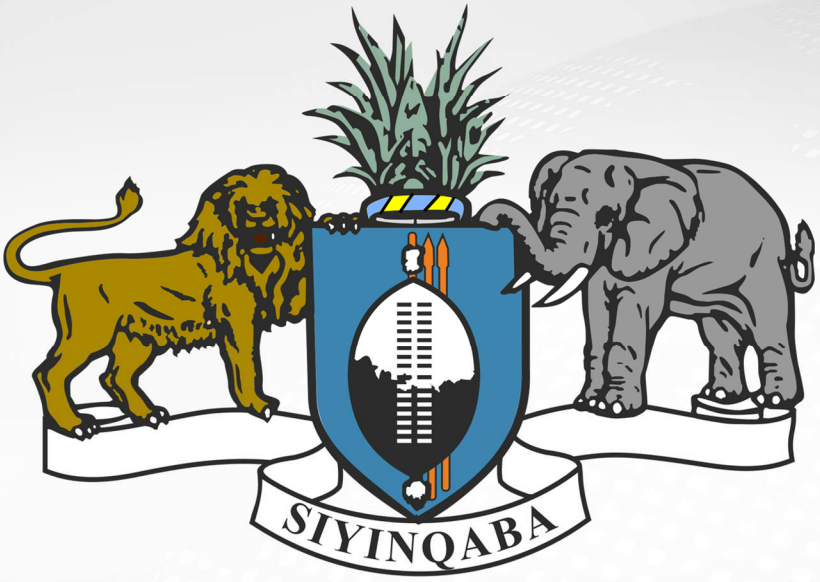

Kingdom of Swaziland
Ministry of Health

ART PROGRAMME ANNUAL REPORT

Strategic Information Department - 2012

IHM

Acknowledgements

In producing the 2011 Annual ART report, the Ministry of Health (MoH) through the Strategic Information Department (SID) extends its sincere appreciation to a number of institutions and individuals without whom this report would not have been possible without their active and dedicated efforts. Our sincere gratitude goes to all personnel at the health facilities, the Regional, and the National Level for their continued commitment in compiling data for this report.

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Acronyms/Abbreviations

AIDS	Acquired immune deficiency syndrome
ANC	Antenatal care
ART	Antiretroviral therapy
ARV	Antiretroviral (drug)
AZT	Zidovudine
CD4	Cluster Designation 4
CR	Critical reflection
CTX	Cotrimoxazole
DU	Data Use
EGPAF	Elizabeth Glaser Pediatric AIDS Foundation
EID	Early infant diagnosis
GDP	Gross domestic product
Hb	Hemoglobin
HIV	Human immunodeficiency virus
HMIS	Health Management Information Systems
ICAP	International Center for AIDS Care and Treatment Programs
IHM	Institute for Health Measurements
IKM	Information and Knowledge Management
IMAAI	Integrated Management of Adult and Adolescent Illness
IRIS	Immune reconstitution inflammatory syndrome
LTFU	Loss to follow up
M&E	Monitoring and Evaluation
MoH	Ministry of Health
MSF	Médecins sans Frontières
NARTIS	Nurse-led ART initiation in Swaziland
NTCP	National TB control programme
OI	Opportunistic Infection
PEP	Post Exposure prophylaxis
PEPFAR	Presidents Emergency Plan for AIDS Relief
PLHIV	People living with HIV
PMTCT	Prevention of mother-to-child transmission [of HIV]
RDQA	Routine data quality audits
RxPMIS	Prescription Patient Management Information System
SACU	Southern Africa Customs Union
SID	Strategic Information Department
SNAP	Swaziland National AIDS Programme
STI	Sexually transmitted infection
SRH	Sexual and reproductive health
TB	Tuberculosis
URC	University Research Corporation
WHO	World Health Organization

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Executive Summary

In order to achieve the performance targets as defined in the national strategic planning documents, the Ministry of Health (MoH) is rapidly scaling up antiretroviral therapy (ART) using a model called Nurse-Led ART Initiation in Swaziland (NARTIS). This model is designed to compensate for the shortage of physicians in the country. Under NARTIS, nurses assume responsibilities, which were previously fulfilled by doctors, including initiating ART, interpreting diagnostic results and detecting opportunistic infections (OIs). Rolled out to 15 sites in 2011, the NARTIS model has allowed an increasing proportion of the rural population to access ART. At the end 2011, 79,099 patients were accessing treatment – a figure that represents 85.1%[1] of all people in need of ART.

Fixed-dose combination antiretroviral drugs (ARVs) are predominantly used, with the majority of new patients prescribed the WHO-recommended one-pill daily regimen of Tenofovir + Lamivudine + Efavirenz. With Global Fund support, the MoH Monitoring and Evaluation (M&E) unit has established an electronic system to track the number of patients on ART and the stocks of ARVs at facilities. Although recent improvements are encouraging, loss to follow up remains a significant challenge for the national ART programme. Efforts supported by the United States President's Emergency Plan for AIDS Relief (PEPFAR), Baphalali Swaziland Red Cross, Cabrini Ministries, Nazarene, Good Shepherd and Médecins sans Frontières (MSF) have all supported efforts to improve access, ensure quality of service and patient care.

[1] The denominator is drawn from the HIV Estimates and Projection report 2010

CHAPTER 1: BACKGROUND AND INTRODUCTION

1.1 Background

Swaziland has the highest HIV prevalence rate in the world with 26% of 15-49 year olds living with HIV.[2] AIDS is currently the leading cause of mortality and was responsible for an estimated 6,760 deaths in 2011. Research has shown that the key driver to the epidemic in Swaziland is heterosexual sex with multiple concurrent partners, which contributes to 94% of new HIV infections. Women bear the brunt of the HIV epidemic in Swaziland, as evidenced by the 31% prevalence rate among females compared to 20% among their male counterparts. An alarming 41% of women attending antenatal care (ANC) services are HIV positive with an estimated 13,500 HIV-exposed infants born annually. The HIV epidemic has also given rise to a severe Tuberculosis (TB) co-epidemic; with an estimated TB incidence of 1,287/100,000 people and an 84% HIV co-infection rate among incident cases.

The World Bank estimates that in 2010 the HIV response cost 4.4% of Swaziland's Gross Domestic Product (GDP), and that this figure is projected to rise to 6.8% by 2020.These are unmanageable costs for a lower-middle income country with high rates of poverty and stagnant economic growth. Government revenues rely heavily on receipts from the Southern Africa Customs Union (SACU), making the country particularly vulnerable to fluctuations in trade. SACU receipts decreased from 20% of GDP (US$687 million) in 2009 to 9.3% of GDP (US$344 million) in 2010. Although the government has made health a priority, HIV programmes have suffered severely.

The policy change that increased the Cluster Designation 4 (CD4) cut-off from 200 to 350 greatly increased the number of people who are eligible for treatment as well as the need for trained personnel, better laboratory facilities, more robust routine health information systems and greater involvement of all stakeholders to enhance the quality of care from the psychosocial and biomedical perspectives. In these rather difficult circumstances, the National ART programme has devised a series of interventions and leveraged support from both international and local stakeholders in a comprehensive and participatory manner to alleviate and lengthen the lives of people living with HIV (PLHIV).

1.2 Introduction

During the course of 2011, the MoH, through the Swaziland National AIDS Programme (SNAP), and in collaboration with donors and implementing partners, provided free HIV care and treatment services at health facilities in Swaziland. A well-coordinated effort by Government and its partners ensured that despite the fiscal challenges, the country was still able to provide an effective response to the epidemic and also meet its targets in the provision of ART. In order to achieve the goal of providing the Comprehensive HIV Package of Care; there is a focus on improving the quality of life of all PLHIV by providing a continuum of HIV care, from pre-ART to ART.

Specifically, the National ART programme intends to achieve the following:

- Provide comprehensive, quality health care and support services throughout the HIV care continuum.
- Provide structured follow-up of patients in care to monitor disease status and provide timely interventions as required
- Empower health care workers to create awareness and increase uptake of HIV services in support of positive living among PLHIV—that is, protecting the health of the patients and transmission of HIV to their partners and families
- Encourage patients' understanding and participation in the care plan, including adherence to care and medications

Using SPECTRUM generated figures (2010), the PLHIV population for 2011, was projected to be 182,792 and the projected number that would need ART (CD4 <350) was set at 81,324 for adults and 9,751 for children. While the new policy adopted by the MoH, which moved the CD4 count threshold from 200 to 350, was necessary, it almost doubled the number of people who are eligible for ART. This has resulted in a greater need for resources, resources and to ensure that planning is informed by the reality faced by program implementers.

