Blood Bank Moves to the Institute of Health (IOH) Building

by: Joan Rossi

The BJH blood bank will move to the 4th floor Institute of Health (IOH) building over a three day period beginning Friday, August 11th (Phase 1). The blood bank is the last of the laboratory services to move to the “state of the art” facilities in the IOH.

The blood bank will be fully functional by Saturday afternoon (Aug 12) and there will be no interruption of services during the move. There will be a house wide communication once blood distribution has transitioned to the IOH lab.

Courier service and pneumatic tubes will be adjusted on those dates to ensure timely delivery of blood products. There may be some periods of time during the move when transport services are limited and blood must be picked up from the blood bank in the IOH. There will be brief interruptions in pneumatic tube operations on August 11th during station conversions.

Blood bank services on the north campus are not affected by this move. The north campus blood bank will be addressed in Phase 2 of the blood bank services consolidation.

The move to the IOH creates some major improvements:

1. Improved work flow for laboratory staff.
2. Close proximity to central receiving for delivery of blood products from Red Cross.
3. Secure access of blood distribution via pneumatic tube from many locations.
4. Central location between North and South patient care areas.

Blood bank specimens should be placed in a separate bag from other lab samples and sent to the blood bank via pneumatic tube. For areas without access to the pneumatic tube system, courier service will continue to pick up samples. In those areas, blood bank samples should be placed in a separate bag to ensure timely delivery to the blood bank.

Every effort has been made to ensure appropriate services during the move. Although delays are not anticipated, your patience on these dates is appreciated.

Questions can be directed to Lab Customer Service 314-362-1470
Customer Service: The (Smiling) Face of the Laboratory

The BJH Laboratory Customer Service department acts as the liaison between physicians, nurses, other hospitals/laboratories and all divisions of the BJH laboratory. As the laboratory’s primary point of contact for all internal and external clients, the Customer Service Representatives (CSR) are responsible for assisting physicians and nurses with laboratory test information, providing laboratory sample requirements, delivering critical and non-critical test results, answering questions, listening to concerns, adding on additional testing requests, providing testing supplies, managing vital medical and laboratory documentation, and a wide range of other patient care, diagnostic testing and administrative related duties. The job of the CSR is a vast one, and continues to grow from year to year. In fact, over the last 2 years the average monthly call volume (in-coming plus outgoing) has grown over 20%, from 15,600 in 2015 to almost 19,000 in 2017.

Staffed with medical technologists equipped with diverse and extensive laboratory experience and commitment to exceptional patient care, the Customer Service department is ready to handle a wide range of requests.

Please contact them at 314-362-1470 or gs-bjhlabcustserv@bjc.org and let them help you with your laboratory needs!

In House Trichomonas vaginalis Testing

by: Neil Anderson, M.D.

On May 1st the BJH Microbiology Laboratory began to perform nucleic acid amplification testing (NAAT) for Trichomonas vaginalis using the Cepheid GeneXpert system.

Testing is performed seven days a week. Specimens that can be submitted for testing include: first-catch urine, endocervical swabs, and vaginal swabs. Urine must be collected using the Xpert Urine Specimen Collection Kit, and swabs must be submitted in the Xpert Vaginal/Endocervical Specimen Collection Kit. These collection devices can be obtained by contacting the Microbiology Laboratory at 362-3898. Specimens collected in any other collection devices will not be accepted for testing. If simultaneous testing for T. vaginalis, N. gonorrhoeae and C. trachomatis is desired, separate specimens collected in the appropriate collection devices must be obtained.

T. vaginalis is the most common sexually transmitted disease in the United States, with an estimated 3.7 million people currently infected (https://www.cdc.gov/std/trichomonas/stats.htm). While the majority of infections are asymptomatic, approximately 25% of infected individuals will have symptoms ranging from mild genital irritation, to severe inflammation with genital discharge. In pregnant women, T. vaginalis can contribute to preterm delivery and result in low birth weight. Infection with T. vaginalis is also associated with transmission and acquisition of other sexually transmitted diseases, including HIV.

