

The Kingdom of Eswatini

# **ESWATINI HIV ESTIMATES AND PROJECTIONS REPORT**

## **2019**



## Foreword

The National Emergency Response Council on HIV/AIDS (NERCHA) is pleased to release the 2019 HIV estimates and projection report for the Kingdom of Eswatini. HIV Estimates and projections are a major source of strategic information that informs policy formation and programme development in the HIV and AIDS response, globally and locally.

These estimates have been generated based on inputs from the country's robust HIV and health surveillance and information systems, up-to-date programme monitoring data, and population surveys including the Population and Housing Census (PHC 2017) and Swaziland HIV Incidence Measurement Survey 1 & 2 (SHIMS 1 & 2). The timing of the surveys has enabled the Kingdom to use more recent data to improve model precision and outputs.

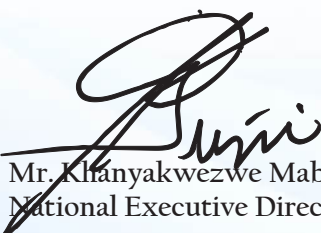
These estimates will support the country's Vision 2022 for an AIDS-free Eswatini; zero new HIV infections, zero AIDS-related deaths, and zero stigma and discrimination. The estimates and projections is critical for tracking progress towards the National Strategic Framework's (NSF 2018-2023). The NSF goals are to reach 95-95-95 treatment targets, reduce new HIV infections and AIDS-related deaths by 85% and 50%, respectively, and eliminate all forms of HIV stigma and discrimination.

I would like to thank the stewardship of His Majesty's government and the NERCHA Council for leading the response, the country's development and donor partners who believe in our vision, the networks of people who are living with HIV, leaders and members of our communities, and all civil society organisations who provide services in hard to reach areas.

The report development would not be possible without the technical guidance of the Joint United Nations Programme on HIV/AIDS (UNAIDS), and President's Emergency Plan for AIDS Relief (PEPFAR) who supported the country task team throughout its development. As in all earlier modelling, the estimation process was guided and supported by the UNAIDS Geneva Estimation team and Avenir Health.

The production of this report is consistent with NERCHA's policy of quick dissemination of information for evidence-based decision-making. I hope stakeholders will find it informative, see how much we have achieved and use it to develop appropriate approaches for reaching our goal to End AIDS as a public health threat by 2022.

Thank you,



Mr. Khanyakwezwe Mabuza  
National Executive Director - NERCHA

## Acknowledgements

This report is a product of the continuous efforts by the country's multi-sectoral response to provide strategic evidence for policy and planning purposes. The process of developing national estimates and projections was led by a modelling task team comprising of officers from the Ministry of Health (MoH), Joint United Nations Programme on HIV and AIDS (UNAIDS), the President's Emergency Plan for AIDS Relief (PEPFAR), Coordinating Assembly for Non-governmental Organisations (CANGO), and National Emergency Response Council on HIV and AIDS (NERCHA).

NERCHA is grateful to the United Nations office in the Kingdom of Eswatini, particularly UNAIDS for capacitating the team on the use of Spectrum and validating the outputs. NERCHA is also thankful to Mary Mahy, Peter Ghys, John Stover, and Lawrence Mashimbye for their technical support and invaluable guidance throughout the modelling process, the analytical phase and development of this report.

Special thanks go to the Ministry of Health (MoH), Ministry of Economic Planning and Development (MEPD)'s Central Statistical Office (CSO) and PEPFAR for providing inputs, programme data (ART and PMTCT), demographic profile (Census data and Demographic Health Survey data, and SHIMS 1 and 2) for the estimates and projections.

Appreciation go to all the multi-sectoral stakeholders in government ministries, bilateral and multilateral partners, people living with HIV (PLHIV), and civil society (CSO) who collectively contribute to the AIDS response.

We applaud the multi-disciplinary modelling task team that developed the 2018 estimates and projections comprised of Bonsile Nhlabatsi (MoH-SRH unit), Sebentile Myeni (MoH-M&E), Thabo Motsa (MoH-M&E), Nompumelelo Dlamini-Mthunzi (MoH-M&E), Lawrence Mashimbye (UNAIDS), Nomthandazo Lukhele (WHO), Joyce Mphaya (UNICEF), Sikhathele Mazibuko (PEPFAR/CDC), Hamfrey Sanhokwe (PEPFAR/USAID), Nokwazi Mathabela (NERCHA), Bheka Mziyako (NERCHA), Nsindiso Dlamini (NERCHA), Bongani Dube (NERCHA), Njabuliso Dlamini (NERCHA), Wandile Dlamini (NERCHA), Slungile Mhlanga (NERCHA), Gcina Kunene (NERCHA), Lungile Tshabalala (CANGO).

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## List of Acronyms

AIDS	Acquired Immune Deficiency Syndrome
AIM	AIDS Impact Model
ART	Antiretroviral Therapy
CHAI	Clinton Health Access Initiative
CSO	Central Statistical Office
CSO	Civil Society Organization
EPP	Estimation and Projections Package
HIV	Human Immunodeficiency Virus
MEPD	Ministry of Economic Planning and Development
MoH	Ministry of Health
MTCT	Mother to Child Transmission
PMTCT	Prevention of Mother to Child Transmission
NERCHA	National Emergency Response Council on HIV and AIDS
NSF	National Strategic Framework on HIV and AIDS 2018-2023
PEPFAR	President's Emergency Plan for AIDS Relief
PLHIV	People Living with the Human Immunodeficiency Virus
SDHS	Swaziland Demographic and Health Survey
SHIMS	Swaziland HIV Incidence Measurement Survey
SPHC	Swaziland Population and Housing Census
SRH	Sexual and Reproductive Health
STI	Sexually Transmitted Infections
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	The United States Agency for International Development
WHO	World Health Organisation



## Executive Summary

HIV estimates and projections are generated by the Spectrum mathematical model whose components include the AIDS Impact Model (AIM) and GOALS model that links program goals and funding. Spectrum has become a standard tool used to interpret HIV surveillance systems and HIV programmes in many settings and used to model HIV epidemic and demographic, social, and economic impacts of programme interventions. It provides population impact and demand data to support planning, and decision-making processes.

The Eswatini estimation process was led by a multi-sectoral national estimates and projections task team coordinated by NERCHA. Most recent demographic, survey and programme data was populated into the model to produce estimates for 2018 and projections to 2024. A national stakeholder meeting was convened to validate the 2018 estimates and projections. The 2018 estimates and projections are summarised below:

1. **HIV Incidence-** The 2018 estimates and projections show that HIV incidence among people aged 15 to 49 is 1.54% in 2018 and is expected to decline to 1.24% by 2024. Incidence is higher amongst females compared males throughout the years under projections.
2. **New HIV Infections-** New HIV infections among adults 15 years and older is estimated at 7,000 in 2018 and projected to decline slightly to 6,400 by 2024. In 2018, new HIV infections are estimated to be higher among adolescents and young people, aged 15 to 24 (2,700), compared to other population groups. New HIV infections are higher in females compared to males across all age groups.
3. **HIV Prevalence-** HIV prevalence for the age group 15-49 is estimated to be 27.26% in 2018 and projected to decline to 24.34% in 2024. HIV prevalence is higher in Lubombo region (29,62%) compared to Hhohho (26,21%), Manzini (27,19%), and Shiselweni (27,00%).
4. **HIV Population-** In 2018 the total number of people living with HIV is estimated to be 205,700 [11,300 children ages 0-14 years and 194,400 adults] and is projected to increase to 221,600 [7, 700 for children and 213, 900 for adults] in 2024.
5. **PMTCT -** The number of HIV positive pregnant women needing ART is projected to decline from 10,900 in 2018 to 8,500 in 2024. In 2018, the MTCT rate at 6 weeks of age is estimated at 4.45% and projected to remain the same by 2024. The final transmission rate (at the end of breastfeeding) is estimated at 7.8% in 2018 and projected to be 4.87% by 2024.
6. **AIDS Mortality -**AIDS-related deaths are projected to decline from 2,400 in 2018 to 1,900 in 2024. Between 2018 and 2024, AIDS-related deaths are higher among females compared to males. AIDS-related deaths were estimated at 300 among children, 0-14 years in 2018 and projected to decline to 100 by 2024.
7. **AIDS Orphanhood -** AIDS orphanhood will subside largely due to declining AIDS-related deaths. AIDS orphans are projected to decline to 28 000 by 2024 from 45 200 in 2018.

# 1. BACKGROUND

## 1.1 Country Profile

The Kingdom of Eswatini is a country with a total population of 1,093,238, consisting of 48.6% males and 51.4% females<sup>1</sup>. The country has four administrative regions, namely Hhohho, Manzini, Shiselweni, and Lubombo. Manzini region is the most populous, with 33% people residing there, followed by Hhohho region with 29%. Approximately 60% of the population is between the ages of 15 and 64 years, and 36% are children between the ages of 0 and 14 years. Eswatini has a youthful population with the median age being 21.4 years.

## 1.2 Overview of HIV and AIDS in Eswatini

According to SHIMS 2, The Kingdom of Eswatini's HIV prevalence among people aged 15 and older is reported to be 27%. HIV prevalence is higher among women compared to men (32.5% and 21.3%, respectively). HIV prevalence peaks at 54.2% among women aged 35 to 39 and at 48.8% among men aged 45 to 49. The differences in prevalence by sex is more pronounced among adolescents and young people aged 15 to 24 years, 16.2% among females and 3.0% in males.

SHIMS 2 shows a decline in HIV incidence between 2011 and 2016. HIV incidence people aged 18 to 49 declined by 44%, from 2.48% in 2011 to 1.39% in 2016<sup>2</sup>. HIV incidence among adults 15 years and older is higher for women (1.70%) compared to men (1.02%). HIV incidence among adolescent girls and young women aged 15 to 24 (1.87%) is as twice as high compared to their male counterparts (0.79%).

Eswatini has made significant progress towards achieving the 90-90-90 targets. An estimated 84.7% of people living with HIV know their status, 87.4% of those who know their status are on ART, and about 91.9% of those on ART are virally suppressed<sup>3</sup>.

# 2. OBJECTIVES OF THE REPORT

## 2.1 Purpose of the Estimates and Projections

The purpose of the estimates and projections is to generate strategic information essential for policy, planning and advocacy.

## 2.2 Specific Objectives of the Estimates

- i. To provide timely information on the magnitude, future trends, and impact of HIV.
- ii. To provide timely information on how HIV affects different population groups and people in different geographic locations.
- iii. To estimate and project the impact of the HIV epidemic with and without interventions such as PMTCT and ART.
- iv. To provide estimates of key epidemiological data which serve as a basis for setting national and regional targets and expanding access to treatment and PMTCT.
- v. To provide useful data for reporting against national and international targets.

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<sup>1</sup> Swaziland Population and Housing Census, 2017

<sup>2</sup> Swaziland HIV Incidence Survey 2, 2016-2017

<sup>3</sup> Swaziland HIV Incidence Survey 2, 2016-2017

### 3. METHODOLOGY

#### 3.1 Estimation Modelling Software (Spectrum)

The HIV estimates and projections were generated using the Spectrum software package (version 5.753) developed by Avenir Health, Glastonbury, CT, USA. Spectrum is recommended by the UNAIDS/WHO Working Group on Global HIV and STI Surveillance as a policy development and decision support tool for health and HIV/AIDS. The UNAIDS Reference Group on Estimates, Modelling and Projections provided technical guidance on the development of the HIV component of the software ([www.epidem.org](http://www.epidem.org)).

Spectrum is a suite of easy to use policy models which provide policymakers with an analytical tool to support decision making. It consists of various modules, each with different purposes. The main modules for estimating and projecting the HIV epidemic are:

- AIDS Impact Model (AIM): which projects the measures of the HIV epidemic, including the number of people living with HIV, new HIV infections, and AIDS-related deaths by age and sex and AIDS orphans; as well as need for PMTCT and ART.
- DemProj: which projects the population for an entire country or region by age and sex, based on assumptions about fertility, mortality, and migration.

Spectrum has an in-built software called Estimation and Projections Package (EPP), which is used to build models of the national HIV epidemic. Survey and surveillance data is inputted into EPP, then an epidemic curve is fitted, and a calibration done. After adjusting for regional differences, a national HIV epidemic curve (prevalence and incidence) is generated. The national incidence curve from EPP is read into Spectrum and combined with ART and PMTCT programme data, epidemiological assumptions about the age and sex distribution of HIV, progression from infection to treatment-need or death, fertility reduction among HIV-positive women and the effects of treatment.

#### 3.2 Spectrum Assumptions

The model provides estimations for the year 2018 using 2018 service coverage data. Estimations are subjected to programme coverage and model assumptions. The model precision could be improved by continuously running the model every year to update it with new programme data.

The following assumptions were used in Spectrum:

- Median survival period for PLHIV from date of infection to AIDS-related death is 11 years instead of 9 years as previously estimated in older models.
- The impact of ART on infectivity was taken into consideration. Year-by-year estimates of percentage survival in the 1<sup>st</sup> year of ART initiation was set to 86% and kept at this value throughout the projection.
- With the rapid roll out of ART (test & start), the models needed to account for the adjustment in prevalence due to people living longer and reduced infectivity of PLHIV on ART, therefore HIV incidence was used in older models instead of prevalence.
- Transmission from mother-to-child is divided into transmission during pregnancy and delivery and transmission through breastfeeding.
- Women starting ART late in the pregnancy have a higher transmission probability (9% instead of 2% among women starting ART at 14 weeks gestation).



### 3.3 National Assumptions and Inputs

Spectrum uses various data sources to generate estimates and projections with precision. Data sources includes;

- I. Population data
  - a. Swaziland (Eswatini) Population and Housing Census (SPHC), 2017
- II. Survey data
  - a. Swaziland Demographic and Health Survey (SDHS), 2007
  - b. Swaziland HIV Incidence Measurement Survey (SHIMS 1), 2011
  - c. Swaziland HIV Incidence Measurement Survey (SHIMS 2), 2016- 2017
- III. ANC Sentinel Surveillance
  - a. ANC sentinel surveillance data from 1994 to 2016 by region and site.
- IV. Programme data

For the estimation process, 2018 programme data for ART and PMTCT were used. The data came from the Ministry of Health (MoH), with actual coverage until 2018 and the projected coverage until 2024 were based on the NSF 2018-2023 as well as the 90:90:90 and 95:95:95 treatment targets.

