

Kingdom of Swaziland
Ministry of Health

ART PROGRAM

ANNUAL REPORT 2012

Strategic Information Department



FOREWORD

Swaziland, as one of the countries most affected by the HIV and AIDS pandemic, continues to strengthen its national response and achieve results. Since 2003 when the Swaziland National Antiretroviral Therapy Program (SNAP) was established, an increasing number of people have been able to access free life-saving antiretroviral (ARV) medicines. This has contributed to improvement in the health of the people with significant reduction in morbidity and mortality. This contribution is part of the approach described in the National Multisectoral Response to HIV/AIDS Framework 2009-2014, which aims to increase the life-expectancy of the people of Swaziland.

The success realized by the country in HIV and AIDS care and treatment can be attributed to the Government of Swaziland's strong commitment towards keeping people healthy. From the beginning of the national ART program, the Government of Swaziland has been contributing funding towards the procurement of ARV medicines. This made it easier to transition away from donor funding, since ARV procurement was already seen as the responsibility of the Ministry of Health. This contribution is important because provision of care and treatment services for PLHIV revolves around the uninterrupted supply of ARVs, upon which other activities such as capacity building of health care workers and systems, are built. The commitment shown by the Government in leading the program has attracted immense support from development partners, donors and local and international non-governmental organizations (NGOs). These partners have provided financial and technical support to improve the quality of the services delivered to the PLHIV in the country. They have also worked with PLHIV groups to build their capacity to contribute to the response to HIV and AIDS and especially how to be meaningfully involved in their own care and treatment.

This report describes the achievements that the national ART program realized during calendar year 2012. These achievements reflect the strong partnership and collaboration between Government and various entities that work in the area of HIV and AIDS. They also indicate that, as the country aspires to achieve the three zeros (zero new HIV infections, zero HIV related deaths and zero stigma and discrimination) by 2015, more ambitious targets will have to be set. The country is on track towards achieving the three zeros; however, success will require new ways of thinking and more resources invested in targeting the hard-to-reach populations and in mobilizing communities for HTC uptake and linking them to care and treatment at the earliest opportunity. The proper implementation of new strategies such as Treatment as Prevention will further contribute towards the three zeros, with emphasis on people taking ARVs primarily to improve their own health with the secondary benefit of reducing transmission of HIV.

This report will be used to disseminate information to partners and interested donors on the activities of the national ART program. It will also be accessed by PLHIV for use in advocacy activities that pertain to the improvement of services rendered to them. It is envisaged that with this report, the Government of Swaziland will realize the difference that ART is making in the lives of the people and will further appreciate that investing in the health of the people is a critical step towards improving the economy of the country.

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ACRONYMS & ABBREVIATIONS

3TC	lamivudine
ABC	abacavir
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
ARVs	Antiretroviral Drugs
AZT	zidovudine; also known as ZDV
CD4	Cluster Designation 4
CHAI	Clinton's Health Access Initiative
d4T	Stavudine
ddI	Didanosine
EFV	efavirenz
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	Early infant diagnosis
GNP+	Global Network O People Living with HIV
HIV	Human Immunodeficiency Virus
HSSP	Health Sector Strategic Plan
HTC	HIV Testing and Counseling
ICAP	International Center for AIDS Care and Treatment Programs
IHM	Institute for Health Measurement
IMAAI	Integrated Management of Adult and Adolescent Illness
LPV/r	Lopinavir/boosted with ritonavir
LTFU	Lost to follow up
M&E	Monitoring and Evaluation
MM3	Cubic millimeter
MOH	Ministry of Health
MSF	Médecins Sans Frontières
MSH/SIAPS	Management Sciences for Health/Systems for Improved Access to Pharmaceuticals and
NERCHA	National Emergency Response Council on HIV and AIDS
NARTIS	Nurse-led ART initiation in Swaziland
NGOs	Non-Governmental Organizations
NSF	National Strategic Frame Work
NVP	Nevirapine
OIs	Opportunistic Infections
PEPFAR	[United States] President's Emergency Plan for HIV and AIDS Relief
PLHIV	People Living with HIV and AIDS
PMTCT	Prevention of Mother-to-Child Transmission [of HIV]
POC	[Comprehensive HIV] Package of Care
QI	Quality Improvement
RHM	Rural Health Motivator
RTV	Ritonavir
SAFAIDS	Southern Africa AIDS Information Dissemination Service
SDHS	Swaziland Demographic and Health Survey
SWANNEPHA	Swaziland National Network of People Living with HIV and AIDS



SNAP	Swaziland National AIDS Programme
SID	Strategic Information Department
SQV	Saquinavir
TB	Tuberculosis
TDF	Tenofovir disoproxil fumarate
TWG	Technical Working Group
UNAIDS	United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
UNGASS	United Nations General Assembly Special Session [on HIV and AIDS]
UNICEF	United Nations Childrens Fund
URC	University Research Corporation
UvA	University of Amsterdam
WFP	World Food Programme
WHO	World Health Organization
ZDV	Zidovudine; also known as AZT



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EXECUTIVE SUMMARY

This National ART Program Annual Report provides information on the achievements of the program during the year 2012. It has been produced with the support of the Institute of Health Measurement (IHM), working with the Strategic Information Department (SID) and the Swaziland National AIDS Program (SNAP). The report describes achievements in the core indicators and targets that the SNAP had set out to achieve during the year. Since these targets are aligned with the National Multi-sectoral Strategic Framework on HIV/AIDS 2009-2014, the achievements indicate the contributions of the program towards achieving the impact of reducing to zero, AIDS-related mortality and reducing the number of new infections.

This report presents ART program achievements in program system strengthening, ART services provision, program performance indicators, and program best practices.

1. Program System Strengthening

The national ART program has in place functioning and well-coordinated health system building blocks notably leadership and governance, information management, integrated and decentralized ART services, community participation, and partnerships for ART provision. There has been strengthening of leadership through the creation of a Senior Medical Officer position within SNAP to lead ART program coordination. Other health system building blocks such as human resources, information technology and service delivery have been strengthened to provide quality ART services. As is true for other programs of the MOH, there are cross cutting challenges in human resources, financing, health infrastructure and laboratory services.

2. ART Services Provision

Decentralized ART service delivery was made a priority to ensure that people in the country can access the services closer to their homes. In addition, the ART program has been strengthened through the introduction of structured pre-ART services with the aim of encouraging people living with HIV (PLHIV) to monitor and improve their

health and to prevent opportunistic infections. Pre-ART services have been strengthened through the development and dissemination of Pre-ART tools for data capture. By the end of 2012, there were 38 164 Pre-ART enrolled patients, which is an improvement from a previous situation where there was no record of people on pre-ART services.

The number of facilities providing ART (initiation, and refill) increased by 16.8% from 107 in 2011 to 124 in 2012. There were 15 438 clients newly enrolled on ART reflecting an 8.1% reduction in ART initiations compared to 2011 (16 695). However, it is worth noting that this figure is above the target of 10 000 ART initiations during the year.

In 2012 the median baseline CD4 count at initiation was 200 cells/mm³, an improvement from 90 cells/mm³ in 2008. There were 87 543 people alive and on ART at the end of December 2012, comprising 7 431 children and 80 103 adults. Based on 2010 Spectrum estimates, this represents an ART coverage of 91.1% of those in need compared to 79.5% in 2011.

During 2012, a total of 75 810 people were on 1st line ART regimen compared to 73 369 in 2011 showing an increase of 3.3%. Only 1.6% (1 213) were on 2nd line ART regimen in 2012 compared to 2% (1 502) in 2011. These data indicate a reduction in the tendency to switch to second line regimens, preserving them for future use. The retention of people on ART has improved to 92% at 6 months, 89% at 12 months and 73% at 36 months. At 8%, the attrition rate is highest during the first 6 months, mostly lost to follow up.

3. Program Best Practices

The program has achieved unique best practices such as task shifting in the form of nurse-led ART initiation (NARTIS), decentralization of services, and greater involvement of PLHIV. The best practices have been supported by policies and guidelines that provide a framework for the implementation of the activities.



CHAPTER 1: OVERVIEW AND BACKGROUND

1.1 Overview

The provision and scale up of antiretroviral therapy (ART) is an essential element in the response to HIV and AIDS. The annual program report on ART service delivery is important because it demonstrates progress made towards universal access to ART services, allows the program to monitor trends and identify challenges and areas that require greater attention and the achievement of targets set at national level. The 2010 United Nations General Assembly Special Session on HIV and AIDS (UNGASS) recommended that countries submit national HIV response progress reports every two years.

In line with programmatic requirements, the Monitoring and Evaluation (M&E) Unit in the Strategic Information Department (SID) and the Swaziland National AIDS Program (SNAP) of the Ministry of Health (MOH) have continued to produce ART Program Annual Reports during the period of ART scale up in the country. This report will contribute to the SID's mission of providing information on key health statistics to the health sector and other stakeholders.

The National *ART Program Annual Report 2012* describes the main achievements of the ART program during the twelve months of 2012. Comparison with the *ART Program Annual Report 2011* and other country ART programs in the region will be made in assessing the achievements made by the program. The report provides data on key nationally-agreed ART indicators and descriptive information on issues such as program management and regulation, drug supply system, human resource capacity, laboratory services, community mobilization for ART, integration of ART in other programs, and surveillance of HIV drug resistance.

The report presents major achievements of the national ART program in table and figure

summaries, which are useful to policy makers, program managers, and other stakeholders. The data are presented in terms of national level statistics and for population subgroups such as those defined by age, sex, and regions of the country. When necessary and appropriate to a topic, further data analysis and disaggregation have been included. The level of analysis in the report is primarily descriptive and is particularly useful for assessing progress and coverage of the program activities. While this report is not designed to provide complex analysis due to various constraints, it indicates areas where more detailed, complex analysis would be fruitful.

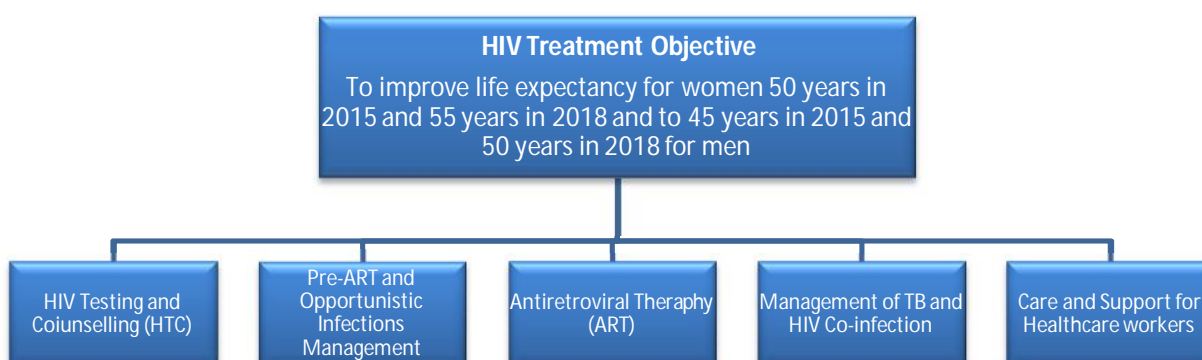
1.2 Background

SNAP was established within the MoH in 1987 to respond to the HIV epidemic. The core mandate of SNAP is to coordinate health sector interventions as they account for more than 70% of the total HIV response¹. The national program has several thematic areas to meet its mandate (see **Figure 1**). Treatment, care and support of people living with HIV (PLHIV) is one important thematic area of the national response to HIV and AIDS. According to the National Multisectoral Strategic Framework on HIV and AIDS 2009-2014 (NSF), this thematic area's priority interventions are HIV Testing and Counseling (HTC), *provision* of Pre-ART including management of opportunistic infections, ART, treatment of Tuberculosis (TB)/HIV co-infection and community based care services, which include palliative care.