While effective therapy for T. vaginalis infection is readily available, an important component to the control of this sexually transmitted disease is accurate diagnosis. A challenge is that many of the diagnostic techniques historically used have lacked adequate sensitivity, limiting their ability to consistently diagnose infection. This has changed with the introduction of commercially available NAATs. With clinical sensitivities approaching 100%, NAATs are the most sensitive tests available for the detection of T. vaginalis and have the potential to greatly improve the management of this common sexually transmitted disease.

If you have any questions, please contact Neil Anderson, M.D., Assistant Medical Director of Microbiology (314-362-1307, nanderson@path.wustl.edu).

BJH Microbiology: Updated Enteric Culture Procedure

by: Carey-Ann Burnham, Ph.D.

Enteric cultures performed at BJH have been enhanced to detect additional bacterial pathogens associated with diarrhea. Previously, enteric cultures were routinely evaluated for the presence of Salmonella spp., Shigella spp., Edwardsiella spp., Escherichia coli O157, Campylobacter spp., Aeromonas spp., and Plesiomonas spp. Stool cultures will now include procedures to detect Yersinia spp., as well as an enzyme immunoassay to detect Shiga toxin 1 and Shiga toxin 2. This testing will not only detect the presence of E. coli O157, but also non-O157 Shiga toxin-producing E. coli strains. Shiga toxin testing will be performed twice per day, 7 days per week. Please note that Vibrio spp. are not routinely queried for in stool cultures; if Vibrio is suspected, please notify the laboratory. If you have questions, please contact Carey-Ann Burnham, Medical Director of Clinical Microbiology at cbumham@wustl.edu.
Blood Culture Collection - Volume Matters

Detection of pathogens in the setting of blood stream infection is one of the most important functions of the clinical microbiology laboratory. Although many factors influence the yield of blood cultures, the single most important factor for successful pathogen detection is the volume of blood collected.

The rate of isolation of pathogens from blood cultures increases with the quantity of blood submitted. In adult patients, 20 mL of blood should be collected per blood culture set, with 10 mL submitted in an aerobic blood culture bottle and 20 mL into an anaerobic blood culture bottle. In children, the appropriate volume can be approximated by collecting 1 mL of blood per year of patient age. When blood stream infection is suspected, 3 or 4 blood culture sets should be submitted within a 24 hour period.

The consequences of a blood culture with inadequate blood volume include falsely negative results, or delayed time to blood culture positivity.

During an audit of 600 blood cultures submitted to the BJH Microbiology Laboratory in 2016, we observed that 44% contained < 2 mL of blood, 26% 2 to 5 mL of blood, and only 30% contained more than 5 mL of blood. Ongoing audits in 2017 have demonstrated 57% with > 5 mL of blood in March, 70% in April, and 80% in May. These data demonstrate opportunity for improvement with blood culture collection practices. If you have questions regarding blood culture collection, please contact Carey-Ann Burnham, PhD, Medical Director of Clinical Microbiology at cburnham@wustl.edu.

Division of Laboratory and Genomic Medicine at the Academy of Clinical Laboratory Physicians and Scientists Annual Meeting

The Division of Laboratory Genomic Medicine (LGM) had a strong showing at the Academy of Clinical Laboratory Physicians and Scientists (ACLPS) annual meeting, hosted by Yale, in New Haven, CT.

The Young Investigator Session is always a highlight of the meeting, and LGM trainees contributed 14 abstracts. Several of these trainees were honored with Young Investigator Awards, including William Lainhart, Abraham Qavi, Merih Tesfazghi, Craig Wilen, Melanie Yarborough, Mark Zaydman, and Ray Zhang. Based on his presentation at the meeting, Craig Wilen was honored with the Young Investigator with Distinction Award.

Melanie Yarborough, Instructor of Pathology & Immunology, was awarded a Young Investigator Grant for her study Characterizing the Urobiome of Men Who Have Sex with Men Using Enhanced Culture-Based Methods.