### 3.4 The Estimation and validation Process in Eswatini

A national task team was formed. The team attended the regional estimates and projections workshop on the use of spectrum organized by UNAIDS. The team coordinated the synthesis, analysis, and dissemination of national estimates and projections.

The 2018 HIV Estimates and Projections were validated by various stakeholders including HIV and SRH Program managers, directorates in NERCHA, MoH and development partners. In this report, the data is rounded-off to the nearest hundred as these are estimates, and for the ease of reference.

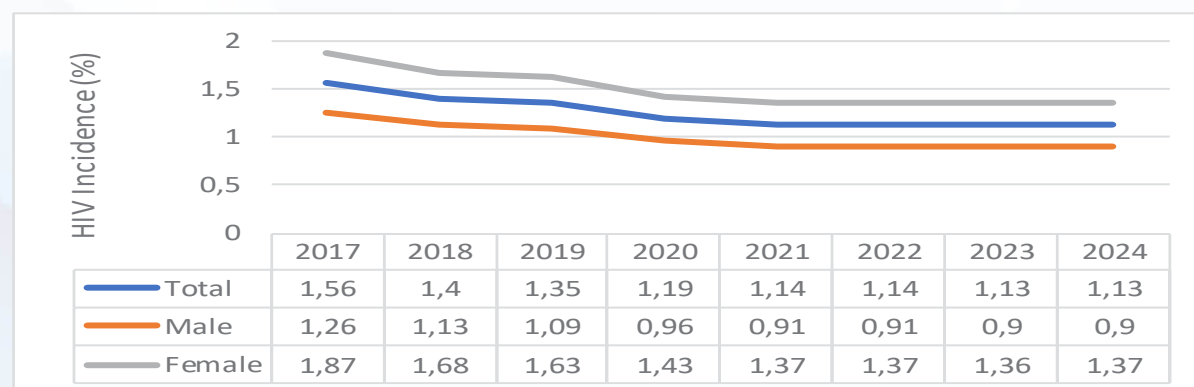
## 4. RESULTS

### 4.1 HIV Incidence

#### 4.1.1 HIV Incidence among Adults Aged 15+ Years

HIV incidence is the number of new HIV infections in a population during a certain period. Among adults aged 15 and above, HIV incidence declined from 1.56% in 2017 to 1.40% in 2018 and its projected to further decline to 1.13% in 2024. In 2018, HIV incidence was higher among females at 1.68% compared to males at 1.13% as illustrated in Figure 1 below.

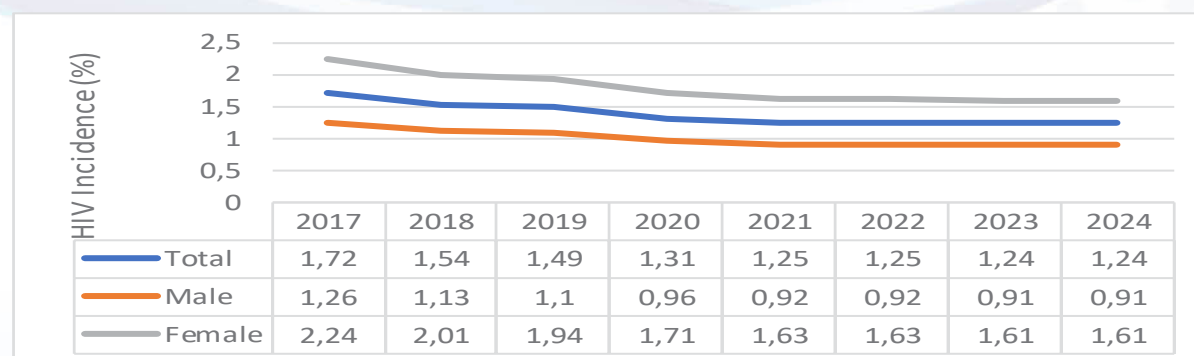
**Figure 1: Trends in Estimated HIV Incidence among Adults Aged 15+ Years, 2017 - 2024**



#### 4.1.2 HIV Incidence among Adults Aged 15 - 49 Years

Among adults aged 15 to 49, HIV incidence stood at 1.72% in 2017. In 2018, HIV incidence is estimated at 1.54%, and its projected to decline to 1.24% in 2024. HIV incidence was estimated at 2.01% among females and 1.13% among males in 2018.

**Figure 2: Trend in Estimated HIV Incidence by Sex among Adults Aged 15 - 49 Years, 2017-2024**

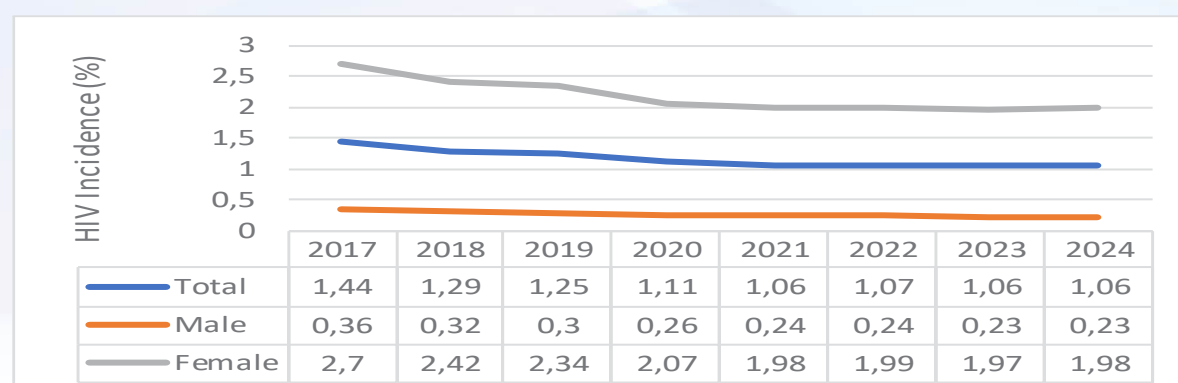


#### 4.1.3 HIV Incidence among Adolescents and Young Adults Aged 15 - 24 Years

Figure 3 below illustrates the trends in estimated HIV incidence by sex among adolescents and young adults aged 15 to 24. Among adolescents and young adults (15 – 24 years), HIV incidence declined from 1.44% in 2017 to 1.29% in 2018 and is projected to decline further to 1.06% in 2024. HIV incidence is much higher among females (2.42%) than males (0.32%) in 2018.



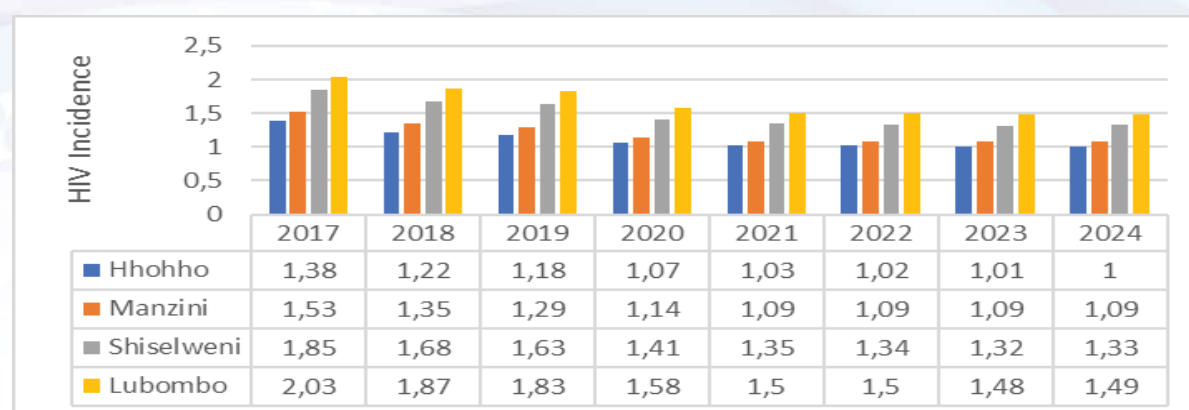
**Figure 3: Trends in Estimated HIV Incidence by Sex among Adolescents and Young Adults Aged 15 - 24 Years, 2017 - 2024**



#### 4.1.4 HIV Incidence by Region among Adults Aged 15 - 49 Years

In 2018, HIV incidence is highest in Lubombo region, at 1.87%, and lowest in Hhohho region, at 1.22%. Between 2018 and 2024, HIV incidence is projected to decline in all four regions, but Lubombo will still have higher HIV incidence compared to the other regions as shown in Figure 4 below.

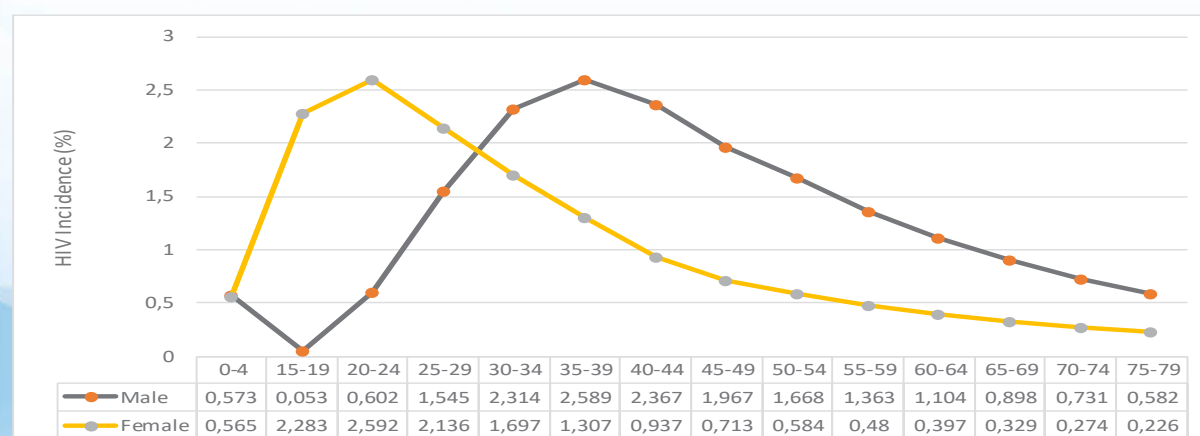
**Figure 4: Trends in Estimated HIV Incidence by Region among Adults Aged 15-49 Years, 2017 - 2024**



#### 4.1.5 HIV Incidence by Age, 2018

Figure 5 illustrates the estimated HIV incidence by age and sex in 2018. HIV incidence peaks at 20-24 among females and 35-39 among males. In 2018, HIV incidence is estimated at 2.59% among females aged 20 to 24 and 2.59% among males aged 35 to 39.

**Figure 5: Estimated HIV Incidence by Age and Sex, 2018**

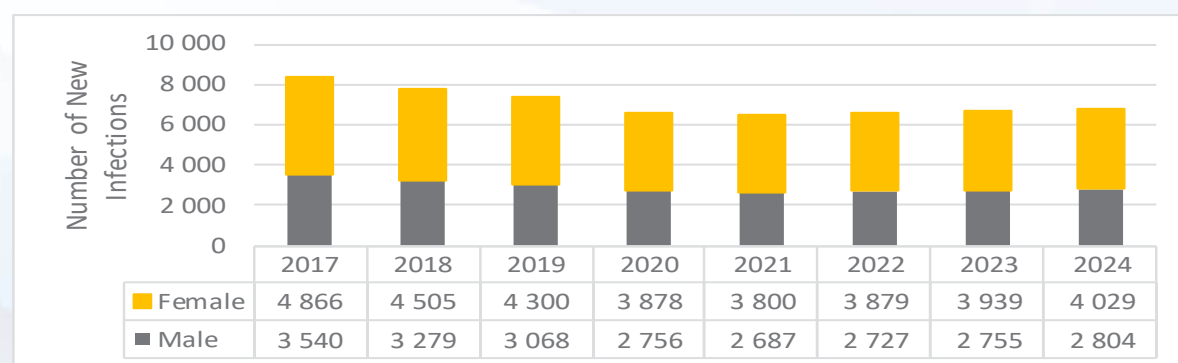


## 4.2 Total New HIV Infections (Adults and Children)

### 4.2.1 Total New HIV Infections in Adults and Children

New HIV infections show a steady decline over the years from 8,400 in 2017 to 7,800 in 2018 and is projected to decline to 6,800 in 2024. The number of new HIV infections are higher among females compared to males as shown in figure 6.

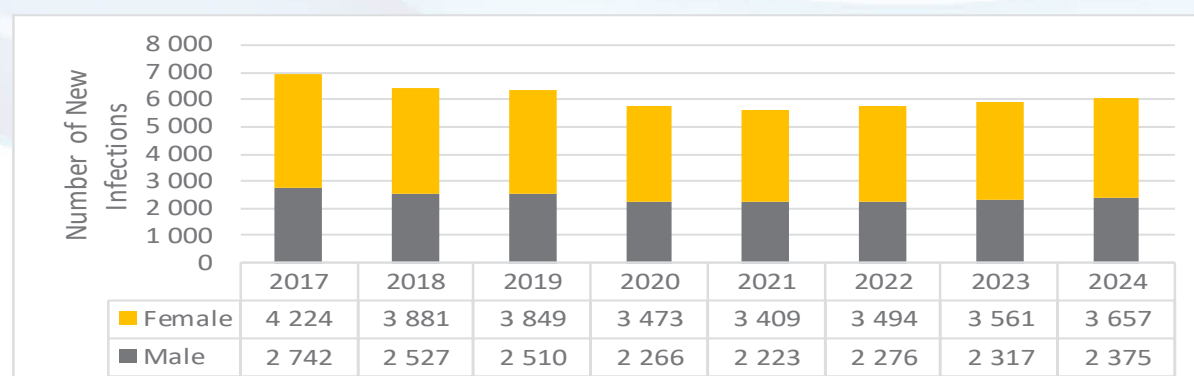
**Figure 6: Estimated Total Number of New HIV Infections, 2017 - 2024**



### 4.2.2 New HIV Infections among Adults Aged 15 - 49 Years

Figure 7 below shows the projected number of new HIV infections among adults aged 15 to 49. The total number of new HIV infections among adults aged 15 to 49 was estimated at 7,000 in 2017 and 6,400 in 2018.