These programs are designed to complement each other and create an effective synergy to meet the broad objective, which is to improve the quality of life and life expectancy of PLHIV.

¹ National Multisectoral Strategic Framework for HIV/AIDS 2009-2014

Figure 1: Treatment, Care And Support Programmatic Areas As Outlined In The NSF 2009-2014



HIV incidence is estimated at 2.8%², meaning that over 30 new infections occur each day in the country. Twenty six per cent (26%) of the adult population (15 to 49 years) is infected with HIV (Swaziland Demographic and Health Survey [SDHS], 2007). Women are disproportionately affected, comprising over 55% of all HIV-infected adults, and 62% of new infections.³ Prevalence amongst pregnant women attending antenatal care (ANC) facilities stands at 41% (ANC Sentinel Surveillance, 2010). Life expectancy reduced from 60 years in the 1990s to 43 years in 2007, and is estimated to have improved to 49 years in 2012 due in large part to the success of the national ART program.⁴

It is estimated that 190 000 of the population are living with HIV and of these about 87 534 (46%) were actively on ART in 2012. One of the major objectives of the ART program has been to make care and treatment for people living with HIV accessible at the primary care level. In 2004 ART services were introduced at the national referral hospital and regional hospitals, then later to health centers. In 2006, the ART Program decentralized ART services to the primary health care clinics, where nurses were trained to do antiretroviral medicine (ARV) refill for patients. In mid-2009, Nurse-led ART Initiation (NARTIS) at the primary care clinics was introduced in the country. The decentralization process was made possible by,

2 2011 Swaziland HIV Incidence Measurement Survey

3 National Strategic Framework on HIV/AIDS Mid-term Review

4 National Comprehensive HIV Package of Care for Adults and Adolescents in Swaziland, 2010

among other strategies, the task shifting framework, the deployment of point of care CD4 machines at the clinics and the introduction of a sample transport system to link the clinics to regional laboratories.

The country is implementing ART initiation according to the 2010 guidance of the World Health Organization (WHO), which recommends provision of ART for all people with CD4 less than 350 cells/mm³ or those in WHO clinical stage 3 and 4. In addition, all HIV positive patients diagnosed with TB are eligible to start ART as soon as possible and all children below the age of two years are eligible for ART regardless of CD4 count. In order to improve linkages to care and treatment, all clients who test HIV positive are enrolled for Pre-ART services regardless of the CD4 count. This is a strategy that is aimed at ensuring early enrolment into ART for those who need treatment and to prevent the development of serious opportunistic infections (OIs).

1.3 Report Methodology, Data Collection, And Writing Process

This is a retrospective longitudinal program annual assessment report for the period from January to December 2012. In the national ART program, patients' demographic and service data are routinely collected by health providers using the ART program registers, patient files and cards. Data are entered by either health workers or data clerks into the ART Patient Management Database systems installed at hospitals and health centres providing ART services. The data for 2012 were collected and analysed by the M&E officers of the SID.

A Technical Working Group (TWG) made up of representatives from HIV services implementing organizations, development partners, SNAP and other MoH national programs was convened to guide the report-writing process, while the M&E unit of the SID provided data support to the report writing process. The process began with a data management team orientation workshop at which the various thematic programs in SNAP provided preliminary program data for 2012. These data were further sorted, cleaned, and analysed by the various thematic data management teams using STATA package. The teams also revised and recommended the broad outline of the report, providing a report document template to the TWG.

CHAPTER 2: HIV CARE & ART PROGRAM DESCRIPTION

2.1 Family Centred Approach To HIV Care

Beginning from 2012, Swaziland adopted a comprehensive approach in the management of HIV. This requires a broad range of services that include not only diagnosis and treatment but also supportive and complementary services to ensure that skills to cope with a chronic lifelong illness, adequate nutrition, and support for daily living are available. Before 2010, treatment guidelines focused on the use of ARVs and on the monitoring of patients on ART. From 2010 onwards, the revised guidelines referred to as the Comprehensive HIV

Package of Care (POC) put emphasis on the holistic management of PLHIV.

2.2 National ART Program

SNAP has been tasked with the responsibility of ensuring that ART services are available to all people in Swaziland who need them. This is done under the guiding principles of equity in accessibility (rural and urban; rich and poor); affordability (free provision of ART services); and quality and sustainability of services. The NSF and the POC describe a national ART program that can be summarized as shown in **Table 1** below.

Table 1: ART Program Summary

PROGRAM ASPECT	DESCRIPTION
Mission of the Ministry of Health	To improve the health status of the people of Swaziland by improving promotive, preventive, curative and rehabilitative services that are of high quality, relevant, accessible, affordable, equitable and socially acceptable.
Impact Level Result for Treatment, Care and Support	Increased life expectancy from 40.2 years in 2008 to 44 years in 2014. It is worth noting that this target has been surpassed.
Strategic Direction	<ol style="list-style-type: none"> 1. To promote the concept of people knowing their HIV status and seeking health care as early as possible. 2. Introduction of a comprehensive package of care that defines pre-ART services to be made available to PLHIV that would ensure delayed progression to AIDS stage and ensure initiation of ART at a higher CD4 count. 3. Increase access to ART by all people in need and improve retention on treatment. 4. Improve the diagnosis and treatment of TB/HIV co-infection among patients.
Key Strategies in the provision of ART to achieve universal coverage	<ol style="list-style-type: none"> 1. Expand HTC services in the community through decentralization of services. 2. Strengthen systems for the registration, monitoring and tracking of pre-ART patients. 3. Rollout ART countrywide to increase access and availability. 4. Strengthen and expand the provision of paediatric ART and facilitate linkages between ART and PMTCT. 5. Build capacity for health care workers to provide quality ART services. 6. Strengthen and improve laboratory services to support ART and related services. 7. Strengthen active collaboration between TB and ART programs and facilitate integration of services.
Partners	NERCHA , PEPFAR and its partners (ICAP, EGPAF, URC, MSH/SIAPS, IHM, Pact), UN Agencies (WHO, UNAIDS, UNFPA, UNICEF, WFP), MSF (Geneva and Holland), MaxART Consortium (SWANNEPHA, CHAI, Stop AIDS Now!, GNP+, UvA, SAFAIDS), National non-governmental, faith-based and community-based organizations, private practitioners
Program performance indicators	<ol style="list-style-type: none"> 1. Percentage of adults and children with HIV still alive and known to be on treatment 36 months after initiation of ART 2. Percentage of adults with HIV infection receiving ART 3. Percentage of children aged 0-14 years with HIV infection receiving ART 4. Number of health facilities that have the capacity to provide advanced level of HIV care and support services, including ART 5. Average CD4 count at ART initiation 6. Life expectancy



CHAPTER 3: PROGRAM ANNUAL ASSESSMENT

This chapter provides assessment information on the following:

- Program system strengthening,
- ART Services and Outcome,
- Summary of Program Performance Indicators, and
- Program Best Practices

3.1 Program System Strengthening

3.1.1 Program Leadership And Governance

The program has a national and decentralized leadership and governance structure. There is a National ART Program office, which works closely with regional teams that supervise health facility service provision, there are clearly outlined program strategies and guidelines that are periodically revised to meet international standards and take into consideration new developments in the field of HIV care and treatment. The HIV care and treatment guidelines are widely disseminated in all the ART accredited public, mission, non-governmental organizations (NGOs), and private health facilities. This was verified during the Health Sector Strategic Plan (HSSP) Mid-Term Review that was done in 2012.

As a governance and regulatory mechanism to ensure acceptable standards and quality of ART services, all staff providing ART require certification through attending national trainings conducted by the program and its partners. Health facilities in all participating sectors are assessed and accredited by the program after meeting the stipulated standards on the following key areas: infection control, pharmaceutical and drug storage, laboratory, data security and staff trainings.

3.1.2 Program Financing

The Government of Swaziland remains committed to funding 100% of ARVs and drugs for opportunistic infections. Despite the economic challenges that the Government of Swaziland faced in the fiscal years 2010/11 and 2011/12, this commitment remained. As a result, health services were uninterrupted during 2012, with continued provision of funding for drugs and more than 80% of the laboratory reagents. Donors and partners provided for the remainder of laboratory commodities and supported 12 doctors responsible for providing ART services in hospitals countrywide.

Other partners in the country have provided funding that has enabled the program to achieve the planned activities under decentralization of services, including the provision of mentoring services.

3.1.3 Program Human Resource Management

The MOH, as a whole, has challenges of human resources in both absolute numbers and skill level. Development partners have supported the employment of additional staff. These additional staff provide services at the national, regional, and facility level to ensure quality is maintained throughout the continuum of care. This means a significant number of staff working within the ART program and in ART service provision are partner-supported, which brings about sustainability challenges. A process of absorption of critical posts such as phlebotomists, nurses and medical officers has been initiated and is on-going.

In addition to transition planning for partner-funded staff, the MOH has adopted a number of human resource management strategies in order to strengthen efficiency of service provision, improve quality of services and facilities, and increase patient satisfaction.

3.1.3.1 Task Shifting

To help overcome human resource shortages in order to provide expanded HIV services in the country, the MOH introduced a task shifting strategy for ART and TB services. The introduction of the NARTIS approach has increased access to ART initiation services for people living in rural areas. The number of clinics providing ART and TB initiation services continued to increase during 2012.

A new cadre of phlebotomists was introduced and placed at mini-laboratories within clinics. They work under the supervision of the National Reference Laboratory. Their responsibilities include drawing blood samples from patients, processing samples for point-of-care tests where available and ensuring samples are sent and results are received from the national and regional laboratories. This has helped to cut down the workload of nurses in the clinics and reduced turn-around time for results from weeks to just under a week.

In Swaziland, task shifting is proving to be an effective strategy for addressing shortages of



health workers in HIV treatment and care. The task shifting strategy ensures provision of high-quality, cost-effective care to more patients when compared to a physician-centred model. The main challenges to implementation include inadequate and unsustainable training, limited support and unstructured pay scales for staff in new roles, the poor integration of new members into healthcare teams, and the poor regulatory mechanisms for new cadres.⁵ There is need to conduct patient satisfaction surveys with regard to the effectiveness of NARTIS at service delivery level.

3.1.3.2 Training

Didactic training is a cornerstone of the MOH program for HIV care and treatment. The Basic Integrated Management of Adolescent and Adult Illness (IMAAI) Training is offered to all health care workers as a foundation for provision of basic HIV services, including ARV refills. Nurses who are experienced in the provision of ART refill services are then offered NARTIS training that prepares them to provide ART initiation services at the clinic level.

