

4TH GENERATION TESTING UPDATE

Implications for HIV Testing Providers

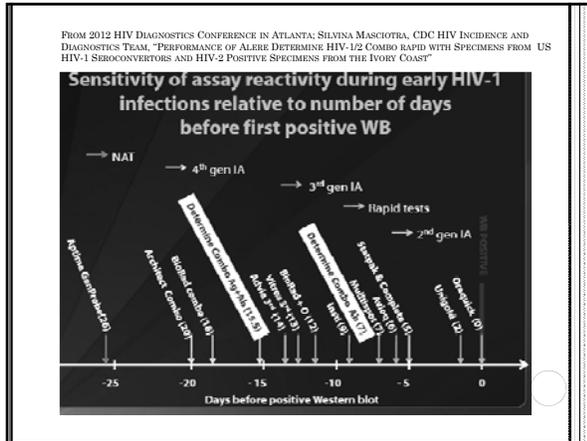
Caroline Campbell

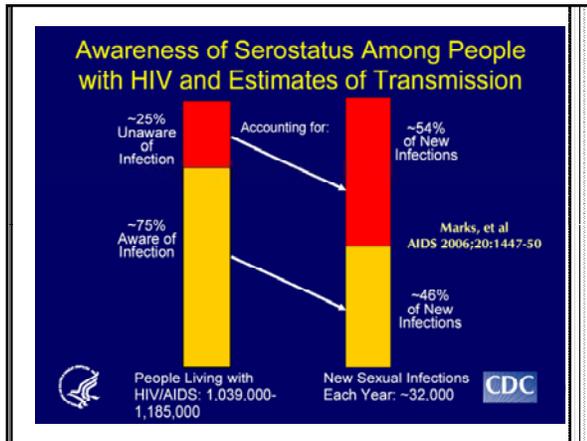
OBJECTIVES:

- o At the completion of this presentation, participants will be able to:
 - List three benefits of the new HIV testing algorithm
 - Identify and define the new “diagnostic window of detection” for serum samples
 - Recognize key test technology terms

HIV ANTIBODY TESTING

- o Most people develop detectable HIV antibodies 2-8 weeks after infection (average 25 days)
- Prior to October 2013, HIV testing algorithm used at the State Lab (DCLS):
 - EIA screen (3rd Generation)
 - Confirmed by Western Blot (WB)





P24 ANTIGEN

- o p24 is the antigen on HIV-1 that most commonly provokes an antibody response
- o First marker of HIV-1 infection
- o Can be detected at 2 weeks from infection

Human Immunodeficiency Virus - Structure

4TH GENERATION HIV AG/AB EIA TEST

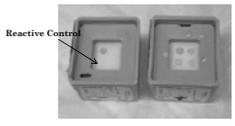
- Combined antigen/antibody test
- Can detect...
 - p24 antigen
 - HIV-1 antibodies
 - HIV-2 antibodies
- But...cannot tell them apart

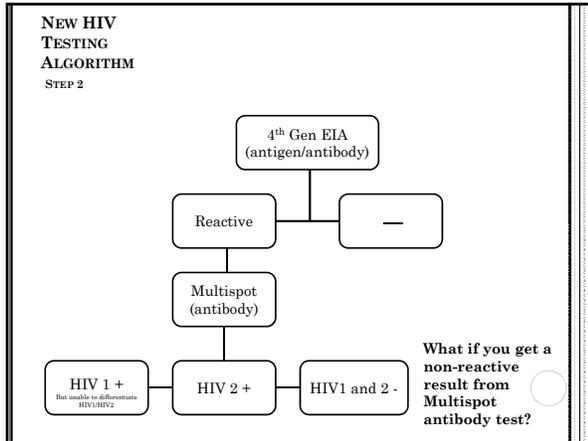
NEW HIV TESTING ALGORITHM
STEP 1

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graph TD; A[4th Gen EIA antigen/antibody] --> B[reactive]; A --> C[-];
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MULTISPOT HIV AB TEST

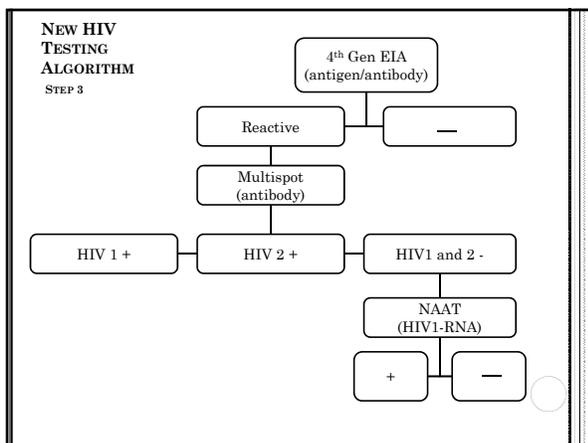
- Supplemental test
 - used after a reactive 4th Gen EIA
- Replaces WB
 - More sensitive and specific than WB
 - Faster and less expensive than WB
- Will differentiate HIV-1 and HIV-2





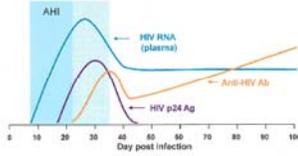
NUCLEIC ACID AMPLIFICATION TEST FOR HIV-1 RNA

- Supplemental test
- Used after a reactive EIA and a non-reactive Multispot or indeterminant Multispot
- Highly sensitive test which can detect the presence of viral RNA
- HIV-1 RNA/NAAT testing can detect acute HIV-1 infection



ACUTE PHASE

What is Acute Phase of HIV Infection?
Appearance of markers of HIV infection

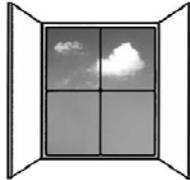


- Absence of HIV specific antibodies
- Detect AHI by NAT or p24 antigen
- Rapid rise in plasma viremia
- Acute viral syndrome: fever, rash, diarrhea, fatigue, headache

Figure 11.1 HIV-1-1979 (2007)

DIAGNOSTIC WINDOW OF DETECTION

- o The time from infection to detection
- o Varies depending on the test used



WINDOWS OF DETECTION

Test	Window of Detection
4th Gen: • Conventional	• 2 weeks
3rd Gen: • Conventional • Rapid HIV Test	2-8 weeks (<u>avg. 25 days</u>)

POSSIBLE RESULTS FOR
4TH GENERATION EIA AND THE NEW
TESTING ALGORITHM

WHAT DOES THIS MEAN FOR
YOU?

QUESTIONS??
