# Human Immunodeficiency Virus Testing Trends Among Children in Kadoma City, Zimbabwe, 2015-2017

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## ABSTRACT

**Introduction:** Zambia is a cholera-endemic country and the epidemic in the capital, Lusaka, 2017-2018, caused more than 5,900 cases and 110 deaths. Low-income resident districts in Lusaka are known as hotspots for cholera outbreaks. Among these districts, Kanyama sub-district has been the origin of the outbreaks in Lusaka, 2005-2006, 2016, and 2017-2018. However, spatial factors are associated with the increased number of cholera cases in the Kanyama sub-district; the origin place is still not fully understood. We determined the environmental factors associated with the increased cholera cases in the Kanyama sub-district by using geocoordinate data collected during the outbreak in 2017-2018. **Methods:** We conducted a retrospective data analysis on geocoordinate data of houses of cholera cases identified in Kanyama sub-district during the outbreak in 2017-2018. Associations between the number of cases in each of the 218 generated zones within Kanyama sub-district and the distribution of environmental factors (e.g., water sources, toilets) were analyzed. **Results:** A total of 405 cholera cases were identified in 136 zones (62%, 136/218). Zones with cases had significantly larger numbers (median, interquartile range; IQR) of toilets outside houses (56.5, 0-256; vs 35.5, 0-151; $p$<0.001) and pit latrines (51, 0-194; vs 28; 0-117; $p$<0.001), while significantly smaller number of water tanks than zones without cases (0, 0-21; vs 0.5, 0-19; $p$=0.021). The number of cases showed a positive correlation with the number of toilets outside houses (rho=0.307, $p$<0.001) and pit latrines (rho=0.354, $p$=0.001). **Conclusion:** Lack of access to sanitary toilet facilities was associated with the increased number of cholera cases in Kanyama sub-district; the origin place of the recent cholera outbreaks in Lusaka, Zambia. Our study highlighted the importance of targeted public health interventions to the sanitation systems in those areas.

## Introduction

In May 2007, the World Health Organization (WHO) introduced guidelines supporting expanded human immunodeficiency virus (HIV) testing worldwide [1]. Human immunodeficiency virus testing and counselling guidelines mandate healthcare service providers to offer testing routinely to all clients accessing healthcare facilities in high-prevalence settings. The guidelines also mandate that all clients be tested for HIV unless they explicitly opt out [1]. The Zimbabwe national HIV treatment guidelines further advocated retesting of seronegative children at high risk for infection every 6 to 12 months [1]. These recommendations demanded expanded HIV testing and it marked the shift to the provider-initiated testing and counselling (PITC) [2]. Globally 90% of children under the age of 16 years do not know their HIV status [3]. Poor linkages from HIV testing and counselling (HTC) services, poor linkages to care and failure to access antiretroviral therapy (ART) services mean that HIV-positive children commence treatment late [4]. By the time of commencing treatment, they are already significantly immunocompromised resulting in poor health outcomes. In HIV/AIDS programming, counselling is a form of 'talk therapy' whereby an individual, couple or family meet a trained professional counsellor to talk about issues and problems that they are facing. In Zimbabwe, all clients tested for HIV receive pre-test and post-test counselling [5].

In Sub-Saharan Africa, annually an estimated 1.8 million new HIV infections are reported and of these, a larger proportion is attributable to unprotected sex within stable HIV-discordant partnerships. Most of the partners have at least one child and this could be contributing to the high HIV positivity rate among children in Sub-Saharan Africa [6]. In a study on trends in HIV counselling and testing uptake among married individuals in Rakai, Uganda, the researchers noted an increase in uptake of HIV testing with the highest rates among pregnant women than among men and young children [7]. Provider-initiated testing and counselling along with the availability of ART appears to have led to a substantial increase in testing. Despite high testing rates, a considerable proportion of persons were diagnosed late in the course of their disease [8].

In Zimbabwe, Kadoma City included, most children living with HIV were not tested and diagnosed in their infancy. Despite provider-initiated testing and counselling (PITC) being offered in different healthcare settings in Zimbabwe, these children often remain undiagnosed until they develop opportunistic infections, thereby increasing their risk of dying [9].

A preliminary review of Kadoma City HIV testing and counselling (HTC) reports showed a 23% positivity rate among children aged ≤14 years from January 2015 to December 2017. The test and treat policy requires that 90% of all those who visit health institutions seeking any type of healthcare services be offered PITC services. Despite the adoption of the test and treat strategy, from a total of 45 015 children aged 14 years and below who visited Kadoma City clinics, only 413 (0.92%) were tested between 2015 and 2017. The proportion of children tested for the 3 years was below the 90% target recommended by the Ministry of Health and Child Care. We described the children aged ≤14 years tested for HIV in terms of person, place, and time in Kadoma City for the period 2015 to 2017.

