Updating the HIV Testing Algorithm

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ASPIRE Team Meeting

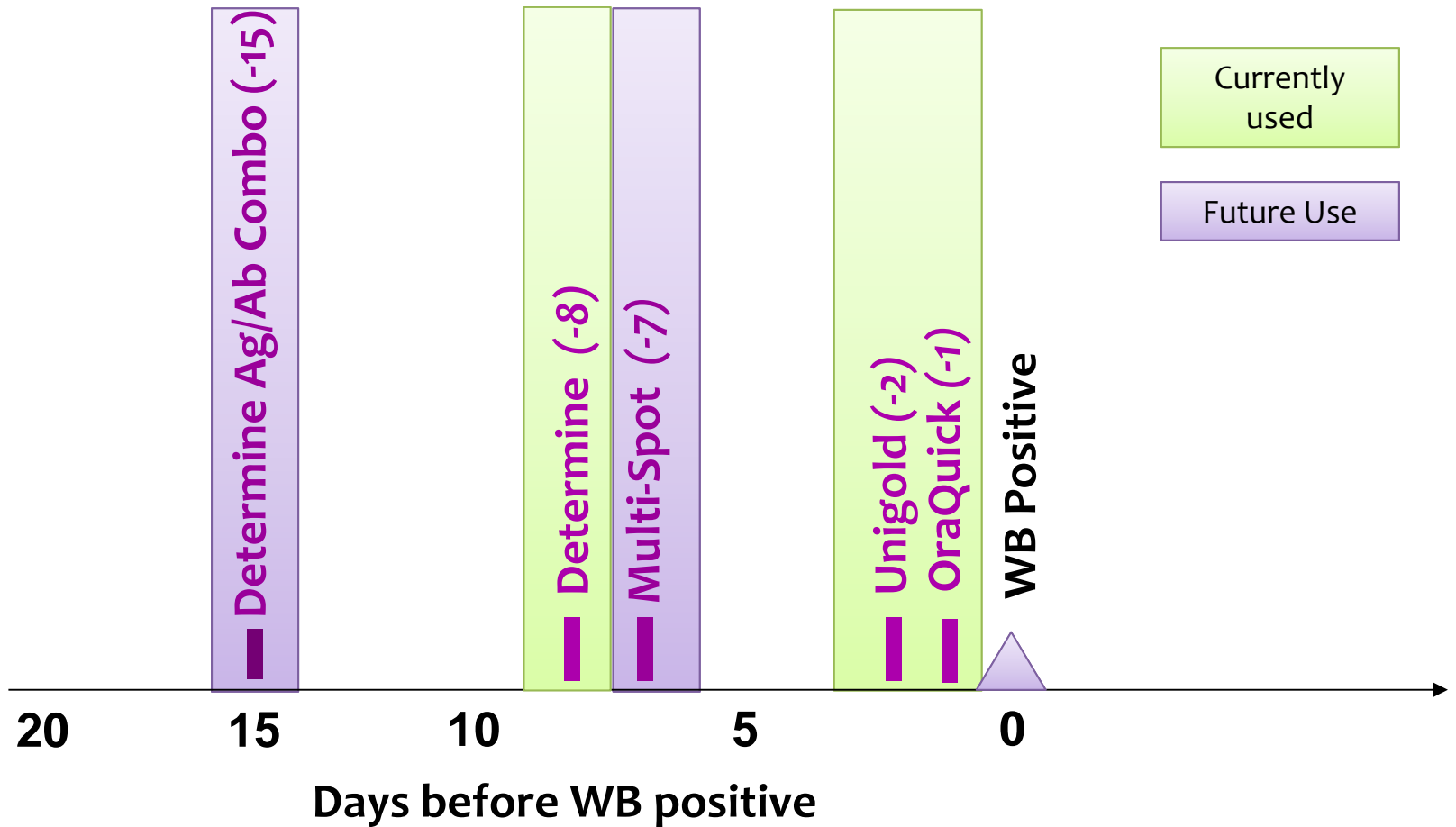Feb 23, 2014 Bethesda, MD

Why Update the Algorithms?