The targets set, change in threshold for initiation on ART has indeed raised a number of issues; looming in the background is the need to develop

[2] Swaziland Demographic and Health Survey (SDHS) 2006-2007

strategies that address the need to guarantee high retention of those on AVR's, reduced morbidity and mortality of those infected. In close association, there is a need to increase the capacity of the Ministry of Health to respond to the needs of thousands more people eligible on treatment.

Strategies implemented during 2011 were to:

- Expand service delivery and maximize scarce human resources through task shifting (NARTIS).
- Strengthen laboratory services through the improved sample transportation system for ART and related services;
- Improve drug management by building staff capacity in forecasting of ARVs (treatment and prophylaxis), laboratory reagents and other consumables;
- Decentralize pre-ART and ART services to improve access and availability;
- Improve retention in care and treatment;
- Promote community involvement and participation - particularly PLHIV and other groups including women, men and traditional health practitioners to play a significant role as treatment partners, expert patients and advocates for ART;
- Strengthen collaboration between the TB and HIV programmes with a focus on integration and coordination of services to optimize the use of resources and increase access to both HIV and TB care;
- Strengthen capacity for testing for HIV at TB clinics and for TB diagnosis at HIV facilities;
- Strengthen linkages and integrate with other programmes, including sexual and reproductive health (SRH) and the prevention of maternal to child transmission of HIV (PMTCT); and,
- Strengthen systems for support services, procurement and monitoring of service delivery.

In order to provide better monitoring performance indicators, this report compares performance against targets that were set in 2010 and looks at performance on the same indicators over time. The following outcome and output level results are stipulated in the HSRP 2009-2014

- Percentage of adults and children with HIV still alive and known to be on treatment 36 months after initiation of ART has increased from 64% in 2008 to 75% in 2011 and 85% in 2014
- Percentage of adults and children with HIV infection receiving ART has increased from 52% in 2008 to 80% in 2011 and 85% in 2014.
- Percentage of children aged 0-14 years with advanced HIV infection receiving ART has increased from 60% in 2008 to 75% in 2011 and to 95% in 2014.
- Number of health facilities that have the capacity to provide advanced level of HIV care and support services, including ART is increased from 26 sites in 2008 to 42 sites in 2011 and to 66 in 2014.
- Average CD4 count at ART initiation has increased from 80 in 2008 to 150 in 2011 and 200 in 2014.

TABLE 1: SUMMARY OF PERFORMANCE INDICATORS

Indicator	Baseline (2008)	2010 Result	2011 Target	2011 Results
Percentage of adults and children with HIV still alive and known to be on treatment 36 months after initiation of ART	64%	69%	75%	70.85%
Percentage of adults with HIV infection receiving ART	52%	70.1%	80%	85.1%
Percentage of children aged 0-14 years with advanced HIV infection receiving ART	60%	63.1%	75%	66.9%
Number of health facilities that have the capacity to provide advanced level of HIV care and support services, including ART	26	32	42	39
Average CD4 count at ART initiation	80	199	150	200

1.3 Report Development Process

The annual program assessment set to objectively assess the performance of the ART program between the reporting period of January, 2011 and December, 2011. This chapter, therefore, presents the methodological procedure that was employed by the Data Management and analysis team when managing, cleaning and analyzing the ART program data. In other words, this chapter encapsulates the tools that were used when collecting data; the data management quality procedures; the data Extraction Transformation Loading (ETL) processes that were used when extracting and integrating data from stand-alone databases; the analysis procedures and presentation of data.

1.3.1 Assessment design

The annual program assessment was based on retrospective review and analysis of patients' demographic and longitudinal ART data since program inception, but specifically within the reporting period from January to December, 2011.

1.3.2 ART Sites

At the time of data analysis and report writing about 31 ART initiation sites were providing ART services. However, the data management team managed to collect database backup files from 27 of the 31 ART initiation sites, where the ART production database was operational, and these backup files were restored into a single Microsoft SQL database server.

1.3.4 Data collection procedures

Patients' demographic and ART service data are routinely collected through consistent use of ART program registers and forms by health providers across all ART facilities, and data are entered by either frontline/source data collectors (health workers) or data clerks into the distributed and standalone ART Patient Management Database systems (APMIS) installed at ART facilities.

1.3.5 Performance Measurement-Key Performance Indicators

Indicator	Indicator construct
1. Percentage of adults and children with HIV still alive and known to be on treatment 36 months after initiation of ART	Adults: >=15 yrs old Children <15 yrs old 36 months on ART: (2011-12-31-start date) Still alive: No deceased date Have not stopped treatment
2. Percentage of adults and children with HIV infection receiving ART	HIV+ Adults receiving ART: >=15 yrs old HIV+ Children receiving ART <15 yrs old
3. Percentage of children aged 0-14 years with advanced HIV infection receiving ART	Children (<1 yrs): WHO (III/IV) or CD4% (<20%) Children (1-5 yrs): CD4% (<15 %) or who (III/IV) Children (>5≤14 yrs): CD4% (<15%) or WHO (III/IV)
4. Number of health facilities that have the capacity to provide advanced level of HIV care and support services, including	Facilities accredited to provide advanced level of HIV care, treatment and support services
5. Average CD4 count at ART initiation	Average baseline CD4 count for adults and CD4% for children.
6. Number of adults and children who are actively on ART.	Total number of patients on record
	Patients with no ART initiation date or no baseline ART regimen
	Patient with start dates before 2003 or after 2011
	Patient considered ever started on ART
	• Transfer outs
	• Dead
	• Stopped ART
	• Active on ART 1: ((2011-12-31) –(last visit date))≤180 days OR ((2011-12-31) –(last prescription date))≤ 180 days OR ((2011-12-31) –(last appointment date))≤ 90 days
	• Active on ART 2: ((Ever started on ART) – (Transfer outs + deaths + stopped ART+LTFU))
	• LTFU 1: ((2011-12-31) –(last visit date))>180 days OR ((2011-12-31) –(last prescription date))>180 days OR ((2011-12-31) –(last appointment date))>90 days
	• LTFU 2: Patients indicated as lost to follow up by LTFU date records

Active on ART 1: The ideal field that should be used to compute number of patients on ART treatment as of 31st December 2011 (active) is the last visit date (as agreed with ART program). However, when the analysis was done it was found out that the field had too many missing data that it was considered inappropriate. Similar considerations were given to the last ARV prescription pick up and the last appointment date with similar conclusion. We therefore decided to generate a composite field where patients who were active by either of the three field was considered active. This method generated 56,027 active patients by 31st December 2011 Table below (NB this excluded Baylor data).

Active on ART 2: Other less stringent methods e.g. use of data clerk entry of a lost to follow up date entry led to over estimation of active patients since patients are active by default-i.e. if a patient is not captured by data entry staff as LTFU s/he is assumed to be active. The stakeholders (ART Program) decided to use the less stringent method and the results (for active patients) are outlined in the table below.

Active patients using the less stringent methodology (N.B this excludes Baylor data)

1.3.6 Data Management and Quality Assurance

Mapping and analysis of data elements against Key Performance Indicators (KPIs) was done to inform the extraction, transformation and staging of data set using the Extraction, Transformation and Loading (ETL) component of the Talend Data Quality Enterprise software. Microsoft SQL scripts were also developed and used for further extraction of transactional data from the database, decoding of data values and recoding of necessary data variables. The data extraction and transformation process did not only facilitate data extraction and integration, but also facilitated validation of data and filtering of obvious data defects. The staged data from the different ART facilities were then merged or integrated into one longitudinal ART data set, which was exported into EXCEL, CSV, SPSS, STATA outfile.

1.3.7 Data analysis, presentation and report writing

The process adopted by the MOH, in data analysis and writing this report, points to a more comprehensive and inclusive approach, which ensures that the multiplicity of stakeholders do not only participate in the process, but also participate in the collective identification of challenges, sharing of key concerns and highlighting the replicable practices in service provision and data management. This participatory approach; on its own, marks a significant intervention in which data challenges and program issues were brought to the foreground in a clear attempt to institute remedial measures. Strategically, this serves as an important attempt to ensure that Critical Reflection (CR), Data Use (DU) and Information and Knowledge Management (IKM) are an integral part of the ART program in its entirety. The writing of this report was a coordinated effort by the Ministry of Health SID, SNAP and TB programme, several implementing Partners (IHM, ICAP, EGPAF, Baylor, MSF and URC).