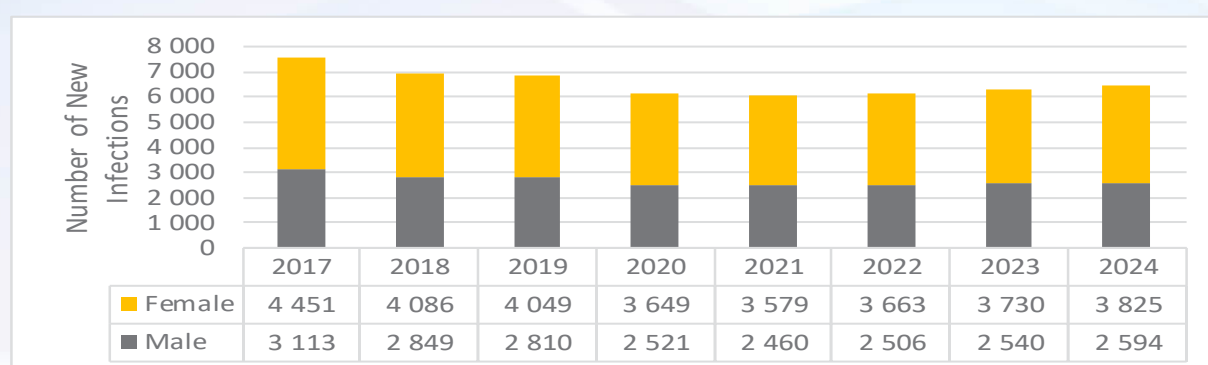
**Figure 7: Estimated Number of New HIV Infections among Adults Aged 15 - 49 Years, 2017 - 2024**



### 4.2.3 New HIV Infections among Adults Aged 15+ Years

New HIV infections among adults aged 15 and above shows a declining trend until 2021, but a slightly higher new HIV infection as from 2022. Between 2017 and 2021 new HIV infections are higher among females compared to males as illustrated in Figure 8.

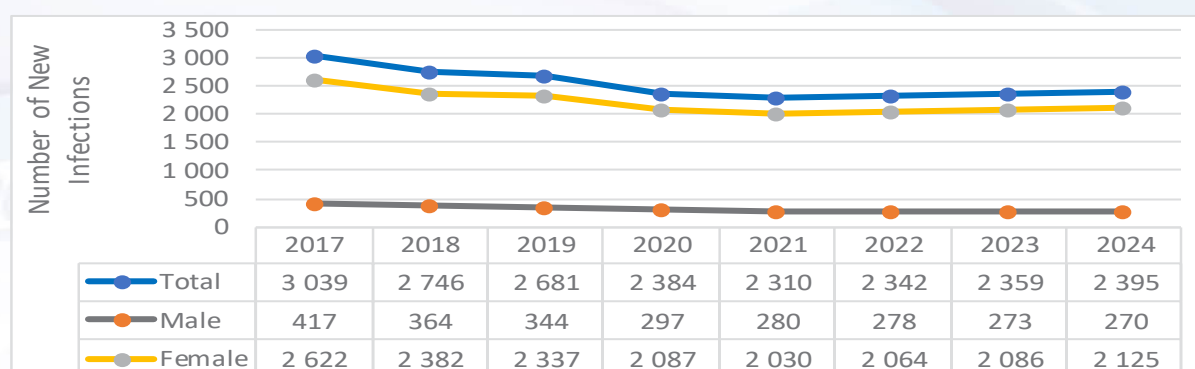
**Figure 8: Estimated Number of New HIV Infections among Adults Aged 15+ Years, 2017-2024**



#### 4.2.4 New HIV infections in Adolescents and Young People Aged 15 - 24 Years

The estimated number of new HIV infections among adolescents and young adults aged 15 to 24 declined from 3,000 in 2017 to 2,700 in 2018 and is projected to further decline to 2,400 in 2024 as shown in Figure 9 below.

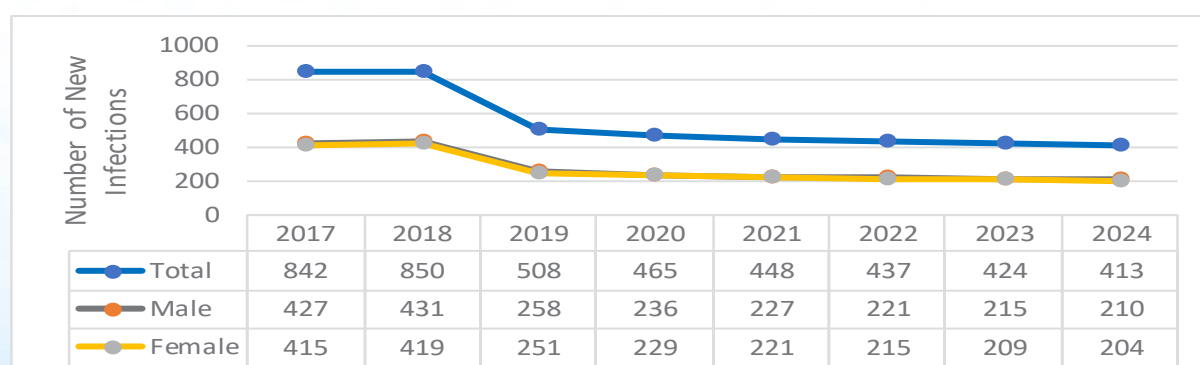
**Figure 9: Estimated New HIV Infections among Adolescents and Young Adults Aged 15 - 24 Years, 2017-2024**



#### 4.2.5 New HIV Infections among Children Aged 0 - 14 Years

The projected number of new HIV infections among children aged 0 to 14 was 800 in 2018. New HIV infections in children is projected to decline to 400 in 2024 with no significant differences between males and females.

**Figure 10: Estimated New HIV Infections among Children Aged 0 - 14 Years, 2017 - 2024**

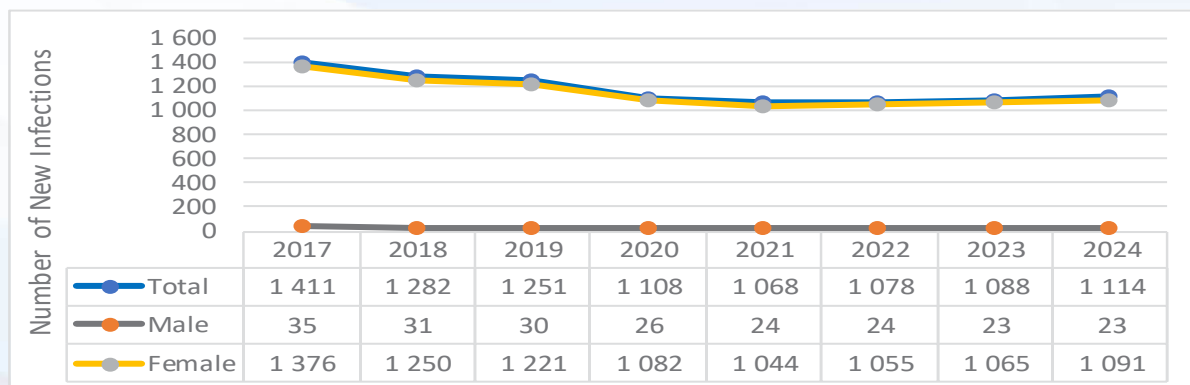


#### 4.2.6 New HIV Infections among Adolescents and Young Adults Aged 10 - 19 Years

Figure 11 below shows new HIV infections among adolescents and young adults aged 10 to 19. New HIV infections are higher among females compared to males. In 2018, there were 1,300 new HIV

infections amongst adolescents aged 10 to 19, and 1,200 of those were among females compared to 30 new HIV infections among males. New HIV infections are projected to decline to 1,100 among females and 23 among males in 2024.

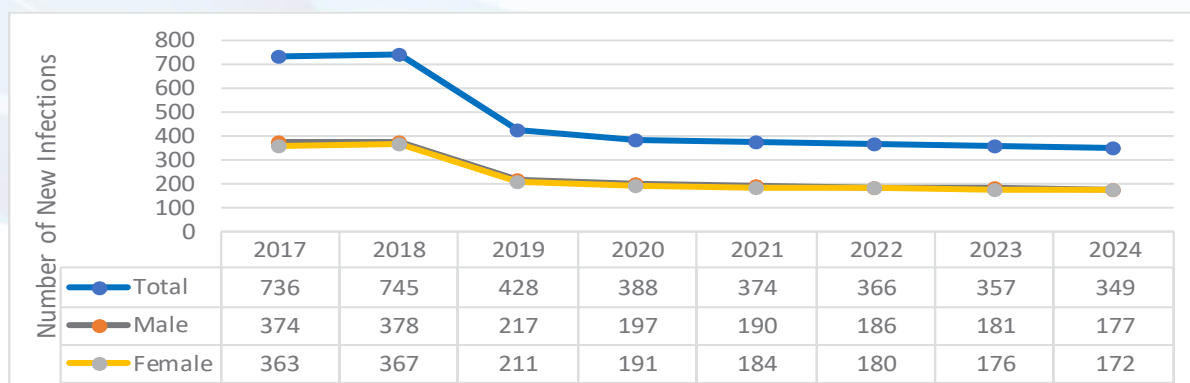
**Figure 11: Estimated New HIV Infections among Adolescents and Young Adults Aged 10 - 19 Years, 2017 - 2024**



#### 4.2.7 New HIV Infections in Infants less than 1 year (<1 year)

New HIV infections among infants aged under 1 are estimated at 700 in 2018. New HIV infections among infants are projected to decline to 300 in 2024.

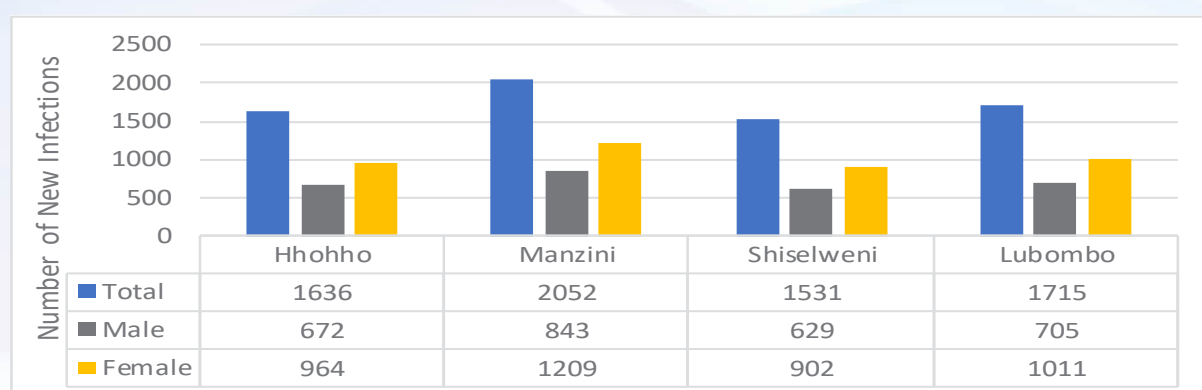
**Figure 12: Estimated New HIV Infections among Infants Aged <1 Year, 2017 - 2024**



#### 4.2.8 New HIV Infections by Region in 2018

Even though the incidence rate is highest in Lubombo (refer to figure 4), Manzini region has the highest number of new HIV infections at 2,100 followed by Lubombo (1,700), Hhohho (1,600) and Shiselweni (1,500).

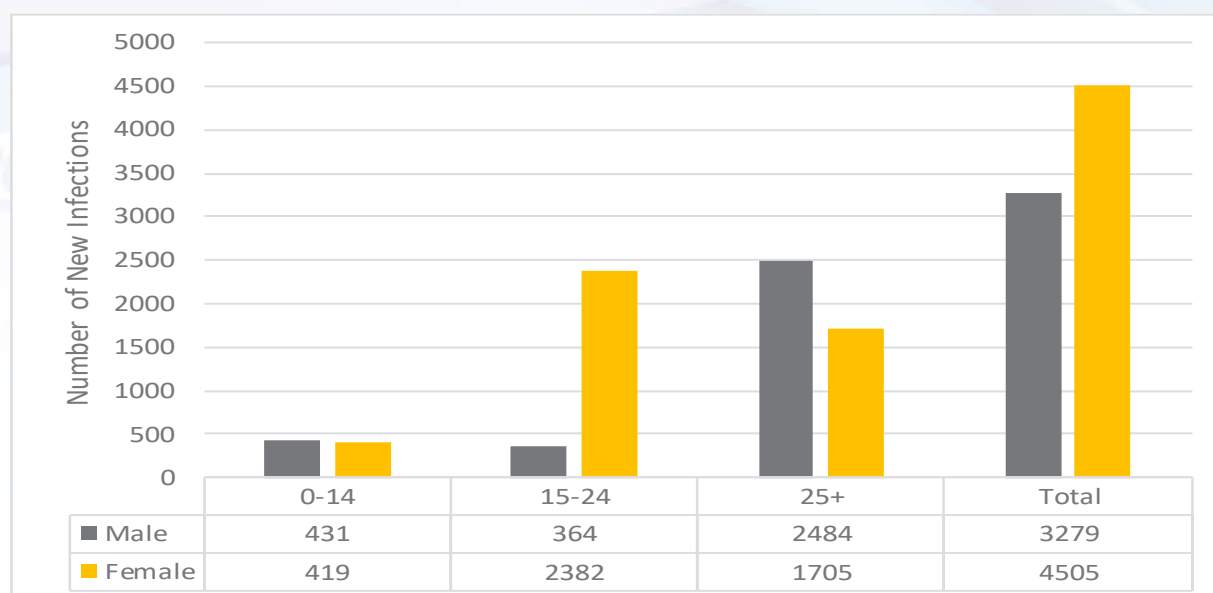
**Figure 13: Estimated New HIV Infections by Region and Sex, 2018**



#### 4.2.9 New HIV Infections by Age and Sex in 2018

Figure 14 below shows new HIV infections by age and sex in 2018. New HIV infections peaks in earlier age for females compared to males. New HIV infections are high among females aged 15 to 24 and males aged 25 and older.