- Newer HIV rapid tests may be able to detect HIV infection earlier

- Same day HIV confirmation tests can reduce turnaround time and eliminate a study visit

Benefit of Early HIV Diagnosis

- May reduce the development of drug resistance by shortening time on study product during acute infection

- May reduce HIV transmission to partners if participants are aware of their status earlier

- Allows link to care/treatment earlier

- Enables more efficient determination of endpoints

New Diagnostic Tests

Determine Ag/Ab Combo (-15)

Determine (-8)

Multi-Spot (-7)

Unigold (-2)

OraQuick (-1)

WB Positive

Currently used

Future Use

20   15   10   5   0

Days before WB positive

*-Masciotra 2011; Owen 2008; Keren 2008*

Goal of This Session

- Get feedback from each site about:
  - How proposed changes might affect visit flow
  - What are the pros and cons of changing to new tests
  - How feasible it would be for the site to implement changes:
    - Before MTN-025 (post-ASPIRE access protocol)
    - Before a new Phase III study

ASPIRE Follow-Up Algorithm
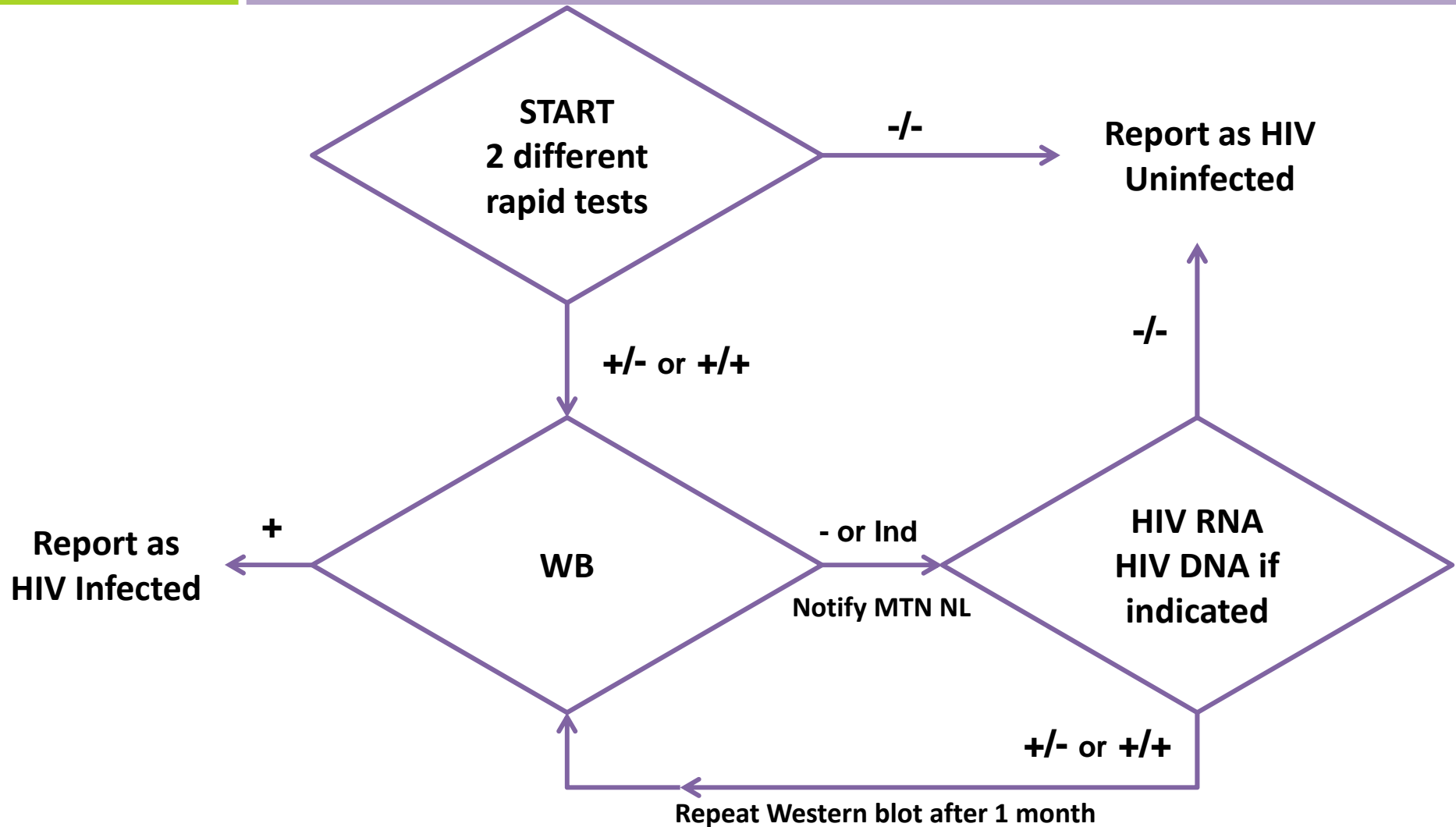
ASPIRE Follow-Up Algorithm
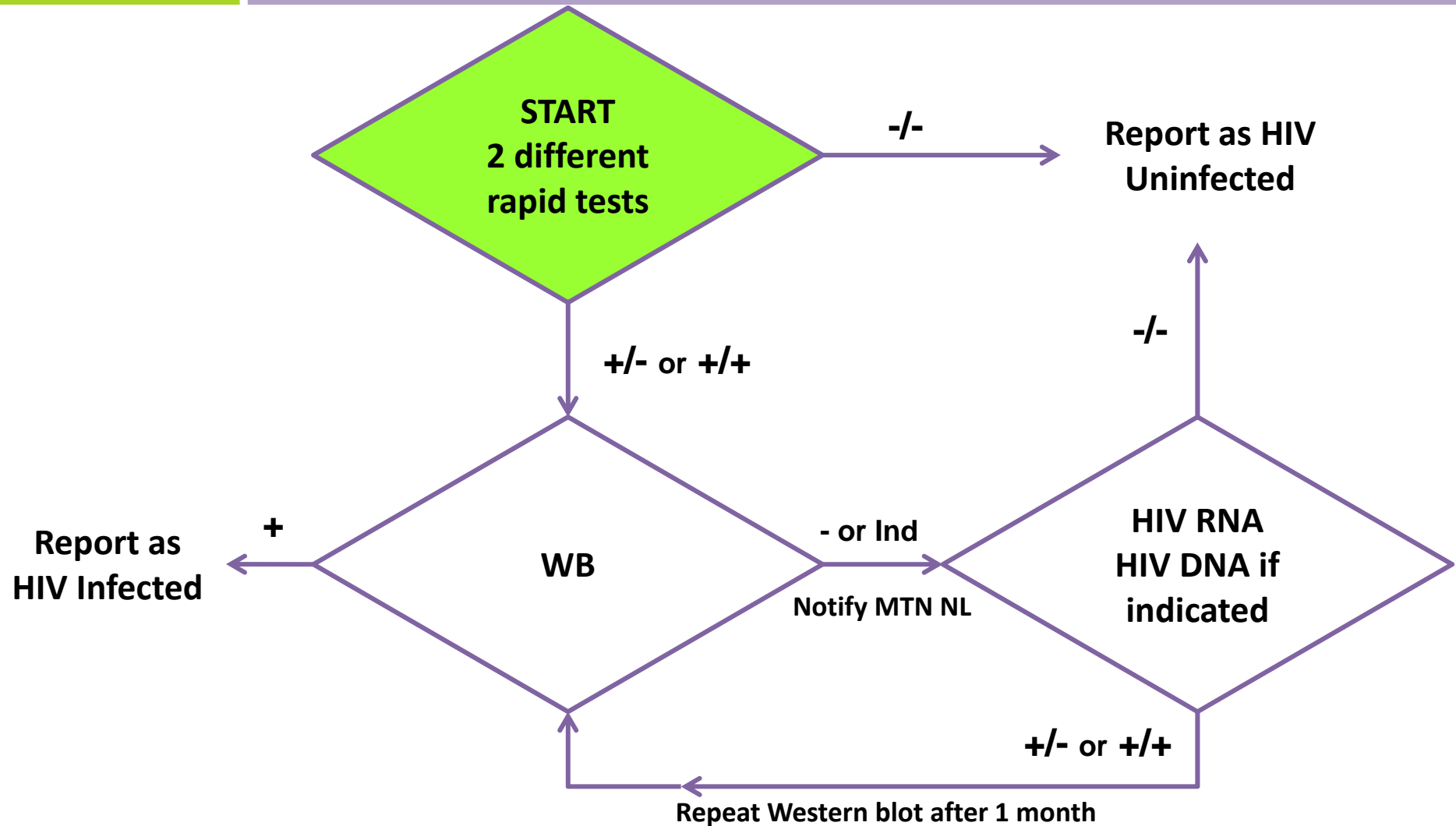
CONSIDERATIONS