## Methods

### Study Setting

Our study sites were five Kadoma City Council health facilities. The health facilities are Rimuka Maternity Clinic (catchment population of 5,120), Rimuka Integrated TB and HIV Care Clinic (catchment population of 43,263), Waverly Clinic (catchment population of 14,345), Ngezi Clinic (catchment population of 11,875) and Chemukute Clinic (catchment population of 19,113). Rimuka Maternity Clinic and Rimuka Integrated TB and HIV Care Clinic are located in Rimuka high-density suburb, with Waverly Clinic located amid Waverly high-density suburb, Ngezi Clinic located in Ngezi high-density suburb and Chemukute Clinic located six kilometres from the Kadoma central business district in the mining location of Eiffel Flats. We used HIV testing data from all five Kadoma City Council health facilities.

All five Kadoma City council clinics were offering HIV testing services as well as outpatient treatment, maternity services, reproductive health services, environmental health services and collaborative TB HIV activities. Rimuka Maternity Clinic was mainly providing maternal health services; however, a small section of the clinic was for out-patients and other primary health care health services. Services at the five clinics were offered for free except at Rimuka Maternity Clinic where pregnant mothers were paying a booking fee. The Ministry of Health and Child Care sponsored maternal and child health activities as well as TB/HIV collaborative activities at two Rimuka City Council facilities. Voluntary HIV testing services (both PITC and VCT) were offered at all five Kadoma City Council health facilities. Clients from the VMMC programme, TB and HIV programme, and Maternal and Child Health programme were getting HIV testing services from the HTC department at each facility and all clients were recorded in the same HTC register at each facility. All five Kadoma City Council health facilities had a total catchment population of 93,716 based on 2012 census projections.

**HIV Testing and Counselling Surveillance System**

In Zimbabwe, the HTC dataset was set up in 2006 and is crucial for programming purposes, decision-making, resource allocation and program monitoring at all levels [10]. Data for HTC is collected through a paper-based form which is entered into the DHIS2 software at the district level. The Kadoma City HTC data were captured from registers in Prevention of Mother to Child Transmission (PMTCT), HIV Testing and Counselling and Sexually Transmitted infections (STIs)/Opportunistic Infection/Antiretroviral Therapy (OI/ART) clinics. Additional data is captured on the Sexual Violence and Male Circumcision Monthly Return Form. At the health facility level, HTC data were entered into the HTC register and then consolidated monthly into the PMTCT return form. The data is then sent to the district monthly. At the district, the data is received and consolidated into a district report. The Health Information Department enters the data into the DHIS2 software [11].

**Study Design**

We conducted a secondary data analysis of Human Immunodeficiency Virus testing data in Kadoma City Council health facilities from January 2015 to December 2017.

**Data Source and Variable of Interest**

We obtained our data from all HTC registers in Kadoma City clinics. In Zimbabwe Human Immunodeficiency Virus testing and counselling (HTC) is the entry point to prevention, care, treatment, and support. The HTC registers were introduced as a requirement of the Zimbabwe National HIV testing and counselling guidelines of 2005. The aim of the HTC register was to capture information on HIV testing and counselling indicators for programming, decision making and program monitoring and evaluation purposes. The HTC register has 26 variables and some of the variables extracted for the study are the date the client was tested, the time when client tested, age of client, sex of client, number tested positive, number tested negative, the type of HTC model that is outreach, workplace or voluntary visit. We manually abstracted data from the HTC registers from the five Kadoma City Council clinics.

**Study Population**

The study population were children aged≤14 years who were tested at Kadoma City council five health facilities, for the period January 2015 to December 2017.

**Data Analysis**

We analysed data using Epi info 7 and Microsoft Office Excel 2007. We managed to manually assess the completeness of all the HTC registers at the five Kadoma City health facilities by checking if all data points for each record were entered. We removed duplicate tests arising due to retesting among seronegative children during data cleaning. Frequencies and proportions were generated to demonstrate the various trends in HIV testing among children aged ≤14 years for the period 2015 to 2017. Variables that were analysed include number of children aged 14 years and below tested for HIV categorised into age groups, sex and health facility where HIV testing services were provided. We set our level of significance at 5% and the positivity rate was calculated using the CDC method of taking the number of all children ≤ 14 years who tested positive and divided by the number of total tests (both positive and negative). The Chi-Square ($\chi^2$) test was used to test for statistical significance on all the categorical data. We tested for significance using the social sciences statistics online calculators for the Chi-square test. We described the demographics of all the children aged ≤14 years who were tested in Kadoma City for the three years under review. Yearly HIV testing trends were described. The HIV testing trends were described in terms of age and sex of children, as well as by health facilities were children were tested in Kadoma City. The HIV positivity rates were analysed by age groups, and by sex of the children aged ≤14 years in Kadoma City.

