

ADVANCED HIV AND THE CARE CASCADE IN THE BOTSWANA COMBINATION PREVENTION PROJECT

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BACKGROUND

Individuals starting antiretroviral treatment (ART) with advanced HIV-disease (defined by the WHO as CD4 count ≤ 200 cells/ μ L) may have higher rates of early attrition from care due to HIV-related morbidity and mortality.

We determined the burden of advanced HIV-disease in community residents not already taking ART, and evaluated the impact of advanced HIV disease on treatment linkage and retention in a routine clinical setting in Botswana.

METHODS



The **Botswana Combination Prevention Project (BCPP)** is a cluster-randomized trial evaluating the impact of a combination prevention package on HIV incidence in 30 rural and semi-urban communities in Botswana.

This sub-analysis of the 15 intervention communities compares rates of:

- linkage to care,
- ART initiation,
- retention in care, and
- virological suppression

in patients identified through community testing between November 2013 and May 2016 with CD4 counts ≤ 200 cells/ μ L versus those with CD4 counts > 200 cells/ μ L.

During this period all individuals had a PIMA point of care CD4 in the community at the time of community testing.

Patients were eligible for ART if CD4 counts were ≤ 500 cells/ μ L or viral load $\geq 10,000$ copies/ml. Data were censored at the end of November 2017.

RESULTS

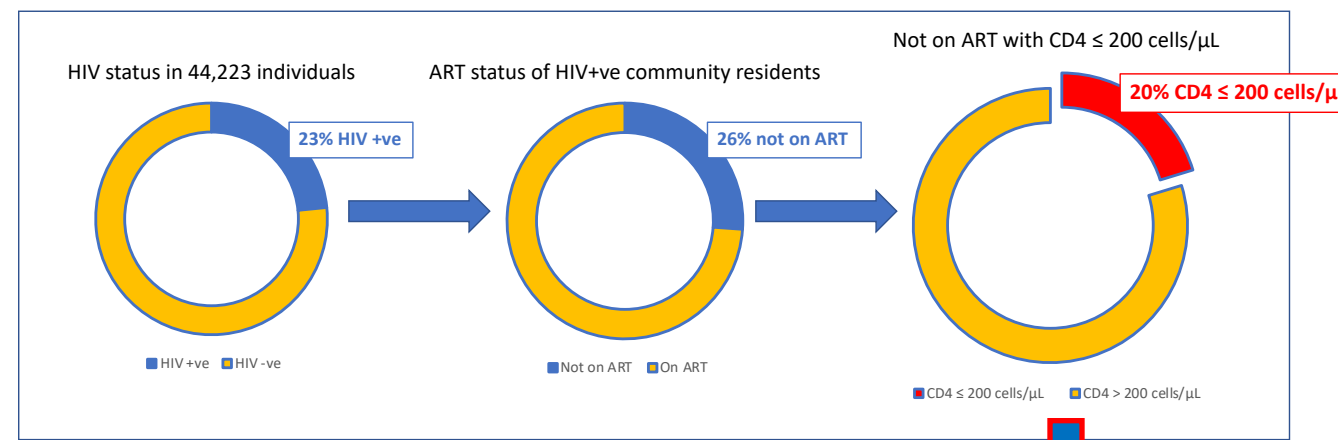
BCPP assessed HIV status in 44,223 individuals; 10,359 (23%) were HIV-infected, 2,706 (26%) of whom were not on ART and were referred for HIV care. **Of the 2,569 who had a point-of-care CD4 test, 521 (20%) had CD4 ≤ 200 cells/ μ L.**

Men were more likely to have a CD4 count ≤ 200 cells/ μ L (24% of men vs 18% of women, OR 1.4, 95% CI 1.1-1.8). The median age of individuals with advanced HIV disease was 37 (IQR 31-45) years compared to 35 (IQR 28-44) years in those without advanced disease ($p=0.002$). **There was no change in the proportion of individuals with advanced disease over time between 2013 – 2016** (15% in 2013, 19% in 2014, 21% in 2015, 22% in 2016; $p=0.7$).

