

Full Length Research Paper

Human immunodeficiency virus testing and counseling trends analysis, Midlands Province, Zimbabwe: A secondary data analysis

Annamercy Makoni¹, Notion Gombe¹, Tsitsi Juru^{1*}, More Mungati¹, Donewell Bangure¹, Gerald Shambira¹, Milton Chemhuru² and Mufuta Tshimanga¹

¹Department of Community Medicine, University of Zimbabwe, Harare, Zimbabwe.

²Ministry of Health and Child Care, Zimbabwe.

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HIV testing and counseling (HTC) indicators are captured for programming, decision making and program monitoring and evaluation. A preliminary review of Midlands province HTC data showed that a small proportion of men and children were being tested for HIV. The secondary HTC data to determine trends to inform programming was therefore analyzed. A descriptive study using secondary HTC data was carried out. Microsoft Excel was used to come up with Chi square for trends analysis and p-values were generated using Epi info 7. There were 623,174 clients in the HTC dataset from 2010 to 2014. There was a significant increase in HTC coverages from 4% (n=59 512) in 2010 to 21% (n=382 559) in 2014 ($X^2=898\ 517$; $p<0.01$). All districts recorded the highest HTC coverages in 2014, Gokwe having the lowest coverage of 14% (n=4 778). HTC positivity rates declined from 29% in 2010 to 7% in 2014 ($X^2=32\ 551$; $p<0.01$). There was a significant increase in HTC coverages across all age groups, sexes and districts. Positivity rates were significantly higher among males than females. Low HTC coverages and high positivity rates among men indicate the urgent need for routine HTC educational campaigns and behavior change communication programs for men.

Key words: Human immunodeficiency virus testing and counseling, secondary dataset analysis, Zimbabwe.

INTRODUCTION

Human immunodeficiency virus (HIV) testing and counseling (HTC) is the entry point to HIV prevention, treatment, care and support (Ministry of Health and Child Care (MOHCC), 2014). The knowledge of one's HIV status is an important prevention and treatment intervention strategy that influences behavior change (Ministry of Health and Child Care (MOHCC), 2014). HIV

testing is the critical first step in linking people living with HIV to the treatment cascade, and it also provides an important opportunity to reinforce HIV prevention (World Health Organization, 2013). Regular HIV testing and counseling is a vital gateway for people to take control early of their sexual lives. It empowers them to take the necessary steps to protect their own health and that of

*Corresponding author. E-mail: tsitsijuru@zimfetp.net.