**Ethical Considerations**

The study was reviewed and approved by the Mashonaland West Provincial Ethics Committee (MW/EC/012-2019). We obtained permission to carry out the study from the Kadoma City Council and the Health Studies Office. We maximised the study benefits to Kadoma City health facilities by continuously giving feedback to the health facilities during and after the conduction of the study. We maintained the confidentiality of HTC documents by keeping them under lock and key at the Kadoma City Council Health Department.

## Results

The yearly levels of data completeness were 91%, 92% and 91% for 2015, 2016 and 2017, respectively. A total of 413 children aged ≤14 years underwent HIV testing services in Kadoma City health facilities during the period. Of the 413 records of children ≤14 years, 37% (151/413) were from Rimuka Integrated Tuberculosis (TB) and HIV Care (ITHC) Clinic; Ngezi Clinic had 19% (77/413), Chemukute Clinic had 15% (61/413), Waverly Clinic had 14% (58/413) and Rimuka Family and Child Health (FCH) Clinic had 16% (66/413) of the total

children who were tested in Kadoma City. Females were 33% (136/413) and males were 67% (277/413). Of the 413 children tested for HIV in Kadoma City, 20% (81/413) were children in the age group of ≤5 years, 38% (159/413) were in the age group of >5 years to ≤10 years and 42% (173/413) were in the age group of >10 years to ≤14 years of age. The median age was 9 years, (IQR: 6 - 12, Table 1). HIV testing rates for 2015, 2016 and 2017 were 0.25% (36/14220), 0.28% (43/15490) and 0.39% (60/15305) respectively (n=45015).

**Yearly Human Immunodeficiency Virus testing trends of children ≤14 years, Kadoma City, 2015-2017**

Of the 112 children who were tested in 2015, most (15%) were tested during the month of July. The proportion of children tested in 2015 gradually increased from 5% (6/112) in March to a peak of 15% (17/112) in July 2015. The least reported proportion of children tested in 2015 was in December, where 3.5% (4/112) were tested. In 2016 most children 25% (31/124) were tested during the month of April whereas in 2017, most children 17.5% (31/177) were tested in September. During the three-year period under review, the highest proportion of children was tested in 2017, when a total of 177 children were tested. The trend in the number of children aged ≤14 years who received HIV testing for the three years is shown in (Figure 1). The proportions of children tested by year 2015, 2016 and 2017 were 27.1% (112/413), 30.0% (124/413) and 42.9% (117/413) respectively.

**Human Immunodeficiency Virus testing trends by age group for children aged ≤14 years, Kadoma City, 2015-2017**

Of the 413 children who were tested from January 2015 to December 2017 in Kadoma City, 204 of the children were in the age group of >10-14 years. In 2015, 47/112 (42.0%) children tested were in the age group 5-10 years. In 2016, we noted that 49/124 (39.5%) of children tested in Kadoma City, were in the age group of 5-10 years. In 2017, 100/177 (56.5%) were in the age group >10-14 years. We noted that only 15% (61/413) of children tested from January 2015 to December 2017 were in the age group of 5 years and below. The distribution of tests by age group by year is shown in Table 2.

**Annual sex distribution of children aged ≤14 years tested for Human Immunodeficiency Virus, Kadoma City, 2015-2017**

Of the 413 children aged ≤ 14 years who were tested in Kadoma City from January 2015 to December 2017, 277 were males and 136 were females. In 2015, 70.5% (79/112) were males and 29.5% (33/112) were females. In 2016, 77.4% (96/124) were males and females were 22.6% (28/124). The highest numbers of both males and females tested during the three years were recorded in 2017 when 102 males and 75 females were tested. Sex disaggregated HIV testing rates were 1.16% (79/6826) for males and 0.45% (33/7394) for females in 2015, 1.29% (96/7435) for males and 0.35% (28/8055) for females in 2016 and 1.39% (102/7346) for males and 0.94% (75/7957) for females in 2017 (Table 3).

Overall HIV testing rate among females was 0.30% (70/23406) whilst among males this was 0.62% (134/21609) for the period 2015 to 2017 (n=45015).

