



Concurrent advanced HIV disease and viral load suppression in a high-burden setting: Findings from the 2015–6 ZIMPHIA survey

Shirish Balachandra

Country Director, U.S. Centers for Disease Control and
Prevention, Côte d'Ivoire

July 2020



ICAP

Columbia University
Mailman School
of Public Health

HIV LEARNING NETWORK

The CQUIN Project for Differentiated Service Delivery

Acronyms and explanation of percentages

- ART: antiretroviral therapy
 - VLS: viral load suppression
 - AD: advanced disease
 - WHO: World Health Organization
 - PLHIV: people living with HIV
-
- Please note that all percentages reflect sample weighting, rather than the raw sample numbers.

ZIMPHIA overview: data collection Oct 2015-Aug 2016

Primary Objectives

- To estimate **national-level annual HIV incidence** among adults aged 15 to 64 years.
- To estimate **provincial-level prevalence of VLS** among HIV-positive persons aged 15 to 64 years.

Secondary Objectives

- **Assess CD4+ T-cell (CD4) count distribution**, presence of ARVs, and transmitted drug resistance among people living with HIV aged 0 to 64 years.
- Describe the socioeconomic and behavioral risk factors associated with HIV infection

Advanced HIV Disease: WHO criteria

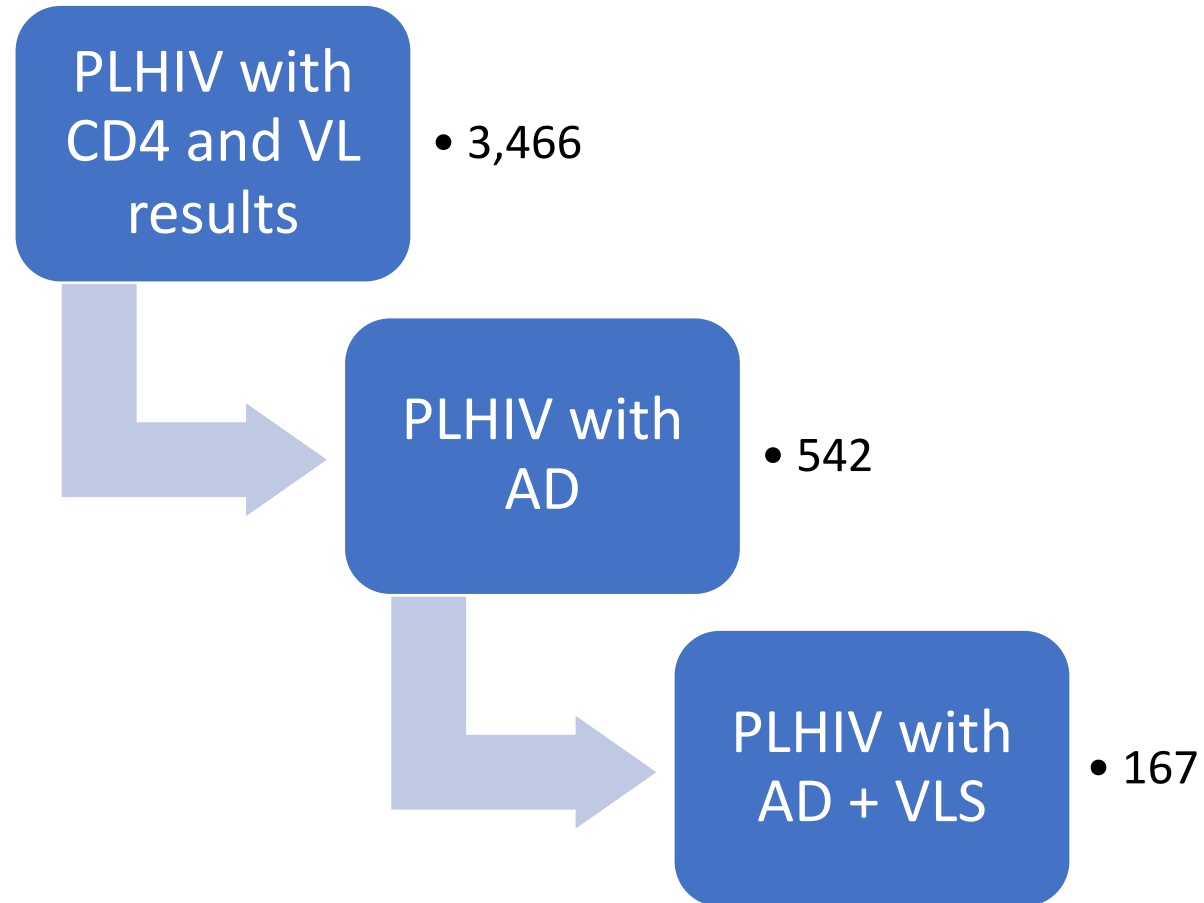
Advanced HIV disease

For adults, adolescents, and children \geq five years, advanced HIV disease is defined as a CD4 cell count <200 cells/mm³ or a WHO clinical stage 3 or 4 event at presentation for care.