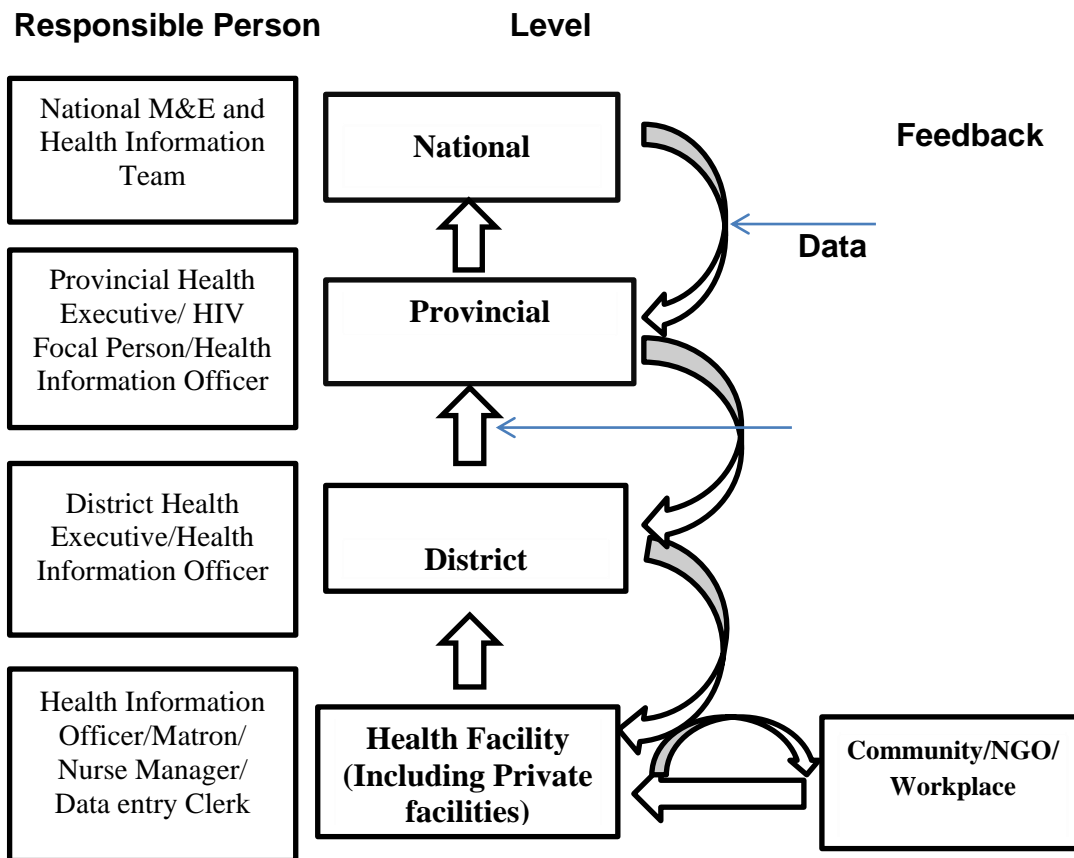


Figure 1. Flow of HIV testing and counseling data. Source: Zimbabwe National Guidelines on HIV Counseling and Testing, 2nd Edition, 2014.

others through positive living (AVERT, 2014). High coverage of provider initiated testing and counseling (PITC) has been achieved in antenatal care (ANC) and tuberculosis (TB) clinics.

Globally, about 118 million people in 124 low and middle income countries received HTC in 2012 (World Health Organization, 2013). Young people aged 15 to 24 years accounted for 39% of all new HIV infections worldwide in 2012 (AVERT, 2014). In sub Saharan Africa, 10% men and 15% women (15-24 years) knew their HIV status in 2013 (The National Strategic Plan for Eliminating New HIV Infections in Children and keeping mothers and families Alive 2011 to 2015, 2011). It is estimated that 1.4 million people are living with HIV in Zimbabwe (Ministry of Health and Child Care (MOHCC), 2014). In Zimbabwe, 36% men and 57% women had received HTC by 2011 (Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International, 2012). HIV and Acquired Immunodeficiency Syndrome (AIDS) accounted for 21% towards the under-five mortality rate as well as 26% towards the maternal mortality ratio in the country in 2012 (The National Strategic Plan for Eliminating New HIV Infections in Children and keeping mothers and families Alive 2011 to 2015, 2011).

HTC data is captured in the “Prevention of Mother to Child Transmission of HIV(PMTCT), HTC, opportunistic infections(OI)/antiretroviral therapy (ART), post exposure prophylaxis (PEP), sexually transmitted infections (STI)/HIV, Sexual Violence and Male Circumcision (MC) monthly return form”, commonly known as the HIV monthly return form.

This data used to be entered into the HIV/TB Indicator database which was shifted to the district health information system (DHIS) 2 in October 2013. All stand-alone databases were incorporated into the new DHIS 2 online data repository software. Variables which include number of clients given pretest and post-test counseling, number of clients tested for HIV, number of clients who tested positive for HIV, number of clients tested as couples, number of clients referred for OI/ART and psychosocial support are captured.

Figure 1 shows the flow of HTC data from the community to the national level. HTC service providers submit monthly data to local health facilities. At the health facility, data are consolidated monthly into the HIV monthly return form and send to the district level. Data is received at the district level and consolidated into a district report. The district health information department

Table 1. Socio demographic characteristics of HTC clients, Midlands Province, 2010 to 2014.