Jacqueline Payton, Assistant Professor of Pathology & Immunology, was the Laureate of the Ellis Benson Award, which celebrates an early career laboratory scientist who has excelled in research, teaching, and clinical service. Payton delivered the Benson Award Lecture titled Epigenetic Discoveries Drive Precision Medicine Approaches for Lymphoma.

Did You Know??

The Division of Laboratory and Genomic Medicine has five new faculty members:

- Yang Cao, Ph.D., Cytogenetics and Molecular Genetics
- Dennis Dietzen, Ph.D., Medical Director SLCH Chemistry Laboratory
- Julie Neidich, M.D. Cytogenetics and Molecular Genetics
- Suzie Thibodeaux, M.D., Ph.D. Blood Bank
- Stephen Roper, Ph.D. SLCH Chemistry Laboratory
- Melanie Yarborough, Ph.D. Microbiology

We will highlight these new faculty in upcoming issues, so stay tuned.
Pediatric and Pathology & Immunology Department leaders’ vision of a single academic clinical pathology division at the medical center was achieved on July 1, 2017 when Pediatric Laboratory Medicine faculty joined the Division of Laboratory and Genomic Medicine. Dennis Dietzen, Ph.D., will remain at St. Louis Children’s Hospital as Medical Director of the Core laboratory. He will be joined in August by Stephen Roper, Ph.D. immediately after Stephen completes a Clinical Chemistry fellowship at Texas Children’s hospital in Houston. Together, Drs Dietzen and Roper will supervise chemistry, hematology, coagulation, rapid molecular testing for infectious disease, and point of care testing for SLCH patients and will provide clinical consultations to Pediatricians. Ron Jackups M.D., Ph.D., will continue to be medical director of the SLCH blood bank Gregory Storch M.D., will be Provider Liaison for the SLCH medical staff for pathology services.

Klebsiella variicola, a Previously Under-Recognized Pathogen in Human Clinical Specimens

Implementation of MALDI-TOF MS for identification of microbes recovered from clinical specimens is providing insight into the clinical significance of organisms not previously understood to be human pathogens. Klebsiella variicola, a close relative of Klebsiella pneumoniae, is a recently recognized human pathogen. Recent updates to the reference database used for organism identification in the microbiology laboratory in October 2016 resulted in the “first” identification of K. variicola in our clinical microbiology laboratory (Table 1).

To understand the clinical significance of this finding, we undertook an epidemiological study to better understand K. variicola infections in patients at BJH. These data were compared to patients with K. pneumoniae infections during the same time period. Like K. pneumoniae, we found that K. variicola is primarily isolated from urine and blood specimens. We observed no significant differences between K. variicola and K. pneumoniae with respect to the proportion isolates recovered from women or urine, and the age of patients infected with each (Table 2, Fisher’s exact test p > 0.05). K. variicola isolates demonstrate antimicrobial susceptibility profiles similar to K. pneumoniae.

Table 1. Frequency of identification of Klebsiella sp. From all specimens in 2016, by quarter.

<table>
<thead>
<tr>
<th></th>
<th>JAN - MAR</th>
<th>APR - JUN</th>
<th>JUL - SEP</th>
<th>OCT - DEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. pneumoniae</td>
<td>282</td>
<td>325</td>
<td>433</td>
<td>441</td>
</tr>
<tr>
<td>K. oxytoca</td>
<td>56</td>
<td>59</td>
<td>71</td>
<td>68</td>
</tr>
<tr>
<td>K. variicola</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>32</td>
</tr>
</tbody>
</table>

Table 2. Comparisons between Klebsiella variicola and Klebsiella pneumoniae with respect to demographics and specimen source.

<table>
<thead>
<tr>
<th>Metric</th>
<th>K. variicola</th>
<th>K. pneumoniae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex: Female</td>
<td>74%</td>
<td>68%</td>
</tr>
<tr>
<td>Average Age (yrs)</td>
<td>67</td>
<td>62</td>
</tr>
<tr>
<td>Urine isolates</td>
<td>73%</td>
<td>76%</td>
</tr>
</tbody>
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Fisher’s exact test (all p > 0.05)