- All sites currently use 2 rapids tests: a combination of Determine/Unigold/Oraquick

- New Ag/Ab Determine may be able to detect HIV infection
  - Up to **2 weeks earlier** than Unigold/Oraquick
  - Up to **1 week earlier** than current Determine

- This may cause more discordant rapids if two simultaneous rapids are used

Simultaneous vs Sequential

- To avoid discordants, rapid tests could be done **IN SEQUENCE** rather than **AT THE SAME TIME**.

- Example:
  - Perform more sensitive rapid (Determine Ag/Ab)
  - If negative, perform 2nd rapid (less sensitive)
  - If positive, perform HIV confirmatory test

QUESTIONS

1. How would you manage blood collection with sequential rapids?

    – Would you do 2 fingersticks?

    – Would you do venipuncture?

2. How will visit flow be impacted with sequential rapid testing?

3. Only one rapid would be performed if the result is positive. Would this comply with your local regulations?
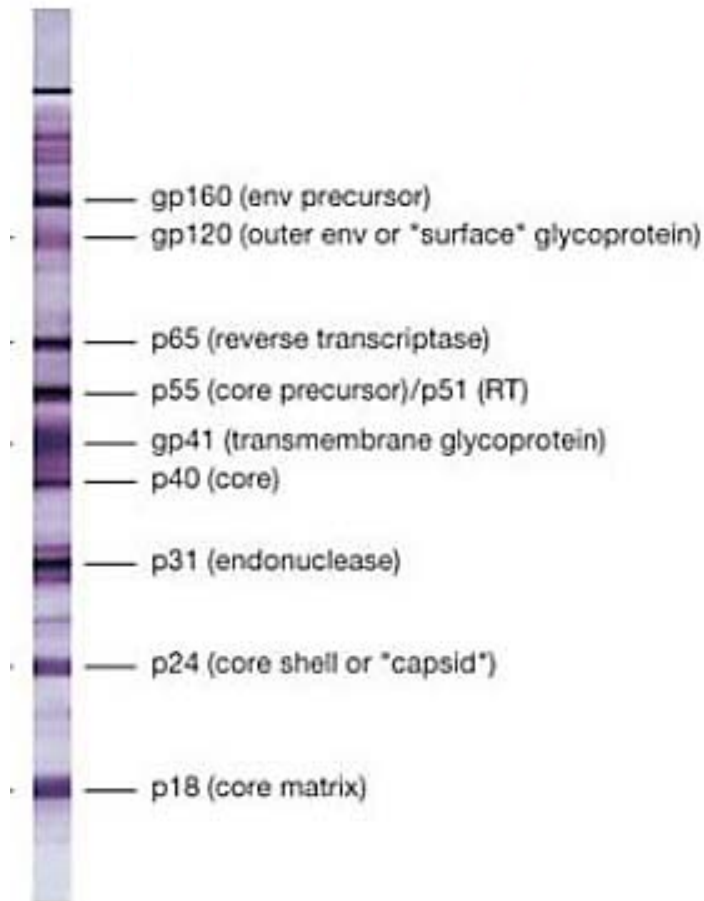
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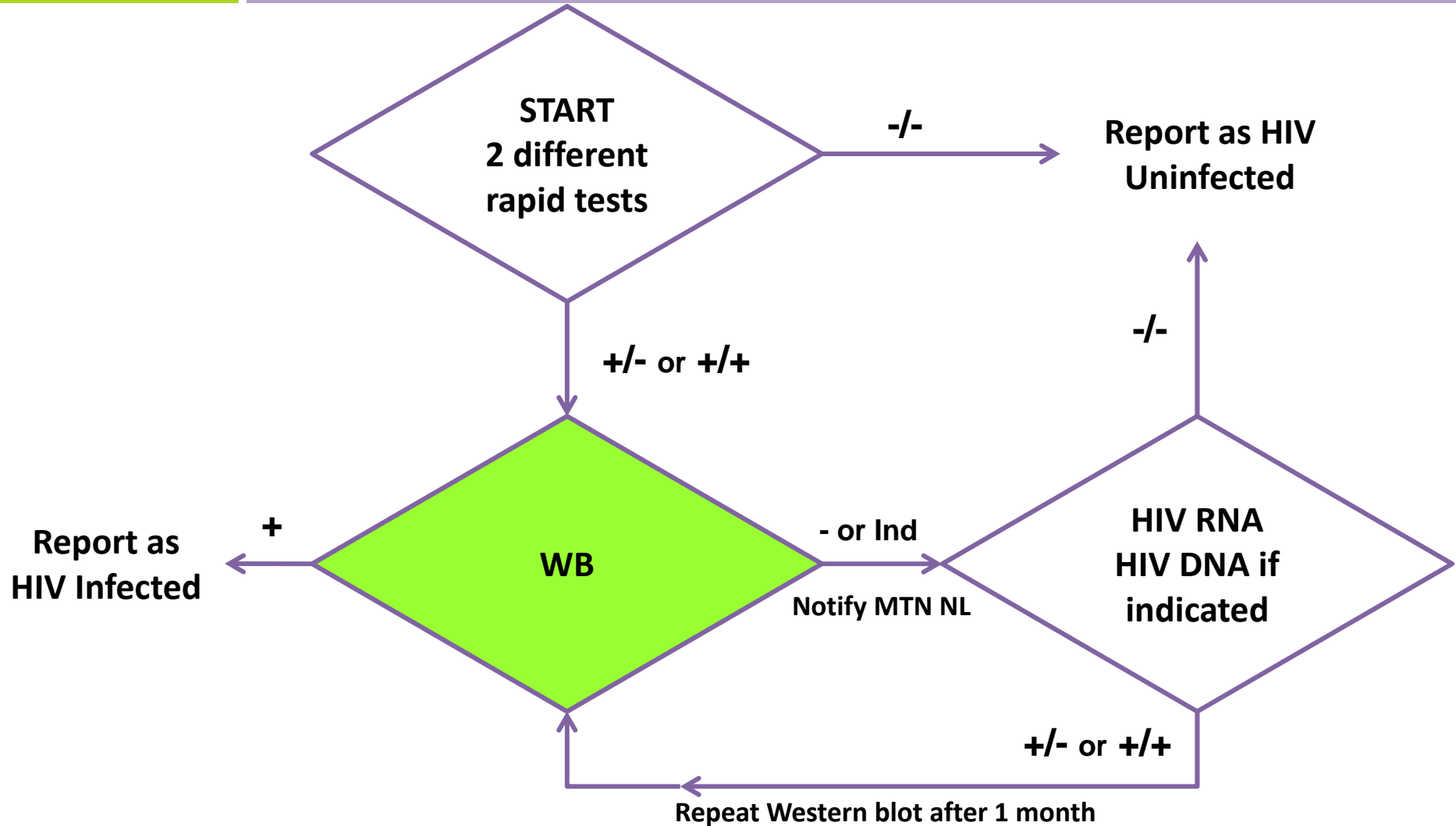
CONSIDERATIONS