The SPSS and STATA data set files, which were produced by the data management team, were imported into SPSS and STATA packages, respectively for further editing, variable decoding, recoding and analysis by the representative group of analysts (representatives from MoHSID, ICAP, Baylor, IHM, NERCHA, SNAP, TB and URC) in a workshop setting. Simple descriptive statistics were run to produce frequencies that were stratified by independent categorical variables, including sex, regions and age group, and measures of central tendency were also produced. The results were mainly presented in frequency tables and graphs where applicable.

As stated above, the process of analyzing the data was done in a participatory manner during a series of workshops led by the MOH and Implementing Partners (IP's). After an initial draft was generated, a general workshop was held to ensure that the program input was included and that the document was a true reflection of the program achievement during the course of the year.

1.3.8 Ethical considerations

The team maintained strict confidentiality and privacy as they access and review medical data records for patients and hexed the patients' identifiers so that the medical records whereas anonymous as possible.

1.3.9 Limitations

Nonetheless, the team encountered a few challenges during the process of data management and analysis, and these revolved around certain inconsistencies in definition of certain indicators (i.e. Lost to follow up indicator) and some data quality issues like incompleteness. In order to address the aforementioned challenges, the MOH, IHM and other SI partners have already set up remedial actions to allow for comprehensive data quality profiling, data tracing and verification, and cleansing of data. The current Core Indicator protocol will also be enhanced to ensure that all indicators are appropriately defined.

CHAPTER 2: PROGRAMME DESCRIPTION

2.1 Components of HIV/AIDS care and support

The Health Sector Response Plan 2009–2014 prioritizes the implementation of structured, comprehensive care for PLHIV. Through SNAP, the MoH has implemented a comprehensive HIV package of care during this reporting period. People, including adults, pregnant women and adolescents, receive various forms of support and care at both the primary health care and hospital level.

Providing care to PLHIV and to their families requires a broad range of services that include not only clinical care focusing on diagnosis and treatment but also supportive and complementary services to ensure that adequate nutrition, psychosocial and daily living support are available. Table 2 presents a summary of the components of comprehensive care, as envisaged by the national ART programme.

TABLE 2: SUMMARY OF THE COMPONENTS OF COMPREHENSIVE HIV/CARE

TABLE 1.1. SUMMARY OF THE COMPONENTS OF COMPREHENSIVE HIV CARE		
CLINICAL	**PSYCHOSOCIAL**	**PREVENTIVE/OTHER**
• HIV testing and counseling, including early infant diagnosis (EID). • Baseline assessment. • Initiation and use of antiretroviral drugs (ARVs) in adults and adolescents (first- and second-line). • Transitioning from HIV care to HIV care and treatment. • Pre-ART and ART clinical and laboratory monitoring. • Assessing and managing common ARV side effects as well as HIV symptoms, including pain. • Tuberculosis (TB) case finding and screening, preventing, and treating TB. • Cotrimoxazole (CTX) and fluconazole prophylaxis. • Cancer screening and treatment. • Services for sexual and reproductive health (SRH), including family planning (FP) and male circumcision (MC). • Assessing and managing mental health conditions and substance abuse. • Palliative care.	• Adherence preparation and assessment. • On-going adherence counseling and support. • Step-up adherence counseling. • Psychosocial assessment. • On-going psychosocial support. • Counseling and support for disclosure—that is, a patient's sharing his or her HIV status with others. • Community support, including access to support groups. • Counseling on substance use and abuse. • End-of-life support for the entire family.	• Primary prevention. • Positive prevention, including prevention of mother-to-child transmission (PMTCT), infant feeding, and post-exposure prophylaxis (PEP). • Nutritional assessment, education, and support. • Counseling on hygiene, sanitation, and safe water.
CROSS-CUTTING COMPONENTS Family-Focused Care Monitoring and Evaluation (M&E)		

2.2 ART Guidelines, Policies and Strategies

In 2010 the program undertook review of HIV treatment guidelines to ensure standardization of treatment regimens. This development enables the program to easily monitor and follow up the quality, access and availability of the comprehensive care package as envisioned in the National Strategic Framework (2009-2014). To increase access, special attention was given to strengthening the ability of the lowest level of health care service delivery (clinics) to provide ART services. This has seen the program develop treatment guidelines that were informed by WHO standards and also the increase of the number of facilities proving ART care. While meeting international standards, the programs response has also been sensitive to patterns that are evidenced during the course of daily practice.

There has been strategic emphasis by MOH to strengthen community involvement and other collaborative activities in TB and HIV. This has increased the complexity of the strategy to alleviate the burden of TB on those who are HIV positive and HIV on those who have TB by ensuring easier initiation on ART. Subsequently, the program has laid emphasis on strengthening linkages between the communities, the health clinics and the different programs. Standards, norms and procedures for patient care have been deliberated and documented as part of a quality assurance strategy.

Before the review of the ART guidelines, the program concerned itself more with initiations, utilization of ARV's and monitoring of the patients on ARV. The review resulted in a shift of emphasis to holistic management of HIV-infected patients, whether or not they are on ART. Now called the Comprehensive HIV Package of Care, these guidelines emphasize management of the whole patient, not just the HIV disease, and provide information on assessing and managing nutritional status, mental health, reproductive health, adherence to care and treatment, and access to water and sanitation—among other important topics. The package has been developed so as to make the information useful during the delivery of comprehensive HIV care and treatment services at all levels of the health care delivery system. This is in line with the decentralization of ART services to the clinic level, which is currently being coordinated by the National ART Program.

The WHO's HIV treatment guidelines recommend antiretroviral therapy (ART) for patients with a CD4 count below 350 unless clinically indicated by WHO staging criteria. While this has meant that patients have a better chance for survival, it has resulted in an increase the number in need of ART. Needless to say, this has had severe ramifications on the ability of the health system to provide adequate support as the type of long term care must be supported by the ability to provide laboratory services, community support, clinical care and management and human resources.

2.3 Human resource management

In 2011, innovative ways of mitigating the gaps in human resource ART service skills was brought to the foreground. The MoH has been able to allow for more initiation and care at facility level by training and enabling nurses to initiate ART care. This strategy however has necessitated a need to improve the monitoring and supportive supervision that is required from. While the figures of those initiated during the course of this reporting period have not surpassed last years, one must consider the mitigating factors i.e. lack of reagents for CD4 testing, transportation difficulties and the fact that this was the year that NARTIS was rolled out.

During this reporting period, a series of discussions were held by the leadership of the ART program in which plans to conduct a human resources and skills audit were discussed. The importance of these discussions was that such an assessment would allow for better planning of resources.

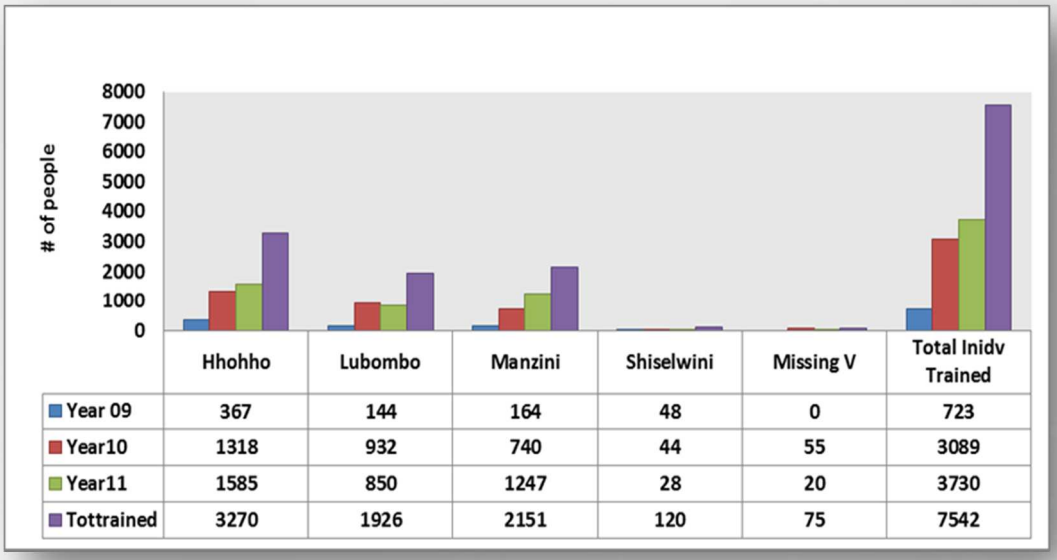
2.3.1 Training

In 2011, the ministry focused on enhancing the capacity of medical personnel to respond effectively to the increased numbers of people eligible for ART, provide in-depth coverage of topics such as adult HIV care, paediatric HIV care, and adherence counseling. During the course of the year, NARTIS was piloted in 15 sites. These included Public Health Units (4), Rural Clinics (6) and TB Clinics (5). Two trainings were conducted for participating nurses from 14 February to 11 March, 2011. The training was coordinated by SNAP with partners, including ICAP, EGPAF, URC, and Baylor.