Variable	Category	Frequency (n = 623 174 (%))
Sex	Males	244 726 (39)
	Females	378 447 (61)
Age group (years)	<15	67 988 (12)
	≥15	555 185 (88)
Tested as couples (n=43 898) (years)	≤19	3737 (9)
	20-49	35 376 (80)
	50+	4 786 (11)

enters the data into the electronic DHIS 2 software which can be accessed at the provincial and national levels. National annual HTC reports are produced by the Ministry of Health and Child Care and feedback is given to health facilities. The Ministry of Health and Child Care ensures that ongoing research is carried out to address specific program gaps. A preliminary review of Midlands province health facility based HTC data showed that a small proportion of men and children were being tested for HIV. This study therefore set out broadly to analyze the Midlands province secondary HTC data for the period 2010 to 2014 to determine trends.

MATERIALS AND METHODS

The HTC data set was set up in 2006 and is crucial for programming purposes, decision making, resource allocation and program monitoring and evaluation at all levels. A descriptive study was conducted using the HTC dataset in Midlands province for the period January 2010 to December 2014. Data was obtained from the HIV/TB indicator database and the DHIS 2 database, Midlands province health information office. Data was analysed using Microsoft Office Excel 2007. Graphs, bar graphs and linear graphs were generated to demonstrate the various trends in HIV testing and counselling in the past five years. Chi-square for trends and p-values were generated using Epi Info version 7. Variables analysed included: Number of clients tested for HIV by age group, and district, number of clients who tested HIV by age group, sex and district, and the HIV positivity rates among individuals tested as couples by age group.

Permission to carry out the study was obtained from the Provincial Medical Director (PMD) for Midlands Province and the Health Studies Office (HSO). All ethical considerations were observed including the non-use of identifiers and the secondary data was used for research purposes only.

RESULTS

There were 623,174 clients in the dataset from 2010 to 2014. Of these, 7% (43 622) were tested as couples. Females constituted the highest proportion (61%, n=43 622) of the clients who received HTC services as individuals. A higher proportion (88%, n=555 185) of the clients was 15 years old and above (Table 1).

There was a significant increase in the number of clients tested for HIV in Midlands province from 4% (n=59 512) in 2010 to 21% (n=382 559) in 2014. A sharp increase was noted from 2013 to 2014 from 6 to 21% (Figure 2). Age groups for HTC uptake were regrouped into two, <15 and ≥15 years. A smaller proportion of children below 15 years was tested for HIV each year, 0.74% (n=5 052), 0.7% (n=4 914), 1.2% (n=8 176), 0.8% (n=5 131) and 6% (n=44 715), from 2010 to 2014 respectively. However, there was a sharp increase in clients who were tested for HIV in both age groups from 2013 to 2014.

The increase in clients who received HTC from 2010 to 2014 was statistically significant for both age groups, $X^2=79\ 851$; $p<0.01$ and $X^2=207\ 138$; $p<0.01$ respectively. The difference between the two trends was statistically significant with $X^2=19.8$; $p<0.01$. HTC showed a significant increase across all districts from 2010 to 2014. All the districts recorded the highest HTC uptake in 2014 with Mberengwa having the highest uptake rate of 22% (n=11 643) and Gokwe with the lowest rate of 14% (n=4 778).

HTC positivity rate declined from 29% in 2010 to 7% in 2014. The decline was statistically significant, $X^2= 32\ 551$; $p<0.01$ (Figure 3).

Figure 4 shows a significant decline in HIV positivity across all age groups. Positivity rates were higher in the 25 to 49 years age group and declined from 36% in 2010 to 13% in 2014.

There was a significant decline in the positivity rate for both males and females. However males had higher positivity rates than females from 2010 to 2014. Average positivity rates for the whole period were 16% for males and 14% for females. The decline was statistically significant for both males and females, $X^2= 8\ 383.6$; $p<0.01$ and $X^2= 18\ 811.3$; $p<0.01$ respectively.

