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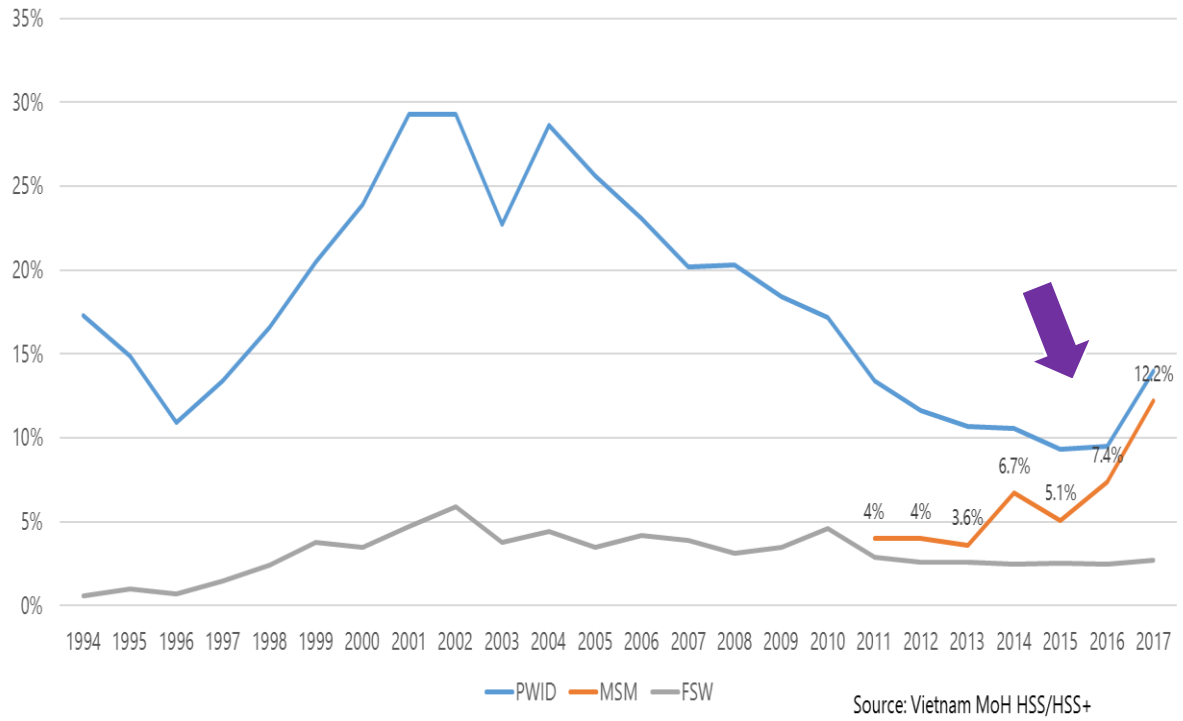
Detecting acute HIV infection to accelerate epidemic control