⁵ Callaghan et al. Human Resources for Health 2010, 8:8 <http://www.human-resources->

In general, courses vary from one to two weeks in length and provide in-depth coverage of topics such as adult HIV care, paediatric HIV care, TB/HIV management and adherence counselling. In order to ensure that the trainings translate to improved service delivery, there are Regional Mentoring Teams that provide on-site trainings at facility level on practical issues related to HIV care.

The ART program in 2012 provided capacity building training for a total of 703 health care workers across all cadres, including doctors, nurses and expert clients. (See **Table 2** below). This is in contrast to 2011 where the program focussed on enhancing the capacity of medical doctors to respond effectively to the increased number of patients eligible for ART. In 2012, capacity building was focused on ensuring that nurses in clinics are able to provide ART initiation services, in addition to the refill services already being provided. There was also an increase in the number of expert clients trained to provide adherence preparation and supportive counseling to PLHIV and to contact patients who miss appointments to return for treatment

Table 2: Health Workers Trained In 2012

Training	Medical officers	Staff Nurses	Nurse Assistants	Expert Clients	TOTAL
IMAAI for Doctors (from Cuba)	27	0	0	0	27
Pediatric Virological Failure	36	0	0	0	36
Pediatric Early Infant Diagnosis	0	90	15	0	105
Pediatric Psychosocial Support	0	116	0	0	116
NARTIS	0	132	2	0	134
Structured clinical mentorship	3	20		0	23
New Expert Clients	0	0	0	30	30
Expert Client Refresher	0	0	0	232	232
TOTAL	66	358	17	262	703

3.1.4 Drug Supply And Management

The need for an uninterrupted supply of ARVs is a pre-requisite for the ART Program. To meet the growing demand, supply chains were strengthened in 2012 by the established Supply Chain TWG with overall responsibility for forecasting and overseeing supply chain activities for ARVs in the country. There has been a marked improvement in the monitoring of ARV drug supply and forecasting, which has resulted in a reduction in stock out episodes during the reporting period.

3.1.5 Laboratory Support For ART Services

Laboratory monitoring of patients on ART is essential to ensure there are maximum benefits for those on treatment and to make decisions about the appropriate ARV regimen. Laboratory services have improved dramatically since the introduction of ART services, with the recent recruitment of phlebotomists placed in the high volume clinics to establish mini laboratories as well as the deployment of over 60 point-of-care CD4 machines in clinics countrywide. The ART program, National Reference Laboratory and partners have continued



strengthening and monitoring the ability of laboratories to carry out quality assurance requirements. The national sample transport system continues to be responsible for specimen transport from outlying clinics, making it easy for health workers to monitor and manage patients on ART.

3.1.6 Quality Improvement And Quality Assurance

In order to support the decentralization of ART services, continuous quality improvement (QI) services have been strengthened with regard to HIV/AIDS and TB services. The QI program focuses on the following core activities:

- Evaluation of clinical care via targeted chart reviews and monthly site reports
- National ART semi-annual data review meetings
- Regional ART semi-Annual data review meetings
- Health facility experience, feedback and sharing meetings
- An exchange program between clinics to improve overall clinical quality.

This service is coordinated at national level by the Quality Assurance Program of the MOH.

3.1.7 Community Participation, Decentralization, And Integration

The national ART program and its partners have ensured that strategies targeting the community are implemented. These include the training of lay counsellors, peer educators, Rural Health Motivators (RHMs) and expert clients at both community and facility level. The country's ART program has been decentralized to allow community participation in planning, coordination, and implementing program activities. Several NGOs are also involved in efforts to mobilize community involvement in providing ART and supporting treatment. There are community based organizations that conduct community sensitization and mobilization for HIV testing and counselling and also provide HIV treatment literacy programs. The RHMs provide adherence support and linkages for the community to access HIV related health services.

Apart from efforts on decentralization of ART services, the program services are fully collaborating with TB services and integrating with Sexual Reproductive health through provision of ART for pregnant women at ANC, provision of family planning for HIV positive women attending

HIV care and treatment services. HIV services are integrated in child welfare services through the provision of early infant diagnosis (EID) services at the child welfare clinics and ART initiation at the same venue.

3.1.8 ART Program Research And Studies

One of the strategies of the National ART Program is to conduct research that will inform service delivery and policy development. During the reporting period the following studies were conducted;

- *The ART outcome study,*
- *The cost of HIV care and treatment in Swaziland,*
- *HIV drug resistance monitoring,*

The following Treatment as Prevention pilots were in the proposal stage:

- Prevention of Mother to Child Transmission of HIV (PMTCT) Option B+ Pilot by MSF in the Shiselweni Region
- PMTCT Option B+ (Safe Generations) Pilot by ICAP in the Manzini and Lubombo Region
- *MaxART* Implementation Pilot in the Hhohho Region

Some of the on-going ART program operational studies and surveys such as NARTIS were shared at the National Health Research Conference that was held in 2012.

3.2 ART Program Services And Outcomes

This section reports on the performance of the program in terms of program indicators

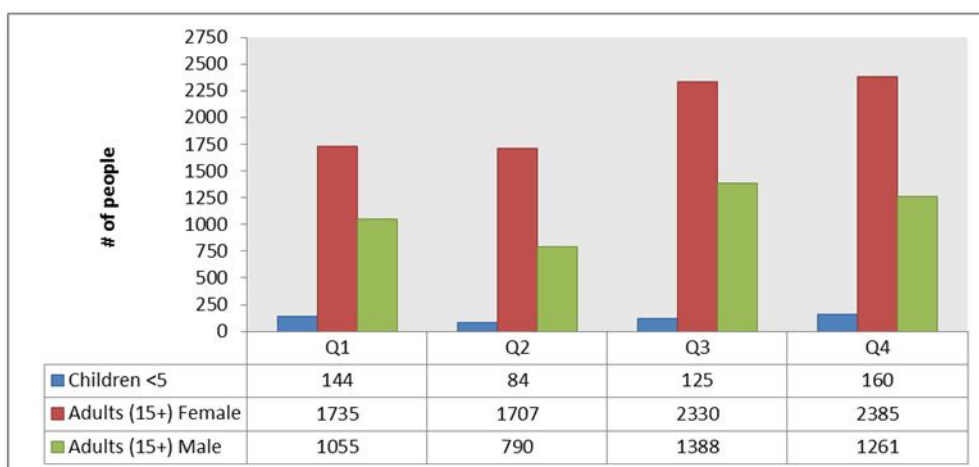
3.2.1 Pre-ART Services

According to the national guidelines all patients diagnosed with HIV need to be enrolled into Pre-ART chronic care and regularly reviewed clinically and immunologically to determine their WHO clinical stage. (See **Annex 1** for WHO HIV staging)

The program initiated structured Pre-ART services, which were rolled out to hospitals, health centers and clinics. Pre-ART registers, files and patient cards were introduced, which made it possible to document the number of people enrolled in pre-ART services. **Figure 2** shows the numbers of individuals enrolled on Pre-ART in 2012. The total number of people enrolled on Pre-ART was 13 164 with an enrollment reduction of 4.4% compared to 2011 (13 744). The reporting on pre-ART services is expected to continue to improve with the recent introduction of the pre-ART electronic patient management system.



Figure 2: Number Of Individuals Enrolled On Pre-ART By Age And Sex



The above data only represent about 60 sites since the pre-ART electronic system is still being modified to report accurately on numbers of people enrolled for the service, especially at the main ART facilities. The introduction of Pre-ART tools (register, chronic care patient file, appointment registers and cards, and a quarterly reporting form) in health facilities during the reporting period, with the inclusion of routine collection of Pre-ART variables in the mainstream SID reporting system will greatly improve Pre-ART data capture and availability in future. This will enable country-level Pre-ART services outcome analysis in subsequent reports. The strengthening of the linkages and referrals activities will also contribute towards increased enrolment of people on pre-ART.

3.2.2 ART Services

As the HIV pandemic matures, increasing numbers of people are reaching advanced stages of HIV infection. ART has demonstrated capacity to reduce mortality among those infected, and the country has made treatment provision and monitoring free and more affordable in both the public and private sectors. Patients in the private sector on medical aid are also fully covered for free ART and treatment monitoring. In Swaziland many facilities that provide general curative care are also providing services related to HIV and AIDS and are caring for PLHIV.

For facilities providing these services, evaluating the degree to which capacity exists is important. The ART specific services and components identified and defined by this section are those that support the provision of ART services.

3.2.2.1 ART Sites Distribution

Access to services has multiple dimensions. It can be defined in terms of reach-ability (physical access), affordability (economic access), and acceptability (socio-cultural access) of services that meet a minimum standard of quality⁶. In Swaziland, ART is free at the point of delivery and mostly assumed to be socio-culturally acceptable. The minimum package for ART services is to have all public facilities providing a minimum service of ARV refills accompanied by TB drug refills. This is because most of the population in Swaziland rely on the public facilities for health care access. This section reports on geographical distribution of ART sites, with emphasis on the public sites. **Table 3** shows the regional distribution of ART sites according to level of health facility.

⁶ Tanahashi T. Health services coverage and its evaluation. Bulletin of the World Health Organization, 1978, 56:295–303.

Table 3: Regional Distribution Of ART Sites According To Level Of Health Facility

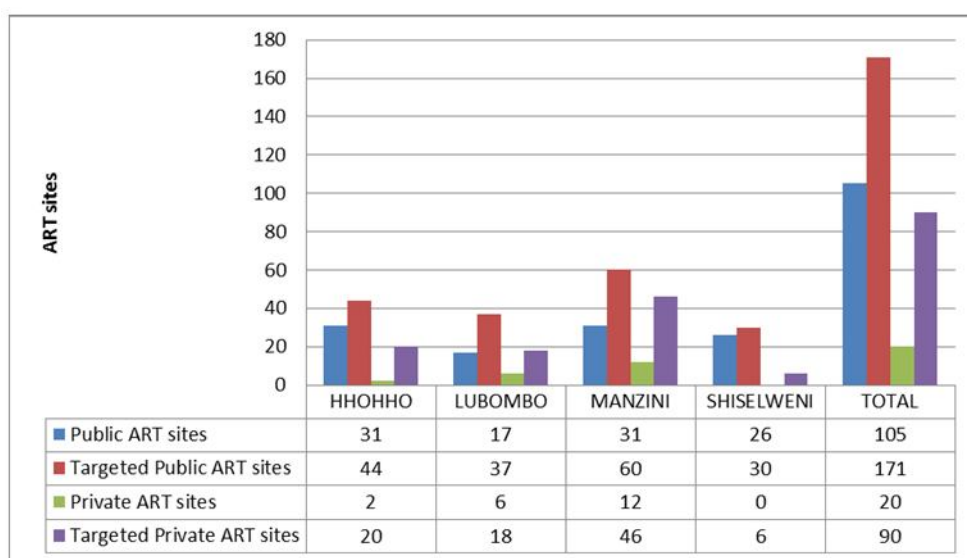
REGION	Public facilities (Government, Mission, NGO)		Sub total	Private and Industrial facilities		Sub total	Grand total
	Initiation + Refill	Refill only		Initiation + Refill	Refill only		
Hhohho	21	10	31	2	0	2	33
Lubombo	10	7	17	4	2	6	23
Manzini	22	9	31	12	0	12	43
Shiselweni	25	1	26	0	0	0	26
TOTAL	78	27	105	18	2	20	125

The total number of facilities providing ART (initiation, monitoring, and refill) increased by about 16% from 107 in 2011 to 125 in 2012. During 2012, resources were allocated and efforts were made to increase the number of clinics providing ART initiation services; thus, the majority of the increase was in the number of ART initiation facilities from 26 in 2011 to 56 during the reporting period. This is in line with the NARTIS strategy. ART sites now comprise 47.5% (125/261) of the total public and private health facilities.