**Human Immunodeficiency Virus testing trends by health facilities of children aged ≤14 years, Kadoma City, 2015-2017**

We noted that Rimuka ITHC Clinic, Ngezi and Rimuka FCH Clinics contribution to the total number of children age ≤14 years who were tested in Kadoma City improved from 22% (25/112), 22% (25/112) and 24% (27/112) in 2015, to 24% (24/177), 29% (51/177) and 31% (54/177) in 2017 respectively.

**Human Immunodeficiency Virus positivity rates by age groups, for children aged ≤14 years, Kadoma City, 2015-2017**

We noted that in 2015 the highest positivity rate of 31% (4/14) was among the age group of ≤5 years and the least positivity rate of 17% (9/51) was among the age group of 10-14 years. Children in age group of ≤5 years who were tested in 2015, 2016 and 2017 had the highest positivity rate for the three years. In 2016 the highest positivity rate of 17% (4/22) and (9/53) was in the age groups of ≤5 years and >10 - ≤14 years. In 2017, the highest positivity rate of 31% (16/52) was among the >5-10 years age group and the least positivity rate of 26% (26/100) was among the >10 - ≤14 years age group. Overall HIV positivity increased from 15% (22/112) in 2015 to 27% (49/177) in 2017. The increase in positivity rates among children aged 14 years and below in Kadoma City from January 2015 to December 2017 was not significant with $\chi^2 = 1.6$ and p=0.76 (Figure 2).

**Human Immunodeficiency Virus positivity rates by sex for children aged ≤14 years, Kadoma City, 2015-2017**

For the year 2015 a total of 29.5% (33/112) female children aged≤14 years were tested at Kadoma City health facilities and the positivity rate was at 14% (5/33). However, the positivity rate slightly increased to 15% (4/28) in 2016 and subsequently rose to 33% (25/75)) in 2017. For males ≤14 years, there was no difference in positivity rates for the 3-year period under review. The positivity rates were 26% (21/79), 17% (16/96) and 26% (27/102) respectively. The increase in positivity rates for

both males and females were statistically significant $\chi^2$=2.24; p=0.03.

**Human Immunodeficiency Virus positivity rates by health facilities for children aged ≤14 years, Kadoma City, 2015-2017**

We noted that, in 2015, Rimuka FCH clinic had the highest HIV positivity rate of 44% (9/20) followed by Chemukute clinic which had HIV positivity rate of 33% (6/17). In 2016 Rimuka FCH had highest HIV positivity of 41% (12/30) followed by Waverly clinic which recorded HIV positivity rate of 17% (2/9) Waverly and Ngezi clinics recorded the highest positivity rates in 2017. Waverly recorded 69% (27/39) and Ngezi recorded 68% (20/30) positivity rates in 2017 alone. The difference in HIV positivity rates trends among Kadoma City clinics was statistically significant with $\chi^2$= 35.7; p=0.001 (**Figure 3**).

## Discussion

We noted that the proportion of children who were tested was increasing from 2015 up to 2017 in Kadoma City. This could be attributed to the testing services offered by the Voluntary Medical Male Circumcision (VMMC) programme in Kadoma City. The VMMC programme started in 2016 in Kadoma City and all males who were to be circumcised were supposed to be tested first, hence more males were tested than females in Kadoma City. The VMMC programme was adopted in Zimbabwe for HIV prevention and hygiene purposes [10]. Male children who wanted to be circumcised were referred to the HTC services at all five health facilities in Kadoma City. Increasing VMMC services in the city was also helping in diagnosing and early initiation of more HIV positive male children who were not aware of their HIV status. Mwenge L et.al (2017) also noted a significant increase in number of children who were tested in Malawi, Zambia and Zimbabwe as a result of the VMMC programme which was being conducted in these countries [12]. Also consistent with our findings the National Strategic Plan for HIV also noted an increase in proportion of children who were being tested as a result of the VMMC programme in Zimbabwe [13]

Most children tested in this study were within the >10-≤14 age group. This could be because most male children are reached through the VMMC program. We found two studies that reported children tested disaggregated by age group. Odafe S, et al 2020 reported most children tested were in the 1-4year age group while the 10-14 year age group came third. (Odafe S, Onotu D, Fagbamigbe JO, Ene U, Rivadeneira E, Carpernter D, et al (2020) Increasing pediatric HIV positivity rates through focused testing in high-yield points of service in health facilities-Nigeria 2016-2017. PLoS ONE 15(6): e0234717) [14]. The most HIV tested age group according to data from Zambia Lesotho and Democratic Republic of Congo 2015-2017 was the 1-9 year age group while the 10-14year age group was second. The same data for Zimbabwe for the same period, the 10-14year age group as the most tested mirroring what is happening in Kadoma. (Medley AM, Hrapcak S, Golin RA, Dziuban EJ, et al., 2018. Strategies for identifying and linking HIV infected infants, children and adolescents to HIV treatment services in resource limited settings) [15]. The differences in age groups tested could be due to different programmatic contexts. In the Zimbabwean context, more males in the older age group are tested as part of HIV prevention in VMMC as opposed to routine programming in other settings.

