

January 31, 2020

HEMATOLOGY

UPCOMING CHANGES in PROVINCIAL BLOOD PARASITES TESTING**Date effective: February 10, 2020**

In consultation with Infectious Disease (ID) specialists, the following changes will be implemented at Shared Health Haematology labs to streamline blood parasite testing and improve the turnaround time for malaria testing in Manitoba.

Change in Test Procedure:

- Malaria and non-malaria blood parasites will be two separate orderable tests as of February 10, 2020
 - ✓ Please write down clearly on current lab requisitions the specific test you require, i.e. Malaria, non-malaria blood parasites or both.
 - ✓ Shared Health is in the process of rolling out new lab requisitions where malaria and non-malaria blood parasites will appear as two separate orderable tests for physicians to tick off. A separate memo regarding the effective date of the new lab requisitions will be distributed in a timely manner.
 - ✓ All requests must include travel history and/or country of origin, treatment history (antimalarial treatment or prophylaxis). Test completion will be delayed if the information is not provided with the test request, as laboratory personnel will have to contact the attending physician to obtain it. This can be time consuming, particularly during evening/night hours and through shift changes.

System Improvements:

- Malaria test is a stat test. Blood samples will be immediately processed/ screened, or immediately transferred to the designated referral hub sites for stat testing.
 - ✓ A preliminary malaria report indicating patient is positive or negative for malaria will be provided to an ordering physician within 2 hours of blood collection.
 - ✓ Parasitemia level and malaria subspeciation will be provided within 24 hours of blood collection.
- A new molecular kit assay for malaria screening, known as illumingene Malaria assay, has been validated at three tertiary centers, i.e. HSC, St. Boniface and Westman labs. It utilizes loop-mediated isothermal DNA amplification (LAMP) technology to detect Plasmodium sp. DNA by targeting segments of the Plasmodium genome. It does not distinguish between Plasmodium species. The sensitivity and specificity are 100.0% (95.1 to 100.0%) and 91.5% (81.3 to 97.2%), respectively versus reference microscopy.
 - ✓ If screen by kit assay is positive, physician will be notified immediately and parasitemia level and malaria subspeciation will be provided hours later by microscopic review.
 - ✓ If screen by kit assay is negative, malaria infection is essentially ruled out.

- Labs that cannot refer out blood in a timely manner to one of the sites that operate illumigene Malaria assay must screen malaria with three Wright-stained thin blood smears and notify the ordering physician for a preliminary result.
 - ✓ Labs will send the rest blood, the unstained thick/ thin smears and the 3 Wright-stained smears to the designated site with illumigene Malaria assay stat If preliminary blood film screen is positive, and next routine run if preliminary blood film screen is negative.
- Rarely, the molecular kit assay is positive for malaria, but slide review is negative. Such discrepancy could be secondary to circulating DNA from dead or degenerating parasites that hasn't been completely cleared OR patient has very low level of parasitemia level below the detection of the human eye.
- Infection with malaria cannot be ruled out by a single blood sample. Please resubmit blood specimens every 6 – 12 hours until a diagnosis is made or infection is no longer suspected (usually 3 – 5 days).
- Additional four hub sites, i.e. BTHC, Selkirk, Steinbach and Thompson are planned to validate the illumigene Malaria assay at later dates in 2020.
- Non-malaria blood parasite is a routine test that is performed at one of the three tertiary centers, i.e. HSC, St. Boniface and Westman labs, using traditional microscopic review.
 - ✓ Referring labs must immediately prepare 6 thin and 10 thick slides and ship blood and slides to one of the designated tertiary centers for workup.
 - ✓ The turnaround time is expected to be within 24 hours of blood collection.

Contact Information: If you have any questions or concerns, please feel free to contact us.

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