**Figure 14: Estimated New HIV infections by age and sex, 2018**



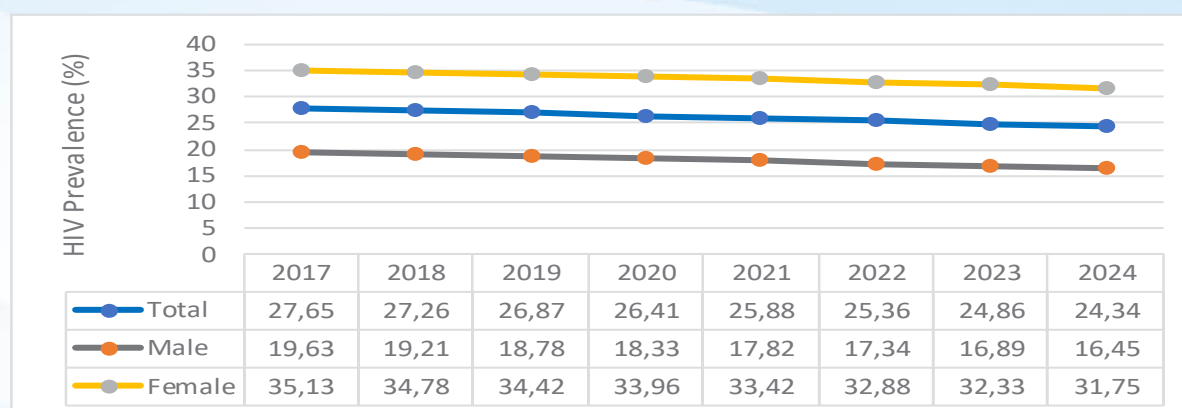
### 4.3 HIV Prevalence

#### 4.3.1 HIV Prevalence among Adults Aged 15-49 Years

HIV prevalence is the proportion of people living with HIV in a population. Figure 15 below shows the projected HIV prevalence among adults aged 15 to 49 between the years 2017 and 2024. HIV prevalence is estimated at 27.26% in 2018. HIV Prevalence is projected to decline to 24.34% in 2024. Between 2017 and 2024, HIV prevalence is higher among females compared to males.



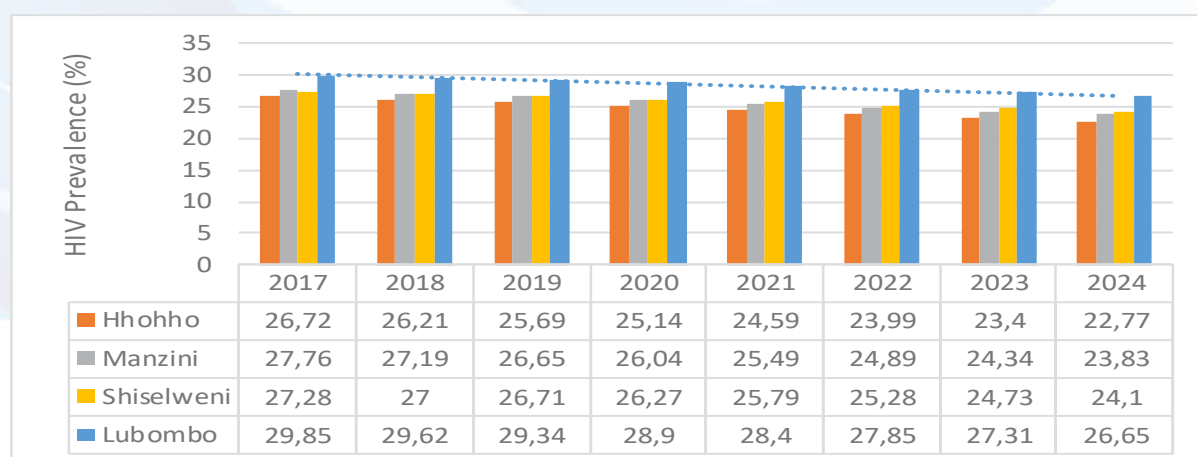
**Figure 15: Estimated HIV Prevalence among Adults Aged 15 - 49 Years, 2017 - 2024**



#### 4.3.2 HIV Prevalence by Region among Adults Aged 15 - 49 Years

As shown in figure 16 below, HIV prevalence does not vary significantly across the four regions, but Lubombo region has the highest prevalence compared to all other regions. HIV prevalence in Lubombo is projected to decline to 26.65% by 2024 from 29.85% in 2017. Hhohho region has the lowest prevalence of 26.21% in 2018 and is projected to decline to 22.77% in 2024.

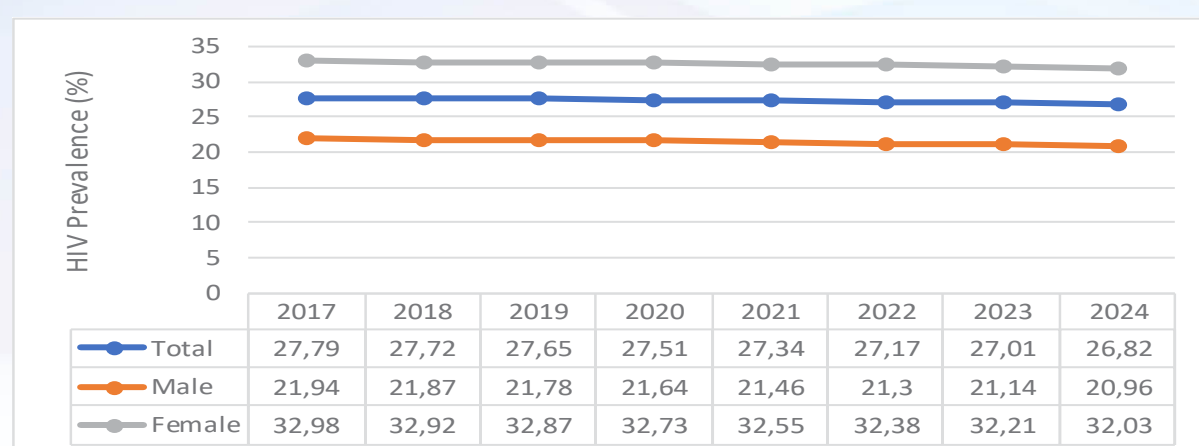
**Figure 16: Estimated HIV Prevalence by Region among Adults Aged 15 - 49 Years, 2017 - 2024**



#### 4.3.3 HIV Prevalence among Adults Aged 15+ Years

As shown in Figure 17 below, HIV prevalence among adults aged 15 and above is estimated to be 27.72% in 2018 and projected to slightly decline to 26.82% in 2024. The prevalence for adult females is projected to be 32.03% in 2024. For adult males, HIV prevalence is projected to be 20.96% in 2024 from 21.94% in 2017.

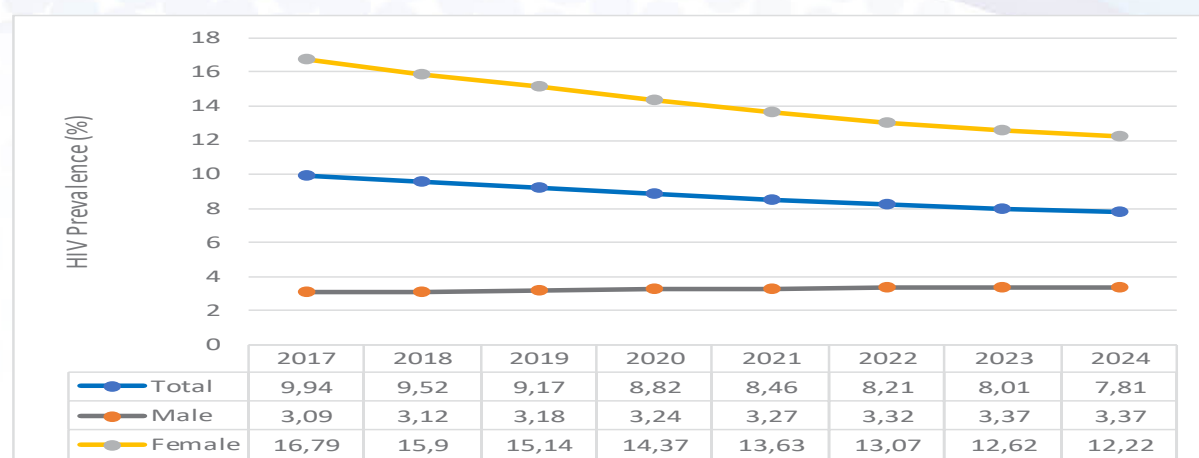
**Figure 17: Estimated HIV Prevalence among Adults Aged 15+ Years, 2017 - 2024**



#### 4.3.4 HIV Prevalence in adolescents and young people aged 15 - 24 Years

Figure 18 below shows HIV prevalence among young people aged 15 to 24. HIV prevalence is estimated at 9.52% in 2018. HIV prevalence is projected to decline to 7.81% in 2024. HIV prevalence among females is higher compared to males. HIV prevalence among young women aged 15 to 24 is projected to decline to 12.22% in 2024 from 15.90% in 2018. Among young men, HIV prevalence is projected to increase slightly to 3.37% in 2024 from 3.12% in 2018.

**Figure 18: Estimated HIV Prevalence by Sex among Adults Aged 15 - 24 Years, 2017 - 2024**

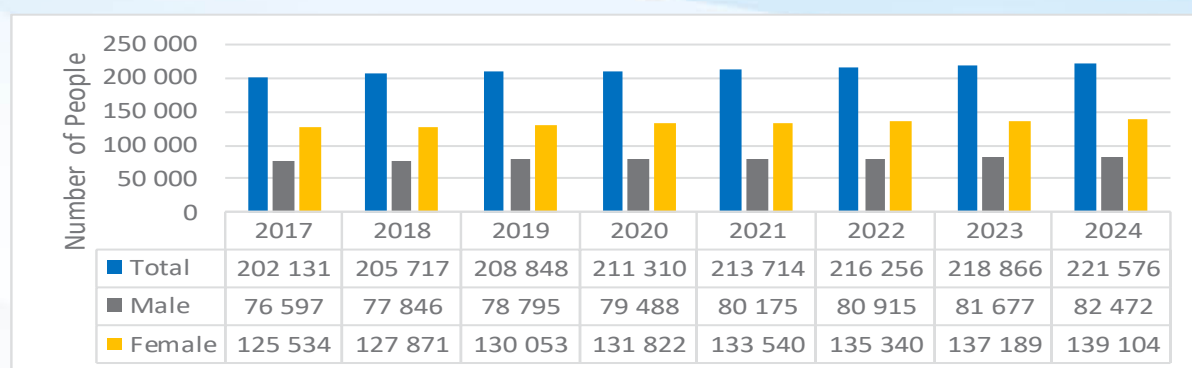


## 4.4 Number of People Living with HIV (PLHIV)

### 4.4.1 Total Population Living with HIV: Adults and Children

The total number of people living with HIV (PLHIV) was 205,700 in 2018 and projected to increase to 221,600 in 2024. Between 2017 and 2024, the estimated number of females living with HIV is higher than that of males, as shown in Figure 19.

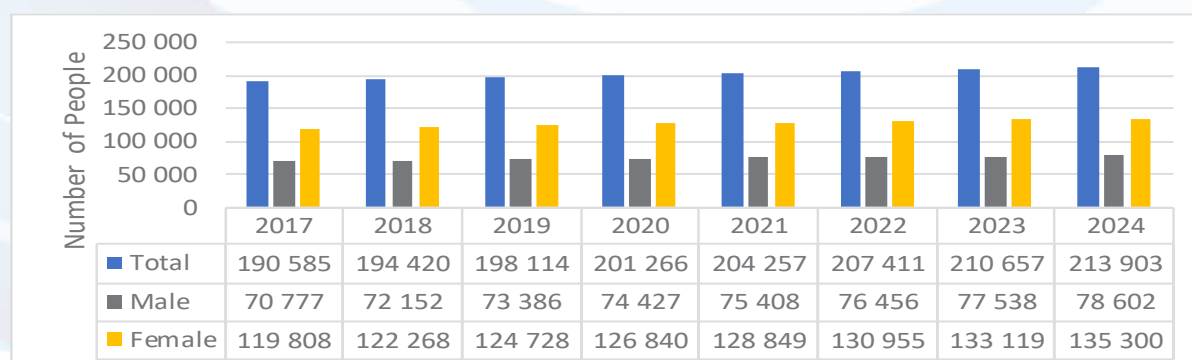
**Figure 19: Estimated Number of People Living with HIV (all ages), 2017 - 2024**



#### 4.4.2 Total Population Living with HIV: Aged 15+ Years

The number of adults, aged 15 years and above, living with HIV was 194,400 in 2018 and projected to increase to 213,900 in 2024. Figure 20 below shows that the number of males living with HIV is projected to increase from 72,100 in 2018 to 78,600 in 2024. A similar trend is projected for females – the number of females living with HIV will increase from 122,200 in 2018 to 135,300 in 2024.

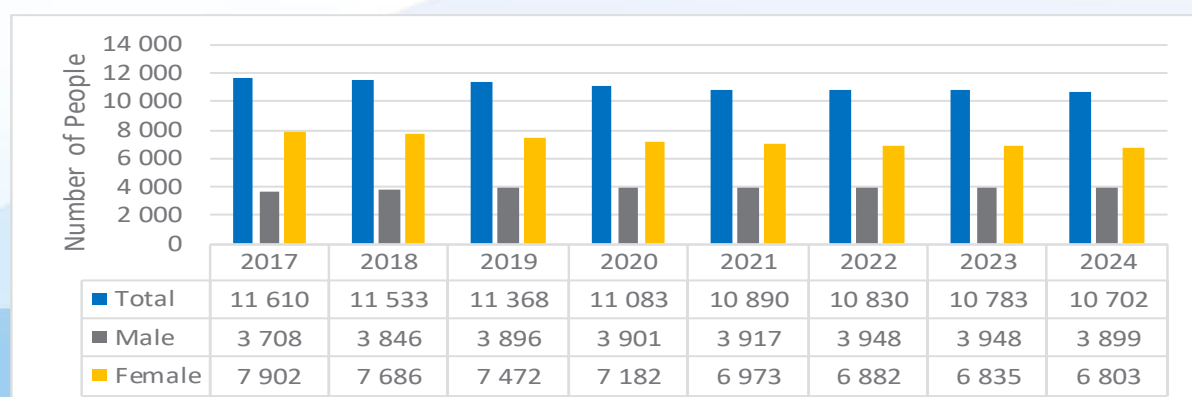
**Figure 20: Estimated Number of People Living with HIV Aged 15+ Years, 2017 - 2024**



#### 4.4.3 HIV Population: Adolescents and Young Adults Aged 10 - 19 Years

Figure 21 below shows that the number of people living with HIV aged 10 to 19. The number of people living with HIV aged 10 to 19 was 11,500 in 2018 and projected to 10,700 in 2024. The number of females living with HIV is projected to decline from 7,700 in 2018 to 6,800 in 2024. The number of males living with HIV is projected to be 3,900 in 2024.