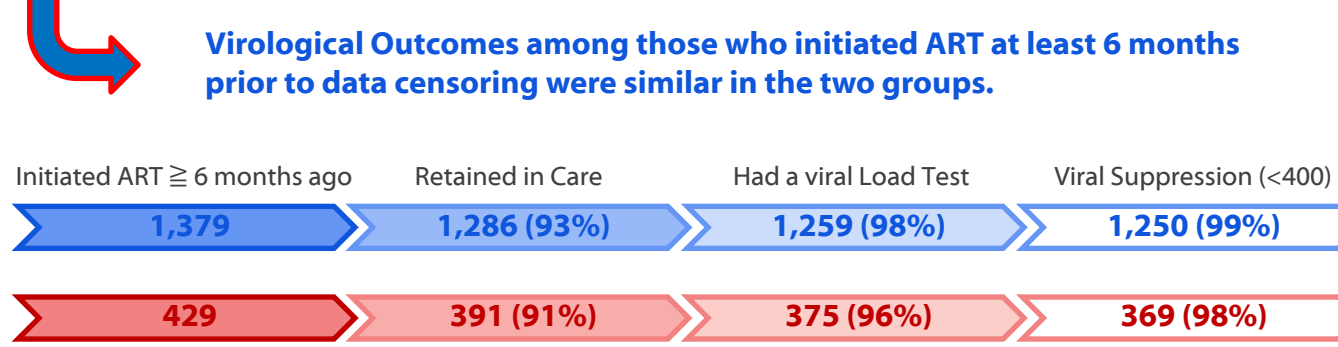
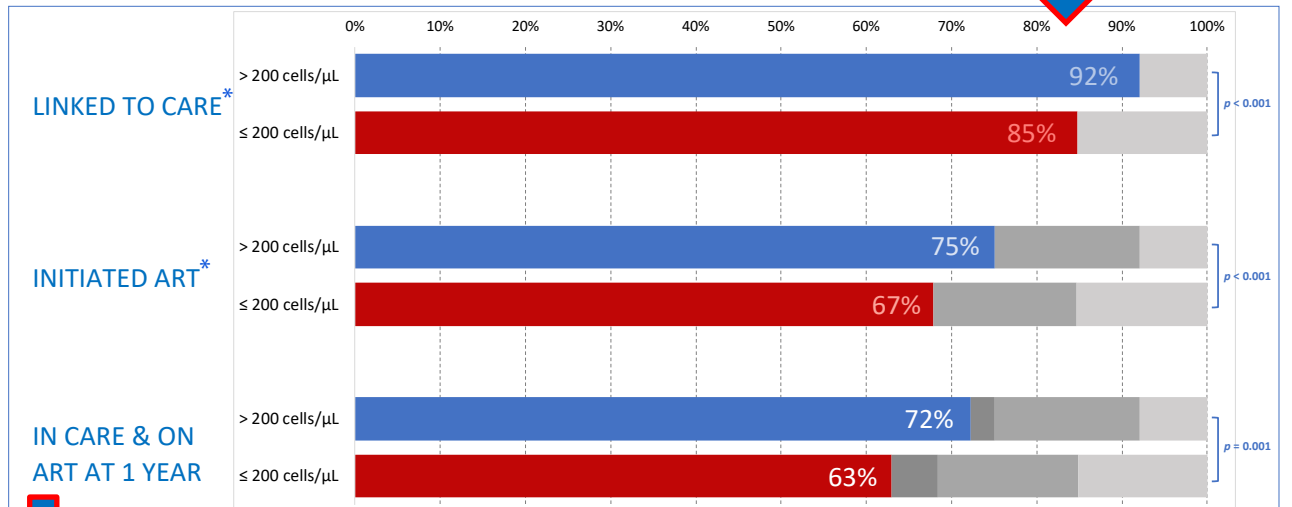
Rates of linkage to care, ART initiation, and retention in care were lower in individuals with CD4 ≤ 200 cells/ μ L compared to ART eligible individuals with CD4 > 200 cells/ μ L.

	Baseline CD4 ≤ 200 cells/ μ L	CD4 > 200 cells/ μ L and ART eligible	p-value
	n = 521	n = 1609	
Linked within 6 months*	409 (78%)	1,417 (88%)	<0.001
Linked within 12 months	440 (85%)	1,481 (92%)	<0.001
Initiated ART first 6 months	314 (60%)	1,005 (63%)	0.003
Initiated ART first 12 months	349 (67%)	1,206 (75%)	<0.001
Retained at 6 months	463 (89%)	1,495 (93%)	0.01
Retained at 12 months	446 (86%)	1,465 (91%)	0.001
In care & on ART 6 months	301 (58%)	985 (61%)	0.16
In care & on ART 12 months	328 (63%)	1,163 (72%)	<0.001
Died within 6 months	10 (2%)	7 (0.4%)	0.05
Died within 12 months	13 (2.5%)	9 (0.6%)	<0.001
In care & on ART currently**	409 (79%)	1,350 (84%)	0.03

*All timings from time of study HIV testing
 **At time of data censoring in November 2017. At this time point 492 (94%) with CD4 ≤ 200 cells/ μ L and 1,551 (96%) with CD4 > 200 cells/ μ L had linked ($p=0.05$); 453 (87%) with CD4 ≤ 200 cells/ μ L and 1,443 (90%) with CD4 > 200 cells/ μ L had initiated ART ($p=0.08$); and 409 (79%) with CD4 ≤ 200 cells/ μ L and 1,368 (85%) with CD4 > 200 cells/ μ L were retained in care ($p=0.001$).



1609/2048 (79%) of those with CD4 counts > 200 cells/ μ L were eligible for ART. All patients (521) with CD4 counts ≤ 200 cells/ μ L were eligible for ART. The analyses below are **restricted to ART eligible individuals**.



CONCLUSIONS

Twenty percent of HIV-infected individuals not on ART in the community had advanced HIV-disease (CD4 ≤ 200 cells/ μ L).

The proportion of community residents not on ART with advanced disease did not decline over time despite intensive testing and linkage activities.

Those with advanced disease had lower rates of linkage to care, lower rates of ART initiation, lower levels of retention in care, and higher mortality compared to healthier HIV-infected individuals.

Once linked, initiated, and retained in ART care, rates of viral suppression were high.

These data highlight the need to focus efforts on earlier identification of all HIV-infected persons, as well as the need for strategies to support individuals with advanced HIV disease to ensure rapid linkage to ART care, safe ART initiation, and good retention in care in this vulnerable population.

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