- Multispot can replace Western blot as the HIV confirmatory test in the algorithm

- Can give information about HIV-1 and HIV-2

- Is a **SAME DAY** but not POINT-OF-CARE test

Bio-Rad Multispot

- 10-step process
- Need 40 ul plasma or serum (fresh or frozen)
- Results in 15 minutes
- Test must be performed by lab staff

WB vs Multispot

Western Blot

gp160 (env precursor)
gp120 (outer env or "surface" glycoprotein)

p65 (reverse transcriptase)
p55 (core precursor)/p51 (RT)
gp41 (transmembrane glycoprotein)
p40 (core)

p31 (endonuclease)

p24 (core shell or "capsid")

p18 (core matrix)

Multispot

	Non-Reactive
	HIV-1 Reactive
	HIV-2 Reactive

Other combinations of spots - indeterminate

Scenario

- The site is using a new algorithm where 2 rapids are performed, and if positive or discordant, are confirmed by multispot.

- Participant A comes in for visit 6.0
  - The nurse collects blood and performs 2 rapid tests.
  - Results of both are positive.
  - What happens next?

Questions

1. **How would you collect plasma for the multispot test?**

   – For sites doing <u>fingersticks</u>: Would you change to venipuncture for rapid tests and use the same draw or would you do fingerstick for rapids and blood draw for multispot?

