

## Dr. Q's Questions for March

1. Why are TSH results of samples taken a few weeks apart seemingly discrepant?



TSH exhibits not only pulsatile secretion with an amplitude of about 1 mU/L, but a modest circadian pattern with a nadir in the mid-afternoon. TSH peaks daily around 1400 with a marked decline from about 0700 to 1000, the period most patients visit our collection sites (see Fig. 1 below). This change may be substantial – up to 3 mU/L. Analytical factors add only a modest level of scatter, typically less than 1 mU/L.

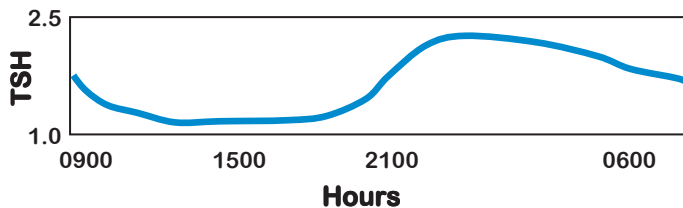


Figure 1. Typical 24-hour profile for TSH.

An internal review of 284 patients having a repeat sample within 10 days found a 95<sup>th</sup> percentile TSH change of about 5 mU/L. No clinical information was available, so this dataset includes patients with known thyroid disorders; however, we feel this provides the benefit of including the full spectrum of pre-analytical variability such as medication non-compliance. We concluded that *two TSH results within 10 days and 5 mU/L probably represent normal variation and do not require a follow-up.*

2. How do you interpret and act upon a TSH result consistent with subclinical hypothyroidism?

An excellent on-line Communiqué was recently published by the Mayo Clinic and can be found at: [www.mayomedicallaboratories.com](http://www.mayomedicallaboratories.com).

Dr. Jan Palaty, Clinical Biochemist


## Albumin / Creatinine Ratio

Effective late March, LifeLabs will be using a more sensitive method for urine albumin testing. This will eliminate the potentially ambiguous albumin / creatinine ratios currently reported on specimens with albumin <10 mg/L. Physicians are still reminded though, that dilute (<2 mmol/L creatinine) samples may cause falsely elevated ratios.

Dr. Jan Palaty, Clinical Biochemist

## Microbiology Preliminary Reports

We have recently upgraded our laboratory information system (LIS) to enable us to routinely report Microbiology preliminary results on all specimen types (previously, we only sent Microbiology preliminary reports on positive blood cultures and on request for other specimens). Please note that we will continue to phone preliminary results as before. Reports will be available electronically, by fax or paper. With this new service, we aim to provide you, our physician clients, with clinically relevant information. If you have any questions, please feel free to contact one of the LifeLabs Medical Microbiologists at 1-800-431-7206.

PATIENT'S NAME JOHN SMITH		LAB NUMBER 400000000	CHART NUMBER	INTERNAL USE ONLY
AGE: 100	DATE OF BIRTH: 10 OCT 1910	SEX: M	PHN: 900000000	REQ:
PATIENT'S PHONE # (250) 111-1111		POSTAL CODE: A1B D2E	REPORT DATE & TIME: 2 JAN 11 06:00	
DR. JANE DOE 1 VICTORIA STREET VICTORIA, BC V3W X4Y			 #3201 - 4454 Markham Street Victoria, B.C. V8Z 7X8 <a href="http://www.lifelabs.com">www.lifelabs.com</a> Telephone: 250-881-3100 Toll Free: 1-800-431-7206	
DATE & TIME COLLECTED 1 JAN 2011 9:00	DATE RECEIVED 1 JAN 2011 9:00	LAB		
TEST		OUT OF RANGE	WITHIN RANGE	REFERENCE INTERVALS
C&S URINE				
STATUS: Preliminary				
CULTURE RESULT: (1) ESCHERICHIA COLI OVER 100 M CFU/L				

An example of a Microbiology preliminary report.

