

District-level differentiated HIV testing strategies are needed to achieve the 1st 90 in Zimbabwe

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Abstract

Objective Despite the improvement towards the 90-90-90 targets, more than 25% of people living with HIV in Zimbabwe still do not know their HIV status. We used data from a recently published survey to recommend district-level HIV testing strategies based on HIV prevalence and antiretroviral therapy coverage to implementers and policy makers.

Results Of the 62 districts in Zimbabwe 38% were in the low HIV prevalence /low antiretroviral therapy coverage, 34% in low HIV prevalence /high antiretroviral therapy coverage, 15% in high HIV prevalence/high antiretroviral therapy coverage and 13% in high HIV prevalence/low antiretroviral therapy coverage categories. Districts with low HIV prevalence and low antiretroviral therapy coverage should employ targeted HIV testing approaches (index case testing, targeting sexual partners and HIV exposed infants; intensified provider initiated testing; key populations and hot spots). Those with high HIV prevalence and low antiretroviral therapy coverage should focus on expanding access to HIV testing to the community. Districts with already high antiretroviral therapy coverage should move to targeted HIV testing so that the few yet to be tested are reached. Further exploration to assess other contextual factors in the cascade of care beyond HIV testing is warranted to achieve the 90-90-90 strategies.

Introduction

Currently Zimbabwe counts about 1.2 million [1.1 million-1.4 million] people living with HIV (PLHIV) [1]. The country has made remarkable progress towards reducing new infections and AIDS related deaths. The number of new HIV infections has decreased by 35,3% from 62 000 [45 000-83 000] to 38 000 [28 000-51 000] between 2010 and 2018 while HIV related deaths have decreased by 42,6%, from 54 000 [43 000-68 000] to 22 000 [17 000-27 000] during the same period [1]. In terms of 90-90-90 targets, 74.2% of all PLHIV reported knowing their HIV status, of whom 86.8% self-reported current use of ART, and among those who self-reported current use of antiretroviral therapy (ART) 86.5% were virally suppressed, showing that more than 25% of PLHIV do not know their HIV status, representing an opportunity for interventions. [2].

The lag in the 1st 90 can be addressed by increasing the HIV testing offer [3]. However, with

dwindling funding, donors now call for more efficient high yield HIV testing strategies, where fewer people are tested but more HIV-positive cases are identified [4, 5]. The feasibility and efficiency of mass HIV testing campaigns is being questioned, and strategies to use resources more efficiently are needed. We used data from the recently published survey on HIV prevalence and number of adult PLHIV shown on a 5 × 5-km grid across 47 countries in sub-Saharan Africa [6] and program data on number of people on ART by end of 2018 [7] to calculate ART coverage and to locate the different combinations of HIV prevalence/ART coverage on a map. Our aim was to recommend district-level HIV testing strategies based on HIV prevalence and antiretroviral therapy coverage to implementers and policy makers.

Main Text

District based HIV testing strategies

Of the 62 districts in Zimbabwe 38% were in the low HIV prevalence /low antiretroviral therapy coverage, 34% in low HIV prevalence /high antiretroviral therapy coverage, 15% in high HIV prevalence/high antiretroviral therapy coverage and 13% in high HIV prevalence/low antiretroviral therapy coverage categories (Fig. 1).

Given these important differences, we recommend adapting strategies to district specific needs, based on HIV prevalence and ART coverage data. To identify PLHIV in districts with a low HIV prevalence and a low ART coverage (Rushinga, Harare, Uzumba-Maramba-Pfungwe, Mbire, Centenary, Binga, Gokwe-North and Gokwe-South) HIV testing strategies should be targeted to maximize the yield. In these low HIV prevalence, low ART coverage districts, health facility based strategies will be most efficient in combination with community testing in high risk groups. Health facility based strategies include index case testing, targeting sexual partners and HIV exposed infants, and intensified provider initiated testing (iPITC). Studies have shown index case testing as an effective and cost effective strategy in identifying PLHIV [8–12]. iPITC should be offered to all those admitted and to those seeking ambulatory health care at the general consultation or at specialized services, such as the tuberculosis, antenatal care, family planning, sexually transmitted infections, gender based violence, rape victims, orphans and vulnerable children [13]. All eligible clients should be

actively linked to HIV testing services [14]. Community testing should prioritize subgroups with a higher prevalence, such as key populations, and hot spots identified from a mapping exercise conducted in Zimbabwe should guide programming [15]. Social network testing using peer educators can be a useful tool to reach some of the key populations [13] .