November 21, 2019

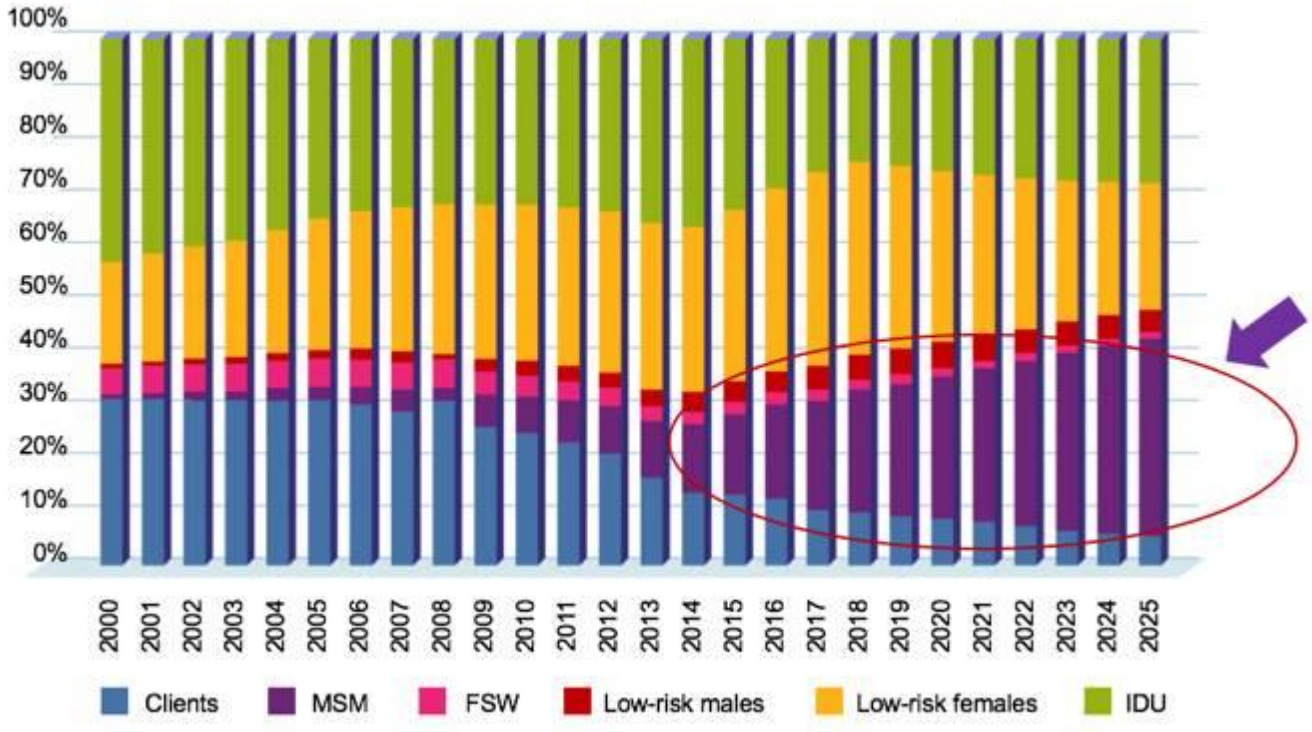
HEALTHY MARKETS

State of the HIV epidemic in Vietnam

HIV prevalence, 1994-2017

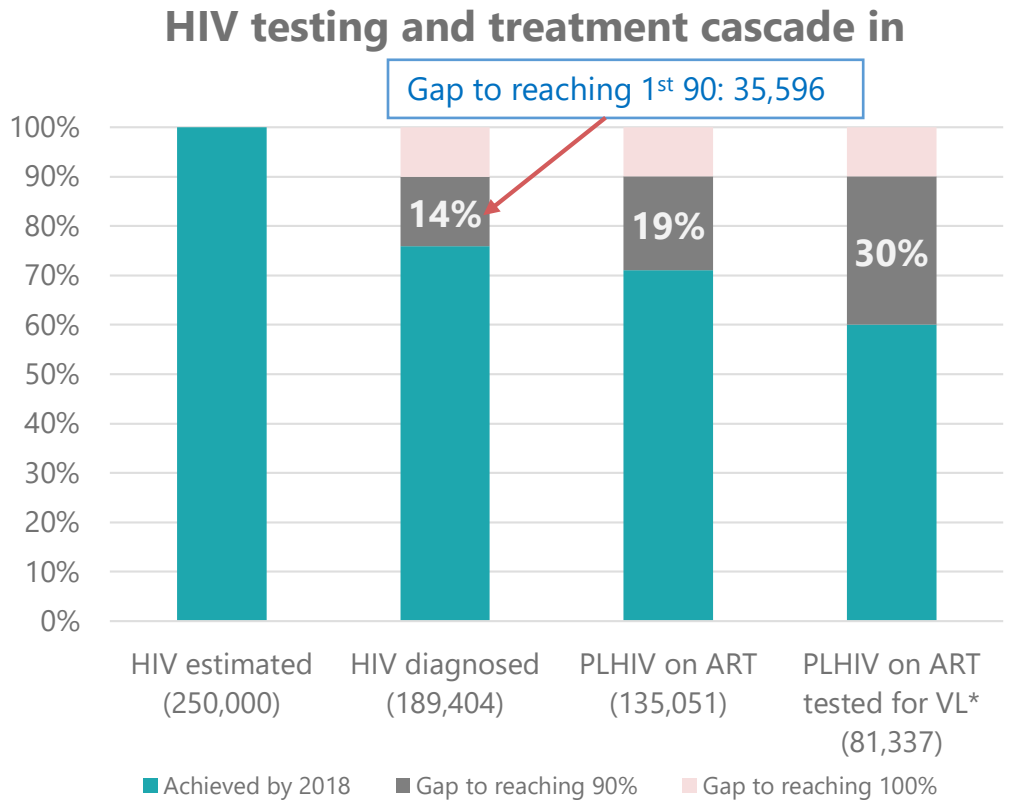


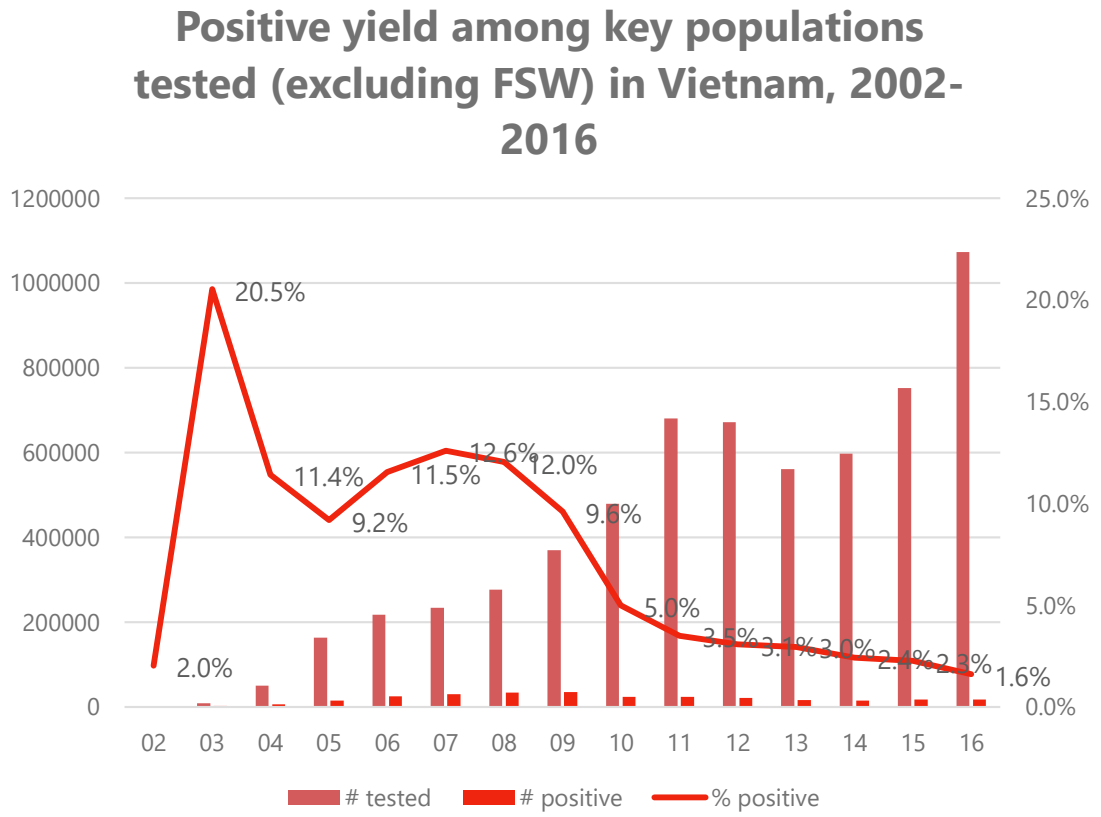
Distribution of new HIV infections



Source: HIV sentinel surveillance surveys, 1994-2017, MoH, Vietnam; AEM modeling, 2018, MoH