The positivity rate was also high among children and clinics in the high-density areas also. Increase in HIV positivity rates among children aged ≤14 years in Kadoma City, could have been as a result of the integration of HIV and AIDS activities in all health programmes like the tuberculosis and nutrition programmes in the city. The increase in positivity rate could also be due to a shift from the mass testing of the general population to the PITC which is likely to select high risk patients for HIV test. Integration of these health programmes could have increased HIV and AIDS awareness among Kadoma City residents, hence they were now more willing to partake in HIV/AIDS activities than before. Caroline A et.al (2021) in Cameroon, pointed out that integration of HIV and AIDS activities with other health programmes can create more awareness and improve uptake of HIV testing services [16]. All facilities offer HIV testing for children but the maternity clinic could be more accessible to postnatal mothers and their children as it is a specialized clinic. Most children are tested at the Rimuka Integrated TB and HIV Clinic also because of its specialization coupled with a large catchment population.

We noted that HIV testing coverage for boys in Kadoma City was much higher than for girls. Our findings were contrary with the Zimbabwe Population-based HIV Impact Assessment (ZIMPHIA) (2015-2016) which noted a high HIV testing coverage and prevalence among girls than boys in Zimbabwe. In a similar study by Kyaddondo et.al (2012) in Eastern Uganda, also noted that most children below 15 years can be tested through provision of the PITC programme particularly in schools [17].

In our study we noted that few children had access to HTC services in Kadoma City throughout the period 2015 to 2017. Children do not know the importance of knowing their HIV status and how HIV is transmitted [18]. Children can also not decide on their own to go for HIV testing or seek medical care because they are dependent on their care givers [19]. Only the exposed infants, children with HIV related illnesses and school going

children who want to be circumcised were tested for HIV. Failure to catch children when they are young means failure to reduce HIV transmission and delayed treatment [20]. Matovu and Makumbi (2007) highlighted that the rate of VCT uptake can be lower among individuals as 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 [7]. A report on STD testing in Pittsburgh, Pennsylvania (2021) similar findings of a relationship in the increase in VCT uptake with age were reported [21].

Our study was with limitations as only the variables which appeared in the database could be analysed and ages were regrouped in order to assess trends over the selected three-year period. Therefore, the results of the analysis may not be generalised beyond Kadoma City Council. There was also a possibility of under reporting of clients who refused to be tested and could also be due to those who had been tested within a year prior 2015. Our dataset did not capture all the 2015 Voluntary Medical Male Circumcision HIV testing and counselling outreach data. This could have potentially threatened internal validity of our study findings in terms of estimating precise performance of Kadoma City on HIV testing and counselling trends. However, the dataset gave us an insight on the increase in uptake of HIV testing and counselling services as well as increase in HIV positivity rates in Kadoma City among children below 14 years.

## Conclusion

Kadoma City health facilities recorded highest HIV positivity rate among female children aged ≤14 years in 2017 when compared with 2015 and 2016. More children were tested in 2017 when compared with 2015 and 2016. This might be attributed to the VMMC programme which commenced in 2017 in Kadoma City and the programme was also testing male children before they were circumcised. More HIV positive children who did not know their HIV status were being tested more frequently in 2017 when compared with 2015. This might also mean more children were being initiated early on HIV treatment and this might have helped in improving and prolonging the quality of life of children aged ≤14 years in Kadoma City. As children mature, they are likely to make better decisions about their health, this was demonstrated by the proportion of children who were in the upper age group of 10-14 years who were tested more than children who were in the lower age groups. Highest positivity rates were recorded amongst clinics which were located in Kadoma City's high-density suburbs. We recommended healthcare service providers to increase the rate of offering PITC services to above the recommended target of 90% particularly among the least tested age group of 0-5 years. Twenty-two Kadoma City Council health personnel were trained on current provider-initiated testing and counseling practices and three HIV testing and counselling awareness campaigns were conducted in Kadoma City.

