April 18, 2010
Issue 2

LAB REPORTER

Orillia Soldiers' Memorial Hospital Laboratory

170 Colborne St.W
Orillia, ON
L3V2Z3

"The laboratory will meet or exceed the needs of its customers while ensuring and demonstrating a high standard of quality in the delivery of its services"

Lab Professionals: The Diagnostic Engine of Canada's Health Care

It's that time of the year again! During National Medical Laboratory Week, April 18-24, 2010 the Lab staff at OSMH will be celebrating our contributions to quality healthcare in the past year.

Lab professionals rarely have contact with the people they are working to care for, yet they are one of the critical parts of each patient's successful treatment. With about 85% of decisions about diagnosis and treatment based on Laboratory results, it is crucial that Lab professionals continue to provide precise and accurate results.

It has been a very busy year in the Laboratory at OSMH, at this time last year we were just beginning the implementation of the new Laboratory information system (LIS) *Meditech* and it has since been successfully completed!

Please join us in celebrating the important work that we do during National Medical Laboratory Week!

The Chemistry Corner

By Ron Spiker, Charge Tech, Clinical Chemistry

Pictured above is one of the main chemistry analyzers in our Lab, its' capabilities range from electrolytes to enzymes.

Chemistry results aid in the assessment of the health and function of our body systems and organs. There are tests to identify from heart attacks to thyroid problems, diabetes to identification and monitoring for prostate cancer, or from kidney function tests to occult blood in stools. The current Chemistry analyzer performing these tests has the capability of performing 1,400 tests/hour.

At OSMH, we boast a very diverse Chemistry test menu. This includes routine testing (glucose, electrolytes, enzymes), immunoassay testing (thyroid function, vitamin B12), and more specific testing (Troponin I for diagnosis of heart attack) and intact PTH (parathyroid hormone – used for monitoring dialysis patients and post thyroidectomy surgery), and quite a comprehensive therapeutic drug menu.

There are also serology tests for pregnancy screens and for detecting 11 drugs of abuse (these results are ready in 5 minutes). Blood Gas and Urinalysis testing both have their own specific analyzers.

Did you know?

…that testing for the two enzymes Amylase and Lipase aid in the diagnosis of acute pancreatitis.

…that Troponin I is specific for cardiac injury and that it rises within 4-6 hours, peaks at 18-20 hours and stays elevated for 7 days.

…that a urine sample not refrigerated within 1 hour can lead to bacterial multiplication, decreased glucose (from the bacteria), increased pH, and altered microscopic elements.

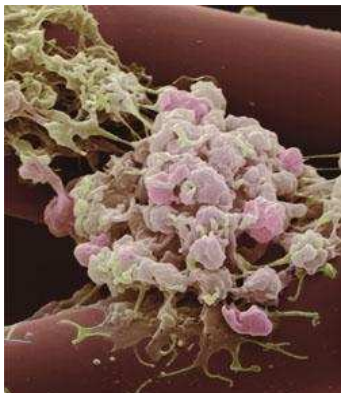
…that despite our current broad Chemistry menu, the number of tests that are sent to other reference Labs or hospitals costs us between $5,000 and $10,000 per month.

Platelet Function Test: Technology's New Bleeding Time

By Sue Oliver, Charge Tech, Hematology

Hematology is the branch of medical science concerned with the study of blood, the blood forming organs, and blood diseases. Some hematology tests include Complete Blood Count, Blood Smear, Monotest, Sickletest, Coagulation studies including one of our newest tests: the PFA-100 (platelet function analysis)

The PFA-100 analyzer will simulate (in vitro) the process of platelet adhesion and aggregation following vascular injury. Platelet dysfunction detected by the PFA-100 may be inherited, acquired or induced by platelet inhibiting agents e.g. aspirin. The most common causes of platelet dysfunction are related to ingestion of aspirin like drugs, uremia, and von Willebrand's Disease. Testing on the PFA-100 is appropriate when a disorder of platelet function is suspected by a personal or family history of easy bruising, nose bleeds, menorrhagia and post-operative bleeding. A sample of anticoagulated whole blood is used to measure the platelet function. The test determines the time it takes to form a platelet plug that occludes an aperture, and reports that time interval as the Closure Time.



The picture above shows what would happen in vivo when platelet aggregation takes place; the PFA-100 artificially creates the proper environment for this to happen right in its own cartridge!

Did you know?

- Certain foods, lipids, medications and fatty acids are known to inhibit platelet function.
- Estrogen therapy may shorten times.
- Smoking may affect closure times.
- Closure times are shorter in pregnancy returning to normal at the onset of labour.
- Up to 45% of the population are aspirin resistant. The PFA-100 can show if the platelet dysfunction if due to aspirin or if the patient is resistant to aspirin.
- Large amounts of chocolate, ginkgo, garlic, ginger, alcohol and dong quai can affect platelet function.