NARTIS training was highly successful as demonstrated by post-training competency scores. The WHO Basic IMAI curriculum was modified for the purposes of this training including both adult and paediatric HIV/TB management. A pre-test was administered to determine the baseline basic IMAI knowledge of the nurses. Twenty-six of the 29 nurses from the 15 sites completed a pre-test competency assessment; three nurses were absent on the first day of training. The average pre-test score was 81% with only two participants scoring below 75%. The pre-test results confirm that there was a solid knowledge of basic IMAI HIV concepts and skills among the nurses entering the training.

The didactic training took place over 3 days followed by a practicum of 4 days in an HIV care and treatment clinic. A total of 29 nurses from the 15 pilot sites completed the training. Each pilot site had two nurses trained except for three clinics, which had only one nurse trained due to staff shortages.

FIGURE 1: NUMBER OF PEOPLE TRAINED



	Hhohho	Lubombo	Manzini	Shiselwini	Missing V	Total Inidv Trained
Year 09	367	144	164	48	0	723
Year10	1318	932	740	44	55	3089
Year11	1585	850	1247	28	20	3730
Tottrained	3270	1926	2151	120	75	7542

2.3.2 Task shifting

Given the need to increase coverage and access to ARV's nationwide, the MOH initiated a program that focused on empowering nurses to initiate ARV's. The Nurse-led ART Initiation Strategy (NARTIS) was piloted in 15 health care clinics across the country over the six-month period from March 1 to August 31, 2011. A total of 29 nurses were trained to initiate antiretroviral therapy (ART), which reached the target Health Care Worker (HCW) goal of two trained nurses per clinic in 14 of the 15 pilot clinics. In implementing NARTIS, 12 sites started in March, two clinics started in April and one started in May 2011. From the 15 pilot clinics, a total of 1,052 patients were initiated on treatment over the six-month period. Ninety-five per cent of patients were adults and 5% were children under 15 years of age. Nurses completed approximately 65% of the adult initiations and 40% of pediatric initiations. Other patients were initiated in collaboration with doctors and nurses or by doctors who continued to visit the clinic for support.

2.4 Improving health system infrastructure

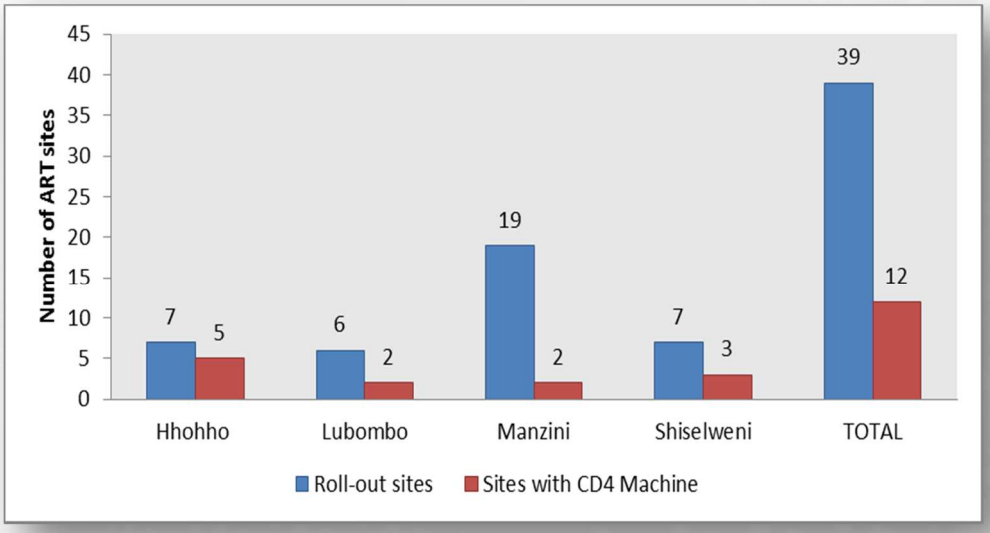
It is widely acknowledged that without strengthened health systems, greater access to ART is unlikely to be attained. A socially complex health intervention such as ART requires not only that health systems manage their current functions better, but also demands new kinds of performance from these systems. Service delivery must be reoriented from acute to chronic disease care, ensuring uninterrupted supplies of ARVs and high levels of adherence over many years. Strengthening health system infrastructure and securing sustainable funding are significant challenges. Some of the issues that require special care include establishing laboratory capacity and mechanisms to control drug supply; assuring quality management; informing the public about the benefits and implications of ARV interventions; providing training and assuring an adequate number of health care and support staff. As described below, efforts to ensure success in these areas met with different degrees of success during 2011.

2.4.1 Laboratory services

Laboratory services form a very important role in ensuring that the monitoring process of those testing HIV positive, is effective and efficient. A robust laboratory system currently supports the ART programs response in its goals of trying to provide effective monitoring of those testing positive, improve the turn- around time for patient sample testing, Increase access to TB and HIV diagnosis through sample transportation, with a focus to rural clinics; contribute to the generation of quality results through quality sample collection and also ensure patient-focused services, which means providing service that is convenient, timely and reliable for all patients and promoting quality of care.

One of the challenges for successfully retaining pre-ART and ART patients is the burden of multiple appointment visits for regular monitoring of CD4 count levels. Cd4 testing is predominantly carried out using conventional CD4 testing machines and their availability in the country is shown in Figure 2 below. A shortage is realized with this coverage as these machines are only available in only 31% of facilities rolling-out ART services. At facilities which do not have these on-site CD4 testing machines, patients' blood samples are taken on specific days and are then transported to regional hospitals and health centres for CD4 testing via the National Samples Transportation System (NSTS). The results are then returned to the facilities with a turnaround time of approximately 2-7 days. Patients must then visit the clinic again to receive their results. This goes for all other vital laboratory tests for ART patients.

FIGURE 2: NUMBER OF SITES WITH CD4 MACHINES



2.4.2 Drug supply and management

The need for an uninterrupted supply of ARVs is a pre-requisite and a challenge for the ART programme. To meet the growing demand, supply chains must be expanded along with proper checks and balances to ensure accountability. During the course of the year, the MoH provided transportation to facilities with the support of partners. Despite the fiscal challenges experienced in 2011, was a marked improvement in monitoring drug supply and reducing stock outs.

In 2011 the drug supply and management programme focused on strengthening the distribution system through collaboration of implementing partners with the MoH. Supply chain coordination is important in linking programmes and decision makers with supply chain issues. MoH has established Supply Chain Technical Working Group with overall responsibility for overseeing supply chain activities in the country.

2.5 Data management and reporting

Collection of data from health facilities through to reporting is one of the key functions of the MoH SID. ART data flows through three key levels: facility, regional and national. At facility level, each patient who starts ART is given a unique treatment unit ARV registration number. A patient card and a patient chronic care file are opened when the patient starts ART. A standardized ART patient register, which remains in the clinic, facilitates patient registration when they initiate ART or are transferred into the facility. These tools contain information on key demographic and clinical information for the patients. Once established on ART, patients are seen and data are recorded every four weeks at a minimum.

On their routine visits, patients have key vitals recorded (e.g., weight, functional status, clinical stage) and are asked about general health, and drug side effects. This information is recorded in the patient's chronic care file. With support from partners, a standard electronic information system (RxPMIS) has been established and is now used in 31 out of the 39 of the rollout sites. This electronic system complements the register and the patient chronic care file and is used to capture registration and follow up information on ART patients as well as on ARV stocks in the facilities.

On a monthly basis standardized summary sheets (i.e., monthly reports) are generated from the electronic system and manual registers for facilities without the electronic system and these are sent to the regional level. At this level, the reports are captured into the HMIS database where regional analysis and reporting are performed. On a quarterly basis, databases from sites with the electronic systems are collected and sent to the national level for analysis and reporting. These databases also serve as off-site backups for the facilities.

Routine Data Quality Audits (RDQA), trace and verification visits are conducted to ensure that data meet the required quality criteria (validity, integrity of the systems, reliability, completeness, precision, timeliness and fit for purpose). The HMIS has been strengthened to ensure that probable data errors are limited at point of data entry by the development of data quality reports on the electronic based system. The MoH M&E unit has a highly efficient data quality monitoring team, which uses data profiling software (Talend), RDQA and regular training of data clerks and the clinicians to improve data quality.