Manzini region having the largest number (43 sites) followed by Hhohho (33 sites). This is in line with the population density, which is highest in Manzini (total estimated population of 328 506) and Hhohho (289 797) compared to Shiselweni (214 470) and Lubombo (213 524)⁷. **Figure 3** further illustrates the number of health facilities targeted to provide ART services. The gap is still wide in the private sector as compared to the public sector for the number of facilities providing ART against the target.

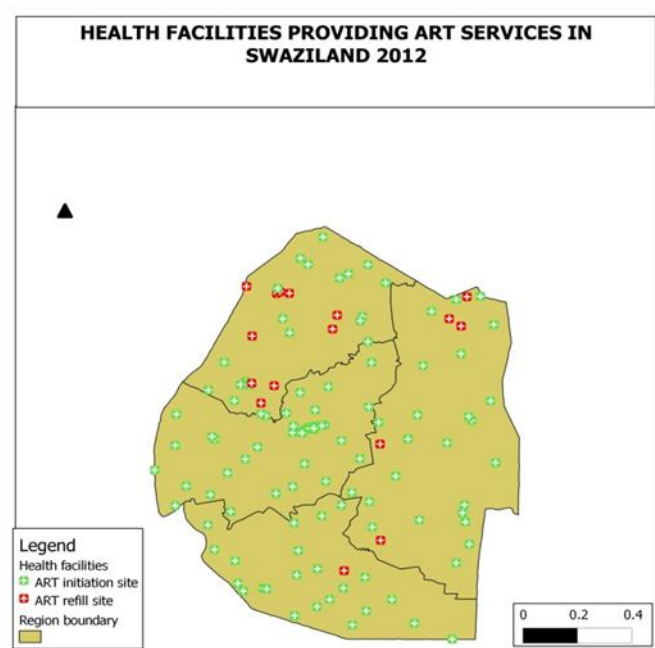
The sites providing ART are equitably distributed in the country's regions as shown in **Figure 3**, with

Figure 3: ART Sites By Region



The country mapping of ART service facilities as shown in **figure 4** further illustrates the equitable geographical distribution of ART sites for increased accessibility and coverage.

Figure 4: Country Mapping Of ART Sites 2012



3.2.2.2 New ART Enrollments

To assess the evolution and growth of the ART program, it is useful to review the characteristics of new ART enrolments. **Table 4** shows new ART initiations in 2012. During this reporting period, there were 15 438 patients newly enrolled on ART reflecting an 8.1% reduction in ART initiation compared to 2011 (16 695). Between 2010 and 2011, there was a more significant decline of 19.3%. This finding was attributed to fiscal

challenges and lack of reagents for CD4 tests. However, the continued reduction of new enrollments in 2012, even in the absence of gross material stock outs, may suggest that HIV prevention and ART program interventions are having an impact in the sense that new enrolments are reaching saturation point. Further assessment to ascertain the cause of this decline would be useful.

Table 4: Number Of Individuals Newly Enrolled On ART

REGION	AGE CATEGORY	QUARTER 1	QUARTER 2	QUARTER 3	QUARTER 4	TOTAL
Hhohho	Adults (15+)	776	930	957	851	3,514
	Children(0-14)	78	87	78	64	307
Lubombo	Adults (15+)	454	514	750	618	2,336
	Children(0-14)	82	53	62	70	267
Manzini	Adults (15+)	1 456	1 285	1 482	1 693	5 916
	Children(0-14)	124	98	126	106	454
Shiselweni	Adults (15+)	645	592	521	680	2,438
	Children(0-14)	68	46	40	52	206
Sub Total	Adults (15+)	3 331	3 321	3 710	3 842	14 204
	Children(0-14)	352	284	306	292	1 234
Grand Total		3 683	3 605	4 016	4 134	15 438

Only 8% of the total initiations were among children, which is slightly lower than 8.7% in 2011.

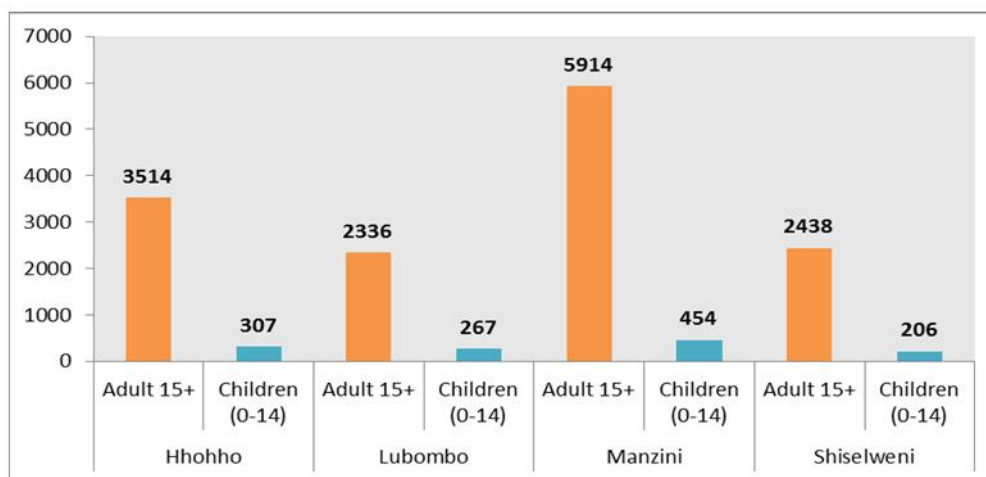
Adult initiation was similar (92%) to 2011 (91.7%). Although the data are not disaggregated by sex, it is



generally observed that of the 92% adult new ART patients, there were more women accessing ART services because of strong linkages between ART and the Sexual Reproductive Health program (family planning, ANC, child welfare) or because of a better health seeking behaviour among females as compared to males.

Figure 5 shows that there were more ART initiations in Manzini region (6 370) with a total of 41.2% of all initiations and Hhohho region (3 821) with 24.7%. The two regions accounted for more than two thirds (65.9%) of all the annual initiations. This is due to urbanization and high population densities in the two regions with correspondingly more ART sites.

Figure 5: Individuals Newly Enrolled On ART By Region & Age In 2012



3.2.2.3 Baseline CD4 Count At Initiation

Another important aspect of improving the quality of care is the stage of disease progression at which PLHIV are initiated into treatment. Numerous studies have demonstrated that the baseline CD4 count at ART initiation serves as a significant prognostic indicator for treatment outcome. In one study, patients starting therapy with a CD4 count below 200 cells/mm³ were almost twice as likely (HR: 1.90) to fail treatment, compared with those starting with a CD4 count higher than 200 cells/mm³. Another study showed an inverse relationship between the CD4 count at baseline and a risk of progression to AIDS or death. This effect was quite dramatic. The adjusted HR for progression to AIDS or death was 0.24 (95% CI: 0.20–0.30) for patients starting ART with a baseline CD4 count of 200–350 cells/mm³ compared with patients with a baseline CD4 count below 50 cells/mm³.

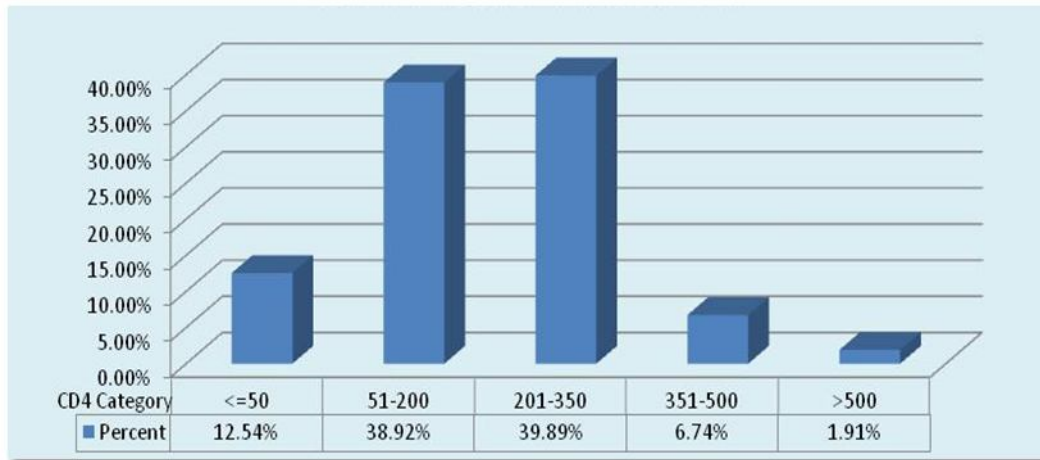
Figure 6 below shows baseline CD4 count at ART initiation. Although the figure illustrates that there were more initiations at CD4 count between 51 to 350 cells/mm³ (<350 cells/mm³ being the WHO cut off point since 2010), there were 8.6% initiations at CD4 count levels above 350. This could be due to the fact that apart from the CD4 and WHO HIV

disease staging criteria for ART initiation, in Swaziland the ART guidelines also recommend ART initiation for patients presenting with any of the following conditions: tuberculosis including drug-resistant TB, Hepatitis B co-infection, and HIV-associated nephropathy (renal disease)⁷ regardless of their baseline CD4 count.

⁷ Sydney Rosen et al, Patient Retention in Antiretroviral Therapy Programs in Sub-Saharan Africa: A Systematic Review: www.Plosmedicine.org/article



Figure 6: Baseline CD4 Count At Initiation (Adults Only) In 2012



In 2011 there were more initiations (57%) at lower CD4<200 cells/mm³ compared to 2012. This may indicate improved patient and provider awareness of the need for early initiation in 2012 in light of studies and WHO guidelines showing advantages of early initiation on treatment prognosis and the improvements of adherence to treatment⁸.

3.2.2.4 Median CD4 Count At Initiation

The median CD4 count is a very important aggregate indicator of immune function in patients who have HIV infection. It serves as an important measure of whether patients are coming early or late for ART initiation. This indicator also plays an important role in assessing the success of the program in promoting early initiation of ART.