All districts show a decline in HIV positivity rates from 2010 to 2014, Gweru district with the highest rate of 50% in 2010. Gokwe had the highest positivity rate of 43% in 2011. Individuals in the 20 to 49 years age group who were tested as couples had the highest positivity rate from 2010 up to mid-2012. From 2013 to 2014, the above 50 years age group showed higher HIV positivity rates,

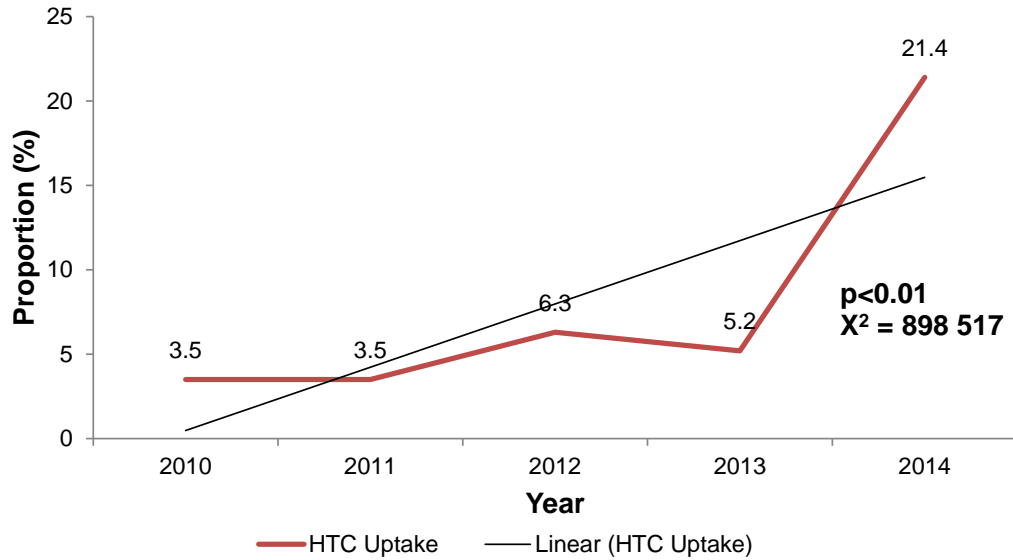


Figure 2. Trends in proportion of clients tested for HIV, Midlands Province, 2010 to 2014.

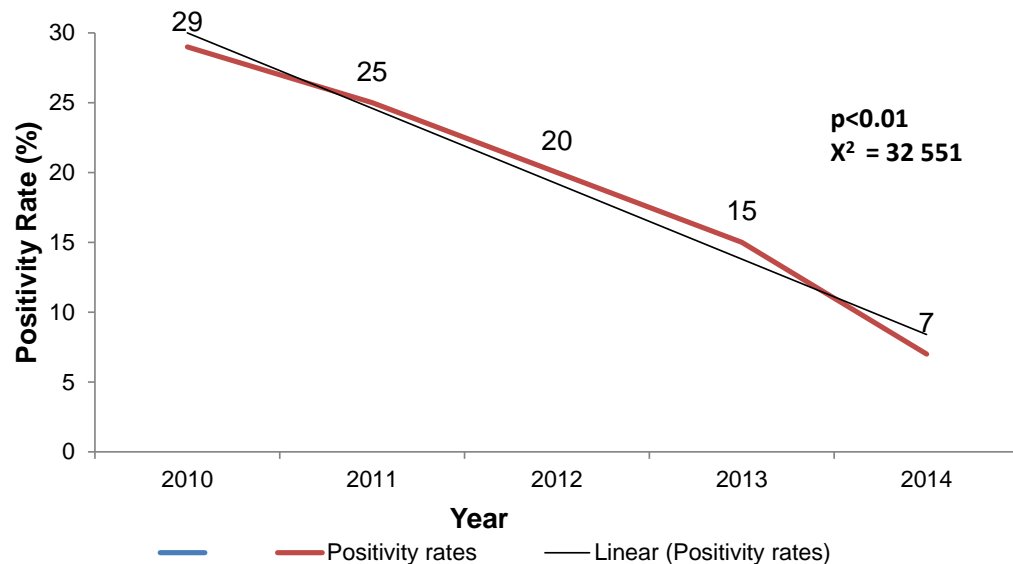


Figure 3. Trends in HIV positivity in Midlands Province from 2010 to 2014.

$X^2= 68.9$; $p<0.01$, $X^2= 708.2$; $p<0.01$ and $X^2= 26.9$; $p<0.01$ respectively.

