Supplementary Online Content


**eAppendix.** Formulas for Calculating Adjusted Weighted Incidence and 95% Confidence Intervals
eAppendix. Formulas for Calculating Adjusted Weighted Incidence and 95% Confidence Intervals

\[
I = \frac{(365/W) \times S \times f \times N_{inc}}{N_{neg} + (365/W) \times S \times f \times N_{inc}/2} \times 100
\]

95% confidence interval = \( I \pm 1.96 \frac{I}{\sqrt{S \times f \times N_{inc}}} \)

Where:

\( f \) is a factor adjusting for missing BED assay results from HIV-positive specimens.

\[
f = \frac{N_{inc}}{(N_{pos} - N_{mis})}
\]

\( S \) adjusts for varying specificity from time of HIV infection.

\[
S = \frac{(f \times N_{inc} / N_{pos}) + (SP2 - 1)}{(f \times N_{inc} / N_{pos}) \times (SS - SP1 + 2 \times SP2 - 1)}
\]

\( W \) = window period (155 days)

\( N_{inc} \) = weighted number of recent infections (BED positive)

\( N_{neg} \) = weighted number of HIV-seronegative specimens

\( N_{pos} \) = weighted number of HIV-positive specimens

\( N_{mis} \) = weighted number of HIV-positive specimens with missing BED results

SP1 = specificity of BED assay for days 156-365 after seroconversion

SP2 = specificity of BED assay for days >365 after seroconversion

To compute weighted incidence estimates, we computed weighted numbers as follows:

\( N_{pos} = \sum wp \) where \( p = 1 \) for HIV positive, 0 otherwise

(ie, sum of weights of only those who were HIV positive).

\( N_{inc} = \sum w\theta \) where \( \theta = 1 \) for BED positive, 0 otherwise

(ie, sum of weights of only those who were BED positive).
\[ N_{mis} = \sum w\psi \text{ where } \psi = \begin{cases} 1 & \text{for HIV positive with missing BED results, } \psi = 0 \text{ otherwise} \\ \text{ie, sum of weights of only those who were HIV positive with missing BED results).} \end{cases} \]

\[ N_{neg} = \sum w\phi \text{ where } \phi = \begin{cases} 1 & \text{for HIV negative, } \phi = 0 \text{ otherwise} \\ \text{ie, sum of weights of only those who are HIV negative).} \end{cases} \]

\(w\) is the individual weight.