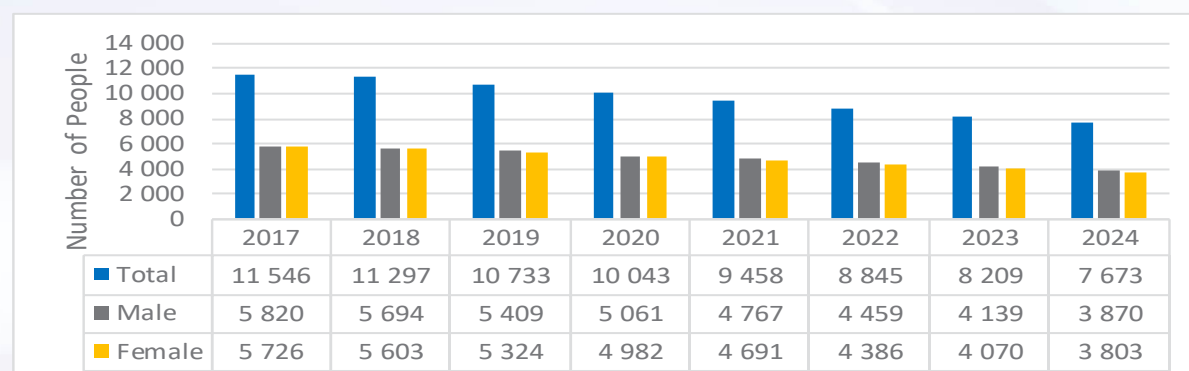
**Figure 21: Estimated Number of People Living with HIV by Sex Aged 10 - 19 Years, 2017 - 2024**



#### 4.4.4 HIV Population: Young People Aged 0 - 14 Years

The number of children aged 0 to 14 living with HIV was 11,200 in 2018 and is projected to decline to 7,700 in 2024. There is no significant difference in the number of male and female children living with HIV as shown in Figure 22.

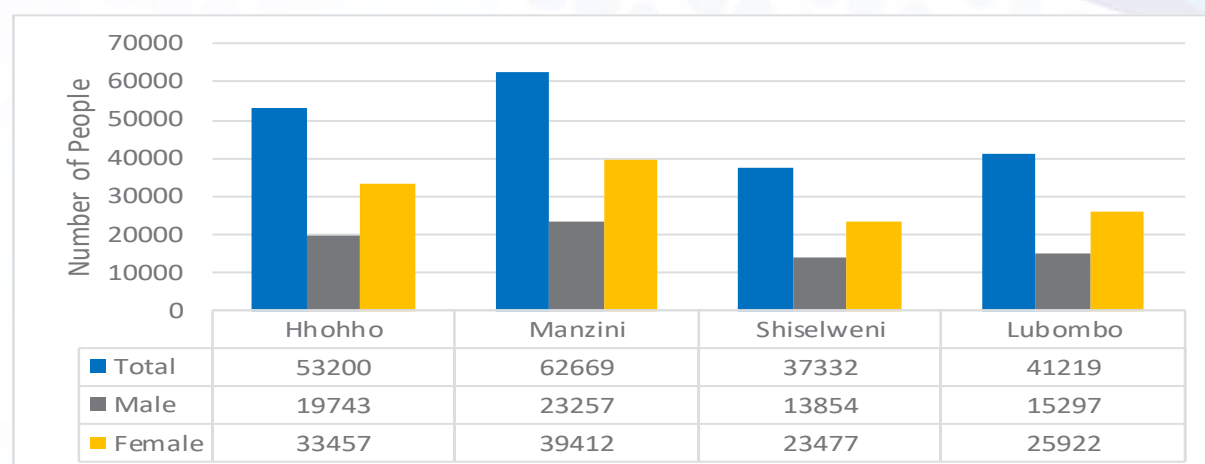
**Figure 22: Estimated Number of People Living with HIV Aged 0 - 14 Years, 2017 - 2024**



#### 4.4.5 Total Population Living with HIV by Region in 2018

Figure 23 below shows the estimated number of people living with HIV by region in 2018. Manzini has the highest number of people living with HIV (62,700), followed by Hhohho (53,200), Lubombo (41,200) and Shiselweni (37,300). In all four regions, there are more females living with HIV than males.

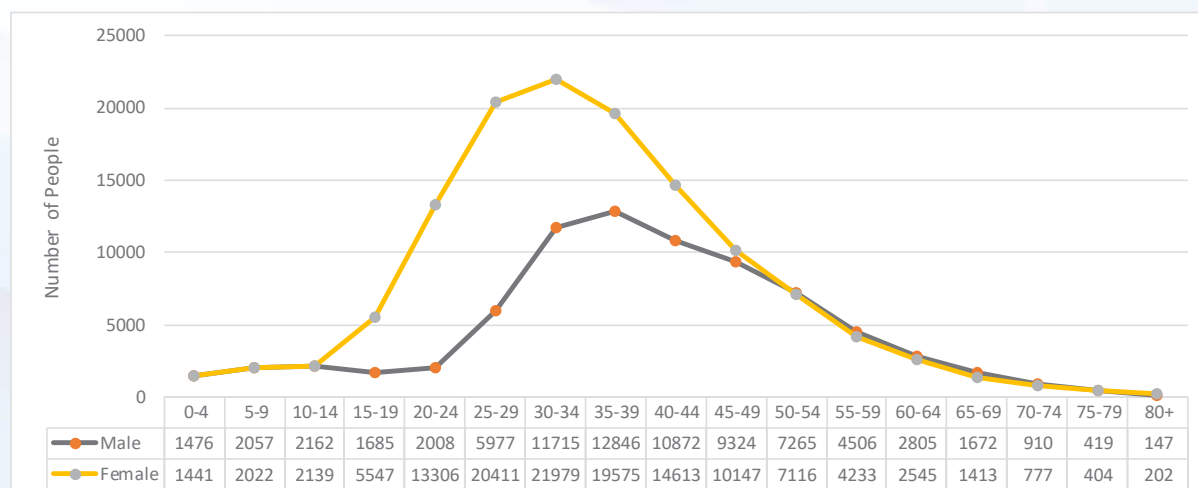
**Figure 23: Estimated Number of People Living with HIV by Sex and Region Aged 15+ Years, 2018**



#### 4.4.6 Total Population Living with HIV: Age and Sex in 2018

Figure 24 below shows the estimated number of people living with HIV in 2018 across different age groups. There is almost an equal number of PLHIV for both males and females among those less than 15 years. Among females, there is an increase beginning from the age group 15 - 19 years and reaching a peak at the age group 30 - 34 years. Meanwhile, for males, an increase begins from the age of 25 years with a peak at the age group 35 - 39 years.

**Figure 24: Estimated Number of People Living with HIV by Age, 2018**



#### 4.5 ART Coverage

ART Coverage is defined as the number of individuals receiving ART at a point in time among the estimated number of PLHIV. This section presents the actual ART coverage in terms of absolute numbers based on program statistics up to 2018 and projects the coverage to 2024. Figure 25 shows ART coverage for adults aged 15 and above and children 0 - 14 years. In 2018, the ART coverage was at 8,600 for children and 168,600 for adults.

**Figure 25: Number of Adults and Children on ART, 2017 - 2024**

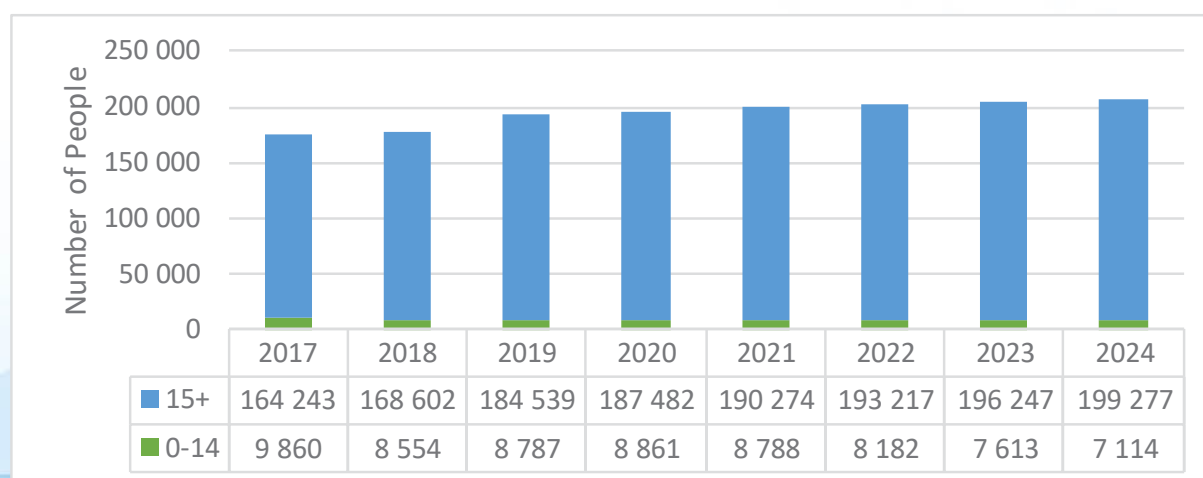
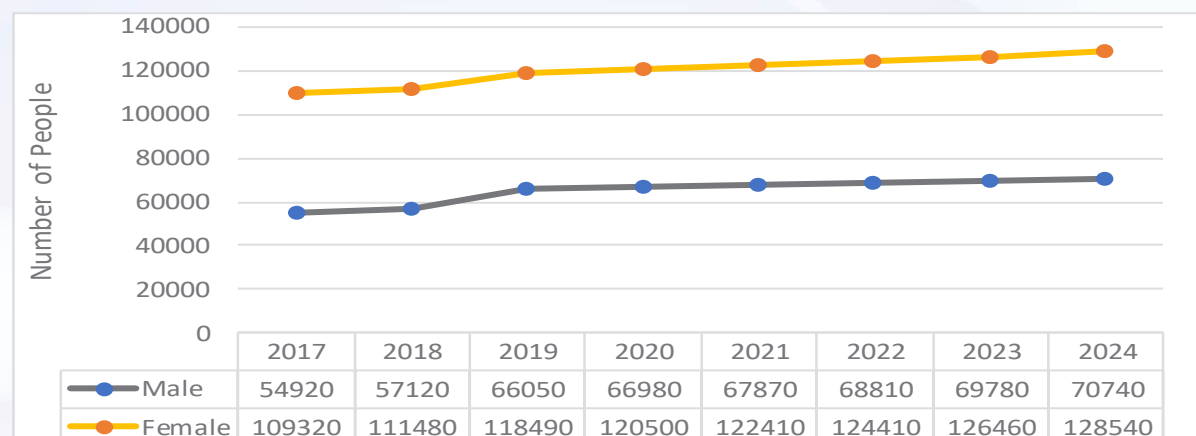




Figure 26 shows the number of males and females, aged 15 and above, on ART. In 2018, the number of people on ART was 111,500 among females and 57,100 among males. The number of people on ART is projected to increase to 128,500 among females and 70,700 among males in 2024.

**Figure 26: PLHIV on ART by sex among Adults Aged 15+ years, 2017 - 2024**



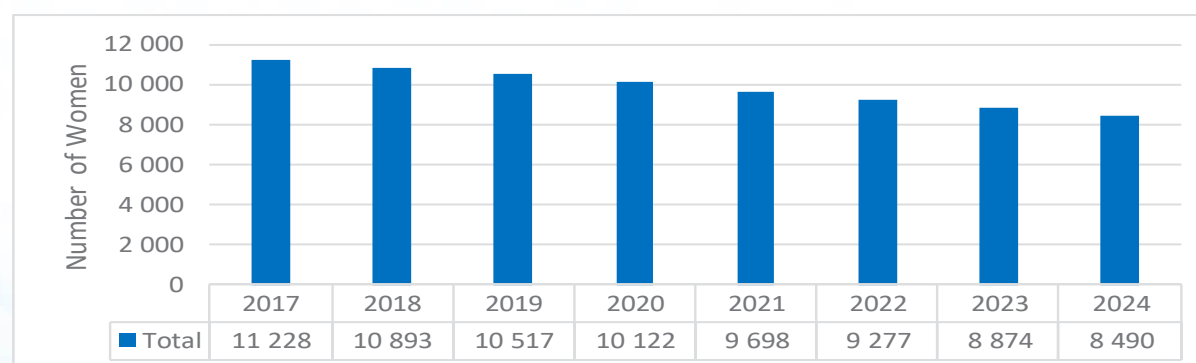
## 4.7 Prevention of Mother to Child Transmission (PMTCT)

Eswatini is implementing the four-pronged Prevention of Mother to Child Transmission (PMTCT) approach that integrates HIV services in the maternal and child health (MNCH) platform. PMTCT guidelines have been reviewed to be in line with the 2016 WHO's recommendations which emphasize the test and treat for all HIV positive pregnant and lactating women.

### 4.7.1 HIV Positive Mothers Needing ART During Pregnancy

Figure 27 shows estimates for pregnant women in need of ART. The projections indicate that mothers in need of ART have declined from 11,200 in 2017 to 10,900 in 2018, and is projected to decline further to 8,500 in 2024.

