Pathologists Overseas

by: Sarah Brown

Imagine a laboratory without trained medical technicians, without quality control or proficiency testing, with outdated equipment and no regular maintenance, and no pathologist to direct the lab or interpret results. Now imagine an urban hospital without anatomic pathology, microbiology, hematology beyond a CBC, or chemistry beyond electrolytes and liver function tests. You’ve just imagined the status of pathology and laboratory medicine in the developing world.

Pathologists Overseas was founded in 1991 with the mission to help develop or improve affordable, sustainable pathology and clinical laboratory services in developing countries through the efforts of volunteer pathologists, technologists, and laboratory scientists.

Dr. Jack Ladenson, Oree M. Carroll and Lillian B. Ladenson Professor of Clinical Chemistry, Pathology and Immunology and the Director of Clinical Pathology Programs for Pathologists Overseas, made his first trip with Pathologists Overseas, to Eritrea, in 1996. Since then, Dr. Ladenson has evaluated laboratories in 24 developing countries. Pathologists Overseas has undertaken eleven projects based on Dr. Ladenson’s vision for sustainable laboratory services in under-served areas, including Bhutan, Eritrea, Malawi, Nigeria, and Uganda, all of which are ongoing today.

Dr. Sarah Brown, Assistant Professor, Pediatrics and Co-Director of Clinical Pathology Programs, has been working in Haiti and the Dominican Republic since 2012. She is currently working with the Haitian Ministry of Health to improve laboratory services throughout the country. Future projects in Haiti include development of clinical microbiology laboratories and, in partnership with the Faculty of the State University and Association of Haitian Pathologists, development of a new anatomic pathology program at the General Hospital and Medical School.

Pathologists Overseas is involved in many other laboratory medicine projects worldwide. Other primary activities have been focused on establishing external quality assurance (eQA) programs and deploying Laboratory Information Systems Pathologists Overseas is affiliated with Heart to Heart International, Partners in Health, and the Royal College of Pathologists of Australasia.

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You can find out more about the organization at www.pathologistsoverseas.com, and on Facebook. If you’d like to support Pathologists Overseas, you may make a donation on the website or sign up to support Pathologists Overseas on Amazon Smile! By selecting Pathologists Overseas as your charity of choice on Amazon Smile, they will get a percentage of every purchase value.

**Laboratory Move to the IOH**

by: Chuck Eby

The BJH Hematology laboratory moved to the new core lab on the 4th floor of the Institute of Health (IOH) on March 28. The transition was relatively smooth with no major delays in turnaround times for CBC, body fluid, coagulation, and urinalysis results. The technologists are using an automated imaging system called Cellavision® to review stained blood smears when automated CBC results require confirmation. We anticipate this technology will improve both the consistency and efficiency of abnormal WBC reviews.

On April 5, the chemistry laboratory moved to the new core lab. This transition has been challenging for our laboratory employees, nurses and physicians. First, the specimen volume and the variety of analytical tests performed in the chemistry laboratory eclipses all other clinical laboratories combined. This resulted in some initial delays in transportation and processing of some samples. Second, the automated specimen processing, aliquoting, storage, and retrieval system has suffered from unanticipated minor to major hardware and software failures. Third, there are multiple points during a specimen’s journey along the automated track, instruments, and storage unit which depend on accurate reading of the barcode label on each tube. The barcode readers tolerate minimal deviation from the appropriate application of, or writing on, the labels. When barcodes cannot be read, specimens must be processed manually and results are delayed. The laboratory staff and medical directors are working with nursing leadership to identify and resolve specimen labeling and transportation issues.

We are assessing the core laboratory performance every 6 hours, and carefully monitoring turnaround times of selected tests; and each week, the consistency of both human and automated processes are improving. By evaluating and modifying manual steps beginning with phlebotomy, tube labeling, transportation, and in laboratory processing, we can truly maximize the efficiency of the advanced automation.

We look forward to inviting nurses and physicians to the new core laboratory so they can appreciate both the complexity as well as the efficiency of this modern laboratory.