A Day in the Life of a Lab Assistant

By Diana Nielsen, MLA Team Leader

We know them as Medical Laboratory Assistants. You may know them from their former names:

- Certified Lab Assistant
- Phlebotomist
- Blood-Taker
- Vampire

In our Lab we have 14 MLA's employed; 6 full time staff, 7 part-time and 1 casual. During the day Monday-Friday there are a total 6 people working and 2 people on the evening shift. What do all these people do? Well, here is a day in the life of a MLA.

- Up at 5:30.
- At work and ready to go for 7:00.
- Morning rounds of blood collection with an average of 15 patients per MLA.
- Back to the Lab between 8:00 and 8:30.
- Break time for coffee and breakfast.
- The "Runner" does just that, they are off again to the floors to collect blood from patients who need their blood done during the day and responding to all special requests for STAT samples. These could come from anywhere. The floors, day surgery, emergency, oncology, dialysis, SAC, recovery, cardio and paediatric oncology, just to name a few!
- The "Accessioner" is responsible for accessioning all requisitions (printing barcodes and attaching them to both requisition and specimen tube) that come down from the runner, as well as all other samples (blood & micro) for testing. She is also responsible for collecting blood from all of the out patients that come into the Lab. These patients come from PAC, Oncology, Home Dialysis, Paediatric patients, and PSA patients.
- For the other 4 MLAs here are just a few of their duties in the departments:
- 1 goes into Blood Bank where they are involved with receipt of blood, inventory stock, reagent prep, and equipment maintenance.
- 1 goes into Microbiology where they enter and plant specimens, distribute reports, stain slides and sub QC plates.
- 1 goes into the Core Lab, where they load samples onto the analyzers, process send outs, and inventory stocking.
- And # 6 goes into Histology where they accession all surgical specimens, prepare and label blocks and slides, assist the technologists with grossing specimens, and attend and assist in the collection of bone marrow samples

Please meet us in the cafeteria on Friday, April 23, 2010 between 0930-1000 for cake to celebrate our contributions to quality patient care and the support that the hospital has given us in the past year!

Looking for a Lab report? Tired of calling to look for results?

Here are 4 easy steps to access Lab reports INSTANTLY!

Step 1. Double click LabRat icon on any computer desktop.

Step 2. In the blank space beside CPI, enter the patient's CPI# (you may also enter the patient's first/last name in the space provided). Then select 'Enter' or select 'Search'.

Step 3. Double click on the patient's name (this will be highlighted in blue in the middle of the screen).

Step 4. Select the 'Load' icon at the top of the screen to view all of the patient's Laboratory results.

Some additional information:

- Then to look up another patient, select the 'Clear' icon and enter a new patient's CPI# (or name).
- Select the 'Orders' tab at the top of the screen and a list of the orders for that patient will be displayed.
- To go back to the original screen, select the 'Flow Sheets' tab at the top of the screen.
- In the 'Orders' screen, if you select the 'Blue' button (to the right side of the date) a printable version of Laboratory results, with reference ranges, will be displayed.
- Lab results for Hematology and Chemistry will be available almost instantly as soon as they are reported, and all Microbiology reports will soon be available on LabRat.

Methicillin Resistant Staphylococcus: The SUPERBUG

By Anne Cook, Charge Tech Microbiology

MRSA infection is caused by a bacteria called Staphylococcus aureus — often called "Staph." MRSA stands for methicillin-resistant Staphylococcus aureus. It's a strain of staph that's resistant to the broad-spectrum antibiotics commonly used to treat it. MRSA can be life threatening.

Most MRSA infections occur in hospitals or other health care settings, such as nursing homes and dialysis centers. It's known as **health care-associated MRSA.** Older adults and people with weakened immune systems are at most risk. More recently, another type of MRSA has occurred among otherwise healthy people in the wider community. This form, **community-associated MRSA,** is responsible for serious skin and soft tissue infections and for a serious form of pneumonia.

In 2009, over 9,000 specimens (from both outpatients and inpatients) were screened for MRSA at OSMH. Of those, only a very few were positive for an actual infection with MRSA. Many more were colonized but did not suffer any detrimental effects from harboring the bacteria. It is important to identify carriers as well as those with infections, as MRSA is easily transferred from person to person, particularly in a hospital setting. Screening is both time consuming and costly, but necessary in order to contain the spread of this potentially harmful bacteria.

LINKS

Lab Tests Online
www.labtestsonline.org

Canadian Society of Medical Laboratory Science
www.csmls.org

College of Medical Laboratory Technologists of Canada
www.cmlto.com

Labs Are Vital
www.labsarevital.com

Pathology: The Cutting Edge

By Margo Strachan, Charge Technologist, Pathology

While the Chemistry, Hematology and Transfusion Medicine (Blood Bank) departments test blood and body fluids, the Pathology department is primarily interested in body tissues.