In districts with a high HIV prevalence but a low ART coverage (such as Umuguza, Bubi, Zvishavane, Nkayi, Matobo, Mberengwa), access to HIV testing services should be prioritized. HIV testing services should be widely available, especially within the community (for instance door to door home testing or outreach testing in schools, workplaces, places of worship, parks, bars, market place, galas and other venues) to increase access [16]. Innovative strategies, involving communities and clients, may work best in high prevalence settings. Despite them being unpopular, for these districts with a high prevalence but struggling to meet ART coverage targets it's still worth to invest in wide spread mop-up community HIV testing campaigns with a leading role for health care workers [17]. These HIV testing campaigns can be conducted as part of health fairs or multi-disease screening campaigns/events to reduce stigma associated with HIV testing [18, 19]. Studies have shown a high interest in HIV self-testing from a wide range of subgroups, including sero-discordant couples, men, young people, sex workers and their partners [20]. Scale- up of HIV self-testing should be supported with procedures for confirmatory testing and linkage to care for those diagnosed HIV positive [16]. In districts which have already achieved ART coverage above 90%, i.e. those with low HIV prevalence/high ART coverage (such as Chegutu, Seke, Gweru, Mazowe, Marondera) and high HIV prevalence/high ART coverage (such as Beitbridge, Hwange, Mangwe, Lupane, Gwanda), HIV testing strategies should be more targeted. Most of these districts have almost reached saturation with HIV testing i.e. few remain untested hence the need to have more targeted HIV testing strategies.

In conclusion, district level mapping of uncovered needs may result in a more efficient use of limited resources to achieve the 1st 90. District based differentiated HIV testing strategies should be implemented based on HIV prevalence and ART coverage. Districts with low HIV prevalence and low ART coverage should employ targeted HIV testing approaches while those with high HIV prevalence and low ART coverage should focus on expanding access to HIV testing to the community. Districts

with already high ART coverage should move to targeted HIV testing so that the few yet to be tested are reached. Further exploration to assess other possible factors across the cascade of care is warranted in the affected districts.

Limitations

The above estimates of prevalence and number of people living with HIV were derived, consolidated and triangulated from a variety of sources, providing an opportunity for district-level health priority setting [21–25]. However, there are limitations; the gap in ART coverage might be beyond the lack in provision of adequate and appropriate HTS strategies. Further exploration of possible factors across the cascade of care (linkage, ART initiation, retention) using contextual information is warranted in the affected districts. Strategies that have been seen to work in addressing linkage, ART initiation and retention in care should then implemented accordingly [26–33]. Another caveat, the data used to formulate the recommendations only applies to the 15–49 years age group. Reliable estimates for children are awaited.

Declarations

Abbreviations

HIV – Human immunodeficiency virus, ART – antiretroviral therapy, PLHIV – people living with HIV, iPITC – intensified provider initiated testing and counseling

Authors' contributions

RM led the conceptualization of the paper, data analysis and writing of the original draft paper. ZKC developed the maps. TD, LL, VWD, JH and SR reviewed all sections of the manuscript. All authors contributed to interpreting the data and editing of the manuscript and all approved the final version.

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Availability of data and materials

Zimbabwe data on HIV prevalence and number of PLHIV is publicly available at (<http://ghdx.healthdata.org/ihme-data/africa-hiv-prevalence-geospatial-estimates-2000-2017>). The data from Ministry of Health and Child care on the number on ART per district by end of 2018 is not available on the public domain. Anyone interested in using the data for scientific purpose is free to request permission from the Director of the AIDS and TB Program, AIDS and TB Unit, Ministry of Health and Child Care, Government of Zimbabwe, 2nd Floor, Mukwati Building, Harare, Zimbabwe. E-mail: atp.director@ymail.com

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Competing interests

The authors have no competing interests.

Ethics approval and consent to participate

Not applicable.

Consent for publication

Not applicable.

