Self-reported versus blood-tested ART intake to estimate ART coverage in South Africa

Huerga H[1], Van Cutsem G[2], Wiesner L[3], Bouhenia M[1], Ben Farhat J[1], Fajardo E[2], Giuliani R[2], Maman D[1], Ellman T[2], Etard JF[1,4]

helena.huerga@epicentre.msf.org

[1.]Epicentre, Paris, France; [2.] Médecins Sans Frontières, Cape Town, South Africa; [3.] Division of Clinical Pharmacology, University of Cape Town, Cape Town, South Africa; [4.] Institut de Recherche pour le Développement, UMI 233, Montpellier, France

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BACKGROUND

- Kwazulu-Natal (KZN), South Africa, is one of the regions with a highest HIV prevalence in the world
- Reliable information on antiretroviral therapy (ART) intake is essential to estimate ART coverage and interpret HIV resistance.
- This study is part of a large population-based HIV survey conducted in KZN to have a better understanding of the HIV epidemic and the ART coverage in the area

OBJECTIVES

- To assess self-reported versus blood-tested ART intake agreement and to estimate ART coverage using both measurements in Mbongolwane and Eshowe, KZN

METHODS

- **Design**: cross-sectional study
- **Population**:
  - Aged 15-59 years
  - Living in Mbongolwane / Eshowe
- **Survey area:**
  - 200,000 hab.
  - Rural, urban and farms
  - 2 hospitals & 10 ART clinics



- **Procedures:**
  - Interviews face to face followed by HIV test on site & blood collection
  - HIV related tests including viral load (VL) and resistance testing
  - ART qualitative testing for nevirapine, efavirenz and lopinavir detecting drugs down to 0.2 µg/ml (the 3 drugs covered all ARV regimens in the public sector)
- **Analyses:**
  - Self-reported ART: direct question in interview
  - Blood-tested ART: ART testing in blood
  - ART coverage: proportion of HIV positive on ART among those eligible according to National Guidelines (CD4<350 &PMTCT B)

RESULTS

Population

- In total, 5649 (84.5%) individuals were included from 6688 eligible

Table 1: Participants' characteristics and survey results

Women, n (%)	3518	(62.3)
Age, median years (IQR)	26	(19-40)
Secondary education, n (%)	2806	(49.7)
Living in rural area, n (%)	4711	(83.4)
HIV prevalence, n (%)	1423	(25.2%)
ART self-reported, n (%)	712	(50.0)
ART blood-tested, n (%)	741	(52.1)

ART self-reported vs ART blood-tested

- ART intake agreement: 91.9% (kappa=0.84)
- Self-report negative among blood-test positive: 58/741 (7.8%)
- Blood-test negative among self-report positive: 52/712 (7.3%)

	ART blood-tested			
ART self-reported	Positive	Negative	Missing	**Total**
Yes	655	52	5	**712**
No	58	593	22	**673**
Missing	28	10	0	**38**
Total	**741**	**655**	**27**	**1,423**

Differences by gender and age

- ART intake agreement similar in women and men: 91.9% (kappa=0.84) vs 92.0% (kappa=0.84)
- ART intake agreement lower in aged <25 years vs ≥25 years: 88.4% (kappa=0.70) vs 92.6% (kappa=0.85)
- ART intake differences in aged <25 years vs ≥25 years:
  - Self-report negative among blood-test positive: 15/64 (23.4%) vs 43/649 (6.6%)
  - Blood-test negative among self-report positive: 12/61 (19.7%) vs 40/646 (6.2%)

ART coverage

- ART coverage using self-reported intake: 72.1% (95%CI: 68.1-73.9)
- ART coverage using blood-tested intake: 75.0% (95%CI: 72.2-77.6)

Viral load suppression (<1000 cp/ml in individuals on ART):

- VL suppression using self-reported intake: 89.8% (95%CI: 87.4-91.9)
- VL suppression using blood-tested intake: 93.1% (95%CI: 91.0-94.7)
- VL suppression in individuals with discordances:
  - Self-report positive & blood-test negative: 13/52 (25.0%)
  - Blood-test positive & Self-report negative: 40/57 (70.2%)

Resistances to ARV in individuals on ART & not virally suppressed:

- Resistances using self-reported intake: 61.1% (33/54)
  - ART blood-test negative in 12/33 (36.4%) with resistance
- Resistances using blood-tested intake: 70.0% (21/30)

DISCUSSION

- High self-reported and blood-tested ART agreement found in the overall population but lower among young people
- Overall ART coverage estimations were not affected by the measurement discrepancies
- Some differences found in the resistance rates using self-report or blood-test ART
- Stigma related issues may explain some of the measurement differences
- ART self-reporting can be a good tool for overall ART coverage estimations
- However, blood testing for ART is preferable when assessing intake in young people
- ART intake measurement should be taken in consideration when interpreting ART resistance