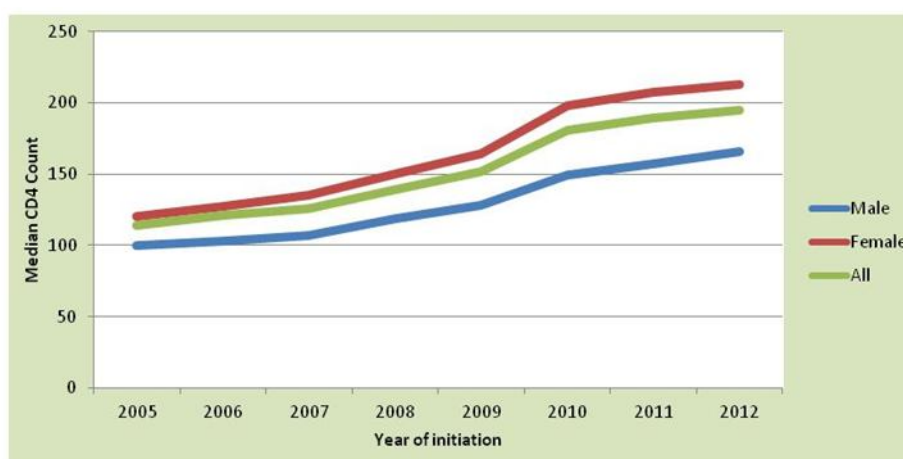
Figure 7 shows the median CD4 count for adult males and females at ART initiation from 2005 to

⁸ National Comprehensive HIV Package of Care for Adults and Adolescents in Swaziland, 2010

2012. The median CD4 count at ART initiation has been steadily increasing since 2005 for both males and females, with a significant jump in 2010 when new treatment guidelines elevating the threshold for CD4 initiation were introduced. It can be noted however that throughout the years, men have been initiating ART late, as defined by CD4 count<100 cells/mm³ or WHO Stage IV at either time point⁹ until 2007. In 2012, the adult median CD4 count was below 200 cells/mm³ while females were initiating at a median CD4 above 200 cells/mm³. This data indicates that men report late and come for HIV and ART services when they are very ill or when their immune system is severely compromised. This information indicates the need to improve messages aimed at attracting men to access HIV and ART services early and to take care of their health in general.

⁹ www.retroconference.org/2012b/PDFs/650.pdf

Figure 7: Median CD4 Count By Year Of Initiation An Sex (Adults Only) Between 2005 – 2012



Further analysis of longitudinal CD4 count trends of patients on ART should be made from patient monitoring data as some studies show that only patients with baseline CD4 cell counts >350 cells/mm³ returned to nearly normal CD4 cell counts after six years of follow-up¹⁰.

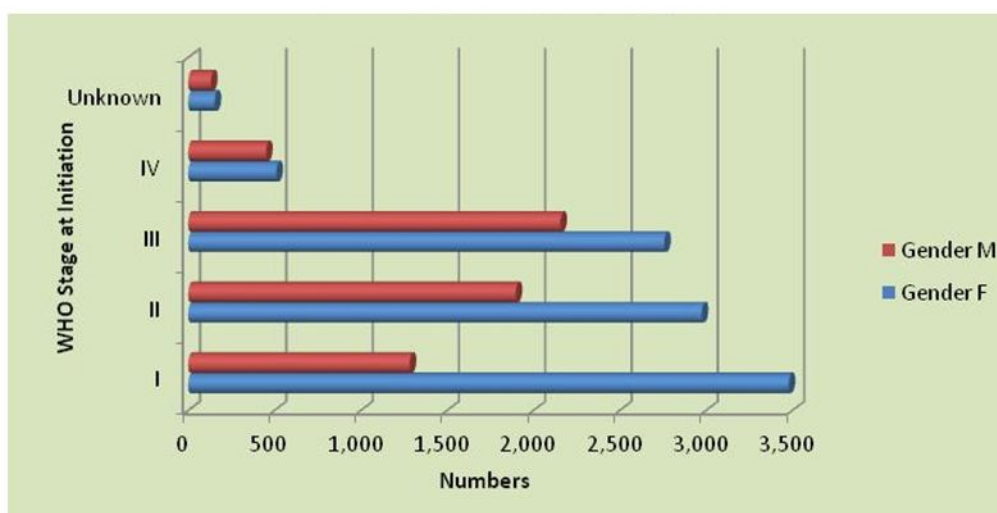
3.2.2.5 WHO Stage At Initiation

In Swaziland, the decision to start ART relies on clinical and immunological criteria. Psychosocial

considerations such as patient readiness to start ART are also taken into consideration. Clinically, patients with any WHO Stage 3 or Stage 4 condition are eligible to start ART (see **Annex 1** for WHO HIV staging). Patients in WHO stages 3 and 4 are regarded to have advanced HIV disease requiring treatment regardless of CD4 cell counts. WHO stage at ART initiation in Swaziland where CD4 count is not readily available may be used as a measure of late enrolment, poor Pre-ART follow up and late initiation of ART services. **Figure 8** below show baseline WHO Stage at initiation.

¹⁰ [Oxford Journals of Medicine Clinical Infectious Diseases Volume 44, Issue 3](#) Pp. 441-446.

Figure 8: Baseline WHO HIV Stage At Initiation By Gender In 2012



The figure shows that more women are initiated at a stage when they are still healthy and have minimum opportunistic infections, as seen by their high numbers in WHO stage I and II. In line with

findings of low CD4 count at initiation (late reporting) for men in Section 3.2.2.4 the figure shows that more men are initiated in WHO stage III disease, again indicating the need for the



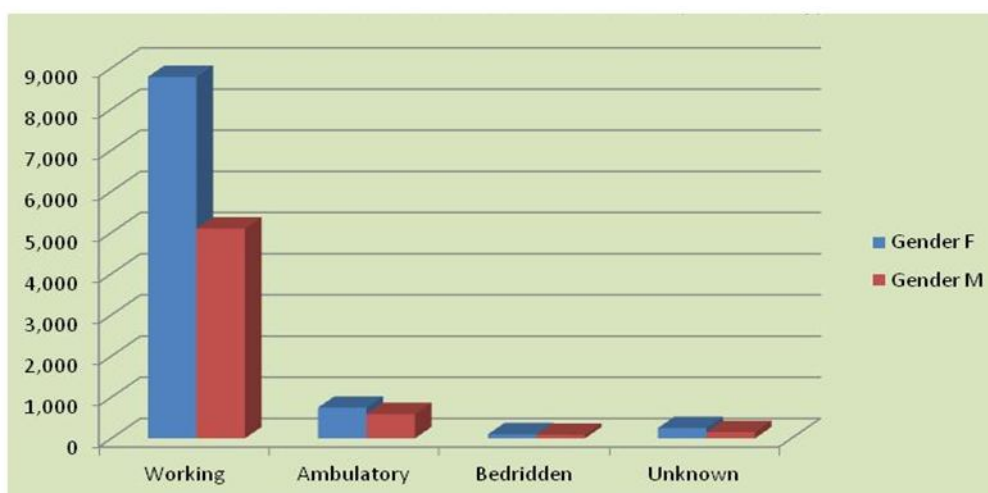
program to better target men. The PMTCT program in the country, which recommends that all pregnant women should have HTC and be put on prophylaxis to prevent PMTCT, has contributed to women's early enrolment and ART initiation in WHO stage I and II.

3.2.2.6 Functional Status At Initiation

Functional status at initiation is another measure of HIV disease progression or status at initiation. It can also be used as a predictor of treatment response and retention or survival on ART. During

the reporting period, 87.9% (13 877/15 795) of all new enrolments were initiated in functional status categorized as working (i.e., able to take care of oneself). **Figure 9** below illustrates this observation. Only 184 (1.2%) people were bedridden at initiation, which shows that few people are presenting with severe OIs at the time of ART initiation. Again, these data are encouraging because of the many benefits of early ART initiation..

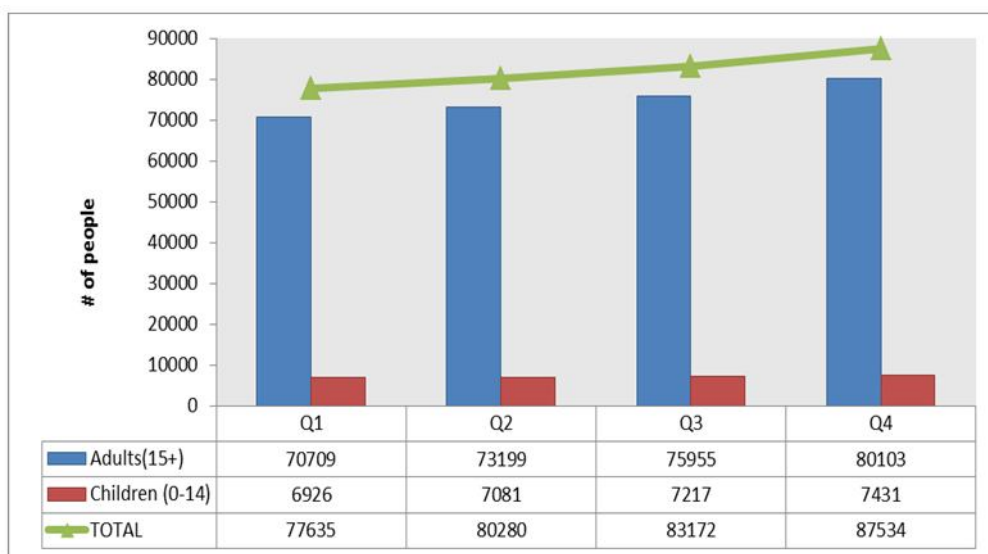
Figure 9: Baseline Functional Status At Initiation (Adults Only) In 2012



3.2.2.7 Number Of People On ART

The number of people on ART during 2012 is shown in **Figure 10**.

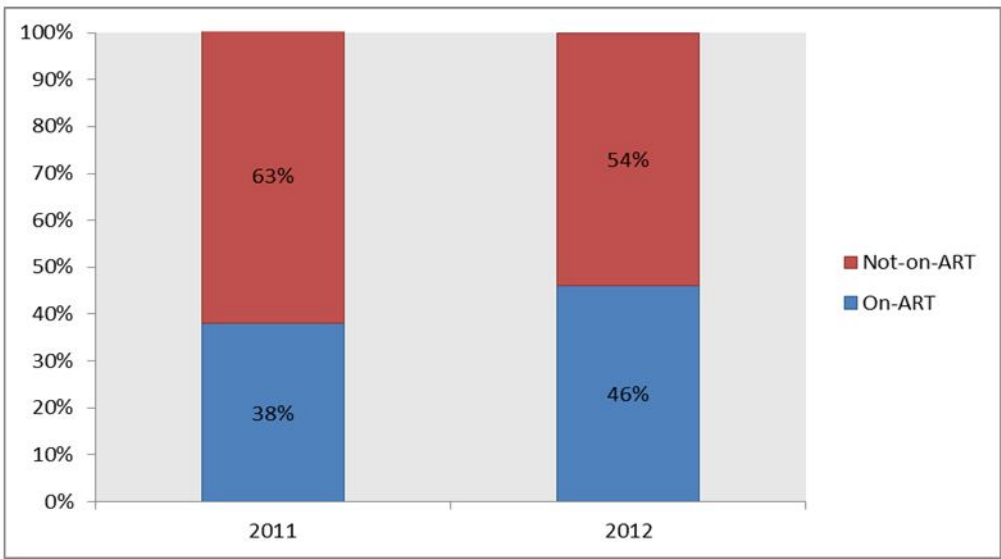
Figure 10: People Actively On ART By Age In 2012



The total number of people actively on ART in 2012 was 87 543, comprising of 7 431 children and 80 103 adults. The line in the bar chart shows the total cumulative steady increase from 77 635 in the first quarter to 87 534 patients in the fourth quarter. Of the total number of people on ART during the year 8.5% were children. This proportion is lower than the 10% coverage level recommended by the WHO. However, the cumulative increase for children was greater in 2012 (505) than in 2011 (454). Adults showed an increase of more than 2 000 patients in 2012 (9 899) compared to 2011 (7 258).