   – For sites doing <u>venipuncture:</u> would you use the same draw as rapids or do a new draw?

2. **Do you have lab capacity at your site to spin the blood and perform the test?**

   – If so, who will perform the test, and where will it be performed?

   – If not, where would you send it? How will it affect turnaround time?

3. **The actual test takes 15 minutes, but blood collection, processing, and result checking will add time to the process.**

   – What would be an acceptable wait time for the participant?

   – What will happen next if her result is negative? If it is positive? If she has HIV-2?

ASPIRE Screening Algorithm
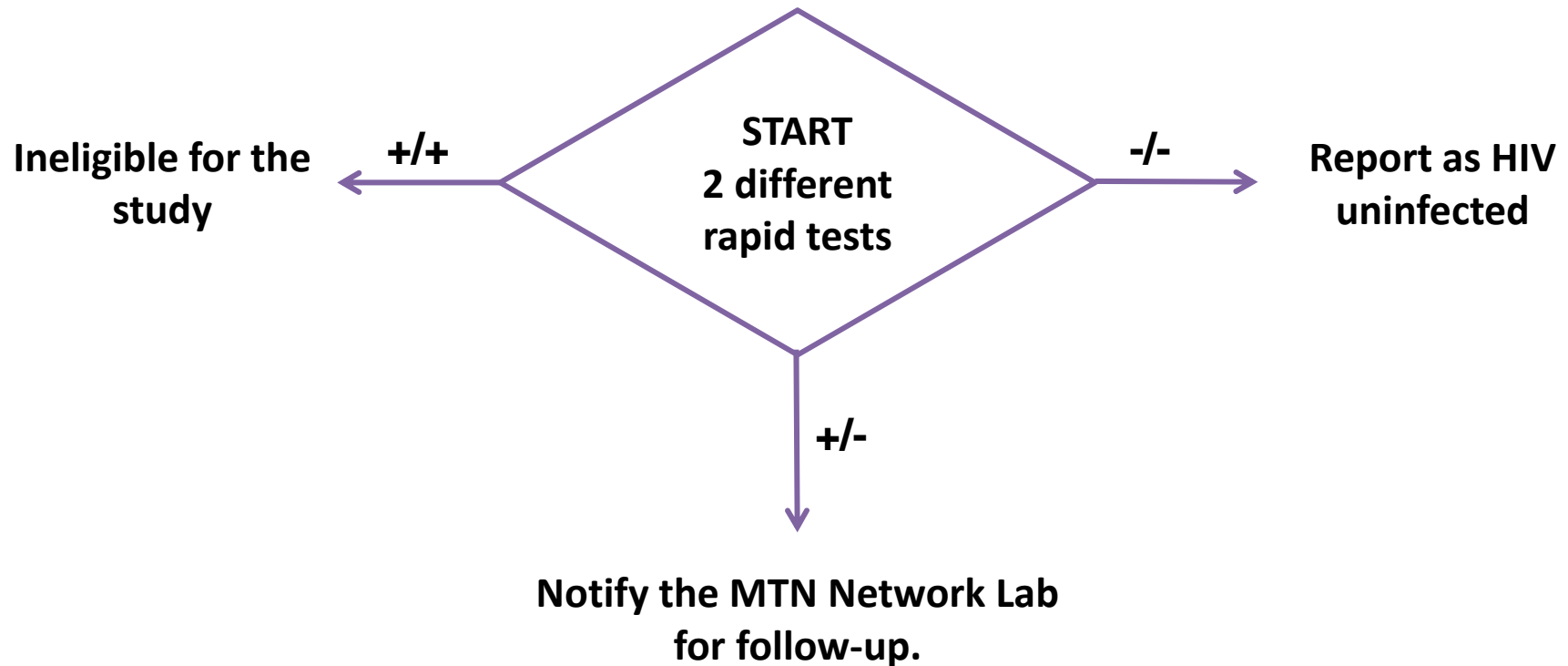
Questions

- Discuss what to do about enrolling participants with discordant rapids in access protocol screening (MTN 025)
  - They completed ASPIRE so it may be unfair not to allow them the chance to participate in MTN 025
  - Enrollment may mean extra testing throughout study

Thank you!

Comments? Questions?