Testing demand vs. positivity yield: last mile is the hardest

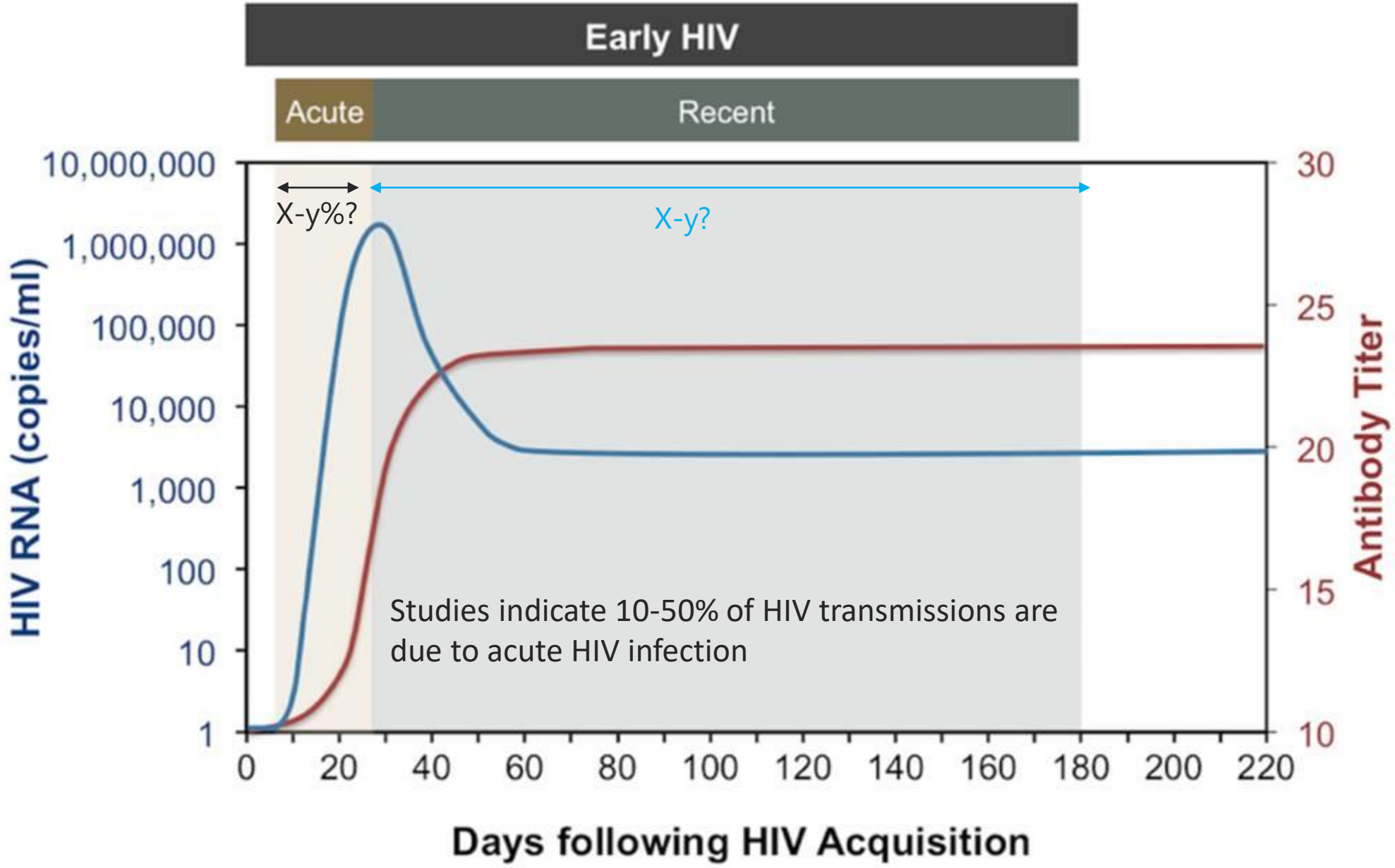




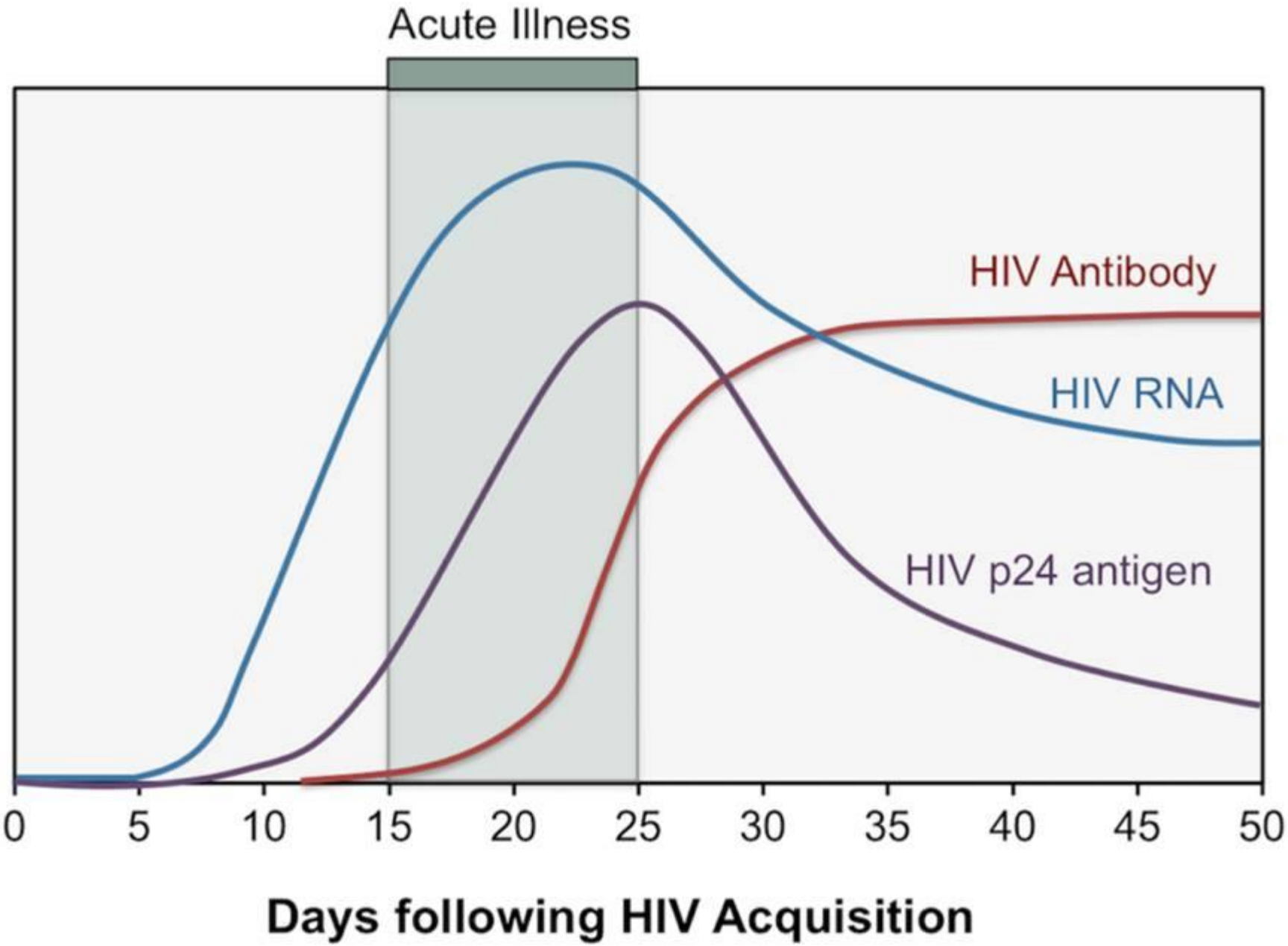
* 96% VL suppressed <1000 and 94% VL suppressed <200 among 60% PLHIV tested for VL

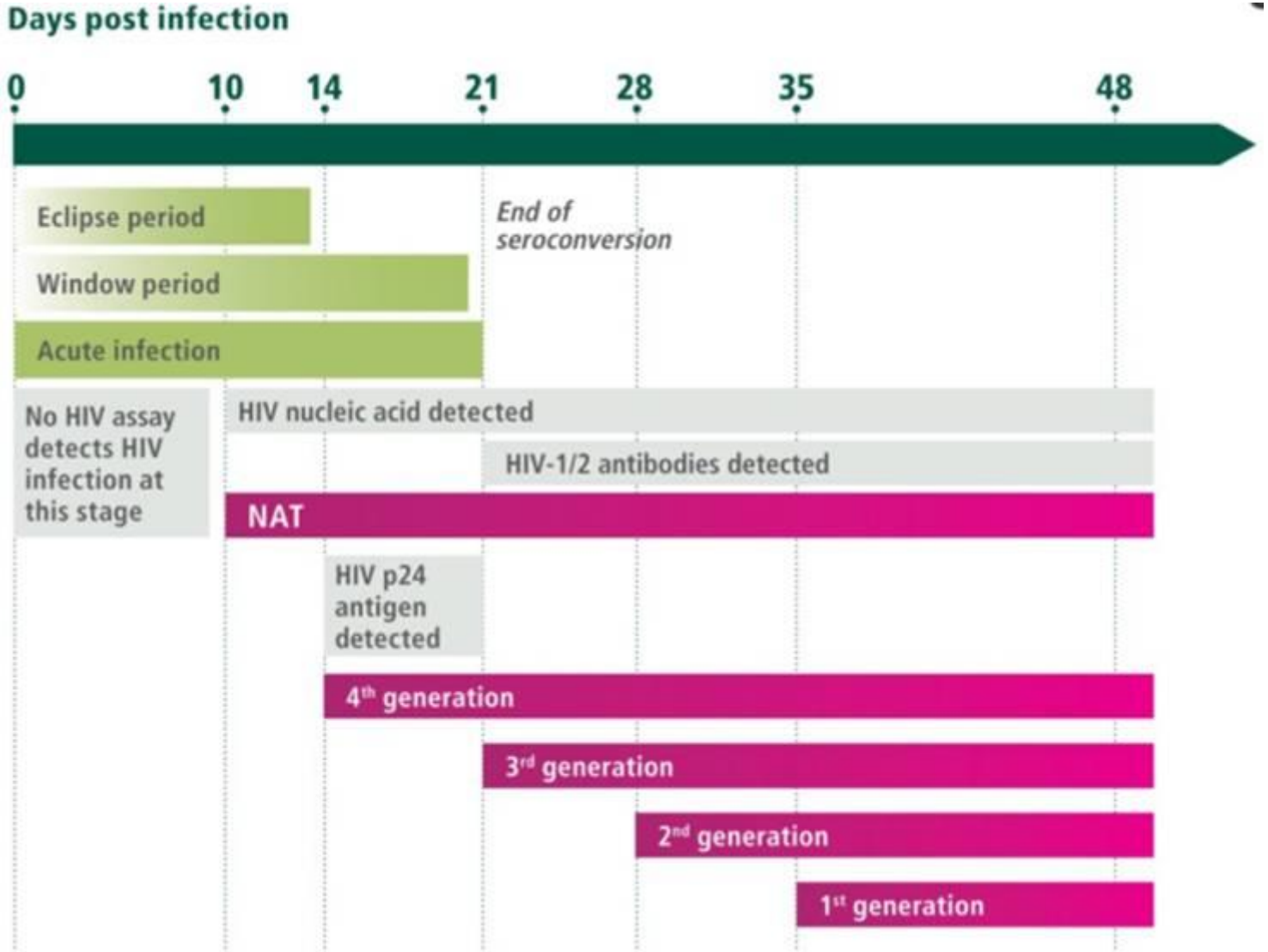
Source: MOH/VAAC, 2019; MOH/VAAC HIV testing program, 2017

What is acute HIV infection and why does it matter in reaching global 2020 and 2030 goals?



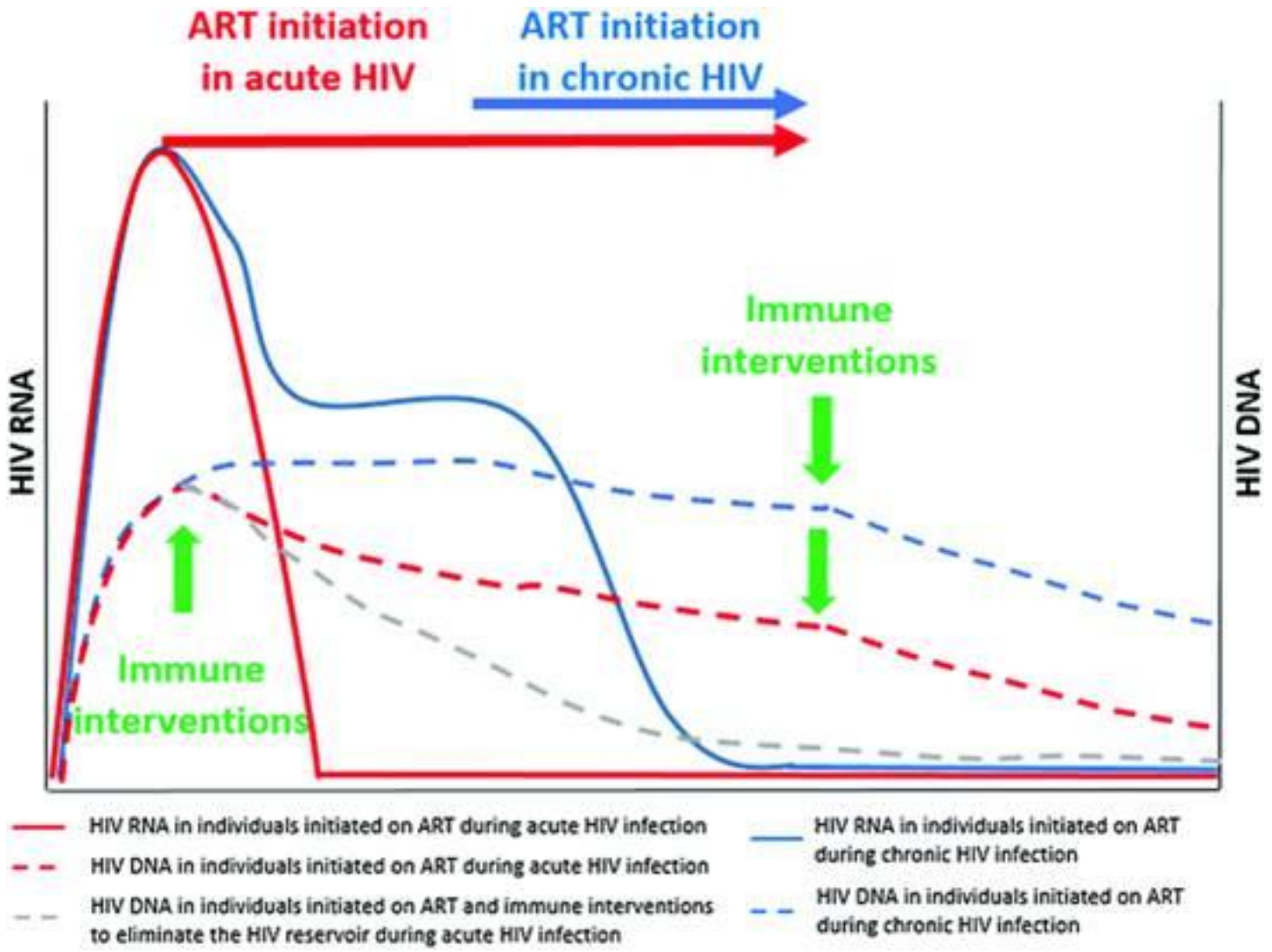
Source: Bluma G. Brenner et al. Transmission Clustering Drives the Onward Spread of the HIV Epidemic Among Men Who Have Sex With Men in Quebec, BRIEF REPORT d JID 2011:204 (1 October); Grace M Wandell, Knowledge and preferences concerning acute HIV testing programs among both Peruvian men who have sex with men and transgender women, Int J STD AIDS. 2017 September ; 28(10): 1010–1017. Kroon EDMB et al. Journal of the International AIDS Society 2017, 20:21708 http://www.jiasociety.org/index.php/jias/article/view/21708 http://dx.doi.org/10.7448/IAS.20.1.21708; Benefits of AHI diagnosis and immediate ART on immune response, outcomes and onward transmission