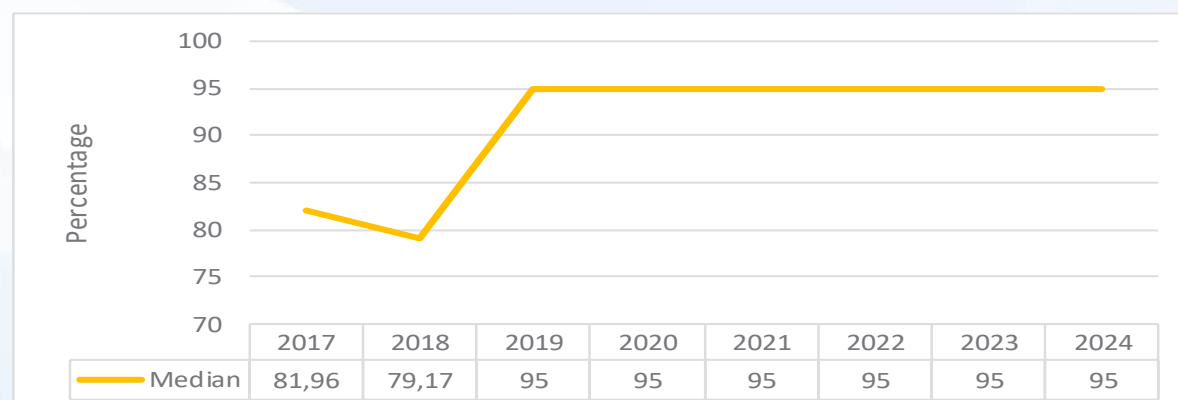
**Figure 27: Estimated Number of HIV+ Pregnant Women in Need of ART during pregnancy, 2017 - 2024**



### 4.7.2 PMTCT Coverage

Figure 28 below shows PMTCT coverage between 2017 and 2024. PMTCT coverage is estimated at 79% in 2018. PMTCT coverage is estimated to be consistently above 95% between 2019 and 2024.

**Figure 28: Estimated PMTCT Coverage between 2017 and 2024**



### 4.7.3 Mother to Child Transmission Rate

Exposed infants are all children who are born to HIV positive mothers, irrespective of mother's known HIV status or current ART use. PMTCT guidelines provide that all exposed infants are tested for HIV at different intervals: 6-8 weeks, 9 months, 12 months, and an exit test at 18 months after birth.

As shown in Figure 29, the HIV transmission rate at 6 weeks for exposed infants was 4.45% in 2018. HIV transmission rate at 6 weeks is projected to decline between 2019 and 2024. The 2018 MTCT rate is estimated at 7.8% after cessation of breastfeeding and projected to decline to 4.87% in 2024.

**Figure 29: Estimated MTCT Rate and Final Transmission Rate, 2017 – 2024 (6 weeks and 18 months)**

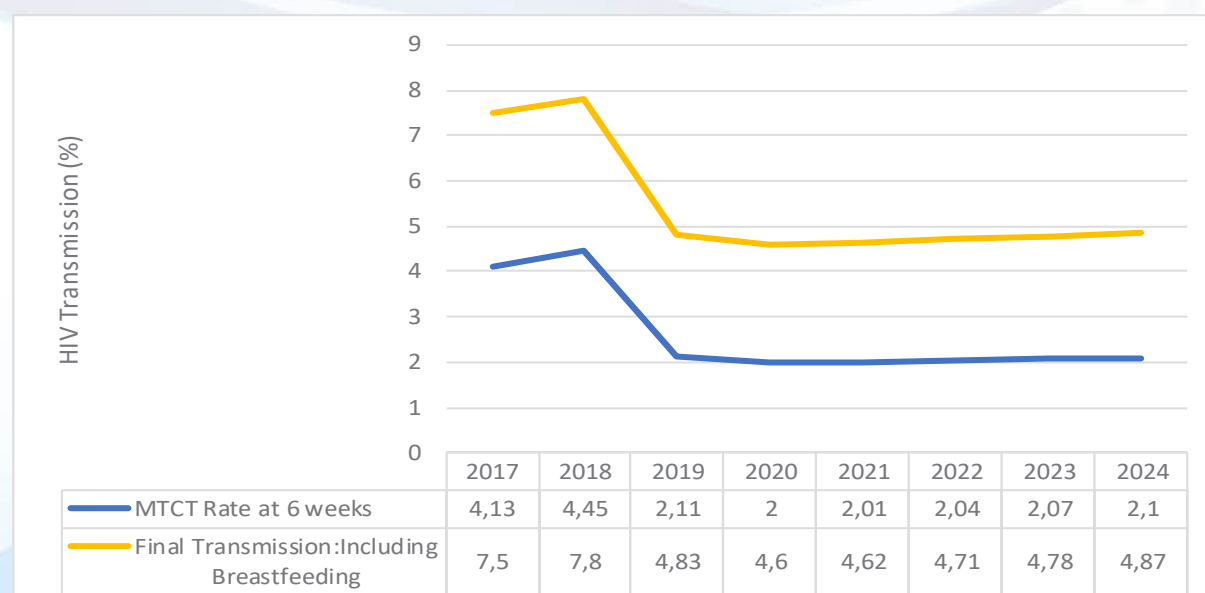
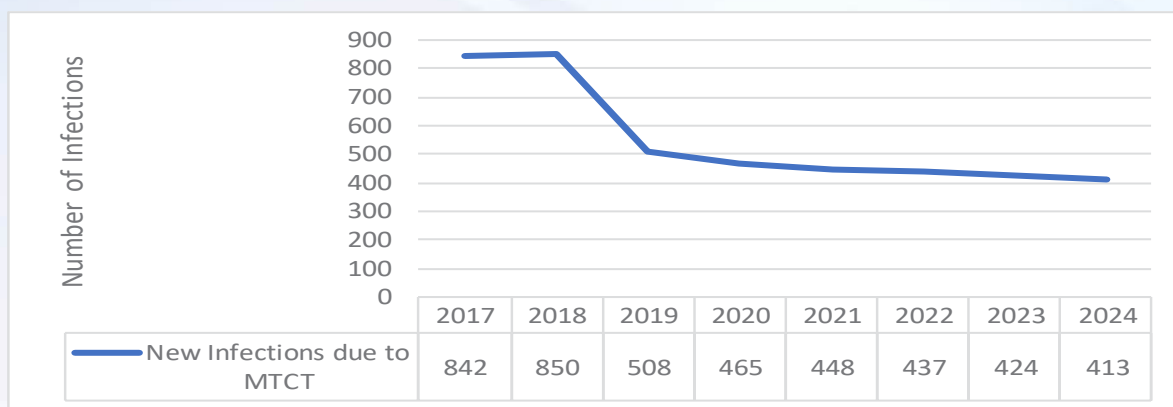


Figure 30 below shows the corresponding numbers of HIV infected infants under 1 year. New child HIV infections will decline from 800 to 400 between 2018 and 2024.

**Figure 30: Number of New Child HIV Infections Due to MTCT, 2017 - 2024**



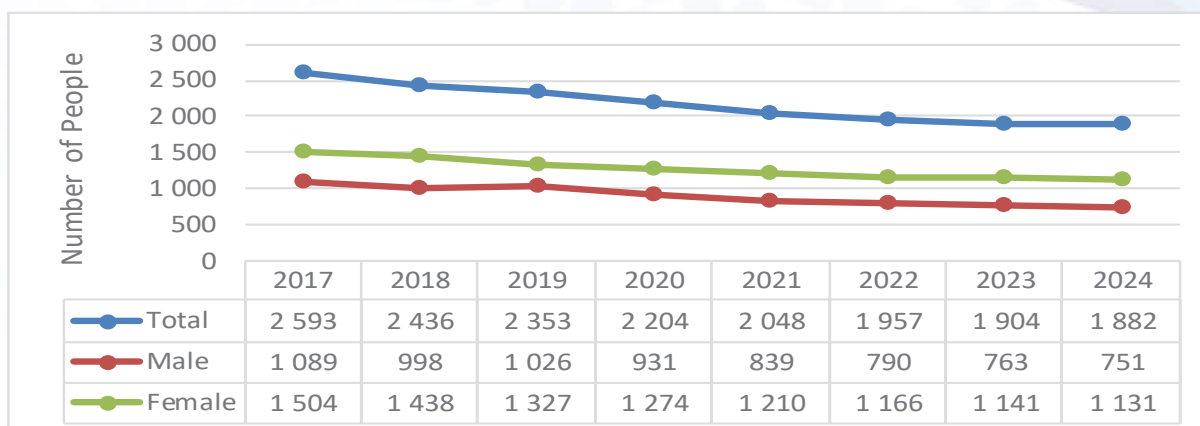
## 4.7 AIDS-Related Mortality

AIDS-related deaths are expected to decline due to the expanded treatment eligibility criteria under the revised HIV treatment (test and treat) guidelines – all PLHIV are eligible for receiving treatment. Expanding access to treatment is expected to reduce AIDS related deaths.

### 4.7.1 AIDS-Related Deaths (All Ages)

Figure 31 shows that in 2018, the number of AIDS-related deaths were 2,400 and there were more AIDS related deaths among females compared to males. Between 2018 and 2024, AIDS-related deaths will remain low but still slightly higher among females compared males.

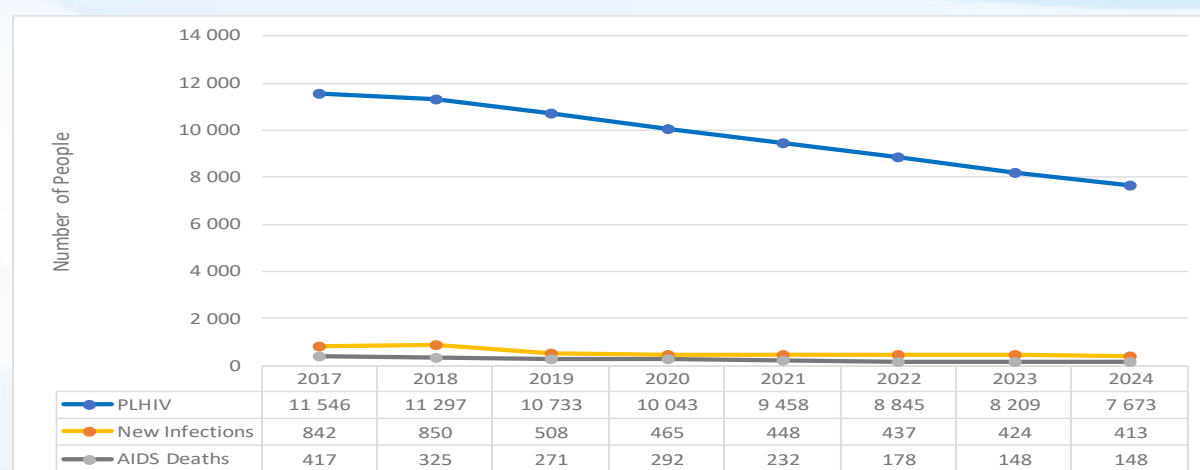
**Figure 31: Estimated AIDS-Related Deaths by Sex, 2017 - 2024**



### 4.7.2 AIDS-Related Deaths (Children)

Figure 32 below shows that new HIV infections in children 0 - 14 years are declining. AIDS-related deaths among children declined from 400 in 2017 to 300 in 2018 and is projected to decline further to 100 in 2024. The number of children living with HIV, AIDS-related deaths among children and new HIV infections among children are projected to decline between 2018 and 2024.

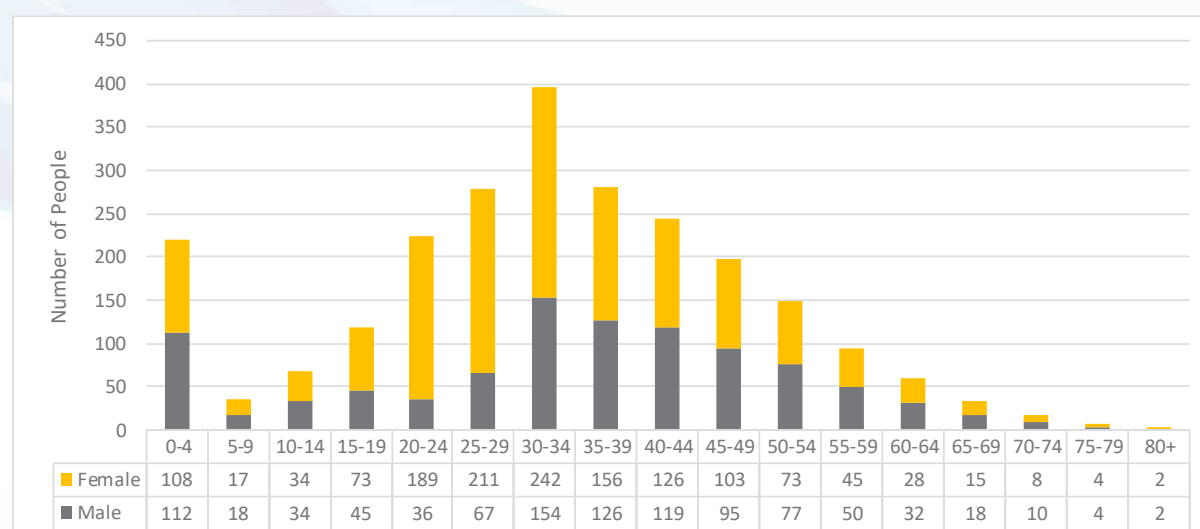
**Figure 32: Estimated Population Living with HIV, New HIV Infections and AIDS-related Deaths in Children Ages 0 - 14 Years, 2017 - 2024**



#### 4.7.3 AIDS-Related Deaths by Age in 2018

Figure 33 below shows the distribution of AIDS-related deaths by age groups in 2018. Among males, AIDS-related deaths are higher among those aged 24 to 54. AIDS-related deaths among females are higher in those aged 20 to 44. For both males and females, AIDS-related deaths peak at age group 30-34 years.