### What is known about this topic

- Human immunodeficiency Virus testing is the entry point to HIV prevention, care, treatment and support.
- Failure to test children for HIV means they delay accessing HIV treatment, hence they will experience adverse health outcomes.

### What this study adds

- This study adds literature on HIV testing trends among children in Zimbabwe, as there was limited literature on this subject.
- This study adds on strategies that can be employed in various settings to improve HIV testing services among children ≤14 years of age.

### Competing interests

The authors declare no competing interests.

### Authors' contributions

CM: conception, design, acquisition, analysis and interpretation of data and drafting the manuscript. DC: conception, design, acquisition, analysis and interpretation of data and drafting the manuscript. GS, NG, TJ, SC, AC, MT: conception, design, data collection, analysis, interpretation and reviewing of the draft of the manuscript for important intellectual content.

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### Tables and figures

Table 1: Socio Demographic characteristics of clients for Human Immunodeficiency Virus testing and counselling, Kadoma City, Zimbabwe, 2015 to 2017

Table 2: Distribution of HIV tests by age group by year among children in Kadoma City, Zimbabwe, 2015-2017

Table 3: Sex disaggregated HIV tests per year in Kadoma City, Zimbabwe, 2015-2017

Figure 1: Kadoma City HIV positivity rates by age groups, for children aged ≤14 years, Zimbabwe, 2015 to 2017

Figure 2: Kadoma City HIV positivity rates by sex of children aged ≤14 years, Zimbabwe, 2015 to 2017

Figure 3: Kadoma City Health facilities HIV positivity rates for children aged ≤14 years, Zimbabwe, 2015 to 2017

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**Table 1:** Socio Demographic characteristics of Children aged ≤14 years tested for Human Immunodeficiency Virus, Kadoma City, Zimbabwe, 2015 to 2017

| **Variable** | **Category** | **Frequency n = 413** | **Percent** |
|---|---|---|---|
| Sex | Female | 136 | 32.9 |
| | Male | 277 | 67.1 |
| Age (years) | ≤ 5 | 81 | 19.6 |
| | >5 – ≤ 10 | 159 | 38.5 |
| | >10 – ≤14 | 173 | 41.9 |
| Facility | Rimuka ITHC | 151 | 36.6 |
| | Ngezi | 77 | 18.6 |
| | Rimuka FCH | 66 | 16.0 |
| | Chemukute | 61 | 14.8 |
| | Waverley | 58 | 14.0 |
| Median Age = 9 years | $Q_1$ = 6 years $Q_3$ = 12 years | | |

| **Table 2:** Distribution of HIV tests by age group by year among children in Kadoma City, Zimbabwe, 2015-2017 | | | | | |
|---|---|---|---|---|---|
| | | **Year** | | | **Total** |
| | | **2015** | **2016** | **2017** | |
| Age group | < 5 years | 14 | 22 | 25 | 61 |
| | 5-10 years | 47 | 49 | 52 | 148 |
| | >10-14 years | 51 | 53 | 100 | 204 |
| Total | | 112 | 124 | 177 | 413 |

| **Table 3:** Sex disaggregated HIV tests per year in Kadoma City, Zimbabwe, 2015-2017 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | **2015** | | **2016** | | **2017** | | **Total** | |
| | | **Male** | **Female** | **Male** | **Female** | **Male** | **Female** | **Male** | **Female** |
| **Age group (years)** | <5 | 12 | 5 | 15 | 4 | 15 | 10 | 42 | 19 |
| | 5-10 | 28 | 12 | 34 | 10 | 37 | 27 | 99 | 49 |
| | >10-14 | 39 | 16 | 47 | 14 | 50 | 38 | 136 | 68 |
| **Totals by sex** | | 79 | 33 | 96 | 28 | 102 | 75 | 277 | 136 |
| **Overall total** | | 112 | | 124 | | 177 | | 413 | |

