

## Using Quantitative HIV RNA Viral Load to Diagnose HIV Infection

<i>Abstract Category:</i>	Laboratory-based Confirmatory Algorithms Using Supplemental Western Blot, Indirect Immunofluorescence, or Nucleic Acid Amplification Tests
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### OBJECTIVE

The current Canadian case definition for HIV is based solely on confirmatory Western Blot (WB). Quantitative HIV RNA viral load (QVL) is only licensed for the clinical monitoring of HIV infected patients. We report our experience in using QVL as a diagnostic test in 1) infants born to HIV infected mothers, and 2) patients with negative/indeterminate (neg/ind) WB.

### METHODS

All HIV diagnostic tests in Alberta were performed at ProvLab and our algorithm included 2 enzyme immunoassays (EIA) and WB for patients with a positive EIA screen. QVL was performed with Roche COBAS AMPLICOR HIV-1. QVL and serological follow-up of infants from 1998-2006 and QVL performed on patients <150 days after tested positive by EIA and neg/ind by WB from 1998-2005 were reviewed.

### RESULTS

QVL was performed on 177 HIV-exposed infants and 6 were infected (median age at diagnosis: 2 months, 18 days to 8 months) with the first detectable QVL ranging from 280 to 1.7E6 copies/ml. Of the 171 infants with undetectable QVL, 131 had negative follow-up serology, 22 had no follow-up serology and 18 were less than 18 months old. QVL was performed for 130 patients with neg/ind WB. Fifty-five patients had detectable QVL (median age: 35, 16-61; male to female: 2.7; median VL: 77,000, 85 to 2.3E7 copies/ml): 46 were subsequently confirmed as HIV infected by WB, 8 had multiple detectable QVL supporting the diagnosis and 1 patient had no follow-up test. Seventy-five patients had undetectable QVL (median age: 31, 16-80; male to female: 0.8): 53 had serial serological tests that ruled out HIV infection and 22 had no follow-up serology. Excluding patients with no follow-up testing, QVL had 100% sensitivity and 100% specificity in diagnosing HIV in HIV-exposed infants (n=137) and patients with neg/ind WB (n=107).

### CONCLUSIONS

QVL is sensitive and specific for the diagnosis of HIV in HIV-exposed infants and suspect acute seroconvertors. Two detectable QVL should be considered as adequate evidence for confirming HIV infection.