Acute Illness
HIV Antibody
HIV RNA
HIV p24 antigen
0
5
10
15
20
25
30
35
40
45
50
Days following HIV Acquisition

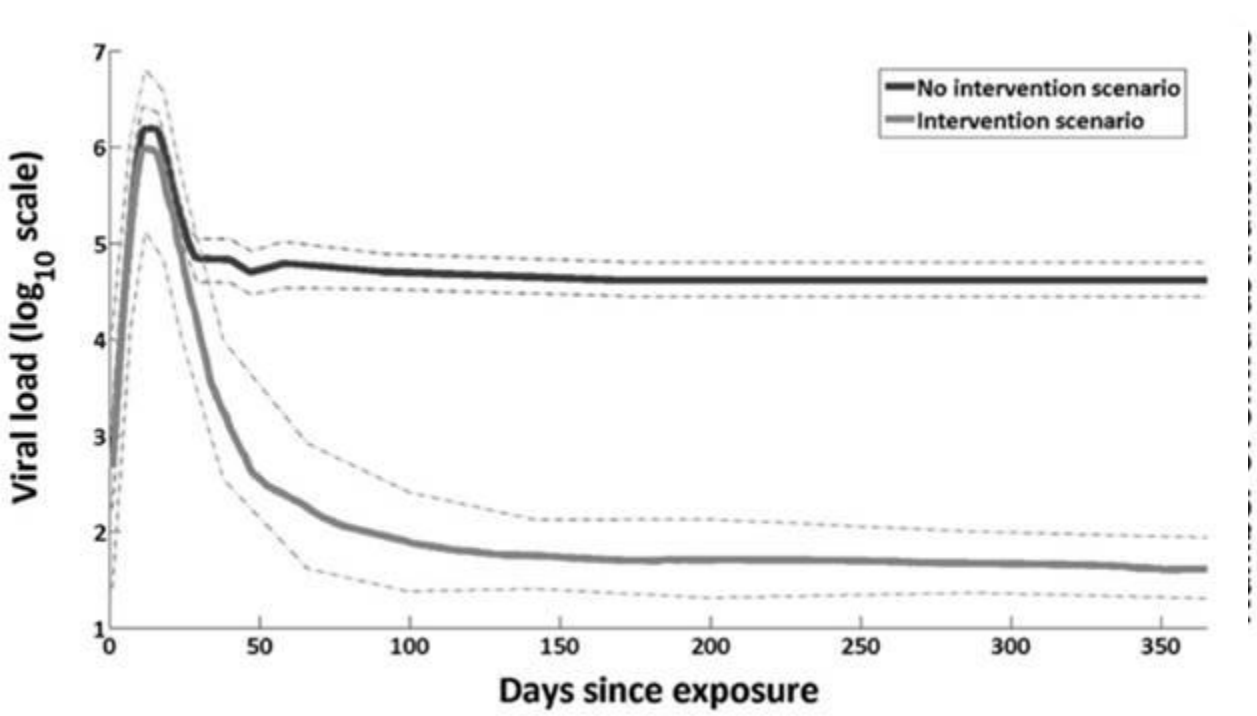


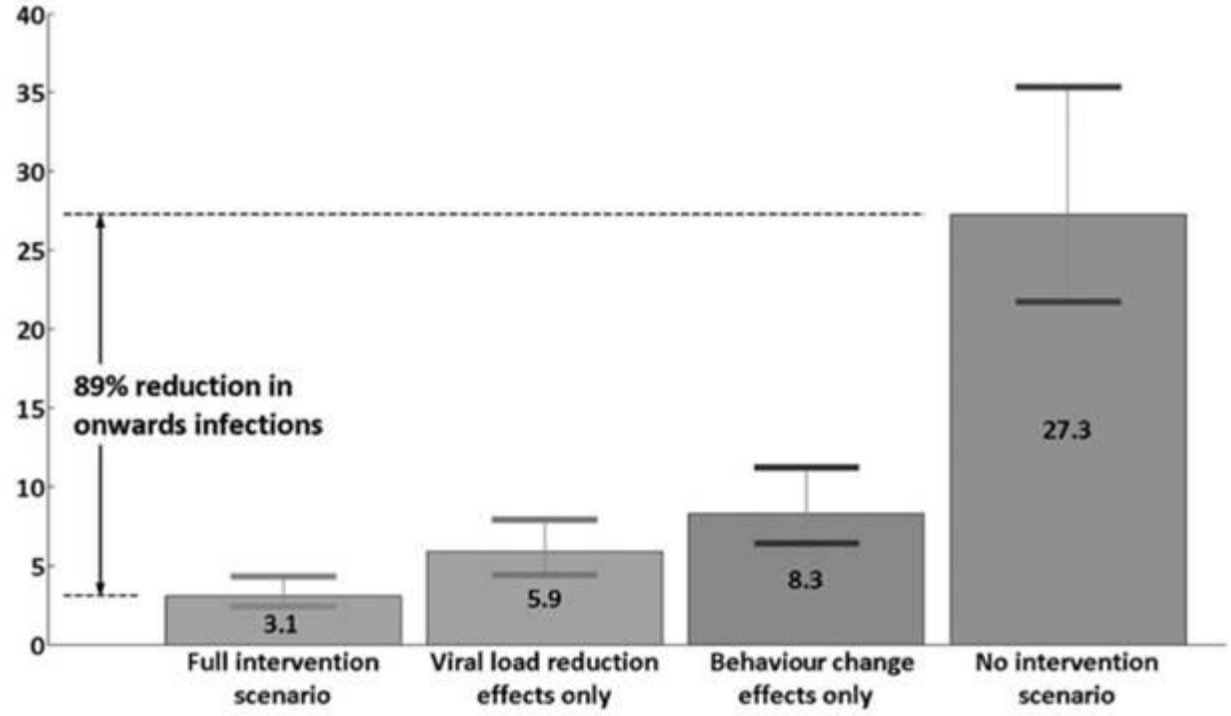
Source: WHO, 2017

Benefits of focusing on acute HIV infections as a core epi control strategy?



