

Screening and Confirmation of HIV Infection Solely by RNA-Based Methods

<i>Abstract Category:</i>	Strategies for Targeted Screening for Acute HIV-Infection
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OBJECTIVE

To evaluate the feasibility and effectiveness of a novel algorithm for HIV testing which relies on RNA detection for both screening and confirmation.

METHODS

For 90 days, specimens collected for HIV screening and testing were tested by standard, antibody-based procedures (either 3rd generation EIA or rapid test followed by western blot) in parallel to being tested by transcription mediated amplification (TMA) (Gen-Probe, San Diego, CA) for detection of HIV RNA. For cost-effectiveness, specimens designated for RNA testing were pooled (5 into 1). The constituents of pools found to contain RNA by TMA were tested individually by Real-Time RT-PCR (Abbott Molecular, Abbott Park, IL). Specimens found to be positive by Real-Time PCR were subsequently subject to rapid test to assess for the presence or absence of HIV antibody using the Uni-Gold Recombigen (Trinity Biotech).

RESULTS

Results of the RNA-based detection algorithm were comparable to those of standard antibody-based testing. Detection of acute HIV infection was made possible by using an all-RNA diagnostic algorithm. The time between specimen submission and the assessment of results was comparable to that of antibody-based testing, with the labor required for each method being equivalent. The detection of acute specimens along with rapid turn-around time for results meant that the all-RNA diagnostic algorithm was more effective in the assessment of recently infected individuals, compared to previously described pooling strategies.

CONCLUSIONS

Using RNA detection exclusively for HIV screening and diagnosis was feasible in our setting. The RNA-based algorithm made possible the more rapid detection of recently HIV-infected individuals. The labor and time requirements were equivalent to those of antibody-based testing. Public health operations designated to combating HIV infection may be bolstered by RNA-based screening in communities where HIV prevalence is high.