**Constructing the HIV cascade**

Only participants who tested positive by the HIV testing algorithm or reported HIV positive status were included in the cascade analysis. Then we developed three outcome variables: *awareness of HIV status*, *ART uptake*, and *viral suppression*.

We defined the ***awareness of HIV positive status*** based on self-reported knowledge of a previous HIV positive test result by a healthcare provider or a self-test HIV positive result that had been verified, regardless of when and where it was performed. If participants did not report their positive status during the interview, but later they were found to be HIV positive at the central laboratory and were virally suppressed, they were also considered to be aware about HIV-positive status. Those participants who refused to report status and were not tested were coded as missing values and excluded from the analysis. We performed sensitivity analysis to investigate whether the participants who refused to report their status differed in their characteristics and whether their exclusion could affect our results.

***Being on ART*** was assessed by self-report among those HIV-positive participants.

who were aware about HIV-positive status and through detection of ARV metabolites. It was determined by one question “Have you ever been on ARVs?” and “Are you currently on ARVs, that is antiretroviral medications?”.

Amongst the participants who answered positively to being on ART or were tested HIV positive during the survey, ***viral suppression*** outcome was defined based on the current guideline as a viral load of <200 HIV RNA copies per mL and <1000 copies per mL based on the previous HIV treatment guidelines.

To construct a conditional HIV treatment cascade, we used a sequential approach to present achievement of 95-95-95 targets. For each cascade bar, we present a proportion based on the preceding indicator in the cascade (as implied in the 95-95-95 targets). We also included an additional bar for all the PLHIV whether self-reported or diagnosed during the survey.

**1st 95**: Aware of HIV positive status variable

FSW and MSM typologies

Q601 Did you receive the results of your MOST recent HIV test? is “Yes” and Q606 What was the result of the MOST recent HIV test? is “Positive”

OR

Q609 What was the result of the last HIV self‐test that you conducted on yourself? is “Positive” and Q610 "Did you confirm this HIV‐positive self‐test result in a facility?" is “Yes”

PWID and TG typologies

Q701 Have you ever tested for HIV? is “Yes”, and Q706 What was the result of the MOST recent HIV test? is “Positive”

OR

Q710 What was the result of the last HIV self‐test that you conducted on yourself? is “Positive” and Q711 Did you confirm this HIV‐positive self‐test result in a facility? is “Yes”

**NOTE**: Awareness of HIV status was corrected with viral load information if viral load copies are <200/mL for participants who tested HIV positive yet they had not indicated awareness of their HIV positive status since they are likely to be on treatment.

**2nd 95**: Being on ART

FSW and MSM typologies

Q704 Have you ever been on ARVs? That is, antiretroviral medications to treat HIV infections? is 1 and Q707 Are you currently on ARVs, that is antiretroviral medications? is 1 (if not, the participants do not account for the numerator)

PWID and TG typologies

Q804 Have you ever been on ARVs? That is, antiretroviral medications to treat HIV infections? is 1 and Q807 Are you currently on ARVs, that is antiretroviral medications? is 1 (if not, the participants do not account for the numerator)

**NOTE**: Being on ART will also be adjusted later after combining with ARV metabolites results.

**3rd 95**: Being virally suppressed

All the participants who either reported they were HIV infected or were diagnosed with This was based on to definitions; a viral load of <200 copies/mL and <1000 copies/mL. Viral load testing was done in the central laboratory. For those who we don’t have blood samples and were therefore not tested (though they reported to be HIV infected).

**NOTE**: Records with missing viral load data will be removed from the numerator and affect the 1st and 2nd 95.