The proportion of people on ART among all PLHIV in the country (including those aware and unaware of their HIV status and those eligible and not yet eligible for ART) increased from 38% (73 000/190 000) in 2011 to 46% (87 534/190 000) in 2012. **Figure 11** graphically illustrates this comparison, showing that the gap between “on ART” and “the Not on ART” among the PLHIV in the country is narrowing.

Figure 11: Proportion Of People On ART Among PLHIV In 2011 And 2012



Monitoring this trend is useful in HIV care planning and in assessing the financial need required to maintain an increasing population of people on ART.

3.2.2.8 ART Service Coverage

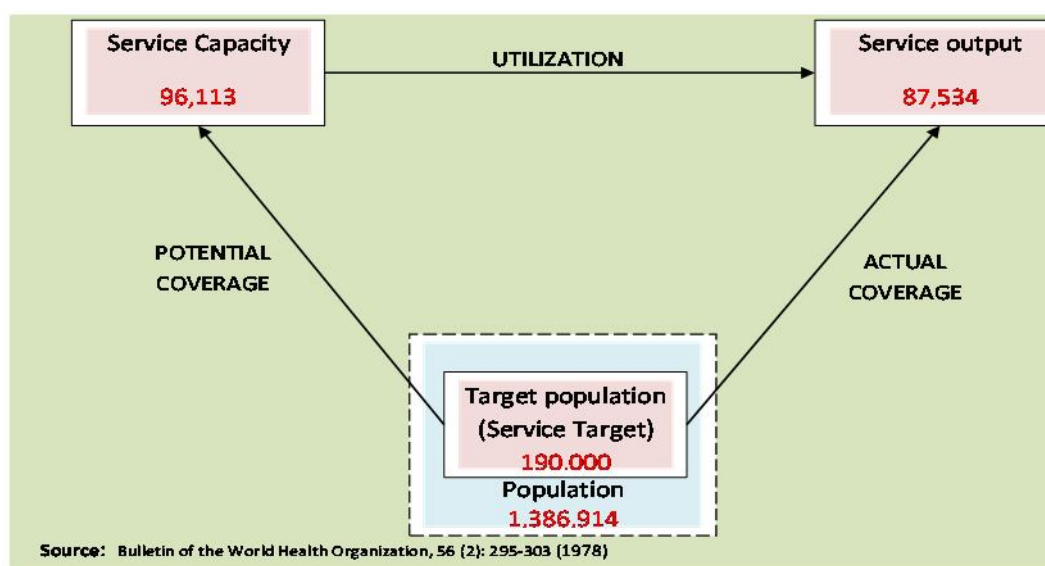
UNGASS defines ART Coverage as the number of individuals receiving ART at a point in time divided by the number of individuals who are eligible to receive treatment at the same point in time

(including those who are already receiving ART)¹¹. This is graphically illustrated in **Figure 12** along with other useful definitions (potential coverage, actual coverage, service utilization).

¹¹ www.who.int/HIVCP/SWZ.pdf



Figure 12: Schematic Model Of Health Service Coverage And Utilization



A total of 87 534 people out of an estimated 96 113 individuals in need of ART (based on eligibility criteria of CD4 <math><350\text{ cells/mm}^3</math>) were reported to be on ART during the reporting period. This gives an overall ART coverage of 91.1% in 2012 compared to 79.5% in 2011, an 11.7% increase in adult ART coverage and 7.3% in children in 2012.

When the average total number of PLHIV in 2012 of 190 000 (estimated between 180 0000 and 200 000)¹³ and the annual ART coverage (87 534) and the total number in need of ART (96, 113) are inserted as shown in red text in **Figure 12**, ART program potential coverage, actual coverage, and service utilization can be easily calculated for 2012. This is shown in **Table 5** below.

Table 5: ART Program Estimated Service Potential, Actual Coverage And Utilization Coverage

Coverage category	Percentage Ratio
Potential Coverage (of all PLHIV)	50.6%
Actual Coverage (of all PLHIV)	46.1%
Utilization/ ART UC (of treatment eligible PLHIV)	91.1%

The table shows that the ART program in the country is performing well. The high service utilization which is a measure of universal coverage shows that Swaziland in 2012 joined the relatively small number of low- and middle- income countries to have achieved universal coverage to ART treatment (defined as more than 80 percent of the population who need ART, are receiving it).

children have 70% coverage. While **Table 5** shows that the country as a whole has achieved universal ART coverage of more than 80%, the age disaggregated data indicate that the country has not achieved universal ART coverage for children below 15 years, as this population still has a 10% shortfall to the targeted 80% coverage.

Figure 13 shows disaggregated ART utilization data by age. Adults have a 94% ART coverage while

Figure 13: Disaggregated ART Utilization By Age

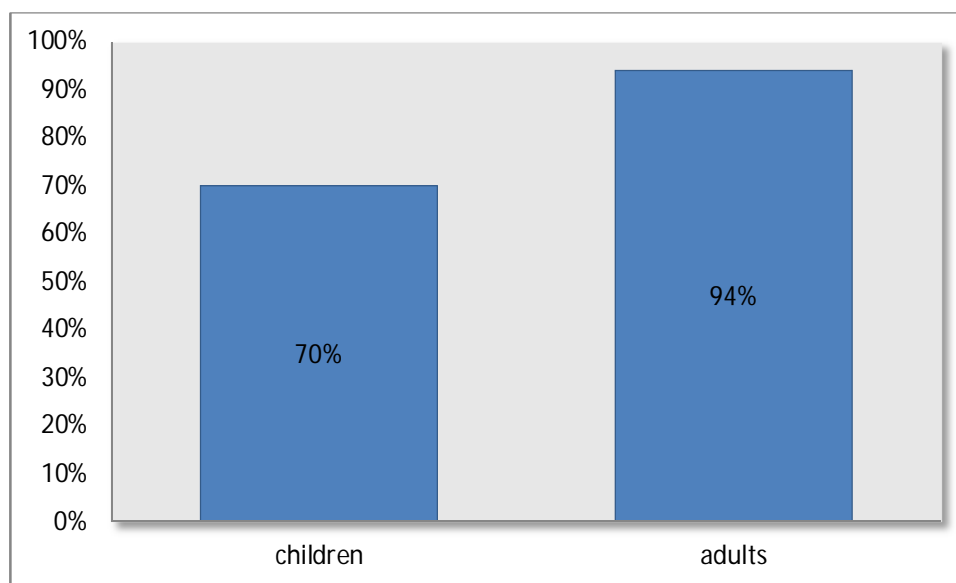
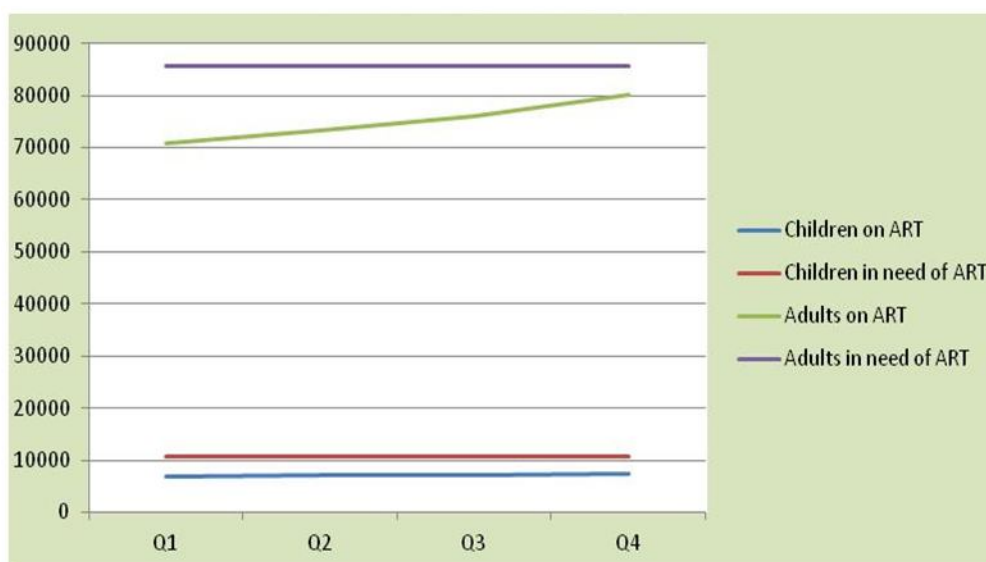


Figure 14 graphically shows the gap between people in need and those receiving ART by age. The figure demonstrates that the gap is narrowing over time for adults but remains parallel for children. The relatively low child coverage may be attributed to poor access to HTC by children in broken families, such as orphaned and vulnerable children, weak integration of EID in child welfare clinics. This is currently being addressed by strengthening

linkages between PMTCT and ART. The differences in coverage could again be a result of the fact that older children migrate out of the pediatric cohort into the adult cohort as they mature in age. Hence, if the rate of enrolment of new children into ART equals the rate of migration of older children into the adult cohort, the gap between “in need of ART” and “current on ART” for children will continue to persist.

Figure 14: Gap Between People In Need And Those On ART By Age



3.2.2.9 Regimen Distribution

Tables 6 and **Table 7** show regimen distribution among children and adults currently on ART. In

2012 there were a total of 75 810 (68 903 adults and 6 907 children) on 1st line regimen. There were 1 213 people composed of 668 adults and 545 children on 2nd line regimen. This translates into



98.4% of the total number currently on ART on 1st line regimen and only 1.6% on 2nd line regimen. The distribution within age categories show that 99% of adults are on 1st line regimen compared to 92.6% children on 1st line regimen. However, it should be noted that the high use of AZT+3TC+LPV/r and D4T+3TC+LPV/r in children may be due to the 2010 guidelines revision when LPV/r was made the first line choice for children who have been on extended NVP during breastfeeding. The apparent high proportion

(7.4%) of children on 2nd-line ART regimen may actually be due to the fact that NVP-exposed infants are traditionally initiated on PI-based ART regimen (LPV/r) in line with national treatment guidelines rather than due to any diagnosed HIV drug resistance.

This data indicates a low tendency to switch to second line regimens that may be attributed to good adherence on 1st line regimen.

Table 6: Current Protocol 1st Line By Age

1 st LINE REGIMEN	ADULTS	CHILDREN
ABC+3TC+EFV	270	32
ABC+3TC+NVP	150	13
ABC+DDI+EFV	5	0
AZT+3TC+EFV	6,408	583
AZT+3TC+NVP	23,411	3,385
D4T+3TC+EFV	3,195	374
D4T+3TC+NVP	8,117	2,236
TDF+3TC+ABC	22	13
TDF+3TC+EFV	24,711	234
TDF+3TC+NVP	2,614	37
TOTAL	68,903	6,907

Table 7: Current Protocol 2nd Line By Age

2 ND LINE REGIMEN	ADULTS	CHILDREN
ABC+3TC+LPV/r	305	53
ABC+DDI+LPV/r	13	3
AZT+3TC+ABC	0	4
AZT+3TC+ABC+LPV/r	7	0
AZT+3TC+LPV/r	128	290
AZT+3TC+SQV+RTV	3	1
AZT+3TC+TDF+LPV/r	11	2
AZT+DDI+LPV/r	21	1
D4T+3TC+LPV/r	21	191
TDF+ABC+LPV/r	3	0
TDF+3TC+LPV/r	156	0
TOTAL	668	545

An analysis of baseline regimen for people starting ART from 2005 to 2012 shows that the four most frequently used ARV regimen in adults were AZT+3TC+NVP at 33.4%, (32 964), TDF+3TC+EFV at 25.8% (28 523), D4T+3TC+NVP at 14.6% (14 464), and AZT+3TC+EFV at 10.1% (10 020). Among children, the most frequently used baseline

regimens in the same eight year period were AZT+3TC+NVP and D4T+3TC+NVP.