It surprises people to learn that the majority of our samples do NOT come from the OR. Most of our work is collected in the out patient clinics, endoscopy and in the diagnostic imaging department.

Small biopsies or skin lesion excisions are taken from suspicious areas and sent to Pathology for testing. The result of these biopsies and excisions often determine if further surgery or treatment is required.

We also offer Cytology services to the hospital. Cytology is the study of individual cells. Most people have heard of an 'FNA' (fine needle aspirate) and it is a Cytologist that looks at these samples to screen for abnormal cells.

All samples received in Pathology are reviewed microscopically by a Pathologist before being reported.

Make sure to print and complete the Lab Week Quiz that was sent via email and drop it off in the lab for a chance to WIN!!!

Clinical Year: A Students Perspective

By Shannon Lefebvre, MLT Student

I am currently completing a clinical placement at OSMH in the laboratory. The Medical Laboratory Science program is a three year program which includes two years in-college, focusing on theoretical knowledge in this field. The third year consists of a practical experience at a clinical site.

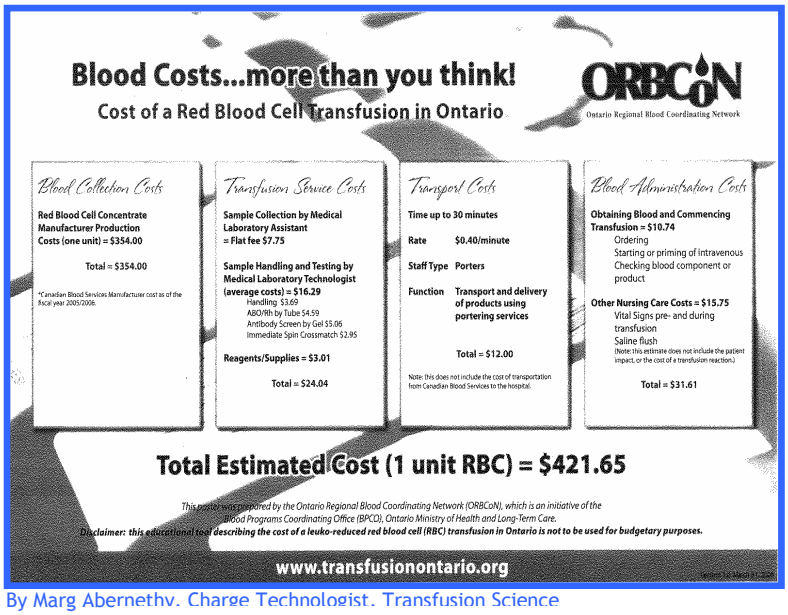
I have been at OSMH for 8 months now and have been rotating through each discipline including Hematology, Chemistry, Histology, Transfusion Science and Microbiology. This has been a memorable experience here at the hospital. I like that the third year is clinical due to the fact that it clarifies all theoretical material that I was taught during my prior two years. The OSMH staff members are very welcoming and knowledgeable. Each department has a variety of equipment which I have had the opportunity of being thoroughly trained on. This is an experience that every student should have at any clinical site. It has truly helped me with my studies and experience in becoming a successful MLT.

I want to thank each staff member for the knowledge given to me over these past few months and am glad I had the chance to meet and work with each Laboratory staff.

Laboratory Scramble!

C	E	N	P	N	E	R	X	E	S	O	C	U	L	G
L	S	O	E	F	O	G	D	Y	P	G	N	O	S	T
Q	L	I	R	J	S	I	R	B	Y	S	M	M	K	D
V	U	S	Y	W	C	I	T	M	Z	D	M	E	N	H
E	R	U	T	C	N	U	P	I	N	E	V	Z	C	D
Y	I	F	E	G	W	N	L	I	S	H	G	T	O	O
G	N	S	E	U	B	J	L	T	E	I	A	O	S	O
O	A	N	I	B	S	A	V	M	U	M	U	B	W	L
L	L	A	M	K	M	S	O	L	S	R	A	Q	L	B
O	Y	R	X	R	A	G	I	S	K	W	E	K	E	U
H	S	T	O	K	L	H	O	T	S	X	D	B	S	R
T	I	F	T	O	U	R	N	I	Q	U	E	T	V	Z
A	S	Z	B	P	C	S	T	E	L	E	T	A	L	P
P	I	I	H	B	A	C	T	E	R	I	A	U	H	B
S	N	R	I	I	A	U	E	O	I	A	G	F	Y	U

BACTERIA
CULTURE
HEMOGLOBIN
REQUISITION
TISSUE
URINALYSIS
BLOOD
FORMALIN
PATHOLOGY
SWABS
TOURNIQUET
VENIPUNCTURE
CROSSMATCH
GLUCOSE
PLATELETS
SYRINGE
TRANSFUSION



By Marg Abernethy, Charge Technologist, Transfusion Science