CHAPTER 3: PROGRAMME SERVICES AND OUTCOMES

3.1 Pre-ART

The Pre-ART program is closely linked to the management of opportunistic infection (OI) - The MoH has pushed to provide more comprehensive pre-ART care, recommending that all HIV-positive patients test their CD4 cell count at least twice annually and undergo regular screening for TB and other OIs. In addition, patients are put on a course of Cotrimoxazole to guard against bacterial infection. Despite these efforts, OI is worryingly frequent. As noted above, the country has the highest estimated TB incidence in the world with 1,287/100,000 people infected, 84% of whom are HIV-positive. Preventing OI requires regular immunological monitoring, but this effort has been hampered by disruptions in the supply of lab consumables.

To implement an effective structured Pre-ART system, eligibility for enrolment into HIV chronic care is based on a positive HIV test result, irrespective of CD result or WHO clinical staging. Further, for effective follow-up and easy patient tracking, all HIV positive individuals enrolled in Pre-ART care are issued with facility numbers, and chronic care patient files opened for them. The chronic care file is so structured that it smoothly transitions a patient from the Pre-ART period to the ART period, and is able to accommodate patient data for several years—both ART and Pre-ART.

About 4.4% of those enrolled in the Pre-ART program were children, while about 52.2% of the children on Pre-ART are male. The data available does not allow us to determine the statistical significance of the perceived proclivity to provide greater care to the boy child at less than 14 years than the girl child. It is however, an area in which the program could look into and determine if there is cause for concern or the general low figures of the children on pre-ART are of greater concern than their gender. To strengthen the Pre-ART program, there is need to strengthen linkages with the ART program and also to ensure that there is strong monitoring support.

TABLE 3: NUMBER OF INDIVIDUALS ENROLLED ON PRE-ART 2011

Characteristics	QRT 1	QRT 2	QRT 3	QTR 4	TOTAL
Male <14 years	1 281	958	1 024	1 076	**4 339**
Females >14 years	2 577	2 138	2 072	2 013	**8 800**
TOTAL	**3 858**	**3 096**	**3 096**	**3 089**	**13 139**
Male Children (<2 yrs.)	13	24	14	20	**71**
Male Children (2-14 yrs.)	21	15	37	44	**117**
Male Children (5-14 yrs.)	39	24	37	28	**128**
Females Children (< 2 yrs.)	11	11	17	16	**55**
Female Children (2-14 yrs.)	14	8	12	25	**59**
Female Children (5-14 yrs.)	48	37	46	44	**175**
TOTAL Children	**146**	**119**	**163**	**177**	**605**
GRAND TOTAL	**4 004**	**3 215**	**3 259**	**3 266**	**13 744**

Challenges in monitoring the Pre-ART program do exist. However, there was a concerted effort during this reporting period to ensure that SNAP and SID piloted a national pre-ART system consisting of the following tools: Pre-ART register, chronic care patients files, appointment registers, patients hand held appointment cards, and quarterly reporting form. The health information system used to capture HIV care data-RXPMIS includes some limited fields to capture Pre-ART service provision. The RXPMIS is currently undergoing review and this process will lead to inclusion of Pre-ART fields that will integrate Pre-ART into mainstream SID reporting system.

3.2 Coverage of ART Services

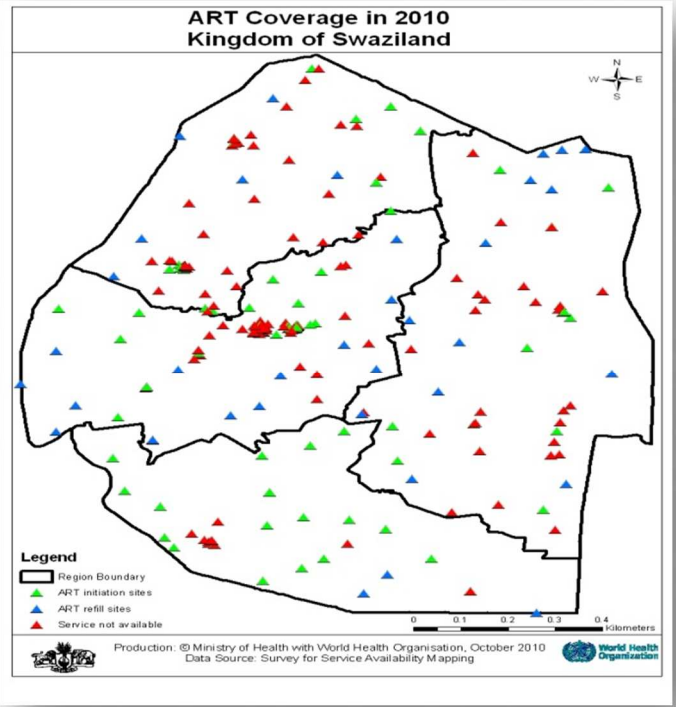
Many facilities that provide general curative care are also providing services and care to PLHIV. Of the health facilities in the country, 107 provide

ART services. Thirty-nine of these are fully capacitated rollout sites, that is, they meet the minimum package of providing ART services. These constitute 19 public/mission facilities, and 20 private facilities. The remaining 72 sites are satellite sites and they mainly do ART initiations and/or drug refills for ART patients. Their distribution across regions is shown in Table 5. In total, slightly less than half (45.5%) of all health facilities in Swaziland provides ART.

TABLE 4: NUMBER OF SITES AND TYPE

Region	Roll-out sites	Satellite sites		TOTAL ART Sites
		Initiation	Refill only	
Hhohho	7	**5**	8	20
Lubombo	6	**3**	13	22
Manzini	19	**3**	20	42
Shiselweni	7	**15**	1	23
TOTAL	**39**	**26**	**42**	**107**

FIGURE 3: ART COVERAGE



In figure 3, one can see that there is adequate spread of facilities to meet the demand for ARV services.

3.3 Provision of Antiretroviral Combination Therapy

3.3.1 New ART Enrollments

In this section we look at the PLHIV on ART along age, sex, region and the ARV regimen. This general description of the population receiving ART is useful for assessing the evolution and growth of the ART programme.

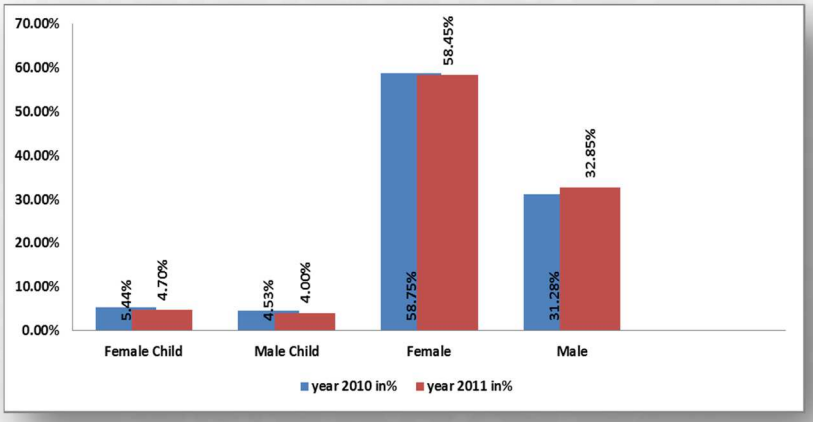
TABLE 5: NUMBER OF NEW ART INITIATIONS 2010 AND 2011

Region	Age Group	2010			2011		
		Female	Male	Total	Female	Male	Total
Hhohho	*Children*	282	258	540	186	172	358
	Adults	3 707	2 038	5 745	2 568	1 576	4 144
Lubombo	*Children*	273	192	465	203	144	347
	Adults	2 186	1 175	3 361	1 608	951	2 559
Manzini	*Children*	378	319	697	226	198	424
	Adults	3 831	2 015	5 846	2 962	1 527	4 489
Shiselweni	*Children*	207	181	388	170	154	324
	Adults	2 586	1 326	3 912	2 620	1 430	4 050
Total	*Children*	1 140	950	2 090	785	668	1 453
	Adults	12 310	6 554	18 864	9 758	5 484	15 242
GRAND TOTAL		**13 450**	**7 504**	**20 954**	**10 543**	**6 152**	**16 695**

During this reporting period, there was a drop in individuals newly initiated on ARV. Firstly, there was a drop of about 19.3% from 2011 (2010, 20954 and 2011, 16695). In 2011, 8.7% of all initiations were children as compared to 9.9% in 2010.The drop in new initiations were attributed to the fiscal problems faced in the later part of the year. In 2010, 58.7% of initiated adults were female while out of all initiations (Adult and children) 64.2 % were female. About 58.4% of all initiations were female adults and this becomes 63.4% of all initiations (adult and child) in 2011. During this reporting period, 91.3% of all initiations were adults and 8.7% were children as compared to 9.9% of the previous year.

