance declined.

It has also been refreshing and reassuring to meet with new physicians, many in their first practice. I have been impressed by their enthusiasm, intelligence, willingness to learn, and desire to do things the right way. I believe that the future of the profession is in good hands.

This being the final newsletter I will be putting together, I decided to say goodbye with a few snippets from some previous articles rather than create new content.

Farewell,

David Cameron MD, CCFP

From February 2001: Predictive Value of a Positive Test:

PREDICTIVE VALUE OF TESTS

Did you know that the best clinicians get the best value from laboratory tests?

It's true! It has to do with the interplay of:

- sensitivity (detection of abnormality when present),
- specificity (absence of false positives), and
- prevalence.

Consider a "near perfect test with 100% sensitivity and 99% specificity. If the overall prevalence of the disease being tested for is 1/100, indiscriminate use of the test will only "call it right" 50% of the time!

The astute clinician selects a group from the general population with a higher prevalence of disease, say 1/10, prior to testing, and in so doing increases the predictive value of a positive test to 92%. This is demonstrated in the tables below. (If specificity is only 90%, predictive values for positive tests drop to 10% for the 1/100 prevalence group, 53% for the 1/10 prevalence group.)

So much for "ruling out" disease simply by doing a lab test!

Test sensitivity: 100% Test specificity 99%
Disease prevalence 1/100 10,000 tests

	TEST POS	TEST NEG	TOTAL
DISEASE	100	0	100
NO DISEASE	99	9,801	9,900
TOTAL	199	9,801	10,000

Predictive value of positive test 100/199 = 50%

Test sensitivity: 100% Test specificity 99%
Disease prevalence 1/10 1,000 tests

	TEST POS	TEST NEG	TOTAL
DISEASE	100	0	100
NO DISEASE	9	891	900
TOTAL	109	891	1,000

Predictive value of positive test 100/109 = 92%

From May 2001: Glucocorticoid Testing

GLUCOCORTICOID TESTING (If initial testing is negative, stimulation or suppression tests may be helpful.)

SUSPECTED CONDITION	TEST	DIAGNOSTIC VALUES
Adrenal insufficiency	0800 Serum Cortisol (consider also checking electrolytes)	<140 nmol/L
Cortisol Excess	24-h urinary free cortisol	<275 nmol/day excludes diagnosis >330 nmol/day suggests diagnosis
	OR: 0800 & 1600 Serum Cortisols (pm value should be < 1/2 am value)	0800 cortisol > 700 nmol/L
	OR: 1 mg (overnight) dexamehasone suppression test, measure 0800 serum cortisol	>80 nmol/L

(Note that although timing of serum cortisol determination is important, there is no requirement for fasting.)

June 2018

VALLEY MEDICAL LABORATORIES NEWSLETTER

For Physicians and Healthcare Practitioners

The Physician's Newsletter is published by Valley Medical Laboratories and Okanagan Clinical Laboratories.

It is edited by Dr. David Cameron and reviewed by Drs. Larry Argatoff, Susan Tebbutt, and Doug Hardy.

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From July 2001: How to Interpret a CBC Report

One of the benefits of my position at the lab is that I can now ask questions that I would previously have been embarassed to. For example, I asked Duncan Innes, pathologist, and Mike Delorme, hematologist, what they do when looking at a CBC report. Both replied (graciously & without laughing at the question) that they first look specifically at each of:

- Hb
- WBC
- Absolute differential (an occasional neutropenia with a normal wbc will be detected)
- MCV:
  - » If Hb normal and MCV low, consider thalassemia minor or iron deficient polycythemia.
  - » If Hb normal and MCV high, think of liver disease or alcohol abuse.
- Platelets

They both offered further that they ignore the MCHC, RDW, and the relative differential.

Of note, morphology can be ordered as such, but will be done automatically if counts are abnormal. Morphology can be helpful in directing the course of investigation of anemias etc., but may also be useful in the setting of an atypical or prolonged flu-like illness, when the morphology can help sort out the difference between atypical or reactive lymphocytes as opposed to leukemia or lymphoma.

Now, aren't you glad I asked?

From January 2004: Liver Function Tests

At the time the 2004 article was written, a BC Guideline was in development. The most recent version was published 2011.

From the VML newsletter:

Background

"Liver function tests" is a misnomer. Of the wide array of biochemical liver tests, most are indicators of either:

- **hepatocellular injury / necrosis** (ALT*, LDH), e.g. hepatitis, where damaged liver cells "leak" intracellular enzymes into the bloodstream (* Editor's note: The January 2004 newsletter included AST here. The BC Ministry of Health is currently encouraging the use of ALT and discouraging the use of AST.)

OR

- **cholestasis** (ALP, GGT, Bilirubin, 5' NT), e.g. biliary obstruction or hepatic infiltration), where obstruction or damage to intra or extra hepatic bile ducts or their epithelia cause the induction of synthesis of the marker.

The main markers of **liver function**, i.e. hepatic synthetic activity, are Albumin and PT (INR).

Despite the suggestion in the GPAC document that the term LFT's not be used when referring to serum enzyme levels because they correlate poorly with metabolic activities in the liver, other references recognize that the terminology is well entrenched and unlikely to change.

LFT's are used to:

- screen people for the presence of liver disease
- assist with differential diagnosis when symptoms, physical findings, or test abnormalities suggest a hepatic abnormality
- estimate severity and prognosis
- monitor the efficacy or adverse effects of therapy, be it directed at liver disease or other conditions
- direct further investigation, particularly as distinct patterns of abnormalities are associated with different types of liver disease

LFT's are not infallible however. Consider that:

- abnormalities may (not "do") indicate an abnormality of the liver
- mild abnormalities may not be clinically significant
- tests may be normal in the presence of advanced disease, e.g. cirrhosis, portal hypertension
- age related variations affect ALP levels, which can be raised at puberty and in the elderly

As has been discussed in previous newsletters, laboratory tests are adjuncts to a careful history and physical exam. History and exam is "Recommendation 1" in the GPAC document.

Editor's notes:

The original newsletter goes on to summarize the 2004 draft recommendations from GPAC The most current recommendations (2011) are available at: https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc-guidelines/liver.pdf

GPAC recommends ordering ALT and ALP as the initial tests when liver disease is suspected but the cause not apparent from the initial history and physical examination.

Advanced liver disease and complications may not be evidenced in many of the commonly used tests.

Suggestions from other dates:

The few articles above are a small sampling of topics that we have presented over the years. An index and archive of previous newsletters is available on our website. The index includes the information healthcare providers will require to access the previous issues. Some notable suggestions include:

September 2004: **Lytes, BUN, Creatinine**. January-April 2005: **Anemia**. October-November 2006: **Rheumatic Disease**. February 2010: **Infertility**. September 2012: **Viral Hepatitis Testing**. February 2014: **Reference Ranges for Transgender Patients**. March 2015: **Monoclonal Gammopathies**. October 2016: **Iron Overload** (Editor's Note: the guest editorial from hematologist Dr. M. Delorme is excellent.) May 2017: **Hypothyroidism and Pregnancy**.