ZIMPHIA: summary findings

- Annual incidence of HIV among persons aged 15 to 64 years in Zimbabwe was **0.47%**
 - *0.33% among males and 0.60% among females*
 - *Approximately 33,000 new cases of HIV annually among persons aged 15 to 64 years*
- Prevalence of HIV among persons aged 15 to 64 years in Zimbabwe was **14.1%**
 - *12.0% among males and 16.0% among females*
 - *Approximately 1.2 million persons aged 15 to 64 years living with HIV*
- Prevalence of VLS among HIV-positive persons aged 15 to 64 years in Zimbabwe regardless of ART status was **59.6%**
 - *53.6% for males and 63.7% for females*

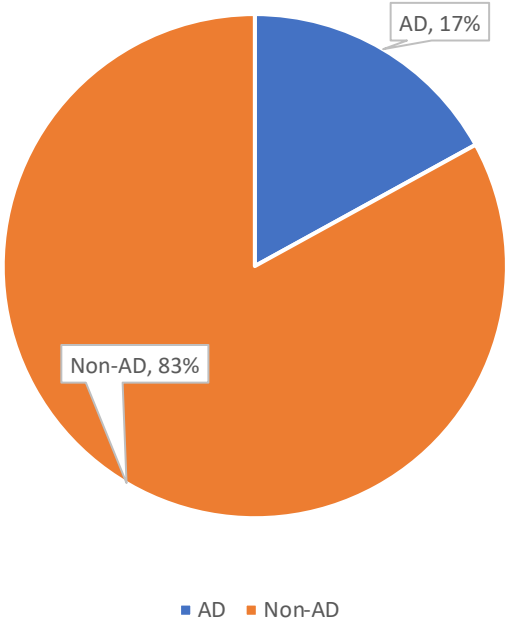
Analysis flowchart



Data visualization (1): Advanced disease and gender

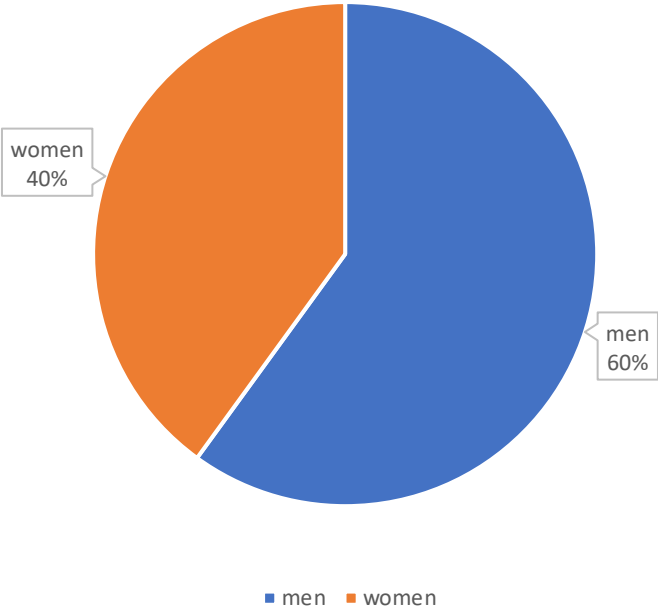
% PLHIV with AD

PLHIV, n= 3,466



AD: Gender breakdown

Advanced Disease, n= 542:



Characteristics of PLHIV with advanced disease: crude (cOR) and adjusted (aOR) odds ratios

Bivariate Analysis, n = 542

- Gender (ref: female)
 - Male cOR 2.61 [2.07–3.29]
- ART duration (ref: >2 yrs)
 - <6mos cOR 1.87 [1.50–2.34]
 - 6-24mos cOR 1.38 [1.01–1.87]
- VL status (ref: <1000/mL)
 - Viremia cOR 4.45 [3.49–5.67]

Multivariable Regression (sex, age, VLS, ART duration, CD4 history, religion), n = 542

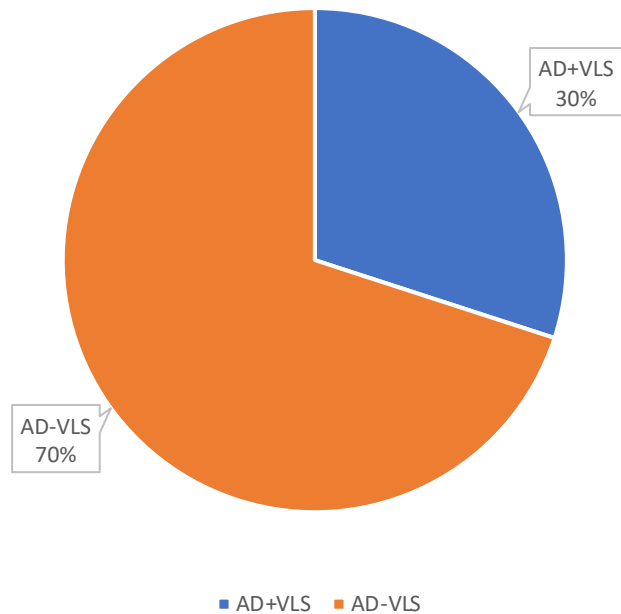
- Gender
 - Male aOR 2.26 [1.73–2.94]
- ART duration
 - <6mos aOR 0.54 [0.34–0.87]
 - 6-24mos aOR 1.47 [1.06–2.05]
- VL status
 - Viremia aOR 7.74 [5.41–11.09]