Acute HIV infection detection and immediate treatment estimated to reduce transmission by 89% among men who have sex with men in Bangkok

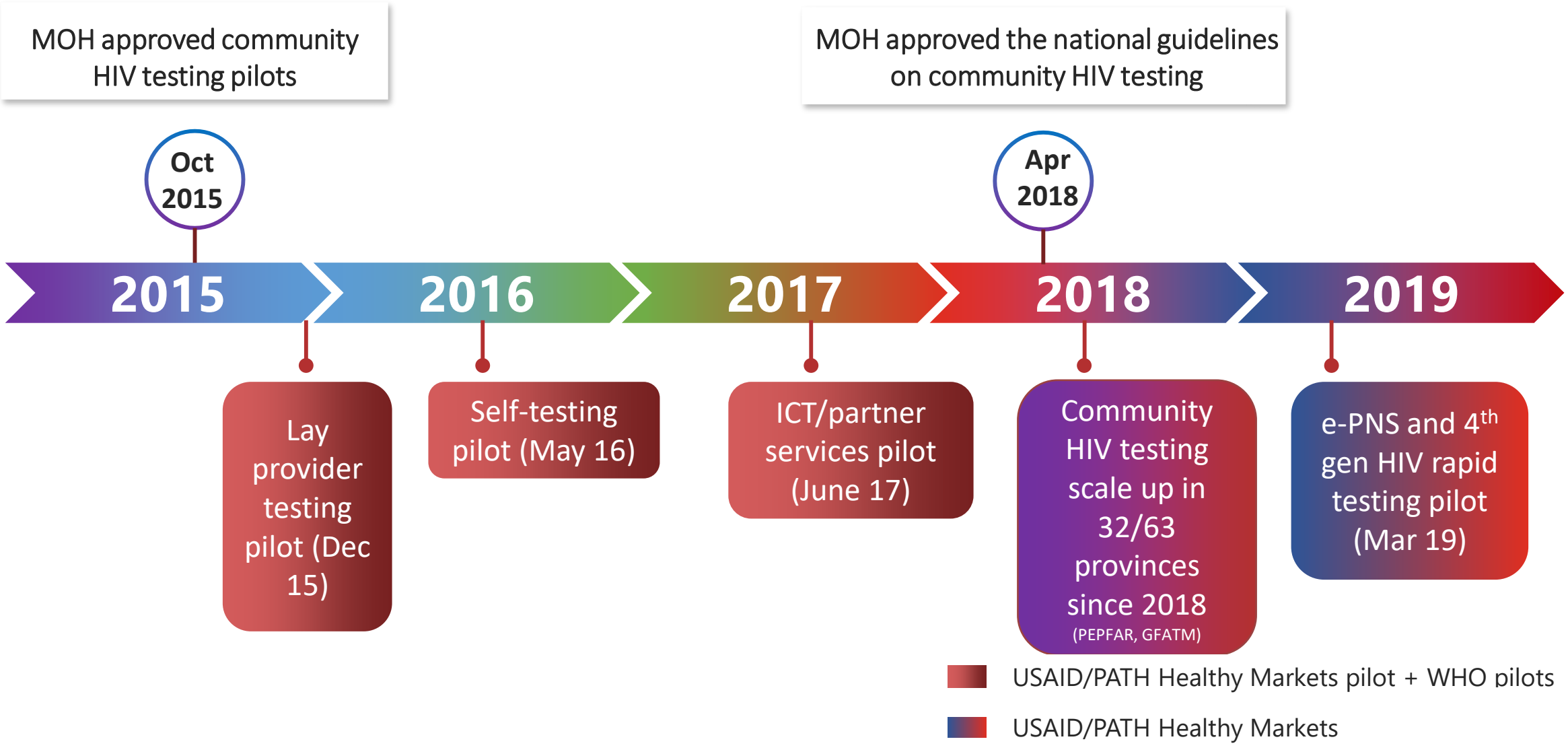




Source: Kroon EDMB et al. Journal of the International AIDS Society 2017, 20:21708 http://www.jiasociety.org/index.php/jias/article/view/21708 http://dx.doi.org/10.7448/IAS.20.1.21708;
Benefits of AHI diagnosis and immediate ART on immune response, outcomes and onward transmission

Detecting acute HIV infection to accelerate epidemic control in Vietnam: intervention and results

The evolution of community-based HIV testing and partner services in Vietnam



Enhanced ICT intervention overview

- **Aim:** Demonstrate a community-led model to accelerate HIV case detection and increase uptake of ART, PrEP and nPEP for those at very high risk of HIV in Ho Chi Minh City (HCMC), Dong Nai and Hanoi.
- **Intervention:** Combine use of a rapid 4th generation test with prioritized index client testing until no additional new HIV positive cases were identified, offer access to rapid ART initiation, PrEP and nPEP.
- **Timeframe:**
  - **Phase I – Exploratory:** March-June, 2019
  - **Phase II – Titrating approach**: July-Sept, 2019
  - **Phase III – Enhanced data collection and scope (acute & recent infections)**: Oct 2019-Sept 2020

Enhanced ICT intervention overview – Data collection

- **Data collected (Phase I & II):**
    - **Demographic and risk factors:** Age, sex, risk factors, STIs (past 3 months), influenza-like illness (past month), number of sex and/or injecting partners (past 12 months)
    - **Laboratory investigations:** 4th generation rapid test result (using whole blood), and from July on, systematic inclusion of viral load, CD4 and HIV disease clinical staging
- **Enhanced data collection (Phase III):**
    - Under way, will be initiated by January 1, 2020. This effort will validate Ag+ samples using 5th generation instrumentation, and measure viral load, CD4 and HIV disease clinical staging, and gather demographic data in HCMC and Dong Nai.
    - Offer eICT to those with **acute and recent** HIV infection, plus same day ART, PrEP and PrEP.
    - Measure impact on incidence.

Enhanced-PNS pilot (Phase I and II)

Sub-set of key population led community-based organizations (n=10) in Ho Chi Minh City, Dong Nai and Hanoi

