The HIV-1 Western blot and HIV-1 indirect immunofluorescence assay (IFA) are no longer recommended for confirming a reactive rapid screening test from serum or plasma. (A1) Clinicians should refer these patients to the appropriate laboratory and emphasize that both nonreactive and reactive results of any in-home HIV testing should be repeated by a laboratory.

For all individuals who test negative and have recent or ongoing risk, clinicians should consider repeat testing after 3 months and every 3 months, or sooner if acute HIV infection is suspected, for as long as high-risk behavior continues. (A3) See the NYSDOH AI guidelines for HIV Prevention.

All reactive results on the initial screening test with inconclusive nondefinitive results are preliminary; reactive Ab test results should be confirmed with an HIV RNA supplemental testing. (A1) Clinicians should contact the laboratory to determine the significance of the nondefinitive results and the supplemental testing.

Clinicians must perform diagnostic HIV laboratory tests in full compliance with New York State HIV/AIDS Laws and Regulations. Additional information regarding testing procedures and regulations is available from the Wadsworth Center (518-474-2163). Report confirmed cases of HIV according to New York State Law (see NYSDOH Provider Reporting and Partner Services).

A reactive result on the initial screening test with inconclusive nondefinitive results is of uncertain significance. Every 3 months of serum or plasma HIV Ab screening is suggested, for as long as positive or reactive results are obtained. Clinicians should refer these patients to the appropriate laboratory and emphasize that both nonreactive and reactive results of any in-home HIV testing should be repeated by a laboratory.

The NYSDOH strongly recommends that all New York State birth facilities use the pediatric HIV testing services at the Wadsworth Center.

For information about this service, which is free of charge for New York State clinicians caring for HIV-exposed infants, contact the Wadsworth Center at 518-474-2163.

The CDC/APHL HIV Diagnostic Testing Algorithm (see inside) is a companion to the NYSDOH AIDS Institute HIV Clinical Guideline.

See the NYSDOH AI guideline for Acute HIV and highlights of the information contained in this Folded Guide. The full guideline is available at HIVGUIDELINES.ORG.
Recommended Laboratory HIV Testing Algorithm for Serum or Plasma Specimens [CDC. Updated January 2018]

Step 1. HIV-1/2 antigen/antibody immunoassay [a]

<table>
<thead>
<tr>
<th>HIV-1 (+)</th>
<th>HIV-2 (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1 antibodies detected</td>
<td>HIV-2 antibodies detected</td>
</tr>
</tbody>
</table>

(-) Negative for HIV-1 and HIV-2 antibodies and p24 Ag

Step 2. HIV-1/ HIV-2 antibody differentiation immunoassay

<table>
<thead>
<tr>
<th>HIV-1 (+)</th>
<th>HIV-2 (+)</th>
<th>HIV-2 antibodies detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1 antibody detected</td>
<td>HIV-2 antibody detected</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HIV-1 (-)</th>
<th>HIV-2 (+)</th>
<th>HIV-2 antibodies detected</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1 antibody undetermined</td>
<td>HIV-2 antibody detected</td>
<td></td>
</tr>
</tbody>
</table>

(+): indicates reactive test result
(-): indicates non-reactive test result
NAT = nucleic acid test

Step 3. HIV-1 NAT

<table>
<thead>
<tr>
<th>HIV-1 NAT (+)</th>
<th>HIV-1 NAT (-)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIV-1 NAT Acute HIV-1 infection</td>
<td>HIV-1 NAT Negative for HIV-1 [c]</td>
</tr>
</tbody>
</table>

1. Laboratories should conduct initial testing for HIV with an FDA-approved antigen/antibody immunoassay [a] that detects HIV-1 and HIV-2 antibodies and HIV-1 p24 antigen to test for established HIV-1 and HIV-2 infection and for acute HIV-1 infection, respectively. No further testing is required for specimens that are non-reactive on the initial immunoassay. However, if there is a possibility of very early infection leading to a non-reactive initial antigen/antibody immunoassay, such as when recent HIV exposure is suspected or reported, then conduct an HIV-1 nucleic acid test (NAT), or request a new specimen and repeat the algorithm according to CDC guidance (1,4,5,6).

2. Specimens with a reactive antigen/antibody immunoassay result (or repeatedly reactive, if repeat testing is recommended by the manufacturer or required by regulatory authorities) should be tested with an FDA-approved supplemental antibody immunoassay that differentiates HIV-1 antibodies from HIV-2 antibodies. Reactive results on the initial antigen/antibody immunoassay and the HIV-1/HIV-2 antibody differentiation immunoassay should be interpreted as positive for HIV-1 antibodies, HIV-2 antibodies [b], or HIV antibodies, untypable (undifferentiated).

3. Specimens that are reactive on the initial antigen/antibody immunoassay and non-reactive or indeterminate on the HIV-1/HIV-2 antibody differentiation immunoassay should be tested with an FDA-approved HIV-1 NAT.
   - A reactive HIV-1 NAT result and non-reactive or indeterminate HIV-1/HIV-2 antibody differentiation immunoassay result indicates laboratory evidence of acute HIV-1 infection.
   - A negative HIV-1 NAT result and non-reactive or HIV-1 indeterminate antibody differentiation immunoassay result indicates an HIV-1 false-positive result on the initial immunoassay.
   - A negative HIV-1 NAT result and repeatedly HIV-2 indeterminate or HIV indeterminate antibody differentiation immunoassay result should be referred for testing with a different validated supplemental HIV-2 test (antibody test or NAT) or repeat the algorithm in 2 to 4 weeks, starting with an antigen/antibody immunoassay (3).

4. Laboratories should use this same testing algorithm, beginning with an antigen/antibody immunoassay on all serum or plasma specimens submitted for testing after a preliminary positive result from any rapid HIV test conducted in a CLIA-waived setting (7).

[a] The FDA-approved single-use rapid HIV-1/HIV-2 antigen/antibody immunoassay can be used as the initial assay in the laboratory HIV testing algorithm for serum or plasma. If any instrumented antigen/antibody test is available, it is preferred due to its superior sensitivity for detecting HIV during acute infection (1,2).

[b] This includes specimens reported as HIV-2 positive with HIV-1 cross-reactivity (3).

[c] Refer to last bullet, item 3 above.

References:
2) Use of the Determine HIV 1/2 Ag/Ab Combo Test with Serum or Plasma in the Laboratory Algorithm for HIV Diagnosis https://stacks.cdc.gov/view/cdc/48472
3) Technical Update on HIV-1/2 Differentiation Assays https://stacks.cdc.gov/view/cdc/40790
4) Suggested Reporting Language for the HIV Laboratory Diagnostic Testing Algorithm https://stacks.cdc.gov/view/cdc/45930
5) Updated Guidelines for Antiretroviral Postexposure Prophylaxis After Sexual, Injection Drug Use, or Other Nonoccupational Exposure to HIV—United States, 2016 https://stacks.cdc.gov/view/cdc/j8856
7) Web content: Clinical Laboratory Improvement Amendments https://www.cdc.gov/clia/