Dr. Colette Pienaar, Medical Microbiologist

## Change in Lithium Therapeutic and Critical Limits

The therapeutic reference range for Lithium (Li) for patients  $\geq 65$  years has been lowered to 0.2 – 0.8 mmol/L from 0.5 – 1.2 mmol/L. Correspondingly, the critical limit has been lowered to 1.0 mmol/L from 1.5 mmol/L. For patients  $< 65$  years, the reference range and critical limit will remain unchanged at 0.5 – 1.2 mmol/L and 2.0 mmol/L, respectively. *There has been no change to the Li methodology at LifeLabs;* instead these changes were prompted by expert opinion and a review of the literature regarding the use of Lithium in the elderly, who may exhibit signs of Li toxicity at levels usually tolerated by younger patients.

The differences between younger and older patients include reduced volume of drug distribution and reduced renal clearance in the elderly, and interactions with other drugs commonly used in the elderly, such as diuretics, ACE inhibitors, and NSAIDs. Moreover, the proportion of body water, where most of the Li resides, decreases with age, thus raising the concentration for a given dose within that compartment.

Of course, there is a continuum of tolerability for Li in advancing age and some elderly patients maintained at concentrations up to 1.2 mmol/L without ill effects may not require any dose adjustments. However, others may benefit from adequate control with fewer side effects at a lower dose.

*Dr. Cheryl Tomalty, Clinical Biochemist*

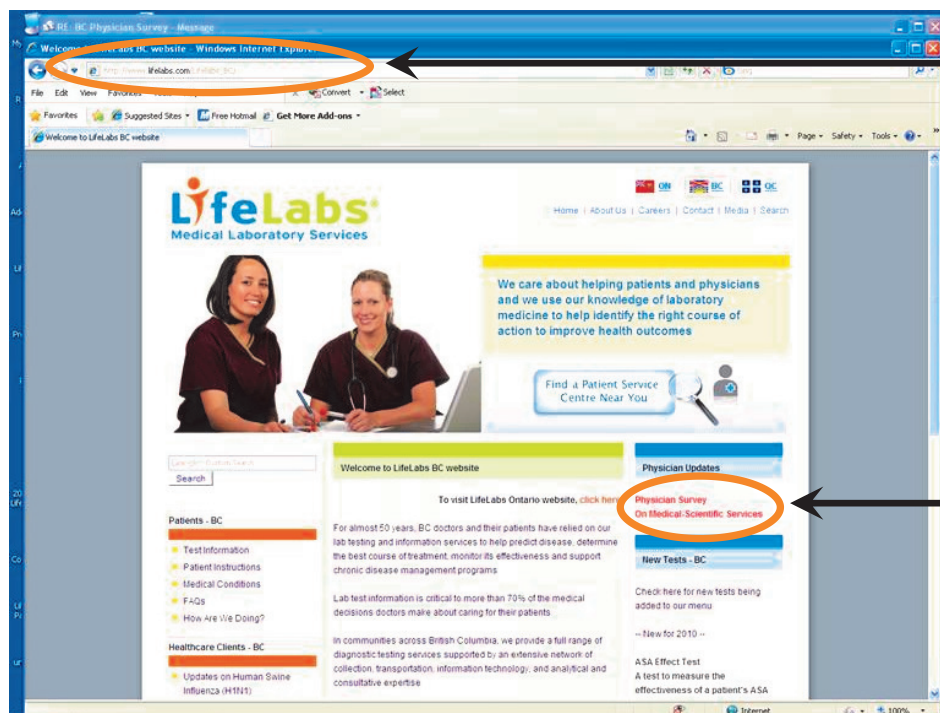
## PHYSICIAN SURVEY

### We are interested in your feedback!

LifeLabs is conducting a Physician Survey related to the quality of our Medical Scientific services. You can access the survey online by following the two easy steps indicated below.

The survey should take less than five minutes of your time and is completely confidential. The results will help us understand how we are doing today and where we need to make improvements.

Thanks in advance for participating in the survey. We look forward to receiving your feedback!



### Step 1

Enter the following link in your web browser:

<http://www.LifeLabs.com>

### Step 2

Click on Physician Survey link