DISCUSSION

From the secondary HTC data, more women received HIV testing and counseling than men. This was attributed to the fact that women have more contact with health facilities and as such have more opportunities for HTC which they take up as compared to men. In a study by Topp et al. (2016) in Zambia, it was found that among

those who accepted testing in the PITC program, 44% were men. Of the HIV positive, 41% of the men enrolled in HIV care and treatment. The study findings indicated that clinics in Lusaka were more acceptable to women than to men (Topp et al., 2016). Matovu et al. (2013) in Rakai, Uganda found out that being male was significantly associated with the less likelihood of individual HIV testing. Stigma and the fear of HIV positive results were found to be barriers to accessing VCT services in sub Saharan Africa (Matovu and Makumbi, 2007). In a cross sectional study by Sanga et al. (2015) in Arusha City in Tanzania, females were about twice more

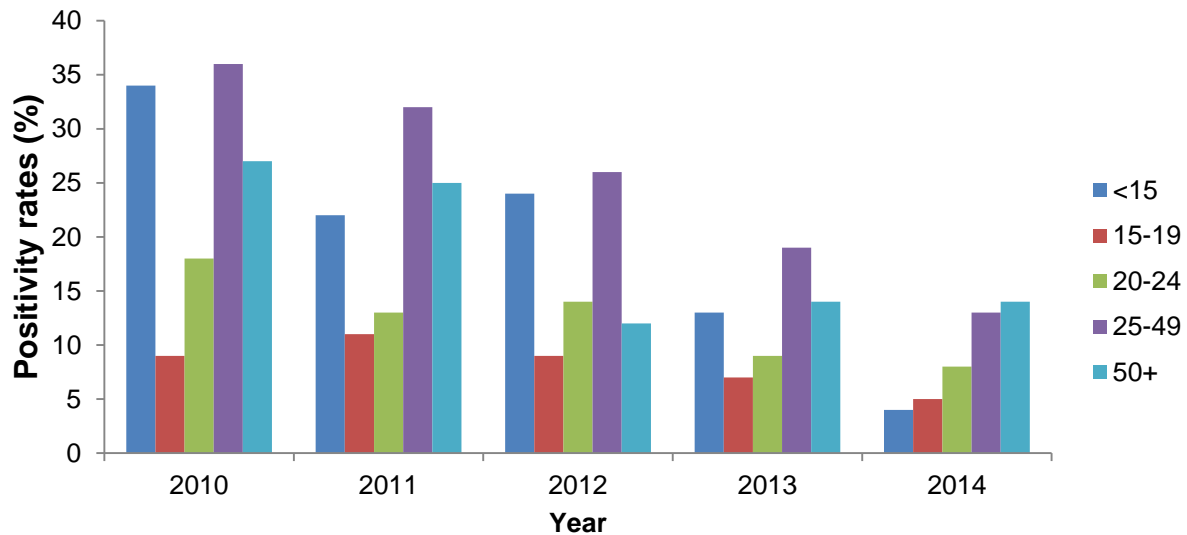


Figure 4. HIV positivity by age group, Midlands Province, 2010 to 2014.

likely to test for HIV than males. This implies the need to mobilize men for HTC for example in beer halls, churches and workplaces, where they are mostly found.

There was a significant increase in HTC uptake in both age groups and across all districts. This might be attributed to the increase in the number of testing centers and the integration of HIV and AIDS with other programs which include PMTCT, MC, Visual Inspection with acetic acid and Cervicography (VIAC) and TB/HIV collaborative activities through the PITC initiative. It was also highlighted by the provincial HIV focal person that the year 2014 recorded the highest HTC coverages due to the HTC campaigns which were done that year. Contrary to our findings, Matovu et al. (2013) in Rakai, Uganda, reported a decline in individual HCT uptake over time. Appiagyei et al. (2012) in Lusaka noted a high uptake of HTC among couples due to a mass media campaign, however, uptake declined as the campaign ended (Appiagyei et al., 2012). The District Medical Officer (DMO) for Gokwe North district reported that the low HTC coverages in Gokwe in 2014 were attributed to inadequate sensitizations due to the hard to reach populations.