Client opts in for HIV testing

1. Influenza-like symptom 2. risk screening

3. 4th generation rapid testing

Ag-/Ab-

PrEP/ HIV prev

nPEP*

Ag-/Ab+

*Dx *Rapid ART *Routine PNS

Ag+/Ab+

Ag+/Ab-

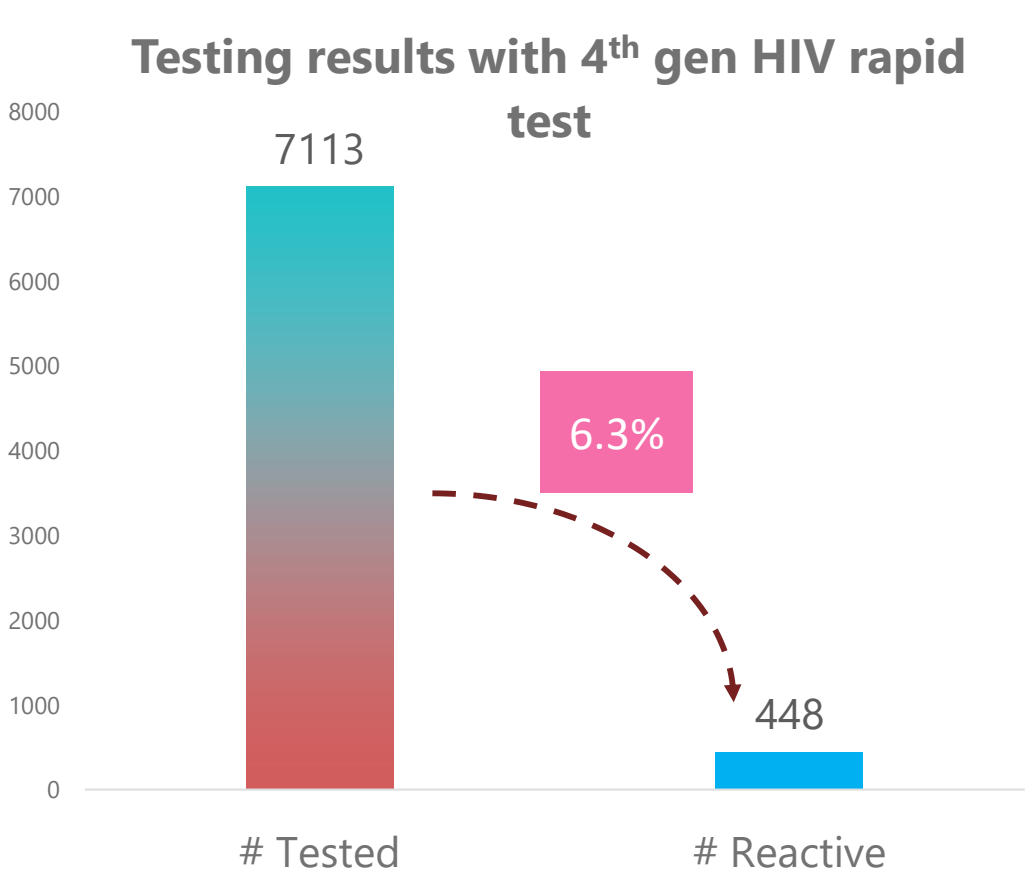
*Dx (VL, CD4) *Rapid ART * Enhanced-PNS

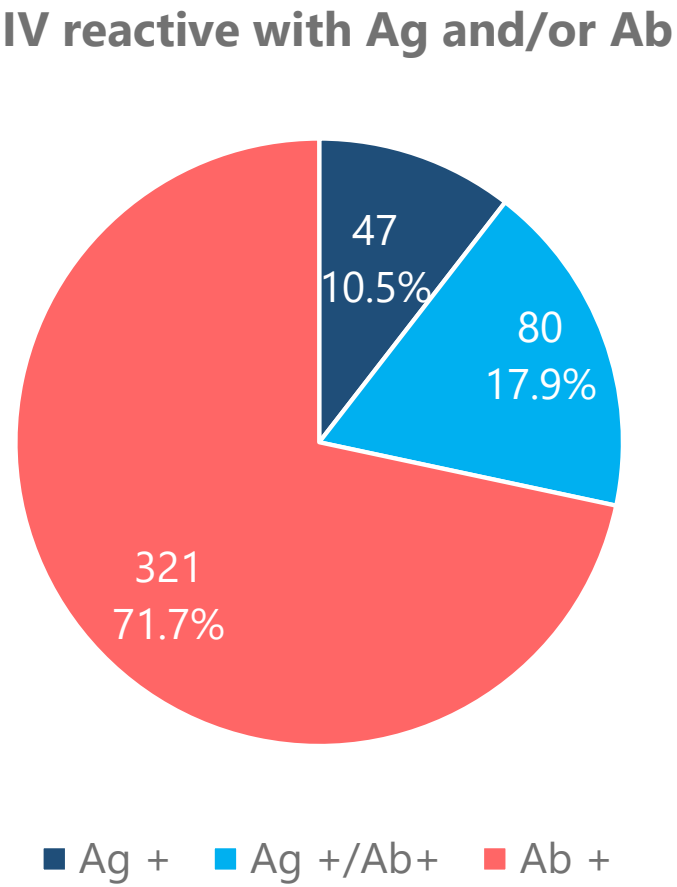
Enhanced-PNS

- ✓ **Layered intervention** to identify those that may have acute or early HIV infection: 1) influenza-like illness; 2) risk screening; 3) 4th gen rapid test
- ✓ **PNS**, where accepted by the client, starts right after receiving reactive test result in the same visit
- ✓ **Assisted PNS is offered** with focus on provider referral and dual referral
- ✓ Rapid tracing of index client partner network and **rapid ART** and **HIV prev** for network partners

* if exposed to HIV within 72 hours

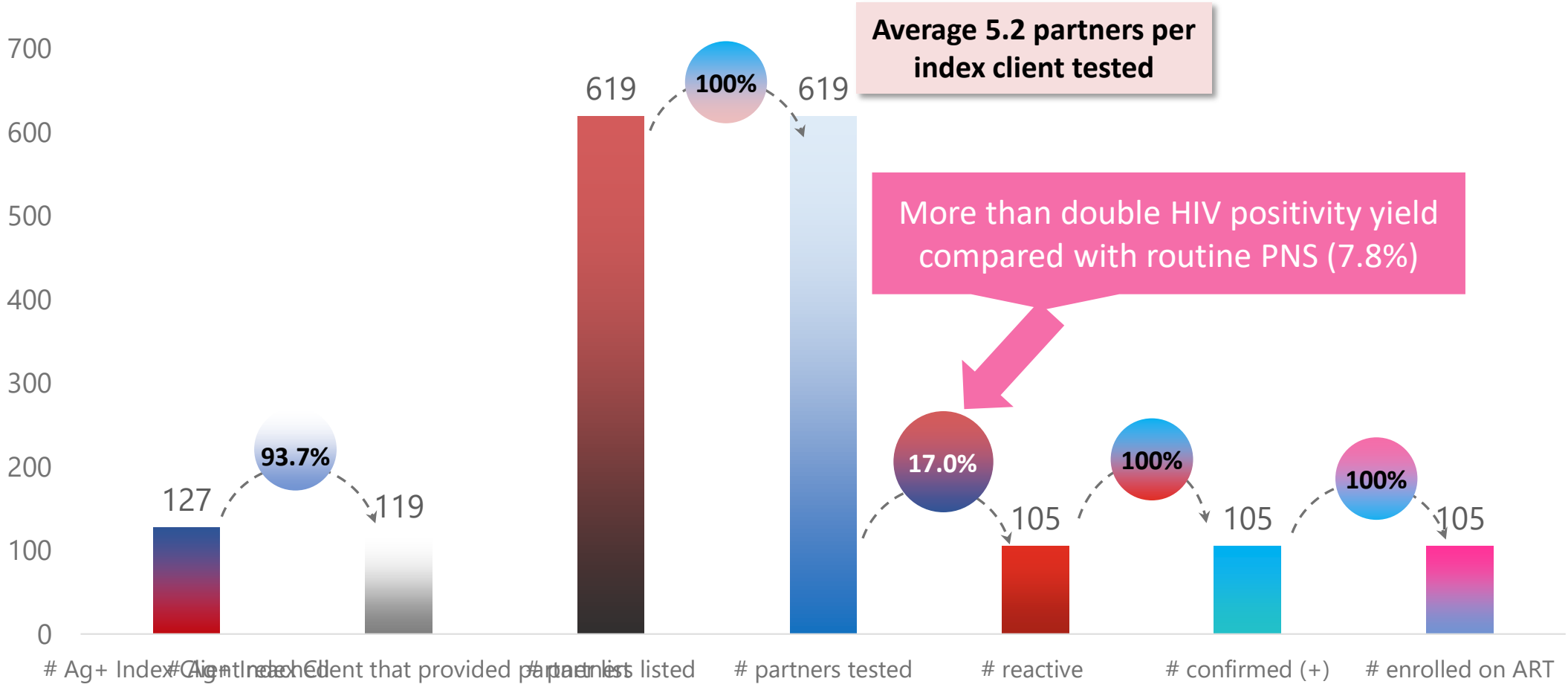
Enhanced-PNS pilot: Preliminary results, March-June 2019





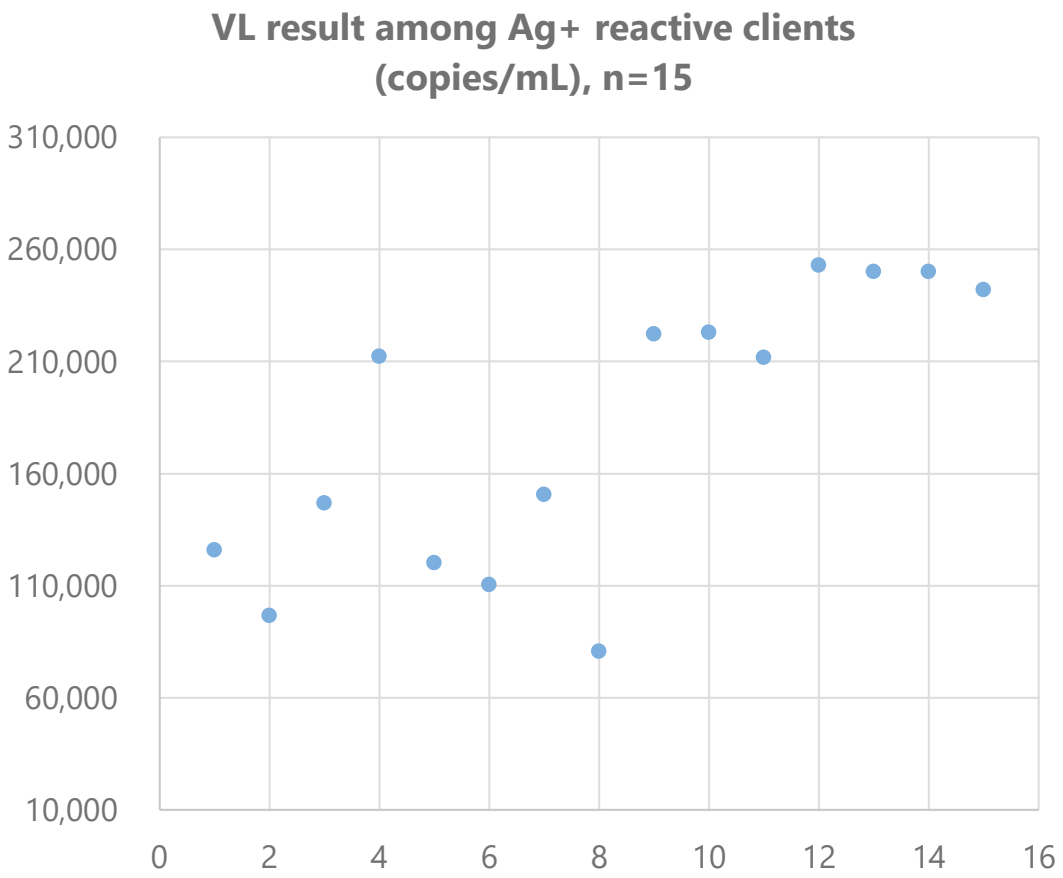
Source: USAID/PATH Healthy Markets data from HCMC, Dong Nai and Hanoi

