

Comparison of Multispot Rapid EIA with Western Blot for Confirmatory Serodiagnosis of HIV

Torian LV, Forgione LA, Punsalang AE, Pirillo RE, Oleszko WR
 The New York City Department of Health and Mental Hygiene, New York, NY
 USA



BACKGROUND

Recent improvements in the sensitivity of enzyme immunoassays (EIA) used for HIV screening, coupled with increasing recognition of the importance of rapid point-of-care testing, have led to proposals to adjust the algorithm for serodiagnosis of HIV so that screening and confirmation can be performed using a dual or triple EIA sequence that does not require Western blotting for confirmation. One EIA that has been proposed as a second or confirmatory test is the BioRad Multispot® Rapid EIA.

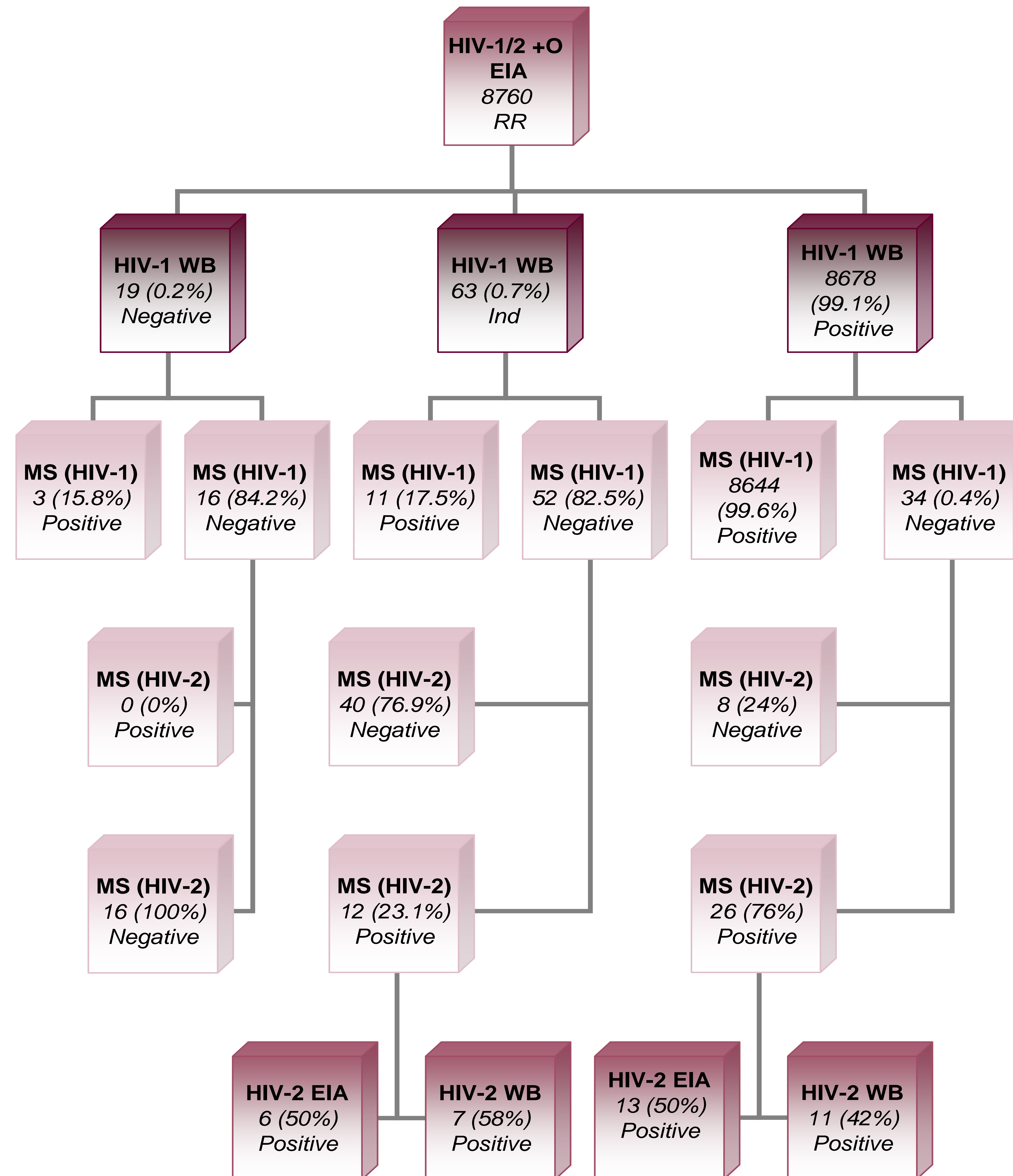
METHODS

8,760 serum specimens submitted for HIV testing to the New York City Public Health Laboratory between May 22, 2007, and April 30, 2010, tested repeatedly positive on 3rd generation HIV-1-2+0 EIA screening and received parallel confirmatory testing by WB and Multispot (MS).

RESULTS

MS/WB Sensitivity (Total=8760)

	MS+		MS-	
	N	Row %	N	Row %
WB +	8670	99.9%	8	0.1%
WB -	3	15.8%	16	84.2%
WB Ind	23	36.5%	40	63.5%
Total	8696		64	



CONCLUSIONS

- ❖ WB technology confers a specificity advantage over any EIA however, because antibody titer and affinity are low early in infection, the WB does not characteristically seroconvert until 4-6 weeks after infection.
- ❖ MS detected an additional 14 HIV-1 infections among WB negative or IND specimens, differentiated 26 HIV-1 WB positives as HIV-2, and detected 12 additional HIV-2 infections among WB negative/Ind.
- ❖ Three pregnant women who were repeatedly EIA reactive and WB/MS negative/IND had no detectable HIV-1 RNA or HIV-2 DNA, and one EIA reactive and WB/MS negative had acute HIV infection. No additional submissions were available for 60 specimens with unresolved or conflicting results.
- ❖ A dual 3rd generation EIA algorithm incorporating MS had equivalent HIV-1 sensitivity to the 3rd generation EIA-WB algorithm and had the added advantage of detecting 12 HIV-2 specimens that were not HIV-1 WB cross-reactors.
- ❖ Further testing using nucleic acid detection as the gold standard is needed to calculate specificity and validate the substitution of MS for WB in the diagnostic algorithm.