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False Positive HIV Laboratory Test Results

To assist clinicians with the interpretation of HIV results when BCCDC Public Health Laboratory (BCPHL) reports results as potential false positive.

Key Points:

- Tests always produce a small number of false positive results
- In settings where very few people have HIV, a higher proportion of reactive results will be false positives
- A diagnosis of HIV is never made on the basis of a single test result

False Positive Results and Specificity

- No test or algorithm can be completely accurate in all cases of HIV infection.
- A false positive test result is when a person is not infected with HIV, but the test indicates a positive reading.
- In BC, the 4th generation testing platforms used to test for HIV have a specificity of approximately 99.5%. Meaning that if 1,000 uninfected people are tested, around 5 people (0.5%) will have a false positive result.

Causes of False Positive HIV Test Results

Though not limited to the below list, false positive HIV test results can occur due to:

- Technical Issues associated with the test
 - Specimen mix-up
 - Mislabelling
 - Improper handling
 - Misinterpretation of a visually read rapid test result (Point of Care)
- Biological Causes
 - Participation in an HIV vaccine study
 - Autoimmune disorders (ex. Lupus)
 - Recent flu vaccine or gamma-globulin
 - Cross reactive antibodies that may be present following a blood transfusion or pregnancy
 - Hypergammaglobulinemia related to another condition, such as hematological malignancy, liver cirrhosis or hepatitis.
 - Other medical conditions or infections

Testing to Distinguish True Positive from False Positive

When an initial HIV screening test is positive, additional testing is needed to determine if the positive result was accurate or whether the screening test was falsely positive.

In BC, an algorithm is followed that tests the original specimen on 2 different 4th generation platforms; this is followed by either an immunoblot test to detect specific antibodies, or an HIV PCR/NAAT test to rule out acute infection.

Below is how you may see false positive lab results reported by the BCCDC Public Health Laboratory (BCPHL).

Provincial Reporting of False Positive Lab Results

Serology Viral

HIV

HIV 1+2 Ab + HIV p24 Ag (Screen)
 HIV 1+2 Ab + HIV p24 Ag (Supplemental)
 HIV 1 RNA (PCR/NAAT)
 HIV 1+2 Ab (Immune Blot)

HIV Ab Report

AA Reactive.
 Nonreactive.
 No HIV 1 RNA detected.
 HIV confirmation (immunoblot) was not performed because it is of limited value for samples with low EIA signals.
INTERPRETATION:
 These findings are not consistent with HIV infection. However, a follow up EDTA blood is requested within 2 - 4 weeks to rule out infection.

Serology Viral

HIV

HIV 1+2 Ab + HIV p24 Ag (Screen)
 HIV 1+2 Ab + HIV p24 Ag (Supplemental)
 HIV 1 RNA (PCR/NAAT)
 HIV 1+2 Ab (Immune Blot)

HIV Ab Report

AA Equivocal.
 Nonreactive.
 No HIV 1 RNA detected.
 HIV confirmation (immunoblot) was not performed because it is of limited value for samples with low EIA signals.
INTERPRETATION:
 These findings are not consistent with HIV infection. However, a follow up EDTA blood is requested within 2 - 4 weeks to rule out infection.

Follow-up Recommendations

The BCPHL recommends follow-up testing 2-4 weeks following original specimen collection on all false positive lab results to rule out the possibility of a biological cause and/or technical issue possibly contributing to the test result.

An EDTA-tall lavender sample tube is preferred; however a gold top (SST) tube may be used if an EDTA tube is not easily obtainable.

Final/Ongoing Results

If the result on the follow-up bloodwork is consistent with the original serology, then the result is considered negative – provided a person has no new exposure risks.

The false positive result may have been an isolated event (something that triggered the test and is of a transient nature) or a phenomenon that will occur over the course of a person's lifespan. Ongoing recommendations regarding HIV testing should be considered in the context of an individual's exposure risks.