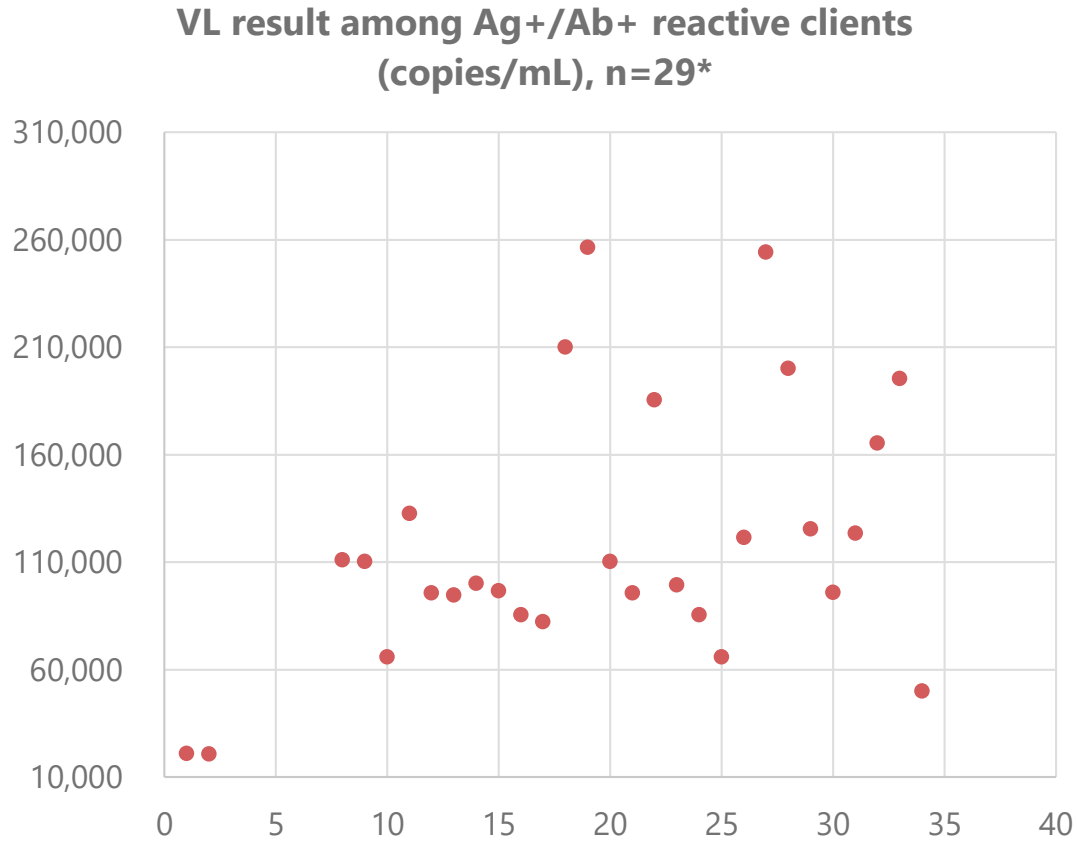
Enhanced-PNS with Ag+ and Ag+/Ab+ index clients: Preliminary results (Phase I)



Source: USAID/PATH Healthy Markets data from HCMC, Dong Nai and Hanoi, March-June 2019

Viral load results **among those that were Ag+ or Ag+/Ab+ (March-June, 2019,** Phase I)





*Excluded 5 individuals with VL <10,000 copies/mL

Note: Represents sub-set of those who received a viral load measure within 7 days from a reactive result (31% of those Ag+ reactive and 36% among those Ag+/Ab+)

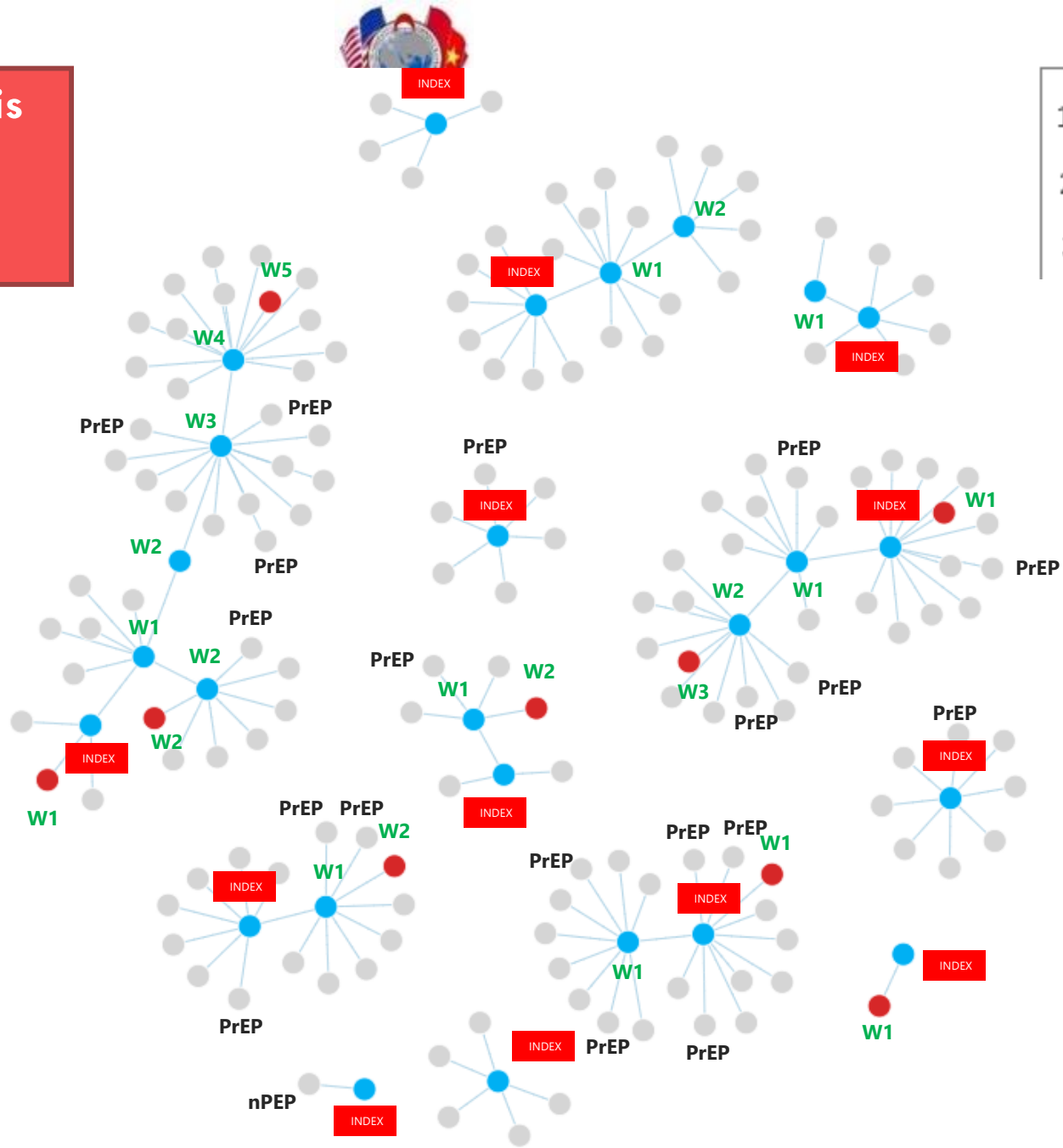
Phase II: e-ICT Network Analysis of 26 Ag+/Ab+ cases, Ho Chi Minh City

Among positive cases:

- 100% enrolled on ART

Among negative cases:

- 19 cases are on PrEP
- 1 case is on nPEP
- The remaining negative cases opted for other HIV prevention methods



n=26 (21 MSM, 5 female partners of male PLHIV)

e-ICT results: 26 Ag+/Ab+ (Phase II, HCMC)