At this stage, it has been argued that the low levels of initiations could be attributed to the fiscal challenges which led to a scarcity of the reagents needed to take CD4 counts and ultimately determine eligibility for ART initiation. The sample transport system was also affected in this manner. It is during this year that PEPFAR partners supported the provision of ART at the height of the shortage. At this instance in program implementation, the MOH-SID and SNAP envisage a situation where the numbers initiated will increase, but as a result of the interventions, there should be a decrease in numbers of new initiations as the impact of treatment as prevention; MC and other programs impact start manifesting in the population. It is therefore still too early to attribute the low numbers initiated to effective program implementation.

FIGURE 4: COMPARISON OF NEW INITIATIONS BY GENDER, AGE AND YEAR

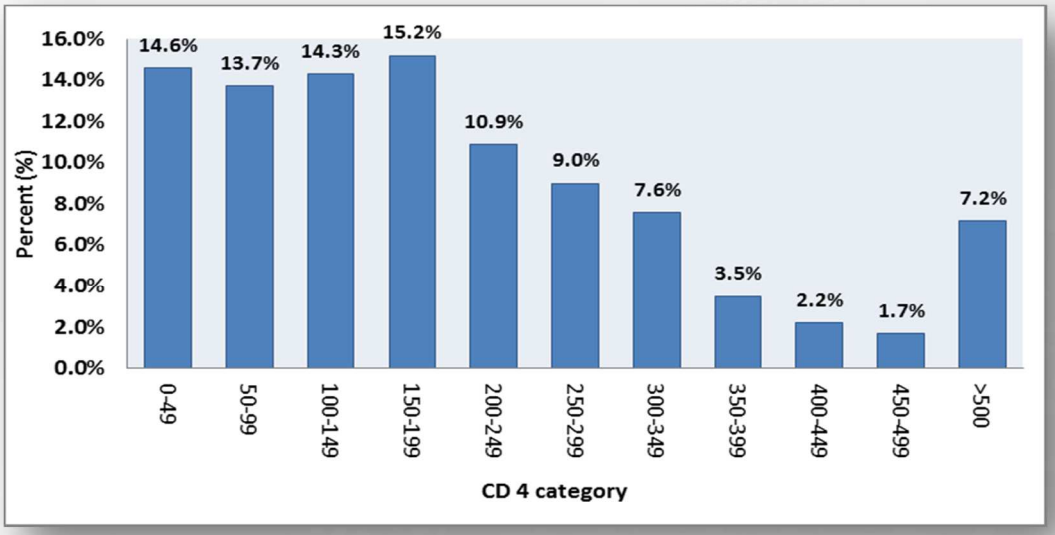


It is worth noting that there was a slight increase in the proportion of men initiated in 2011 as compared to 2010.

3.3.2 Baseline CD4 count at ART initiation

Another important aspect of improving the quality of care and access is the stage of disease progression at which PLHIV are initiated into treatment. Figure 7 below shows the percent of patients who were initiated on ART and their baseline CD4 from 2004 to 2011.

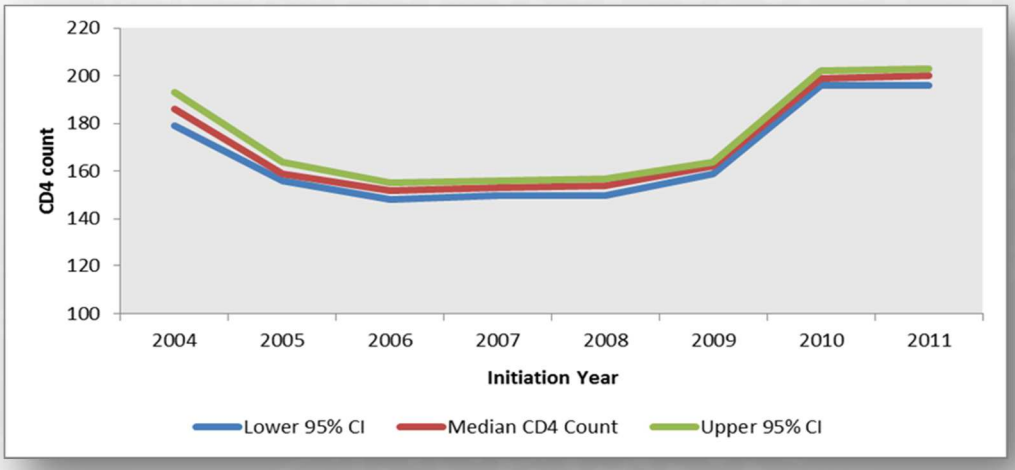
FIGURE 5: BASELINE CD4 AT ART INITIATION FROM 2004-2011



3.3.3 Median CD 4 count at initiation

The median CD4 count is a very important laboratory indicator of immune function in patients who have HIV infection. It acts as an important predicator in determining whether to initiate ART and/or prophylaxis for OIs. This measure also plays an important role in determining subsequent disease progression and survival according to clinical trials and cohort studies.

FIGURE 6: MEDIAN CD4 COUNT AT ART INITIATION OVER TIME



In 2011 the median CD4 count at initiation was about 200. This is a positive trend as is evidenced by a recent study in which Hogg et al 2001 indicated that after controlling for AIDS, protease inhibitor use, and plasma HIV RNA level at baseline, patients with CD4 cell counts of less than 50/microL were 6.67 (95% confidence interval [CI], 3.61-12.34) times and those with counts of 50/microL to 199/microL were 3.41 (95% CI, 1.93-6.03) times more likely to die than those with counts of at least 200[3]. In table 8, a further breakdown of adults enrolled on ART is done. Out of 69,243 adults actively on ART, 39.5% were in the 25-34 years age bracket. The enormity of the resources required to maintain those on ART is further underlined by the fact that 78.04% fall between the ages of 15-44years.

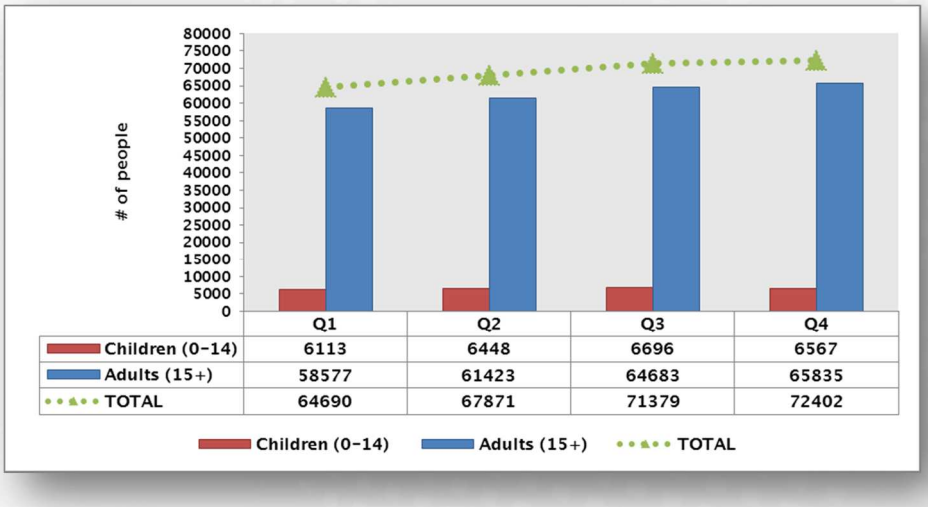
[3] Rates of disease progression by baseline CD4 cell count and viral load after initiating triple-drug therapy.

Hogg RS, Yip B, Chan KJ, Wood E, Craib KJ, O'Shaughnessy MV, Montaner JS. In JAMA. 2001 Nov 28;286(20):2568-77

3.4 Provision of Antiretroviral Combination Therapy

A desirable upward trend is observed for the number of people actively on ART since the beginning of the year (Figure 7). By the end of the year, 72,402 people were actively on treatment constituting 65,835 adults and 6,567 children. This translates to 79.5% (67.4% children and 80.9% adults) of the total number of people in need of ART receiving treatment (denominator based on CD4<350 eligibility criteria). This indicates a good performance for the programme in adult enrolment as active enrolment amongst them was targeted to reach 80%. However, a shortfall of 8% is realized among children in need of ART as only 67.4% has been achieved against a target of 75% by the end of the year. This may be attributed to weak linkages between the Early Infant Diagnosis (EID) initiatives in the PMTCT programme with the ART programme.