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Figures

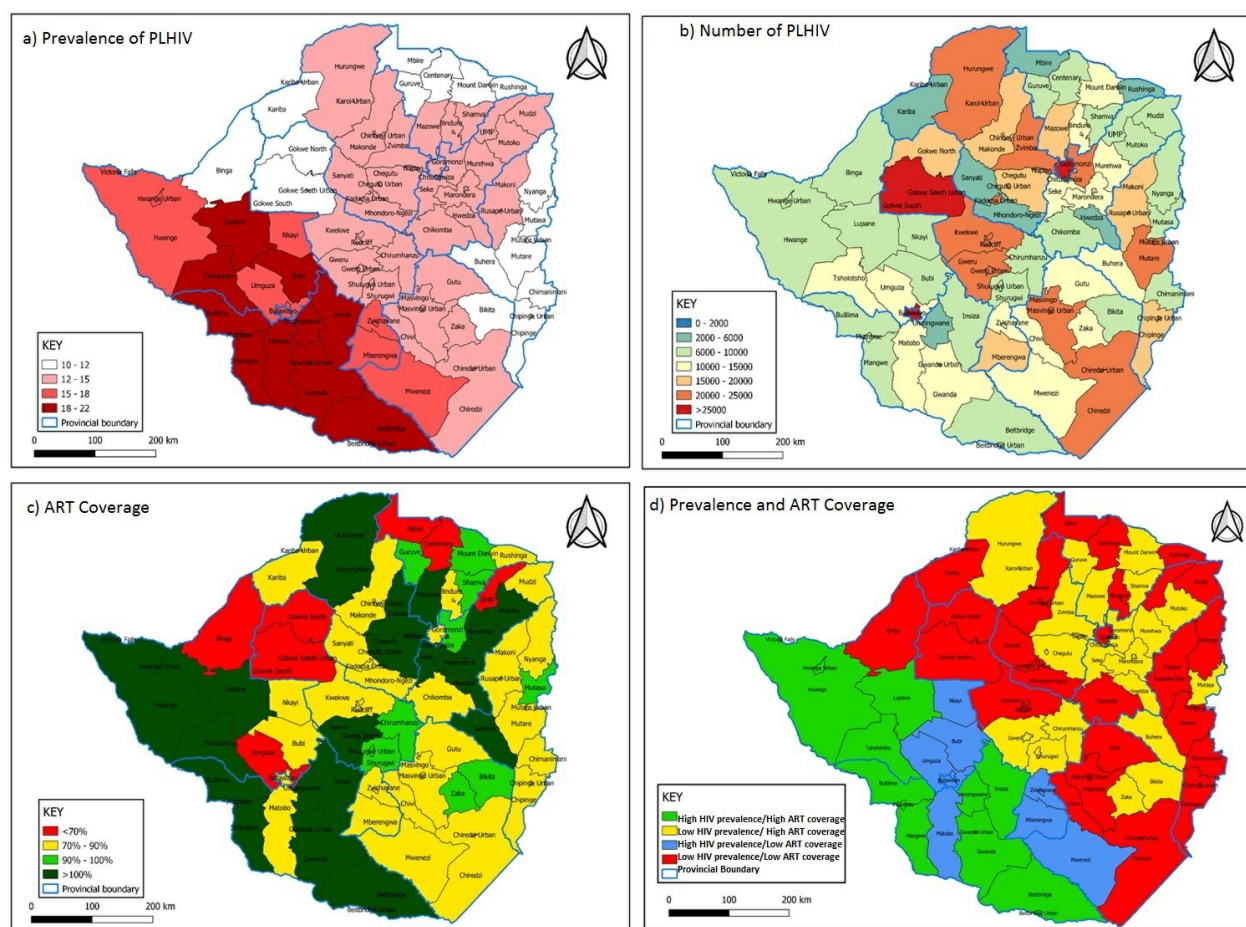


Figure 1

Maps showing a) Prevalence (%) of PLHIV, 15 – 49 years age group in 2017 b) Number of PLHIV, 15 – 49 years age group per district in 2017 c) ART coverage, 15 – 49 years age group by end of 2018 d) HIV prevalence and ART coverage (high prevalence $\geq 15\%$, low prevalence $< 15\%$, high ART coverage $\geq 90\%$, low ART coverage $< 90\%$,) in Zimbabwe

Supplementary Files

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