*****30% of PLHIV with advanced disease were noted to have viral load suppression:
weighted extrapolation = 62,000 individuals*****

Data visualization (2): Advanced disease and viral suppression

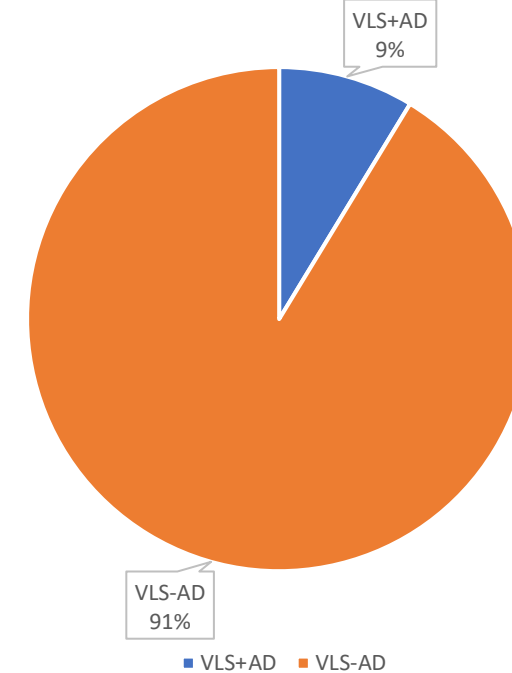
% AD patients with VLS

Advanced Disease, n= 542:



% VLS patients with AD

Virally Suppressed, n= 2,189



Characteristics of PLHIV with AD+VLS

- Multivariable analysis (sex, age, ART duration, religion)
 - Male aOR 2.45 [1.61–3.72]
 - Age 35-49 aOR 2.46 [1.03–5.91]
 - Age 50+ aOR 4.82 [2.02–11.46]
 - ART duration <6mos 0.46 [0.29–0.76]
 - ART duration 6-24mos 2.07 [1.35–3.17]

Ref: age 15–24

Ref: ART
duration >2 yrs

Conclusions

- As of 2015-16, a significant proportion (17%) of Zimbabwean PLHIV were suffering from AD
 - *35% of patients with AD self-report an ART duration of >2 years*
- Through VL monitoring alone, 30.1% of AD patients may be missed for AD support, given their VLS
 - *8.7% of patients with VLS also have AD*
- Without CD4 monitoring, potential for significant delays in appropriately differentiated care
 - *Risk of inappropriate categorization as “stable”*

Considerations for policy and practice

1. *CD4 monitoring*

Particularly for high-risk sub-populations like men

2. *Strengthen clinical staging*

3. *Strengthen and accelerate Test/Treat*

Particularly for high-risk sub-populations like men
Poor baseline CD4 => poor immunologic recovery

4. *Differentiated Service Delivery to reduce morbidity/mortality*

WHO AD package: Cryptococcal screening and prophylaxis, LF-LAM screening for TB, timely ART/CTX initiation, intensified adherence support, prioritization for TPT

Acknowledgements

- *People living with and affected by HIV in Zimbabwe*
- **Co-Authors:** JH Rogers, L Ruangtragool, E Radin, G Musuka, I Oboho, H Paulin, B Parekh, S Birhanu, KC Takarinda, A Hakim, T Apollo
- **ZIMPHIA Team:** Ministry of Health and Child Care, PEPFAR, CDC, Nat'l AIDS Council, ZIMSTAT, BRTI, Lancet, Scharp, WESTAT, ICAP

Disclaimer:

The findings and conclusions in this publication are those of the authors and do not necessarily represent the official position of the funding agencies or any organization represented.

References

- 1) doi: 10.1371/journal.pone.0230205. eCollection 2020.
- 2) ZIMPHIA Final Report: https://phia.icap.columbia.edu/wp-content/uploads/2019/08/ZIMPHIA-Final-Report_integrated_Web-1.pdf
- 3) Siika A, McCabe L, Bwakura-Dangarembizi M, Kityo C, Mallewa J, Berkley J et al. Late Presentation With HIV in Africa: Phenotypes, Risk, and Risk Stratification in the REALITY Trial. Clin Infect Dis. 2018;66(suppl_2):S140–S146. <https://doi.org/10.1093/cid/cix1142> PMID: 29514235
- 4) <https://www.who.int/hiv/pub/guidelines/advanced-HIV-disease/en/>

THANK YOU!!!!

