

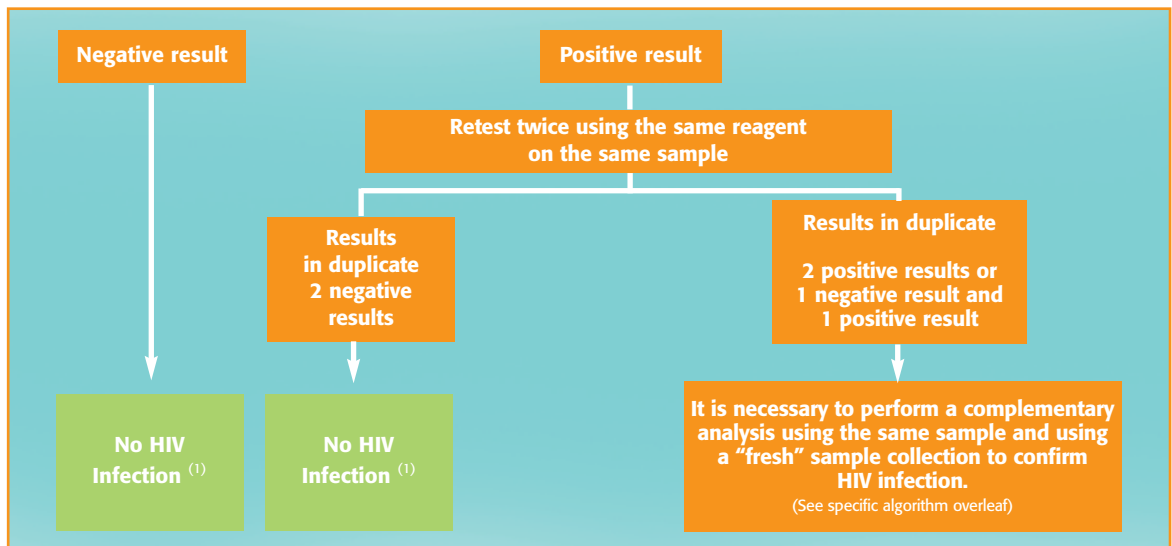


## Interpretation algorithms for 4<sup>th</sup> generation HIV serology tests



from diagnosis,  
the seeds of better health

Interpretation algorithm for 4<sup>th</sup> generation format serological tests (antigen/antibody combined detection) or "Advanced" 4<sup>th</sup> generation tests (orientation of positivity origin with differentiated antibody/antigen signals)