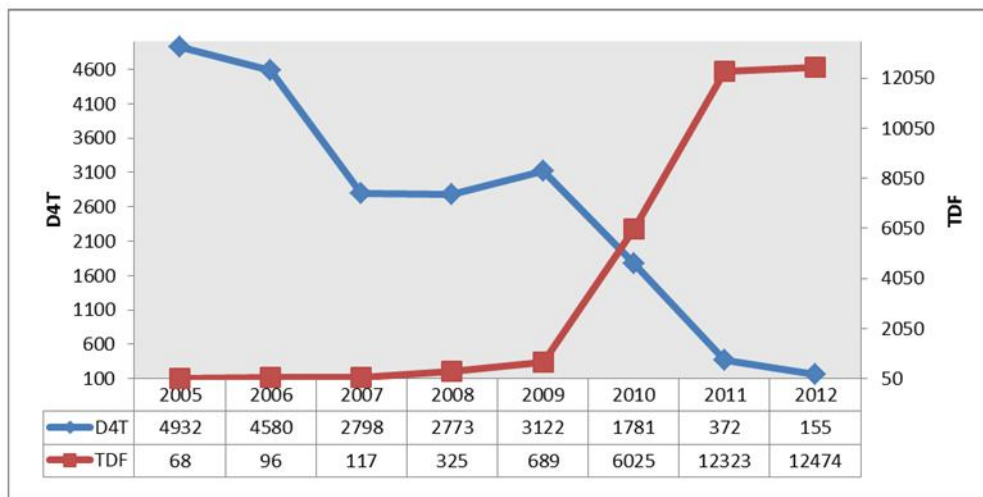
The country started phasing out the D4T-based regimen in 2010 following the WHO recommendation based on its severe adverse effects. The TDF based regimen was introduced in its place. Figures 15 and 16 show, respectively, the evolution from use of D4T to TDF in adults and



children initiating ART. An inverse relationship is observed between the two drugs confirming the level of D4T phase out among adults. Among the paediatric population on ART, however, given the limited number of ARV formulations available, D4T

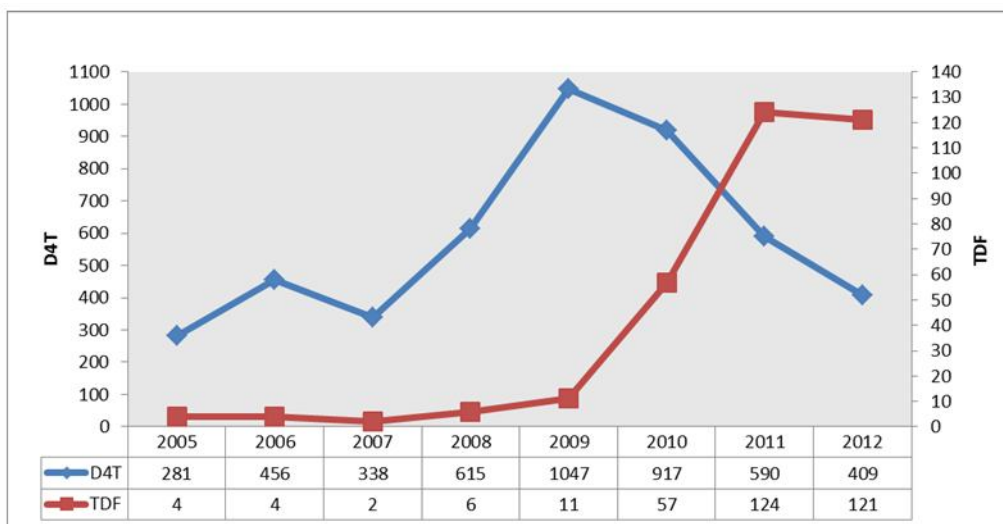
remains a viable combination option. It is to be noted that D4T-related adverse events are not as common or as severe in children as reported for the adult population.

Figure 15: Initiation Evolution From D4T-Based To TDF-Based ART Regimen (Adults)



In children as shown in **Figure 18** below, D4T combination is still highly used at initiation than TDF.

Figure 16: Initiation Evolution From D4T-Based To TDF-Based ART Regimen (Children)



3.2.3 Cohort Analysis And ART Retention

Cohort analysis is a key component of ART patient monitoring. According to this report a cohort is a group of all patients starting ART in the same calendar year (e.g., 2007). Cohort analysis compares baseline characteristics of patients who started on ART within a specified period in terms of their treatment status at 6, 12, 24 and 36 months. Cohort analysis allows comparison of the

proportion of patients surviving on ART, remaining on the original first-line regimen, and those improving while on treatment among other key variables. Where CD4 counts can be determined regularly, cohort analysis can also show improvement in the median CD4 count over time. Treatment outcome is also monitored by the cohort analysis, which is carried out retrospectively every year using the electronic patient management system.



3.2.3.1 ART Retention And Survival

ART has contributed to significant increases in survival and improved quality of life. Retention of patients on ART is a very important part of the national strategy to improve the quality of life for PLHIV. The national ART program involved PLHIV in service delivery as expert clients to provide adherence and psychosocial support and to contact patients who have dropped out of the program with the aim of bringing them back. The proportion who are LTFU and those recorded dead has implications for both patient care and the M&E of the program. If the proportion of people LTFU increases over time, then the quality of care of PLHIV needs to be improved.

Figure 17 shows retention rates of people on ART among cohort groups from 2007 to 2011. The figure shows that during this 5 year period, the program has maintained high retention rates above 60% at 60 months on ART. In a systematic review, most ART programs in Sub-Saharan Africa were found to have an average retention rate of

60% after 24 months¹². It is also noted from the figure that retention rates above 80% at 12 months were seen in the cohorts during 2010 and 2011 which can be attributed to change in ART guidelines allowing for early initiation at higher CD4 <350 cells/mm³ compared to previous years of lower CD4 <200 cells/mm³ at initiation. This upwards revision of ART eligibility CD4 count from <200 to <350 cells/mm³ may have impacted on attrition by reducing the number of deaths among HIV positive individuals initiated on ART early.

¹² Swaziland ART Program Annual Report 2011 International AIDS Conference: Abstract no. MOPE0076"

Figure 17: Retention Rates At 6, 12, 24, 36, 48, 60 Months For Cohort Group 2007-2011



The figure also shows that the 2011 cohort had a higher retention rate of above 90% in the first 6 months and lost only 3% between the 6 and 12 months outcome periods, similar to the 2010 cohort.

From Figure 17 in Section 3.2.3.3 it can be clearly seen that the program loses most of those who are LTFU during their first six months on ART. From the baseline month (month 0) to month 6 the slopes are steep indicating a sharp fall in the number of

people retained. Thereafter the slopes become relatively flat indicating a decline in the number of people lost from the program. This marked loss early in the period following ART initiation could be that due to late presentation for enrolment into care, many patients were critically ill and hence died during the early stages of therapy.

Patients who present late to care are also more likely to experience immune reconstitution inflammatory syndrome with aggravation of



symptoms. This worsening of symptoms is often misinterpreted and attributed to the ARV drugs, leading some patients to stop their ART as a result. Other patients may discontinue ART due to poverty and lack of transport fees to attend their appointments.

It can also be seen from the graph that more people are retained in the program for more recent cohorts indicating a positive outlook for ART program. This may reflect that more and more people are having confidence in the efficacy of ARVs as a treatment intervention. In addition, as the ART program advances, more programmatic interventions are put in place to help retain higher proportion of ART patients in care. These interventions include better adherence counselling, simplified ART regimens with less pill burden, ARVs with less severe side effect profiles, and improved patient tracking systems among others¹⁵.

3.2.3.2 Defaulter Rates

To achieve successful and durable viral suppression, one must adhere to a treatment plan.

A fundamental component of this is regular and timely attendance to scheduled ARV drug refill appointments. Defaulting is defined in this report as having not attended a scheduled clinical appointment for 7 to 90 days. A missed appointment is defined as failure to attend the clinic within 3 to 7 days of the appointment date, whilst LTFU is failure to attend a clinic appointment for 90 days and more.

Table 8 below presents these different default categories for 2012. Out of 16 345 appointments that fell under the missed appointment category, 99.9% returned to care. Furthermore, 99.8% and 66.2% returned to care after being declared defaulters and LTFU. This high rate can be attributed to expert client and patient support programs that provide psychosocial support and counseling to newly initiated patients.

Table 8: Missed Appointment, Defaulters, And Lost To Follow Up

Outcome	Result after follow up				Total
	Returned		Not returned		
	#	%	#	%	
Missed Appointments (3 to 7 days)	16 343	99.99%	2	0.01%	16 345
Defaulted Appointments (8 to <90 days)	24 427	99.84%	38	0.16%	24 465
Lost to follow-up (>= 90 days)	2 424	66.19%	1 238	33.81%	3 662

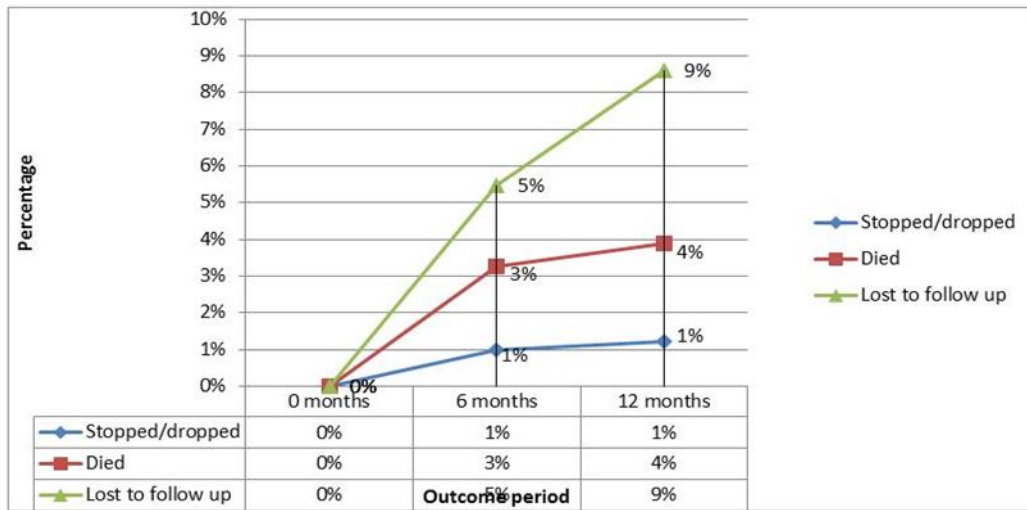
3.2.3.3 ART Attrition

General characteristics and causes of attrition in 2012 are similar to those reported in the 2011 report, as shown in **Figure 18** below. The three lines represent treatment cohorts who died, were LTFU or stopped treatment. From the graph it can be observed that the largest percentage is the LTFU group, followed by deaths and those who stopped treatment. Cases reported as deaths are almost constant throughout the outcome periods (3-4% of

the net cohort). In contrast, LTFU cases show wide variation (from 5% at 6 months to 9% at 12 months). It is worth noting that there is a sizable improvement when comparing these outcome results with previous annual cohorts. It can also be noted that because of challenges in data collection, a sizable proportion of the LTFU may represent deaths that were not captured.