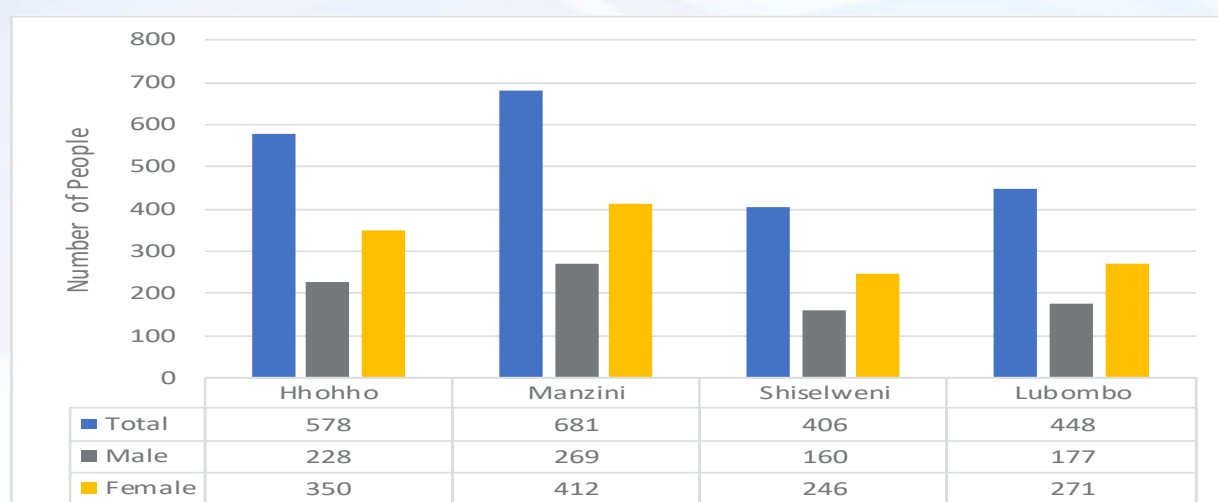
**Figure 33: AIDS-Related Deaths by Age and Sex, 2018**



#### 4.7.4 AIDS-Related Deaths by Region in 2018

Figure 34 below shows AIDS-related deaths across the country's four regions in 2018. The highest number of AIDS-related deaths are in Manzini region. The lowest number of AIDS-related deaths are in Shiselweni region. In all four regions, AIDS-related deaths are higher among females compared to males.

**Figure 34: Estimated AIDS-Related Deaths by Sex and Region, 2018**



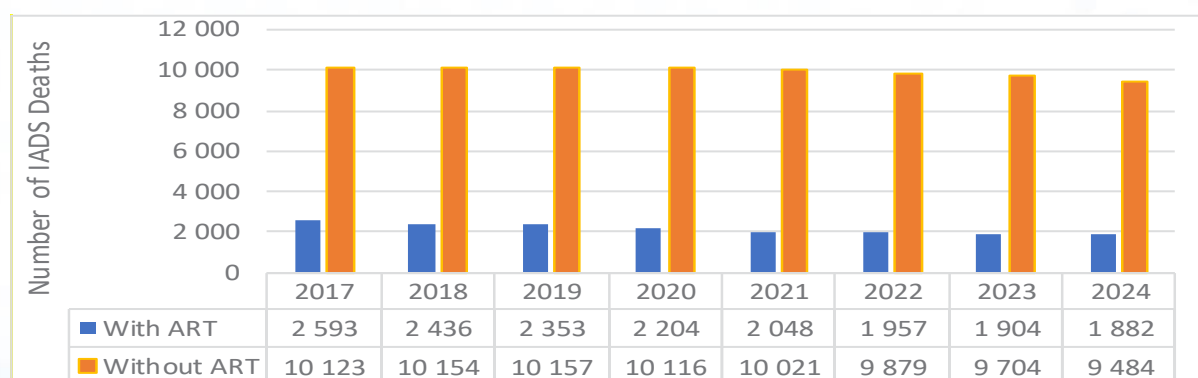
## 4.8 ART and AIDS Impact

### 4.8.1 Impact of ART on Survival

ART has improved the survival of people living with HIV and has become more effective over time. Figure 35 below shows the impact of ART on the number of AIDS-related deaths. For all years, AIDS-related deaths for PLHIV on ART are lower than those of PLHIV who are not on ART.

In 2018, AIDS-related deaths with ART are estimated to be 2,400 and will decline to 1,900 in 2024. AIDS-related deaths without ART are estimated at 10,200 in 2018 and projected to decline to 9,500 in 2024.

**Figure 35: Estimated AIDS-related Deaths (With & Without ART), 2017 - 2024**



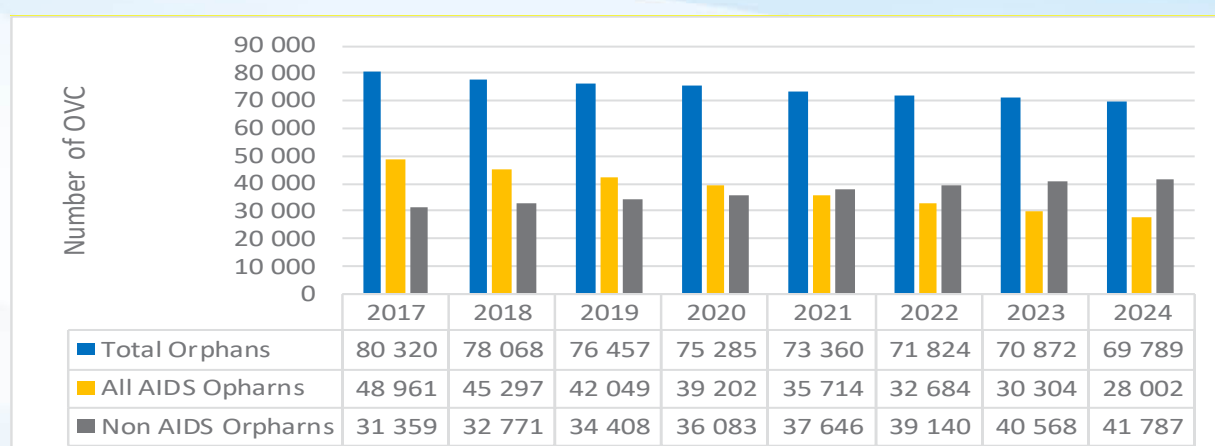
### 4.8.2 Impact of AIDS on Orphanhood

AIDS-related mortality has increased the numbers of orphaned children in Eswatini. Estimates use the definition of an AIDS orphan as 'a child who has lost at least one parent from AIDS-related death' and a double AIDS orphan as 'a child whose mother and father have both died, at least one due to AIDS'.

Figure 36 above shows the estimated numbers of orphans in the country. AIDS orphans are estimated to be about 58% of the total number of orphans in 2018. The numbers of AIDS orphans will decline over the years, largely due to declining AIDS mortality.



**Figure 36: Estimated Number of AIDS and Non-AIDS Orphans, 2017 - 2024**



## 4.9 Epidemic Control

The global target to End AIDS as a public health threat has compelled UNAIDS and partners to develop summary metrics to signal when the HIV epidemic has transitioned to a declining public health threat. A public health threat can be interpreted in different ways but in principle the benchmarks are intended to identify when:

- 1) the contribution of HIV morbidity and mortality to national burden of disease are declining, and
- 2) discrimination for HIV infection is eliminated. Four epidemic transition metrics are derived from the HIV estimates produced using Spectrum.

### 4.9.1 Epidemic Transition Metrics

Figure 37 below shows a percentage change in the number of new HIV infections and AIDS-related deaths since 2010. New HIV infections declined by 31% between 2010 and 2018. The estimated target is 90% reduction of new HIV infections by 2030 (in year 2022 for Eswatini).

**Figure 37: Trends of New HIV Infections**

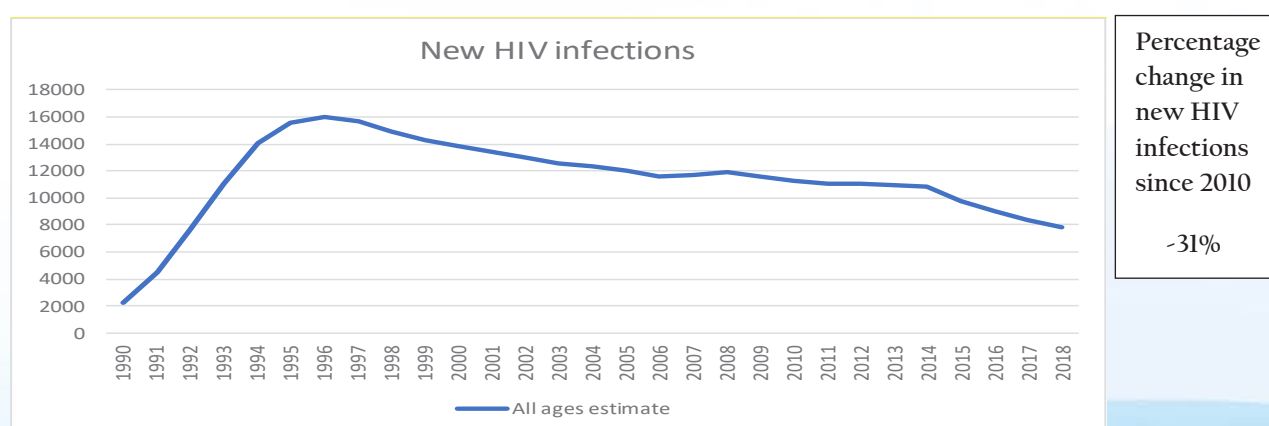


Figure 38 below shows the percentage change in the number AIDS-related deaths since 2010. AIDS-related deaths declined by 35% between 2010 and 2018. The estimated target is 90% reduction of AIDS-related deaths by 2030 (2022 for Eswatini).

**Figure 38: Trend of AIDS-Related Deaths**

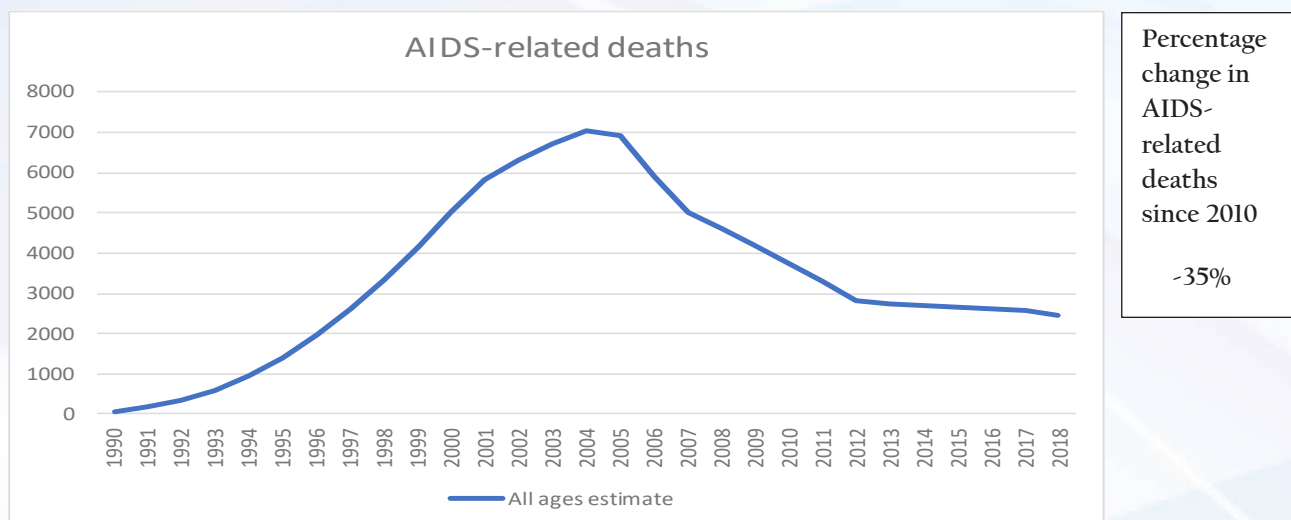


Figure 39 below shows the ratio of new HIV infections to number of people living with HIV. Incidence to Prevalence Ratio (IPR) for Eswatini is estimated at 3.78. This ratio estimates average number of new HIV infections per person living with HIV. When this ratio is maintained below 3.0 the epidemic will decline over time.

**Figure 39: Incidence: Prevalence Ratio (3.78)**

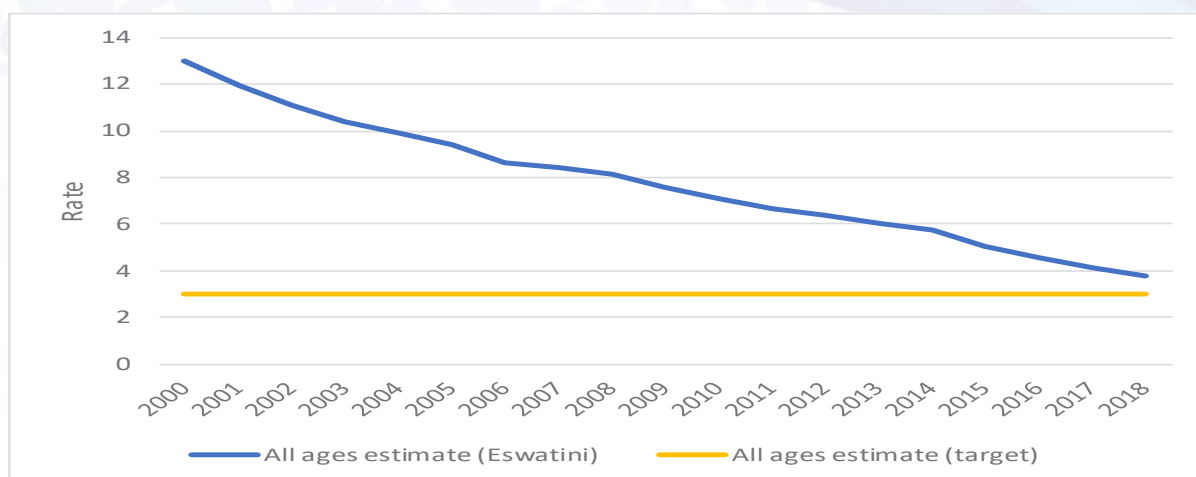
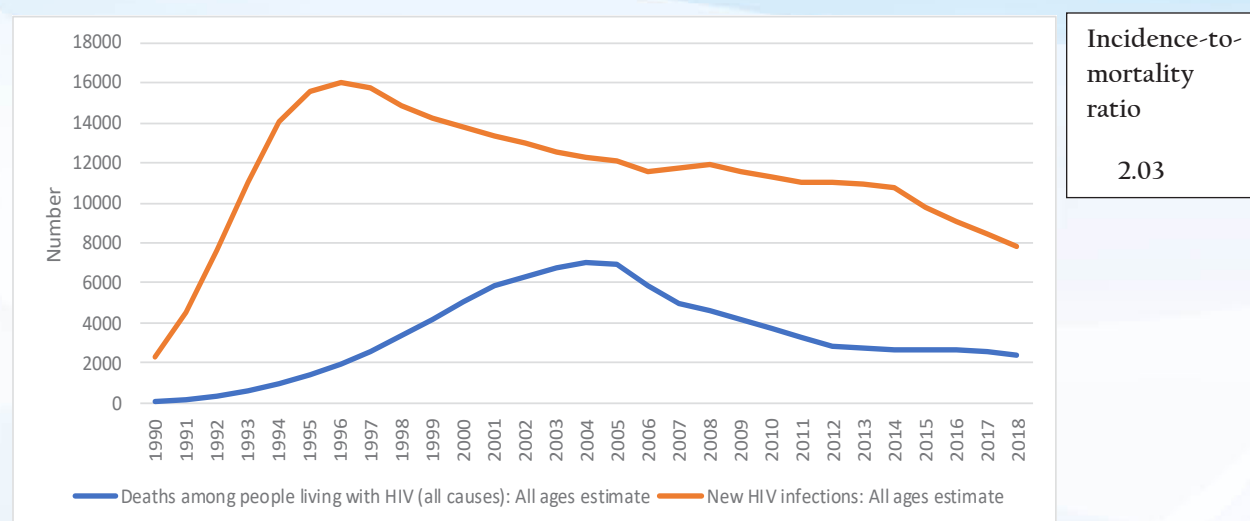


Figure 40 below shows the ratio of new HIV infections to the total number of deaths among the HIV population. The Incidence to Mortality Ratio (IMR) for Eswatini is estimated at 2.03. The benchmark for this indicator is 1. When this value is less than one, the size of the population living with HIV decreases.