**Did You Know?**

New Automated Chemistry Equipment Numbers:

- **30** Barcode readers
- **208** Linear feet of track
- **>1000** Gallons of deionized water used every day
- **27,000** Tubes stored in the refrigerator specimen archive
Southern Blots to be Discontinued

by: Chuck Eby

Due to advances in methodology, the Molecular Diagnostics Laboratory (MDL) discontinued Southern blot assays as of February 1, 2016. Southern blotting has multiple disadvantages, including the use of radioisotopes, long (3 - 4 week) turn-around-time, requirement for relatively large amounts of DNA, and lower sensitivity compared to newer methods, such as methylation-sensitive multiple ligation-dependent probe amplification (MS-MLPA). Three genetic tests are affected by this change. The MDL replaced its current PCR/Southern reflex testing for Fragile X Syndrome with a PCR-based method capable of detecting FMR1 repeat lengths in the pre-mutation and full mutation ranges. Two other tests, for Prader-Willi and Angelman Syndromes and for Beckwith-Wiedemann Syndrome, will no longer be performed by the MDL. Testing for these syndromes is available from Mayo Medical Laboratories using MS-MLPA. Questions about these changes may be directed to Jacqueline Payton, M.D., Ph.D., Medical Director of the Molecular Diagnostics Laboratory, 362-5935, jpayton@wustl.edu.

Influenza Update

by: Carey-Ann Burnham

Although influenza season had a relatively late start this year, the number of specimens tested for influenza at BJH, as well as the number of positive tests, increased in February 2016. In mid-November of 2016, the BJH laboratory transitioned from a molecular assay to detect influenza A and influenza B to one that simultaneously detects influenza A, influenza B, and RSV. During influenza season, the results of this testing are available within 4 hours of specimen receipt in the laboratory. In addition, to assist with patient throughput during the busy influenza season, the microbiology laboratory has been testing influenza specimens from the Emergency Department on a STAT basis.

The number of specimens tested from November to March for the 2014-2015 and 2015-2016 season, as well as the number of positive specimens, are noted in the chart below.

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<thead>
<tr>
<th>2014-2015 SEASON</th>
<th>2015-2016 SEASON</th>
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<tbody>
<tr>
<td>MONTH</td>
<td>PCR TEST VOLUME</td>
</tr>
<tr>
<td>NOVEMBER</td>
<td>562</td>
</tr>
<tr>
<td>DECEMBER</td>
<td>1303</td>
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<tr>
<td>JANUARY</td>
<td>942</td>
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<tr>
<td>FEBRUARY</td>
<td>554</td>
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Brenda Grossman Receives Distinguished Educator Award

Brenda J. Grossman, MD, MPH, associate professor of pathology and immunology and of medicine, received the Washington University School of Medicine Distinguished Educator Award.

Dr. Grossman serves as medical director of the Transfusion Medicine Service at Barnes-Jewish Hospital, and is director of the clinical pathology residency program and the blood banking and transfusion medicine fellowship program. She received her medical degree from the Medical College of Georgia in Augusta, Georgia, and a master’s degree in public health from Saint Louis University School of Public Health. Following a residency in internal medicine at the University of Cincinnati Medical Center, she completed two fellowships in hematology/oncology and transfusion medicine at Emory University School of Medicine in Atlanta. She joined the Washington University faculty in 2009.

Dr. Grossman has been instrumental in developing safeguards for blood donors, blood products and blood recipients. Fellows note that she consistently instills a responsibility to consider both the blood donor and the recipient and fosters the development of administrative and laboratory management skills to build a strong foundation for career advancement. Dr. Grossman has mentored trainees in numerous clinical research projects, many of which have resulted in national awards, grant support and changes in clinical practice. A strong proponent of work-life balance, she also actively mentors female faculty and trainees by participating in the Women in Pathology group.

Hepatitis B Virus Viral Load Testing

On April 11th, the Barnes Jewish Hospital Laboratory began to offer Hepatitis B virus (HBV) viral load testing on blood specimens. Testing will be performed using the COBAS AmpliPrep/COBAS TaqMan platform, the same assay that is being used by the laboratory that we currently send this testing to. Thus, the testing will have the same analytical sensitivity and the values from the in-house assay can be directly compared to prior results. Testing will be performed Tuesday and Thursday on all specimens received prior to 8:00 AM. The only acceptable specimen for testing is blood collected in a serum separator (red and gray top) tube. Of note, inaccurate results may be obtained when there is a delay in separating serum from the blood specimen. Thus, specimens must be received by the laboratory within 6 hours of collection. Due to the potential for contamination, regulatory agencies prohibit us from adding on HBV viral load testing to existing specimen in the laboratory. Viral load monitoring is an integral part of the care of patients with HBV. Through viral load monitoring, the need to initiate or make changes in antiviral treatment can be assessed. The benefits of performing this testing at Barnes Jewish Hospital are improved turnaround time, the ability to consult with local laboratory directors on unusual cases or anomalous results, and the ability to more efficiently manage follow-up testing such as HBV genotyping. If you have any questions, please contact Neil Anderson, M.D., Assistant Medical Director of Microbiology (362-1307) or the microbiology laboratory medicine resident (747-1320, option 3).