FIGURE 7: NUMBER OF PEOPLE ACTIVELY ON ART



On another note cumulative number of people ever enrolled in the program increased to 93,295 by the end of the year. Note that the difference between the cumulative numbers of people ever put on ART and the ones actively on the program are the people who died, stopped treatment, or lost to follow-up from the program.

3.4.1 Characteristics of Adults on ARV Treatment

Table 6 below presents a further breakdown of adults enrolled on ART. Out of 69,243 adults actively on ART, 39.5% were in the 25-34 year age bracket. The enormity of the resources required to maintain currently enrolled patients on ART is further underlined by the fact that 78.04% fall between the ages of 15-44years.

TABLE 6: CHARACTERISTICS OF ADULTS ENROLLED ON ART

Background Characteristics		ACTIVE ON ART				
		Hhohho	**Lubombo**	**Manzini**	**Shiselweni**	**TOTAL**
Age group	15-24	2094	1235	1980	1682	6991
	25-34	8172	4710	8259	6303	27444
	35-44	6170	3803	5832	4397	20202
	45-54	2013	1005	1740	1222	5980
	over 55	1571	1087	1330	1230	5218
	Totals	**20020**	**11840**	**19141**	**14834**	**65835**
Gender	Female	12703	7431	14117	8490	42741
	Male	6868	4525	7514	4187	23094
	Totals	**19571**	**11956**	**21631**	**12677**	**65835**
Pregnant	Yes	274	184	309	171	938

Of the 65835 adults actively on ART, with about 35.1% of those active on treatment were males. This data also suggests that there is need to improve male participation in treatment as their cultural position in the family and community set up gives them a greater impact on the control of sexuality and thus transmission of the virus. In table 9, an upward trend on active cohorts by year is observed.

3.4.2 Access to Paediatric treatment and care

Managing HIV infected children, with the resources at hand is an undertaking wrought with many challenges. Children continue to receive low priority with regard to HIV care and access. Firstly, cultural norms requiring breastfeeding affect the rates at which they turn positive, their ability to adhere is determined by their caregivers, there is a lack of paediatric ARVs formulation, lack of access to early HIV diagnosis, poor follow-up of mothers in PMTCT, and weak linkages between PMTCT and ART program. These challenges make it particularly difficult to meet the stated targets.

TABLE 7: CHARACTERISTICS OF CHILDREN ON ART

Background Characteristics		Initiated in 2011	Active on HAART	Ever enrolled
Age group	Under 1	184	730	1229
	1-4 years	507	2098	2829
	5-14 years	582	4162	5256
	Total	**1,273**	**6567**	**8414**
Region	Hhohho	208	2210	2174
	Lubombo	348	1490	2054
	Manzini	397	1782	2485
	Shiselweni	320	1085	1701
	Total	**1 273**	**6567**	**8414**

Of the children who needed to be on ART, 67.4% were actively receiving ARV's. For those under 1 years, 59.4 %(730/1229) were on ART. Of the children ever enrolled on HAART, 1847 are no longer active. This loss to follow up could be attributed to either deaths or they may have stopped ART. From a regional perspective, children were more likely to be lost to follow up in Manzini, followed by Hhohho, Lubombo with Shiselweni faring slightly better in the loss to follow up variation.

3.5 Lost to follow-up or died

At the heart of the ART program is the need to reduce the rate of emergence of HIV drug resistance (HIVDR). While this may be the main objective, it is also the most important indicator in that it tests the effectiveness of the national ART program. It not only focuses on the ability of the system to capture those that need to be put on treatment, but it also looks at the effectiveness of the drug management system, the laboratory system, the entry avenues for those who need treatment and how the system manages clients from entry to either death or loss to follow-up. The data below suggests that a substantial number of adults and children were lost to follow-up from the program during this reporting period. It is however necessary to point out to the fact that certain structural deficiencies in the data collection systems may affect the veracity of the data. For instance, one cannot sufficiently determine the cause of death given that the data collection tools do not sufficiently address it.

TABLE 8: LOST TO FOLLOW UP IN 2011

Region	LTFUP			DEAD			STOPPED-ART		
	Female	Male	TOTAL	Female	Male	TOTAL	Female	Male	TOTAL
Hhohho	3,844	2,396	6,240	582	556	1,138	922	491	1,413
Lubombo	1,446	912	2,358	885	843	1,728	212	115	327
Manzini	3,568	1,955	5,523	880	693	1,573	166	99	265
Shiselweni	2,604	1,579	4,183	591	506	1,097	155	87	242
TOTAL	**11,462**	**6,842**	**18,304**	**2,938**	**2,598**	**5,536**	**1,455**	**792**	**2,247**

The outcome of patients lost to follow up has received relatively little attention in terms of follow up. Anecdotal evidence points to the scarcity of resources to trace defaulters and proximity to South Africa (Swaziland has a highly mobile population which often seeks work in neighboring South African provinces). Patients not returning to the clinic where they initiated ART may have stopped taking antiretroviral drugs, resulting in high mortality. Alternatively, with increasing availability of ART, patients may have transferred to another program, for example a program closer to their place of residence.

Other important reasons for LTFU were improvements in health, adverse effects and feeling too sick to come to the clinic or being hospitalized. Reports of stopping care as a result of perceived improved health reflect a poor understanding of the chronic nature of the disease and the need for continued, life-long ART. The experience or fear of toxicities has been found to be associated with poor adherence in previous studies. In table 11, 18304 were lost to follow up. These present 18.8% of those who have ever been on treatment. The fact that those who die are not tracked with the aim of establishing cause of death is problematic because death is an important outcome level indicator for the ART program. About 35.2% of those stopping ART were males.

3.6 Cohort Analysis

Cohort analysis is a key component of ART patient monitoring. According to the country's guidelines, a cohort is a group of all patients starting ART in the same year. Cohort analysis compares baseline characteristics of patients who started on ART with their status at six and 12 months and then yearly. 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. Due to limitations of the patient management system, this report only depicts the proportion of patients surviving on ART. Treatment outcome is also monitored by the cohort analysis, which is carried out retrospectively every year using the RxPMIS.

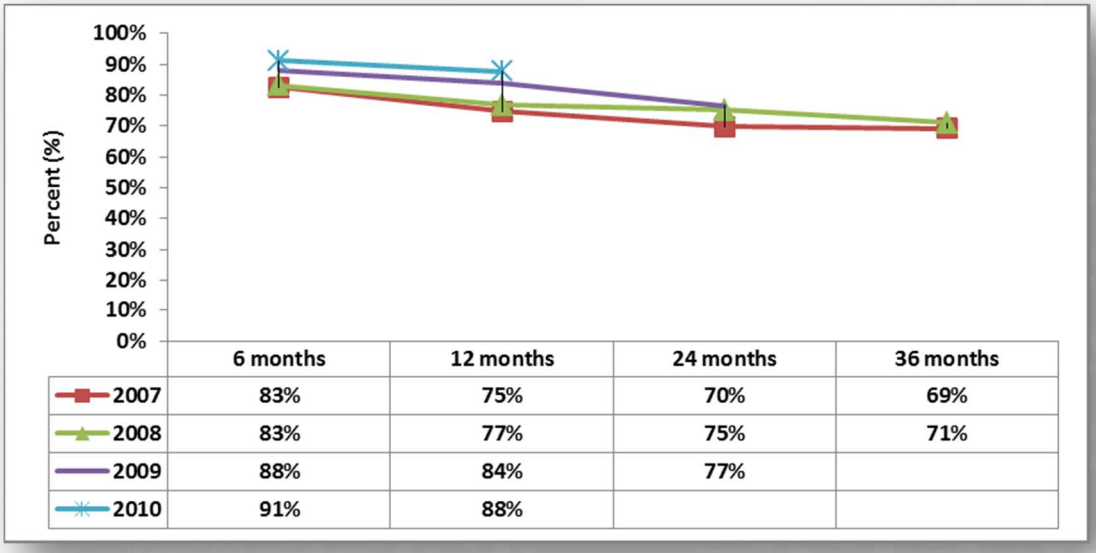
3.7 ART Retention/ Survival

Retention of patients in the ART program is very important part of the National strategy to alleviate and mitigate PLHIV suffering. As a program, SNAP's response to this need; has involved the introduction of an expert client program, a systematic strategy on the improvement of the

laboratory services and the drug management and the HMIS system. The proportions lost to follow up and died have implications for both patient care and the monitoring and evaluation of programs.