**Figure 40: Incidence: Mortality Ratio**



The four epidemic transition metrics shows that Eswatini is on the path to achieve epidemic control. However, the country needs to reduce the number of annual new HIV infections, and to continue the scale-up of HIV treatment.

## 5. CONCLUSION

This estimates and projections report show the magnitude of the HIV epidemic through its demographic impacts between 2017 and 2018, and projections to 2024. Based on the Spectrum models, HIV prevalence have stabilized over the years. The 2018 estimates and projections as shown in the report forecast declining HIV incidence, new HIV infections and AIDS-related deaths.

This report also shows that past and current HIV prevention and treatment programs are yielding positive impact in terms of averting new HIV infections, AIDS-related deaths, and AIDS orphan hood. This report has also shown the impact of ART on PLHIV survival. The decline is also evident on the reduced numbers of OVC as estimated. Despite all the successes, the report also shows slow decline in new HIV infections.

This is a modelling report of closest estimations in 2018 using current service coverage but may change into the future. Therefore, the results for a particular year or indicator should not be compared to results from previously published estimates and projections reports, as each iteration of the estimates and projections uses the latest epidemiologic, demographic, and programmatic data, as well as updated model assumptions based on the scientific evidence available at the time. It is therefore recommended and essential to continuously run the models, ideally every year to update it with new input data and validated assumptions.

Finally, the report points out that to meet the global and national targets of Ending AIDS by 2030 and 2022, respectively, there is a need to intensify prevention efforts while keeping momentum on HIV treatment and elimination of stigma and discrimination.

## 6. ANNEXES

Table 1: Summary Table of Estimates with Confidence Intervals, 2017-2024

	2017	2018	2019	2020	2021	2022	2023	2024
<b>HIV population</b>								
Lower bound	188 064	191 461	194 082	195 859	198 125	200 158	202 387	204 214
Median Estimate	202 131	205 717	208 848	211 310	213 714	216 255	218 866	221 576
Upper bound	219 578	224 312	227 391	230 557	234 089	237 830	240 859	243 513
<b>Number of new HIV infections</b>								
Lower bound	7 531	6 895	6 527	5 928	5 688	5 693	5 747	5 638
Median Estimate	8 406	7 785	7 367	6 635	6 486	6 606	6 694	6 833
Upper bound	9 470	8 916	8 454	7 545	7 467	7 655	7 829	8 242
<b>AIDS-related deaths</b>								
Lower bound	2 193	2 027	1 933	1 799	1 692	1 608	1 559	1 541
Median Estimate	2 593	2 436	2 353	2 204	2 048	1 957	1 904	1 882
Upper bound	3 043	2 893	2 792	2 592	2 407	2 299	2 241	2 211
<b>Adult prevalence (15-49)</b>								
Lower bound	25,42	25,11	24,79	24,28	23,64	23,23	22,77	22,07
Median Estimate	27,65	27,26	26,87	26,41	25,88	25,36	24,86	24,34
Upper bound	29,36	29,04	28,89	28,46	27,99	27,62	27,22	26,54
<b>Incidence (15-49)</b>								
Lower bound	1,55	1,37	1,32	1,17	1,10	1,06	1,03	1,01
Median Estimate	1,72	1,54	1,49	1,31	1,25	1,25	1,24	1,24
Upper bound	1,94	1,76	1,72	1,51	1,44	1,45	1,45	1,49
<b>HIV population (15-49)</b>								
Lower bound	146 563	147 440	147 958	148 260	148 492	147 726	147 469	147 103
Median Estimate	158 948	160 006	160 954	161 432	161 379	161 434	161 550	161 630
Upper bound	170 824	171 963	173 392	174 505	175 106	174 885	175 027	175 249
<b>HIV population (15+)</b>								
Lower bound	177 840	181 080	184 099	186 864	188 999	192 060	194 711	196 970
Median Estimate	190 585	194 420	198 114	201 266	204 257	207 411	210 657	213 903
Upper bound	206 560	211 195	215 750	219 805	223 591	228 100	231 768	234 938
<b>HIV population (15+) females</b>								
Lower bound	111 563	113 779	116 415	118 044	120 161	122 031	123 846	124 917
Median Estimate	119 808	122 268	124 728	126 840	128 849	130 955	133 119	135 300
Upper bound	129 265	131 794	135 008	137 371	140 215	142 491	144 966	147 772
<b>New HIV infections (15+)</b>								
Lower bound	6 765	6 174	6 058	5 465	5 272	5 296	5 344	5 254
Median Estimate	7 564	6 935	6 859	6 170	6 038	6 169	6 270	6 419
Upper bound	8 535	7 953	7 917	7 057	6 978	7 189	7 354	7 782
<b>Annual AIDS-related deaths (15+)</b>								
Lower bound	1 806	1 732	1 667	1 560	1 464	1 438	1 424	1 404
Median Estimate	2 176	2 112	2 082	1 912	1 816	1 779	1 756	1 734
Upper bound	2 601	2 501	2 480	2 250	2 143	2 094	2 071	2 050
<b>HIV population (0-14)</b>								
Lower bound	9 813	9 414	8 977	8 488	8 031	7 527	7 012	6 633
Median Estimate	11 546	11 297	10 733	10 043	9 458	8 845	8 209	7 673
Upper bound	13 366	13 192	12 496	11 697	11 034	10 338	9 639	9 026

<b>New HIV infections (0-14)</b>								
Lower bound	557	511	461	418	404	389	374	361
Median Estimate	842	850	508	465	448	437	424	413
Upper bound	1 150	1 157	570	517	504	487	478	472
<b>Annual AIDS deaths (0-14)</b>								
Lower bound	286	212	221	182	175	149	125	124
Median Estimate	417	325	271	292	232	178	148	148
Upper bound	620	436	413	448	355	255	205	220
<b>Children needing ART (0-14) (Dec 31)</b>								
Lower bound	9 721	9 312	8 783	8 368	7 887	7 357	6 901	6 499
Median Estimate	11 561	11 107	10 467	9 846	9 250	8 613	8 014	7 488
Upper bound	13 437	12 930	12 158	11 466	10 776	10 085	9 406	8 790
<b>AIDS deaths by age 0-4</b>								
Lower bound	174	136	122	114	114	104	87	89
Median Estimate	276	220	186	220	173	131	107	112
Upper bound	468	320	369	372	299	218	168	199
<b>Annual AIDS deaths-related (1-4)</b>								
Lower bound	53	36	52	38	38	32	21	26
Median Estimate	75	51	101	131	83	44	28	35
Upper bound	181	96	261	267	193	115	70	104
<b>HIV Prevalence (15-24)</b>								
Lower bound	5,25	5,07	4,99	4,91	4,85	4,8	4,77	4,67
Median Estimate	9,94	9,52	9,17	8,82	8,46	8,21	8,01	7,81
Upper bound	13,41	12,8	12,39	11,93	11,46	11,15	10,86	10,68
<b>HIV prevalence (15-24) females</b>								
Lower bound	8,04	7,65	7,37	6,97	6,72	6,64	6,49	6,32
Median Estimate	16,79	15,9	15,14	14,37	13,63	13,07	12,62	12,22
Upper bound	22,54	21,53	20,59	19,55	18,75	18,1	17,53	17,23
<b>New HIV infections (15-24) males</b>								
Lower bound	101	81	78	65	62	58	58	58
Median Estimate	417	364	344	297	280	278	273	270
Upper bound	558	494	492	411	401	391	379	387
<b>New HIV infections (15-24) females</b>								
Lower bound	1 793	1 607	1 556	1 395	1 329	1 353	1 334	1 380
Median Estimate	2 622	2 382	2 337	2 087	2 030	2 064	2 086	2 125
Upper bound	3 235	2 983	2 989	2 636	2 596	2 621	2 702	2 854
<b>New HIV infections (15-24)</b>								
Lower bound	1 879	1 663	1 602	1 482	1 358	1 340	1 386	1 387
Median Estimate	3 039	2 746	2 681	2 384	2 310	2 342	2 359	2 395
Upper bound	3 654	3 367	3 351	2 977	2 944	2 992	3 058	3 209
<b>Annual AIDS deaths (15-24)</b>								
Lower bound	182	180	177	174	162	157	155	151
Median Estimate	335	343	331	307	289	279	271	261
Upper bound	496	492	474	434	405	380	371	359
<b>HIV population (10-19)</b>								
Lower bound	7 669	7 837	7 809	7 693	7 672	7 706	7 635	7 463
Median Estimate	11 610	11 533	11 368	11 083	10 890	10 830	10 783	10 702
Upper bound	15 401	15 116	14 763	14 361	14 159	14 271	14 428	14 477



<b>New HIV infections (10-19)</b>								
Lower bound	258	236	238	208	193	201	194	206
Median Estimate	1 411	1 282	1 251	1 108	1 068	1 078	1 088	1 114
Upper bound	2 433	2 249	2 189	1 951	1 923	2 110	2 143	2 165
<b>Annual AIDS deaths (10-19)</b>								
Lower bound	145	121	111	97	89	81	72	66
Median Estimate	205	186	170	154	139	126	117	109
Upper bound	267	254	235	216	194	177	163	152
<b>Mothers needing PMTCT</b>								
Lower bound	8 491	6 862	7 980	9 178	8 717	8 252	7 823	7 372
Median Estimate	11 228	10 893	10 517	10 122	9 698	9 277	8 874	8 490
Upper bound	15 322	15 255	12 940	11 326	10 882	10 508	10 126	9 706
<b>All AIDS orphans</b>								
Lower bound	42 323	39 529	36 959	33 955	31 263	28 781	26 966	24 576
Median Estimate	48 961	45 297	42 049	39 202	35 714	32 684	30 304	28 002
Upper bound	55 049	50 422	47 029	44 016	40 106	36 657	34 371	31 589

## 6.2 References

1. Avenir Health (2018). Spectrum Manual – Spectrum System of Policy Models.
2. Central Statistical Office (2007). Swaziland Demographic and Health Survey 2007.
3. Central Statistical Office (2010). Swaziland Household Income and Expenditure Survey (SHIES), 2009/2010. Mbabane, Swaziland.
4. Central Statistical Office (2015). Swaziland Multiple Indicator Cluster Survey 2014, Key Findings. Mbabane, Swaziland.
5. Central Statistical Office (2011). Swaziland Multiple Indicator Cluster Survey, 2010. Mbabane, Swaziland.
6. Central Statistical Office (2017). Swaziland Population and Housing Census, CSO Mbabane, Swaziland.
7. Cohen M., *et al.* Prevention of HIV-1 Infection with Early Antiretroviral Therapy. *New England Journal of Medicine*, 2011; 365:493-505.
8. Cooper E.R., *et al.* Combination Antiretroviral Strategies for the Treatment of Pregnant HIV-1-infected Women and Prevention of Perinatal HIV-1 Transmission. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology*, 2002, 29(5): 484-494.
9. Dabis F., *et al.* Effectiveness of a Short Course of Zidovudine+Lamivudine and Peripartum Nevirapine to Prevent HIV-1 Mother-to-Child Transmission. The ANRS DITRAME Plus Trial, Abidjan, Côte d'Ivoire. *Antiviral Therapy*, 2003, 8 (Suppl. 1): S236-S237.
10. NERCHA (2010). Swaziland HIV Estimates and Projections Report, 2010.
11. NERCHA (2015). Swaziland HIV Estimates and Projections Report, 2015.
12. UNAIDS (2014). '90-90-90' An Ambitious Treatment Target to Help End the AIDS Epidemic.
13. UNAIDS Reference Group on Estimates, Modelling, and Projections.
14. UNDP (2015). Human Development Report, 2015.
15. Ministry of Health (2010). ANC Sentinel Surveillance Report, Mbabane, Swaziland.
16. Ministry of Health (2015). Annual HIV Programme Report, Mbabane, Swaziland.
17. Ministry of Health (2016). Annual HIV Programme Report, Mbabane, Swaziland.
18. Ministry of Health (2017). Annual HIV Programme Report, Mbabane, Swaziland.
19. Ministry of Health (2011). Swaziland HIV Incidence Measurement Survey 1 (SHIMS1), 2011.
20. Ministry of Health (2016). Swaziland HIV Incidence Measurement Survey 2 (SHIMS2), 2016-2017
21. World Health Organization (2016). Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection, 2016.