Figure 18: Causes Of Attrition In Proportions For 2011 Cohort Group



3.2.3.4 Adherence To ART

A critical issue to the success of ART is adherence to the treatment regimen. Non-adherence will lead to the development of drug resistance and ultimately treatment failure¹³. Adherence therefore remains a public health challenge that needs to be addressed so that the maximum benefit from ART can be obtained. Adherence is a complex dynamic behavior influenced by several factors. Studies are needed to assess the pattern and reasons for defaulting from ART.

Adherence to the first-line regimen is critical as poor adherence to first-line therapy will accelerate the development of viral resistance and hasten the need for second-line therapy. Public intervention to support adherence can limit the spread of resistance. In particular, treatment support and adolescent peer support could be efficient in providing additional psychosocial support to parents and children. As the number of people that are initiated on ART increased, more strategies were employed in 2012 to ensure widespread

¹³ Romano L, Venturi G, Vivarelli A, Galli L, Zazzi M, (2002) Detection of a drug-resistant human Immunodeficiency virus variant in a newly infected heterosexual couple. Clinical Infectious Diseases 1 volume :34 pg. 116-11

adherence over long term, through capacity building of lay community counsellors, increasing treatment literacy among patients and the use of treatment supporters. Studies are needed to assess the effect of these initiatives on treatment adherence.

3.3 Program Performance Indicators

Specific ART program performance outcome and impact indicators are defined within the NSF. **Table 9** shows the key program performance indicator achievements for 2008, 2010, 2011, and 2012 against targets set for 2014. Note that there is steady progress towards meeting most targets and the program has exceeded the universal coverage for care and treatment for the adult population. Although it is difficult to attribute the achievements in life expectancy to ART services alone there is evidence that reduced mortality among PLHIV due to ART may have contributed to the improvement of life expectancy at birth for both sexes in the country from 43 years in 2007 to 49 years in 2012¹⁴.

¹⁴ World Bank / WHO/UNAIDS Country Reports 2007 - 2012



Table 9: Program Performance Indicators

INDICATORS	BASELINE (2008)	2010	2011	2012	2014 TARGET
Percentage of adults and children with HIV still alive and known to be on treatment 36 months after initiation of ART	64%	69%	70.85%	73%	85%
Percentage of adults with HIV infection receiving ART	52%	70.1%	85.1%	94%	75%
Percentage of children aged 0-14 years with HIV infection receiving ART	60%	63.1%	66.9%	70%	80%
Number of health facilities that have the capacity to provide advanced level of HIV care and support services, including ART	26	32	39	40	66
Median CD4 count at ART initiation	80	199	200	200	350
Life expectancy	Men 47yrs Women 47.6yrs TOTAL 47 yrs.	Men 48.1yrs Women 47.8yrs TOTAL 48.0yrs	Men 48.1yrs Women 47.8yrs TOTAL 48.0	Male 49yrs Female 51yrs TOTAL 49.4 yrs	Men 45yrs & Women 50yrs in 2015

Some of these indicators are also reported in UNGASS two yearly country reports. For a comprehensive list of ART program indicators see **Annex 3**

3.4 Program Best Practices¹⁵

The following practices are regarded as best practices of the program and have contributed to its overall success in recent years.

3.4.1 Task Shifting From Doctor-Led To Include Nurse-Led ART Initiation

As of January 2010, local nurses were capacitated to initiate patients on ART, a responsibility that was previously limited exclusively to doctors. Local nurses at clinic level are able to initiate the first line of ARVs, thereby reducing the patient load faced by doctors. As a result, more patients are initiated on treatment and more health facilities are accredited to provide treatment, from 31 facilities in 2009 to 65 in 2012. This ensures that the service is available daily in the clinics or health facilities in the absence of a doctor, and closer to the end-users.

3.4.2 Decentralization Of Services And Community Refills

In addition to the 125 health facilities (Government, NGO and private sector) that have the capacity to initiate ART, some have the capacity to do outreach services to communities around them. Teams of nurses from some hospitals visit communities where they provide ARV refills, do clinical check-ups and collect blood specimens for CD4 tests. This minimizes the need for patients to travel frequently to the clinic, thus saving them time and money.

3.4.3 National Sample Transportation System

In 2010, the country established a national sample transportation system to link the peripheral clinics to facilities with established laboratory systems. This has improved the turnaround time between specimen collection and receipt of results from an average of 14 days to 5 days. Laboratory services have been decentralized in a phased approach; with the priority being the high volume clinics where point-of-care CD4 machines have been placed.

¹⁵ Adopted from, Swaziland Country Report on Monitoring the Political Declaration on HIV and AIDS, March 2012, p. 39 – 40 (with updates on current figures)

3.4.4 Strong Linkages With The National PMTCT Program

In line with Prong IV of the PMTCT program, linkages have been established between PMTCT and the ART program. During ANC, Pregnant women living with HIV are assessed for ART eligibility through clinical staging and CD4 count assessment. According to the treatment guidelines those found to have CD4 count less than 350 cells/mm³ are initiated on ART. Following the assessment, pregnant mothers who are found eligible are offered ART for their own health. Working with the Sexual and Reproductive Health Unit of the MOH, the program has made some progress in integrating family planning services with HIV services.

3.4.5 Government Funding Of ARV

As from 2009/10 financial year, the Government of Swaziland has taken over the responsibility to fund the total requirement of ARV drugs. Even in the face of serious fiscal challenges, this commitment has been upheld and there have not been any stock shortages during the year 2012. Proactive planning for transitioning of the funding responsibility and technical assistance for accurate forecasting provided by program partners contributed to this important achievement.

3.4.6 Greater Involvement Of PLHIV In HIV Care

An expert client program was also introduced to ensure the retention of patients through defaulter tracing and creating linkages between the ART program and the community based health workers. As a result of the expert client program and other efforts, the six-month attrition rate for the program declined from over 12% in 2009 to 9% in 2012.



CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

4.1.1 Program Capacity

The ART program shows evidence of system strengthening activities with structures and institutions in place. However the program, like the MOH and country more broadly, is experiencing challenges in human resources and financing.

4.1.2 ART Services

The program has a general high service utilization/coverage ratio (91%) making it one of the programs in Sub-Saharan African to have achieved and surpassed Universal Access to ART. However, despite being one of the best in Africa, the pediatric ART coverage is still less than the targeted 80%, standing at 70% in 2012. The data also show that men initiate ART at low CD4 counts and at WHO Stage III, which may indicate poor health seeking behavior.

4.1.3 ART Performance Indicators

The program has achieved the NSF-defined performance indicators targets among which are the increase in life expectancy from 43 to 49 years. The program has also made significant contribution to best practices in ART care in the country through service models such as NARTIS.

4.2 Recommendations

Areas that need further attention are:

1. Develop sustainable program funding mechanisms, such as introducing social health insurance that will provide long-term funding for people enrolled in chronic care services-
2. Accelerate the roll out of NARTIS to other facilities, including those in the private sector to increase geographical access and utilization of ART services.
3. Fast track the engagement of more private clinics and hospitals to provide ART services
4. Increase mobilization for testing and access to ART services among men.
5. Strengthen and increase HIV testing and provision of ART services to children.
6. Conduct qualitative research to evaluate acceptability of ART services at community level.
7. Develop a strategy for re-filling ARVs and providing other ART services at community level to assist in the decongestion of the health facilities, especially the clinics.



ANNEXES

Annex 1: WHO Clinical Staging Of HIV

CLINICAL STAGE 1
<ul style="list-style-type: none">• Asymptomatic infection.• Persistent generalized lymphadenopathy (PGL).• Acute retroviral infection.
CLINICAL STAGE 2
<ul style="list-style-type: none">• Unintentional weight loss (<10% of presumed or measured body weight).• Minor mucocutaneous manifestations (e.g., seborrhoeic dermatitis, prurigo, fungal nail infections of fingers, recurrent oral ulcerations, angular cheilitis).• Herpes zoster within the past five years.• Recurrent upper respiratory tract infections (RTIs; e.g., sinusitis, bronchitis, otitis media, pharyngitis).
CLINICAL STAGE 3
<ul style="list-style-type: none">• Unintentional weight loss (>10% of presumed or measured body weight).• Unexplained chronic Diarrhoea for longer than one month.• Unexplained persistent fever, intermittent or constant, for longer than a month.• Oral candidiasis (erythematous or pseudomembranous).• Oral hairy leukoplakia.• Pulmonary tuberculosis, atypical or typical, within the previous year.• Severe bacterial infections (e.g., pneumonia, empyema, pyomyositis, bone or joint infection, meningitis, bacteraemia).• Vulvovaginal candidiasis, chronic (i.e., longer than one month) or poorly responsive to therapy.
CLINICAL STAGE 4
<ul style="list-style-type: none">• HIV wasting syndrome.• Pneumocystis pneumonia.• Toxoplasmosis of the brain.• Cryptosporidiosis with Diarrhea, longer than one month.• Isosporiasis with Diarrhea, for longer than a month.• Extra pulmonary cryptococcosis, including meningitis.• Cytomegalovirus (CMV) infection (retinitis or of an organ other than liver, spleen, or lymph nodes).• Chronic herpes simplex infection mucocutaneous (longer than one month) or visceral (any duration).• Progressive multifocal leukoencephalopathy (PML)• Any disseminated mycosis (e.g., histoplasmosis, coccidioidomycosis, penicilliosis).• Candidiasis of trachea, bronchi, lungs, or oesophagus.• Disseminated nontuberculous mycobacteria infection.• Extra pulmonary TB.• Nontyphoidal salmonella septicemia.• Lymphoma (cerebral or B cell non-Hodgkin's).• Kaposi's sarcoma.• HIV encephalopathy.

Annex 2. Comprehensive ART Services Indicators

1. Existence of national policies, strategy and guidelines for ART programs.
2. Percentage of health facilities providing ART services in line with national standards.
3. Percentage of health facilities experiencing stock-outs in the preceding 12 months.
4. Number of health workers trained on ART delivery in accordance with national or international standards.
5. Percentage of PLHIV who know their status and are receiving Cotrimoxazole prophylaxis
6. Number of adults and children with advanced HIV infection **newly enrolled** on ART according to national guidelines.
7. Percentage of adults and children with advanced HIV infection **currently receiving** ARVs.
8. Number of adults and children with advanced HIV infection **ever enrolled** on ART.
9. Percentage of adults and children with HIV known to be alive and on ART treatment 12 months after initiation on ART.
10. Continuation of first-line regimens at 6, 12 and 24 months after initiation.
11. Percentage of HIV patients screened for TB.
12. Percentage of TB/HIV co-infected patients who are started on ARVs within 8-12 weeks of diagnosis.