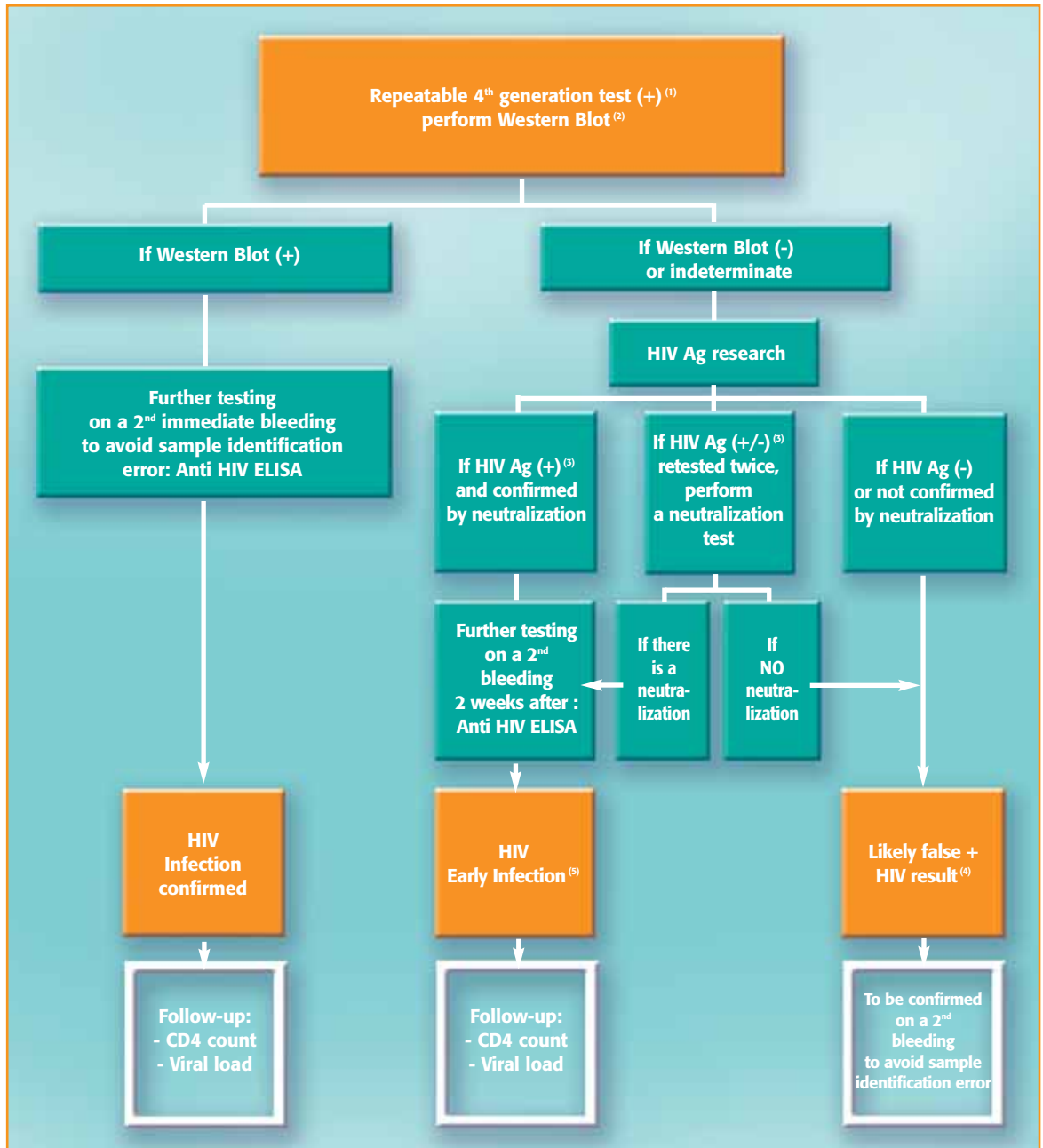


This algorithm, which is intended for reference purposes only, is valid for the majority of cases. Country specific recommendations should be taken into consideration.

(1) If clinical symptoms or risk factors are present, a new sample should be collected 2 weeks later. To give patients a more rapid diagnosis, viral load can be determined using a 2nd sample collected immediately.



## Interpretation algorithm in cases of POSITIVE results using 4<sup>th</sup> Generation assays

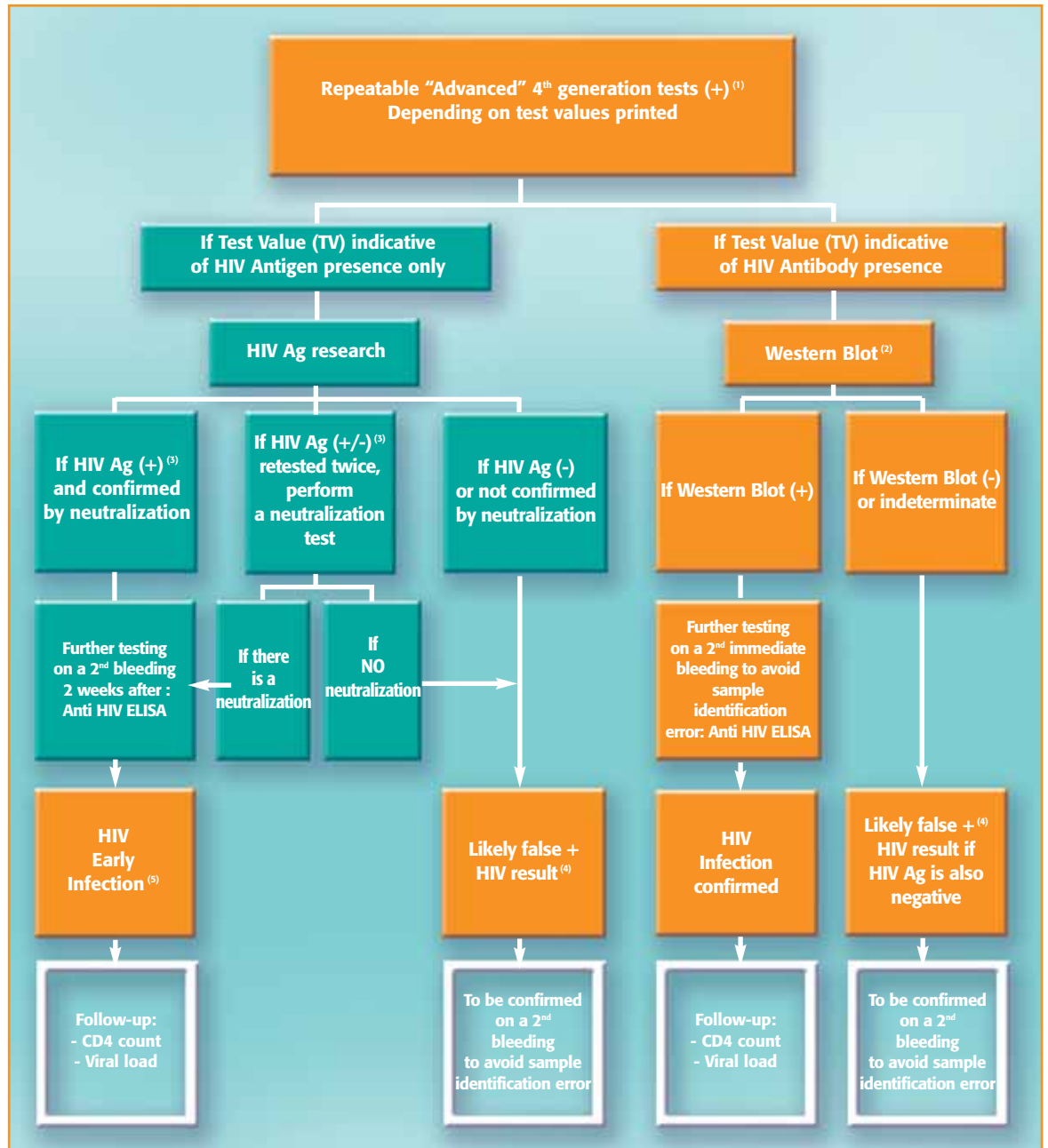


This algorithm, which is intended for reference purposes only, is valid for the majority of cases. Country specific recommendations should be taken into consideration.