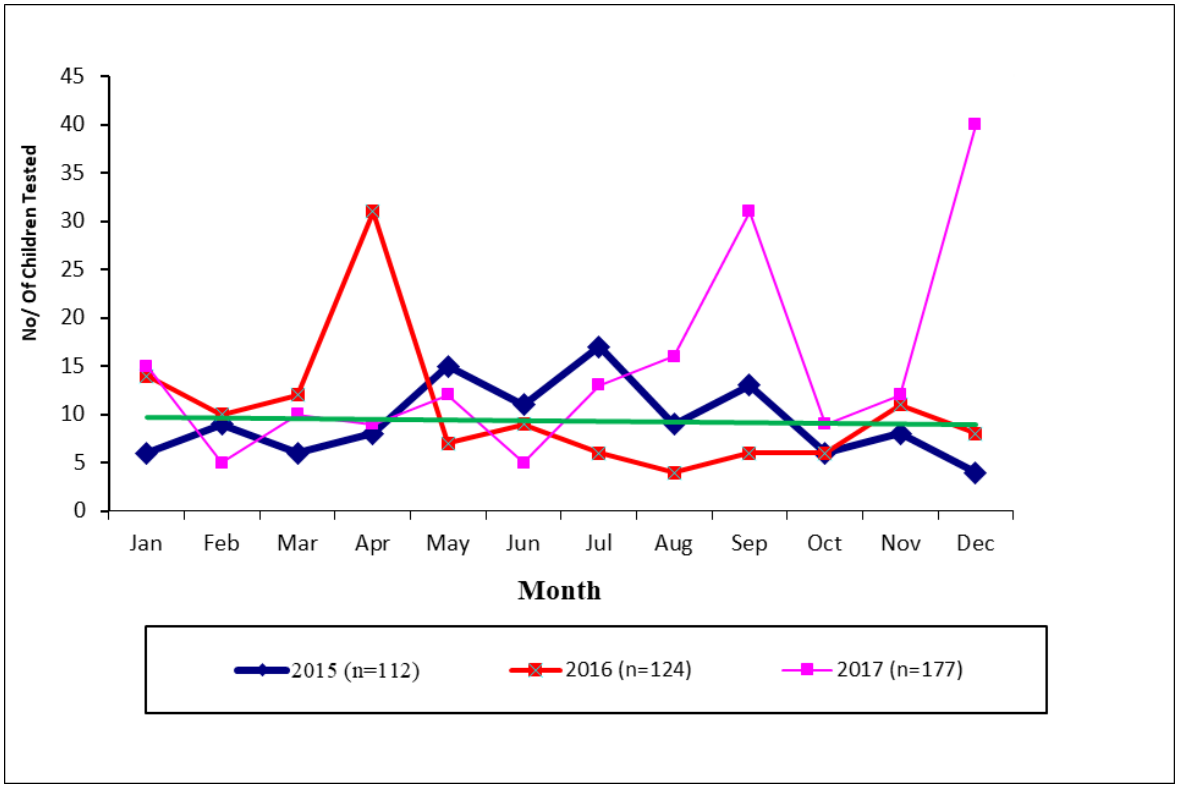


**Figure 1:** Kadoma City HIV positivity rates by age groups, for children aged ≤14 years, Zimbabwe, 2015 to 2017

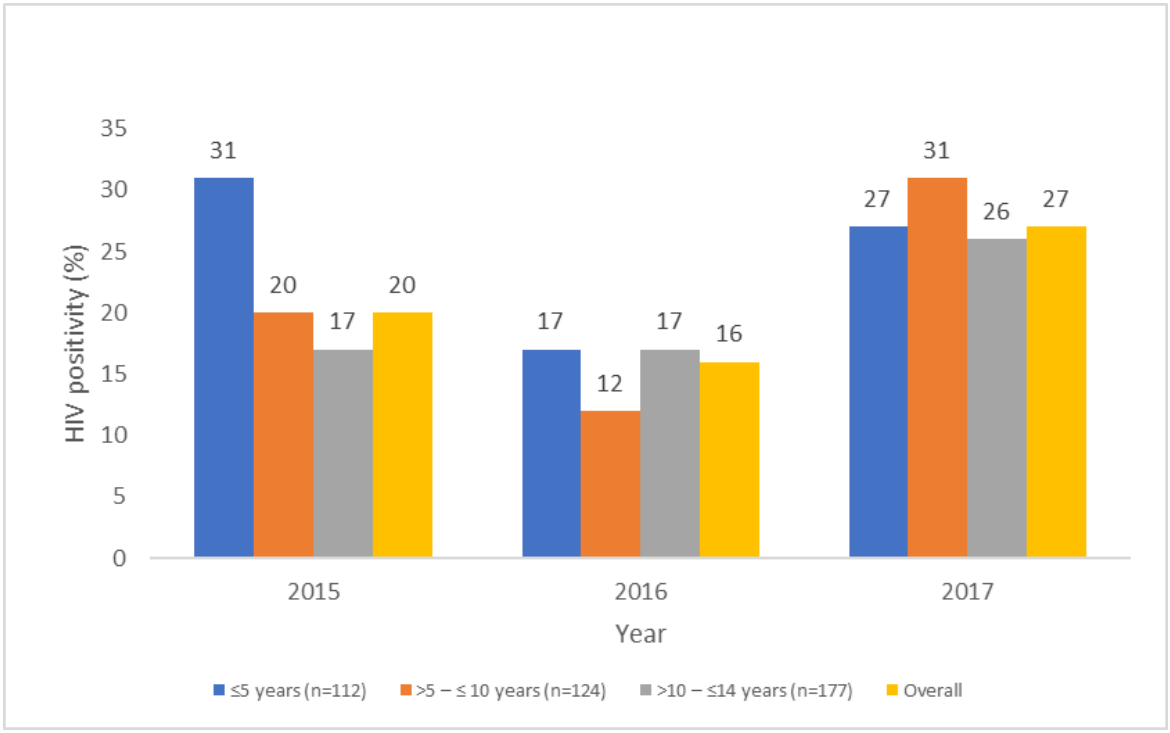