13 (Ag+/Ab+) index clients started e-ICT

13 (Ag+/Ab+) new index clients detected from e-ICT

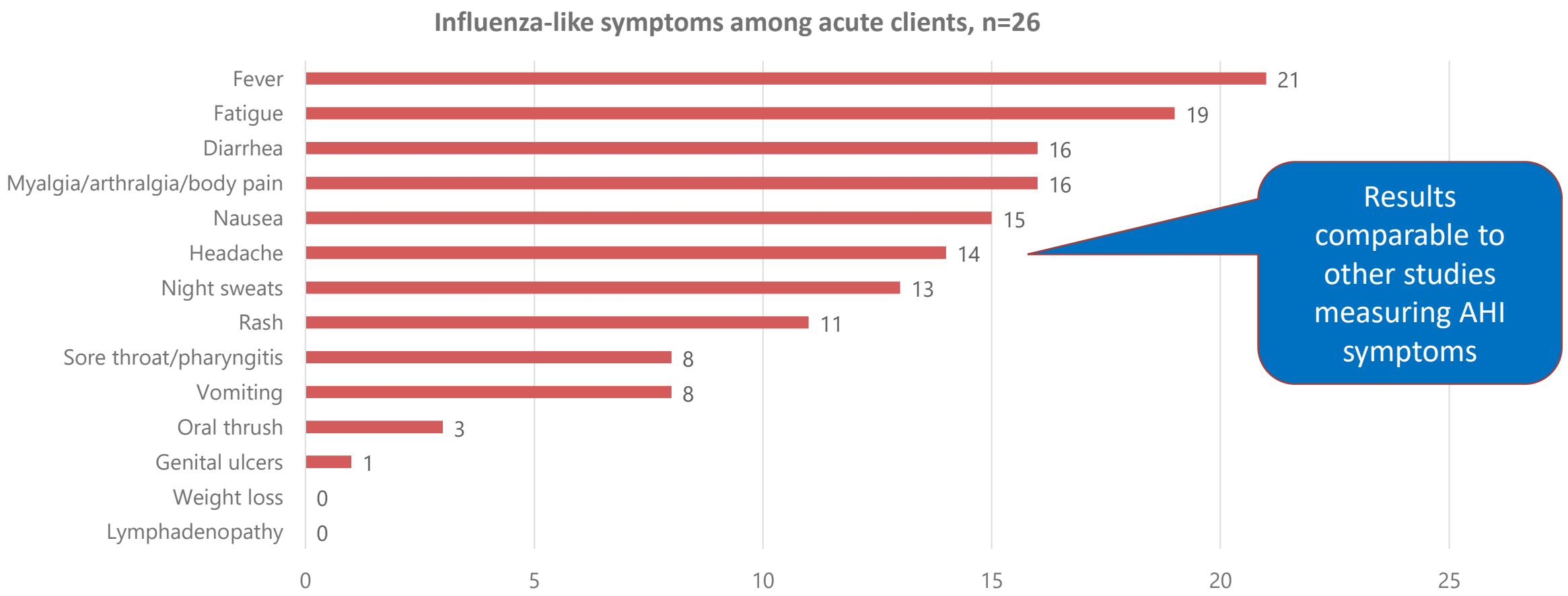
Positivity yield declined over waves of e-ICT

Wave	# Index (Ag+/Ab+)	# Partners	# Reactive	# Reactive (Ag+/Ab+)	# Reactive (Ab+)	# Positive	# Enrolled in ART	% Yield
0	**13**	78	11	7	4	11	11	14.1%
1	7	46	6	4	2	6	6	13.0%
2	4	23	3	1	2	3	3	13.0%
3	1	13	1	1	0	1	1	7.7%
4	1	13	1	0	1	1	1	7.7%
Total	**26**	173	22	**13**	9	22	22	12.7%

TOTAL 26 (Ag+/Ab+) index clients participated in e-ICT

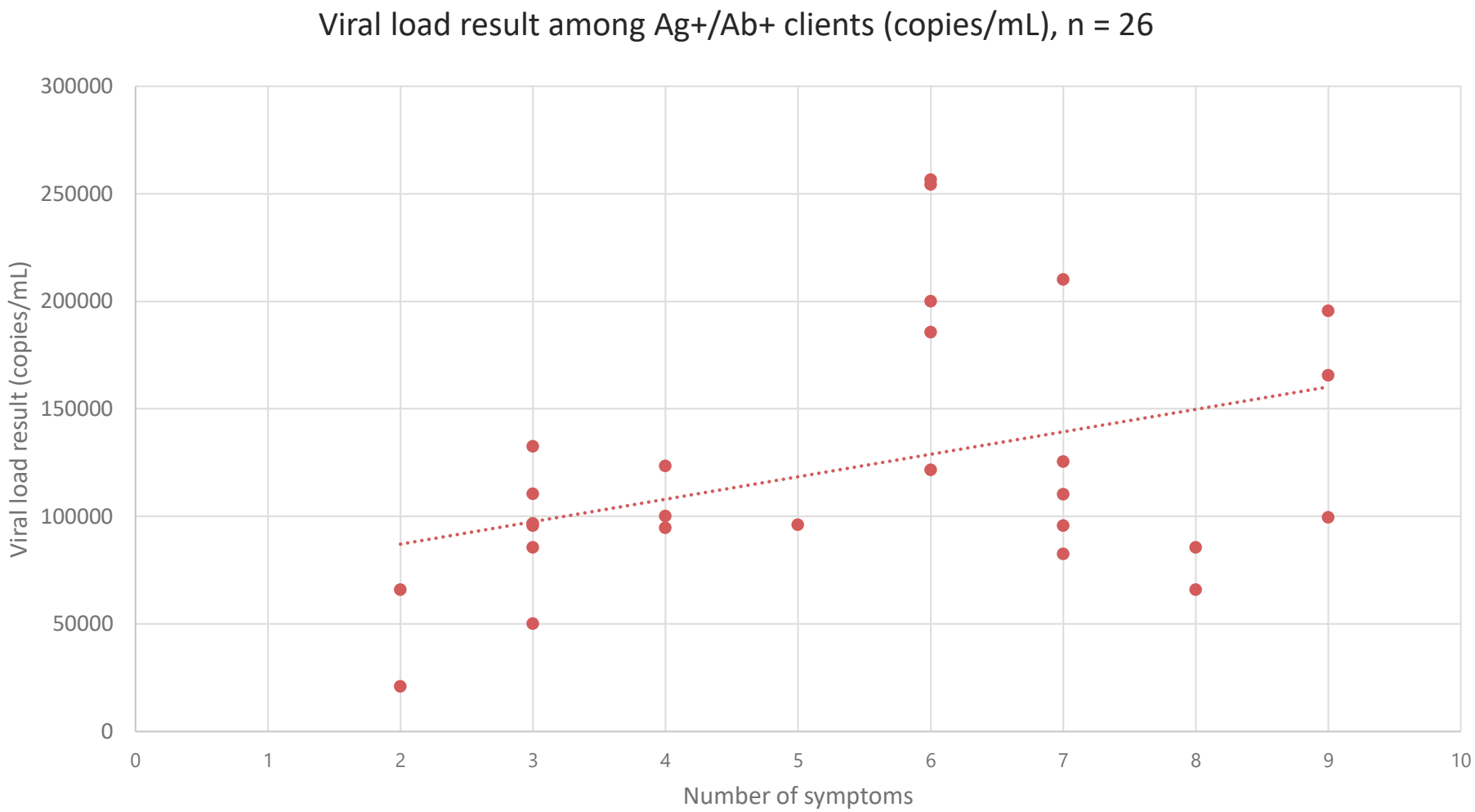
1 Ag+/Ab+ index case yielded an additional 1.69 cases

Influenza-like symptoms among Ag+/Ab+ **clients,** (Phase II, HCMC)



Sources: Hoegl et al 2015; https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4766914/ ; https://www.infectiousdiseaseadvisor.com/home/decision-support-in-medicine/infectious-diseases/evaluation-and-management-of-acute-hiv/

Viral load levels by number of influenza like illnesses of Ag+/Ab+ clients (n=26), Phase II, HCMC



Challenges and next steps

- **Challenges/limitations (Phase I and II)**
- Fragmented connections between community providers, ART clinics and laboratories; major barriers and delays in sample collection and processing (VL, CD4)
- Background confirmation algorithm based on HIV ab confirmation, results in delayed ART enrollment for those with acute HIV infection
- How to benchmark against recency (Asante) which is being rolled out for all new diagnoses in PEPFAR provinces?
- **Next steps**
- Phase III roll-out; addressing challenges and focusing on HCMC and Dong Nai
- Support MOH/VAAC to adapt national HIV diagnostic algorithm to include diagnosis of those with acute HIV infection who do not have HIV antibodies present yet

Conclusions

- Caveats: data represents a sub-population, not representative
- Combined use of risk screening, assessing for influenza-like illness, and use of a rapid 4th generation test resulted in identification of individuals living with HIV who may not have otherwise been diagnosed
- Offering enhanced-PNS resulted in more than a doubling in HIV positivity yield, and additional 3.1 new HIV diagnoses from March-June, 2019
- Promising approach but need to collect additional data, and implement on a larger scale


PATH