- (1) All 4<sup>th</sup> generation positive results should be retested (see package insert).
  - (2) It is recommended to perform a Western Blot distinguishing HIV1 and HIV2 (see Western Blot interpretation).
  - (3) All HIV Ag positive results or repeatable equivocal results should be confirmed by neutralization (see package insert).
  - (4) If clinical signs or risk factors or if HIV Ag sensitivity is lower than ELISA 4<sup>th</sup> generation assay, require a new bleeding two weeks after; it is also possible to ask for a viral load on a 2<sup>nd</sup> immediate bleeding to provide the patient with a more rapid diagnosis orientation.
  - (5) Usually confirmed showing a seroconversion profile by WB.
- Note: in some countries, HIV viral load is not considered as a diagnostic assay due to the risk of false positive reactions.



# Interpretation algorithm in cases of POSITIVE results using "Advanced" 4<sup>th</sup> Generation assays



This algorithm which is intended for reference purposes only, is valid for the majority of cases. Country specific recommendations should be taken into consideration.

- (1) All "Advanced" 4<sup>th</sup> generation positive results should be retested (see package insert).
- (2) It is recommended to perform a Western Blot distinguishing HIV1 and HIV2 (see Western Blot interpretation).
- (3) All HIV Ag positive results or repeatable equivocal results should be confirmed by neutralization (see package insert).
- (4) If clinical signs or risk factors or if HIV Ag sensitivity is lower than ELISA 4<sup>th</sup> generation assay, require a new bleeding two weeks after; it is also possible to ask for a viral load on a 2<sup>nd</sup> immediate bleeding to provide the patient with a more rapid diagnosis orientation.
- (5) Usually confirmed showing a seroconversion profile by WB. Note: in some countries, HIV viral load is not considered as a diagnostic assay due to the risk of false positive reactions.



## Actions to be taken and interpretation

### Confirmed positivity

At least 2 anti-"env" Ab  
(anti-gp120 and anti-gp160)

#### AND

1 Ac anti-"gag" ou anti-"pol"

- Second sample requested immediately to ensure that there has been no collection error or no contamination of the 1<sup>st</sup> sample.
- If higher intensity reaction in proteins coming from "gag" and/or "pol" genes than in proteins coming from "env" genes, perform a **specific** HIV-2 serology test and consider an infection due to HIV-1 O group **or other possible variant**.

### Probable positivity

(usually profile of early seroconversion)

1 anti-p24 Ab

#### AND

1 anti-gp160 Ab

2 anti-"env" Ab

(anti-gp120 + anti-gp160)

- New collection required one or two weeks later:
  - If an evolution is observed: HIV-1 seroconversion.
  - If no evolution and negative HIV-2 WB: probable false positive. (exceptional) or HIV-1 O group **or other possible variant** (rare profile).
  - If no evolution and positive HIV-2 WB : HIV-2 seropositivity (rare profile).
- New collection required one or two weeks later :
  - If negative sample : contamination of the 1<sup>st</sup> sample or identification error.
  - If an evolution is observed : HIV-1 seroconversion (rare profile).
  - If no evolution and positive HIV-2 WB : HIV-2 seropositivity (rare profile).
 This profile may also be observed in late cases of AIDS.

### Profiles to be controlled

Isolated anti-gp160 Ab

Isolated anti-p24 Ab (+/- anti-p55)

Isolated anti-p34 Ab (+/- anti-p24)

- Perform a **specific** HIV-2 serology especially if both HIV screening tests are clearly positive. Collect a new sample one or two weeks later.
- If no evolution and negative HIV-2: false positive reaction or HIV-1 variant (exceptional).

### Negativity

Anti-p17 Ab

Other profiles not considered

No Ab seroconversion

- No reactivity on the WB associated with clearly positive screening tests should be considered as an early HIV.
- A new bleeding is required 1 to 2 weeks later.

HIV-1 proteins coming from the following genes: "env": gp 160, gp120, gp41; "gag": p55, p24, p18 ; "pol": p68, p34.

Based on the ANAES (French Agence Nationale d'Accréditation et d'Evaluation en santé) recommandations :  
Stratégies du diagnostic biologique de l'infection due au VIH chez les sujets âgés de plus de 18 mois  
(à l'exclusion du dépistage sur les dons de sang et chez les organes ou de tissus) - January 2000.