**Figure 2:** Kadoma City HIV positivity rates by sex of children aged ≤14 years, Zimbabwe, 2015 to 2017

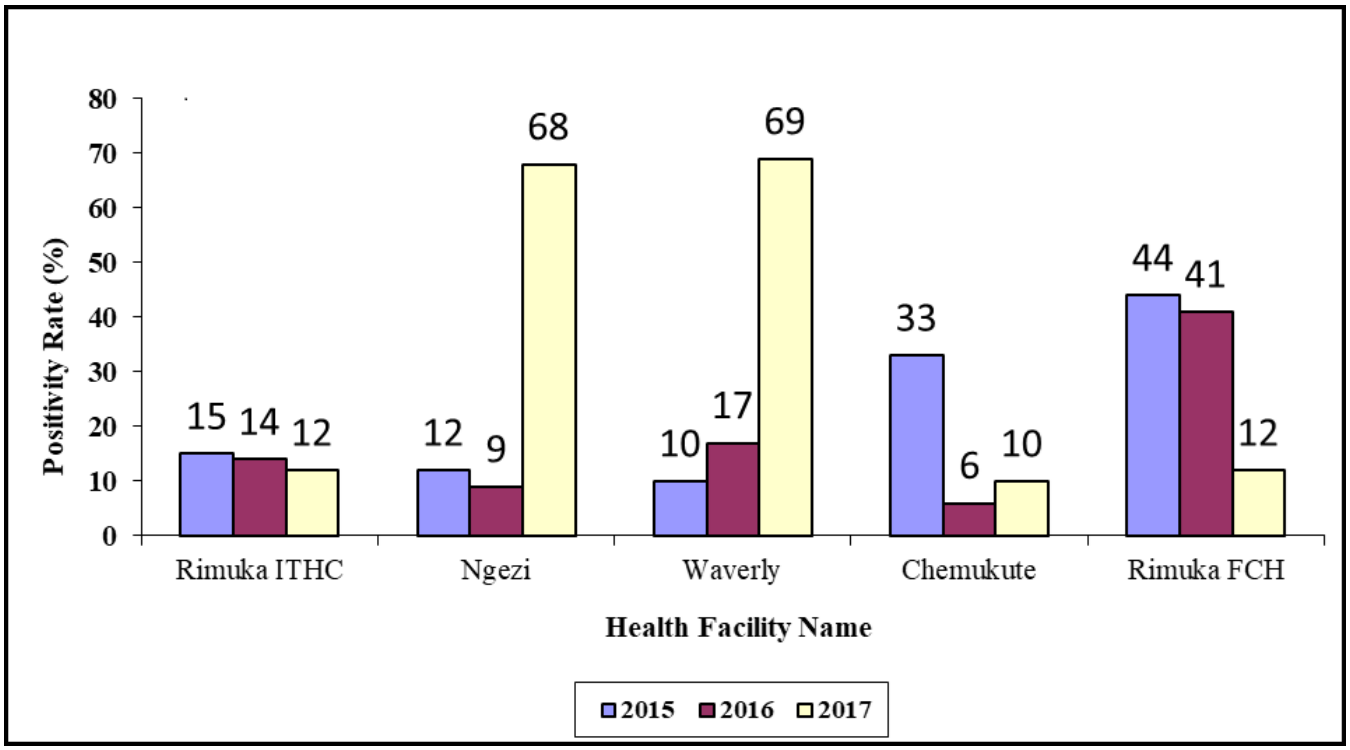


**Figure 3:** Kadoma City Health facilities HIV positivity rates for children aged ≤14 years, Zimbabwe, 2015 to 2017