The general decline in HIV positivity rates may be attributed to the expansion of the HTC services through the PITC initiative at all entry points, condom programming and behavior change among couples. Individuals who visit the health facility for any reason, including those without HIV related symptoms, are offered HIV testing and counseling through the PITC approach. All women who visit the antenatal care clinic are offered HTC in order to scale up the prevention of mother to child transmission of HIV.

Males had higher HIV positivity rates than females, on average 14% for males and 16% for females. This was contrary to the findings of the Zimbabwe 2010/2011

demographic health survey where higher positivity rates were recorded among females than males, 80 and 69% respectively (Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International, 2012). This difference may be due to the fact that this study analyzed health facility based data unlike the demographic health survey data which was for the general population.

The higher positivity rates among males might be attributed to their poor health seeking behaviors. Due to the poor health seeking behaviors of men, majority of men present to the health facilities when they are sick (HIV related) and through PITC, a significant proportion of them test positive for HIV, hence higher positivity rates. This is supported by findings by Suthar et al. (2013) who found out that health facility based HTC positivity rates were higher than the community based rates. This was due to the fact that symptomatic people with HIV are more likely to visit health facilities than healthy people (Suthar et al., 2013). In a study by Kyaddondo et al. (2012) in Eastern Uganda, most respondents considered HTC in their own homes as more private than in health facilities. This implies that men need to be sensitized on the importance of routine HTC. Community and workplace based services might help improve HTC uptake among men.

The decline in the positivity rates among individuals tested as couples may be attributed to condom programming and ART. ART and consistent condom use reduce HIV transmission among couples. This implies that sensitizing couples to test for HIV, use condoms correctly and consistently and seek early treatment might reduce positivity rates among couples.

Few children had access to HTC in the province throughout the period 2010 to 2014. Children do not know the importance of knowing their HIV status and how HIV is transmitted. They cannot decide on their own to go

for HIV testing or seek medical care because they are dependent on their care givers. Only the exposed infants, children with HIV related illnesses and school going children who want to be circumcised are tested for HIV. Failure to catch them young means failure to reduce HIV transmission and delayed treatment. Similar findings were reported by Sanga et al. (2015) in Tanzania where the rate of voluntary HIV counseling and testing (VCT) uptake was found to be lower among those participants below 18 years.

The uptake of VCT was mainly found to be influenced by fear of HIV test results, knowledge on VCT services, age, education, engagement in sexual relationships, stigmatization and distance to the VCT centre (Sanga et al., 2015). Similar findings were reported in Cameroon where VCT uptake was found to increase with age (Mbopi-kéou et al., 2012).

Limitation

Health facility based data were analyzed hence results cannot be generalized. Two databases were used for the comparison of data over 5 years hence some variable which did not appear in both data bases could not be assessed.

Conclusion

HTC uptake remained low among men and children below 15 years of age despite the increase in the number of clients tested for HIV across all age groups, sexes and districts. Low HTC coverages and high positivity rates among men indicate an urgent need to mobilize men for early HTC and behavior change in order to prevent HIV transmission to others. From the dataset analysis we recommended an analytical study on determinants of HTC uptake among males, routine HTC campaigns in order to reach men and community based HTC integrated with other programs for cost effectiveness. Findings of the analysis were shared with the Provincial Health Executive (PHE) members and as a result recommendations were taken up. Following the recommendations from this analysis, a study on factors associated with male partner involvement in the prevention of mother to child transmission of HIV was conducted in the province.

CONFLICT OF INTERESTS

The authors have not declared any conflict of interests.

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Abbreviations: **ANC**, Antenatal care; **ART**, antiretroviral therapy; **AIDS**, acquired immunodeficiency syndrome; **DHIS**, district health information system; **HIV**, human immunodeficiency virus; **HSO**, health studies office; **HTC**, HIV testing and counseling; **MC**, male circumcision; **OI**, opportunistic infections; **PEP**, post exposure prophylaxis; **PITC**, provider initiated testing and counseling; **PMD**, provincial medical director; **PMTCT**, prevention of mother to child HIV transmission; **STI**, sexually transmitted infections; **TB**, tuberculosis; **VCT**, voluntary HIV counseling and testing.

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