Figure 8, below depicts ART retention rates for people enrolled in the programme for annual cohort groups from 2007 to 2010. For the cohort group enrolled in 2007, 83% were alive and on ART after 6 months, 77% alive after 12 months, 70% alive after 24 months and 69% alive after 36 months on the programme. Retention rates slightly improved for the 2008 cohort group as only 83% were alive and on ART after 6 months, 78% alive after 12 months, and 75% alive after 24 months on the programme. A commendable improvement is observed for the 2009 and 2010 cohort groups as the percentage of people alive increased to above 88% after 6 months and 84% after 12 months outcome periods. Note that the retention for the 2011 cohort can only be evaluated by the end of 2012.

FIGURE 8: ART RETENTION AT 6, 12, 24 AND 36 MONTHS IN PROPORTIONS ACCORDING TO YEARS



	6 months	12 months	24 months	36 months
2007	83%	75%	70%	69%
2008	83%	77%	75%	71%
2009	88%	84%	77%	
2010	91%	88%		

From the analysis it can be seen that the programme loses most of the people during their first six months on ART. Thereafter the situation stabilizes as it can be observed from the slopes of the graph in figure 8. 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 programme. This marked loss early in the period following ART initiation could be explained by the fact that due to late presentation for enrolment into care, most of the patients were critically ill at those early stages, hence, a lot of them died in spite of therapy.

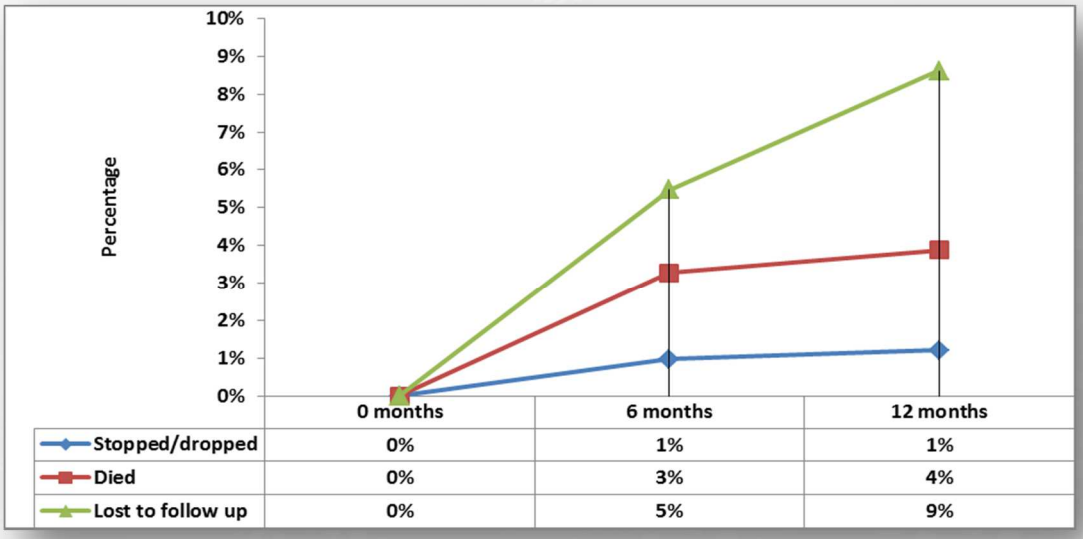
Further still, patients who presented late to care are more likely to experience immune reconstitution inflammatory syndrome, IRIS, with aggravation of symptoms. This worsening of symptoms is often misinterpreted and associated to ARV drugs, leading to some of the clients stopping therapy as a result. On the other hand, other patients discontinue therapy due to poverty and lack of transport fares to keep refill appointments during these early months when they are still too weak to work and earn some resources to keep refill appointments.

All these improve as time from ART initiation advance, leading to fewer drops from care. It can also be deduced that more people are retained on the programme for progressive cohorts indicating a positive outlook for the ART programme. This may be explained by the fact that more and more people are having confidence on the efficacy of ARV as treatment intervention. Also, as the ART program advances, more programmatic interventions are put in place to help retain higher proportion of ART clients in care. These interventions include better adherence counseling services, simplified ART regimens with less pill burden, ARVs with less severe side effect profile, and improved patient tracking system among others.

3.8 ART Attrition

Figure 9 below shows percentages of the 2010 treatment cohort 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 to 4% of the net cohort). LTFU cases on the other hand indicate a wide variation (from 5% in 6 months to 9% in 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 proper data capture, the lost to follow up may include a sizable proportion of the deaths, which are not captured.

FIGURE 9: CAUSES OF ART ATTRITION IN PROPORTIONS FOR 2010 COHORT GROUP



	0 months	6 months	12 months
Stopped/dropped	0%	1%	1%
Died	0%	3%	4%
Lost to follow up	0%	5%	9%

3.9 Adherence to ART

Adherence is to be taken seriously, especially on the first-line regimen. Poor adherence to first-line therapy will speed the development of viral resistance to and hasten the need for second-line therapy. In Swaziland, where the options for second and third line regimens are limited, the ART programme needs to ensure that there is a greater level of adherence to the first line regimen. Some of reasons for low adherence among children and adults have already been noted.

Public intervention to support adherence can limit the spread of resistance. In particular, parents' support groups & adolescent peer support proved to be efficient in providing additional psychosocial support to parents and children. As the number of people that are initiated on ART increases, more must be done to ensure widespread adherence over the long term. Increasing treatment literacy among patients must be prioritized. Other strategies like the use of treatment supporters must also be implemented *en masse* and where stigma is rife, those initiating patients on ART need to be sensitive and proactive about that as well.

TABLE 9: NUMBER OF ART PATIENTS ON FIRST-LINE REGIME

Adult Regimen Line 1	Region				TOTAL
	Hhohho	Lubombo	Manzini	Shiselweni	
AZT+3TC	21	0	11	18	**50**
ABC+3TC+EFV	92	52	48	54	**246**
ABC+3TC+NVP	41	33	45	46	**165**
ABC+DDI+EFV	2	1	3	0	**6**
AZT+3TC+ABC	6	2	1	7	**16**
AZT+3TC+EFV	3 469	1 249	1 811	1 958	**8 487**
AZT+3TC+NVP	8 212	4 739	8 676	6 654	**28 281**
AZT+3TC+TDF	4	0	0	0	**4**
D4T+3TC+ABC	0	0	0	0	**0**
D4T+3TC+EFV	2 284	866	1 288	974	**5 412**
D4T+3TC+NVP	4 547	3 157	3 268	2 188	**13 160**
TDF+3TC+ABC	1	5	6	4	**16**
TDF+3TC+EFV	4 362	2 406	4 614	3 694	**15 076**
TDF+3TC+NVP	573	749	661	467	**2 450**
TOTAL	**23 614**	**13 259**	**20 432**	**16 064**	**73 369**

Only 1501 are on the second line regimen among adults. The data available does not segregate along gender thus it is far more difficult to determine the adherence issues along gender. Adherence is made more effective if there is greater access to the medication and a society in which people are acutely aware of the need to support those on medication (low levels of stigma). Paterson at al. 2004 indicated that it is only through an adherence rate of 95% can one achieve maximum viral suppression to undetectable levels. Thus, in comparison with patients who are adherent to antiretroviral therapy (ART), non-adherent patients have higher mortality, increased viral load, lower CD4 cell count, faster progression of disease and increased hospital days (Paterson et al.,2000[1]; Ammasari et al., 2001[5]; Wood et al., 2003[6]).

A lack of adherence increases the risk of transmission and the development of a viral resistance. From the data below one sees that 1501 patients were switched to 2nd lien regimen amongst adults.

[44] Paterson DL, Swindells S, Mohr J, Brester M, Vergis EN, Squier C, Wagener MM, Singh N (2000). "Adherence to protease inhibitor therapy and outcomes in patients with HIV infection." Ann. Int. Med. 133: 21-30.

[5] Ammassari A, Murri R, Pezzotti P, Trotta MP, Ravasio L, De LongisP,Lo Caputo S, Narciso P, Pauluzzi S, Carosi G, Nappa S, Piano P,Izzo CM, Lichtner M, Rezza G, Monforte A, Ippolito G, d'ArminioMoroni M, Wu AW, Antinori A (2001). AdICONA Study Group: Self-reported symptoms and medication side effects influence adherence to highly active antiretroviral therapy in persons with HIV infection. J.Acquir. Immune. Defic.Syndr. 28: 445-459.

[6] Wood E, Hogg RS, Yip B (2003). "Effect of medication adherence on survival of HIV-infected adults who start highly active antiretroviral therapy when the CD4+ cell count is 0.200 to 0.350 x 109 cells/mL." Ann. Int. Med. 39: 810-816.

TABLE 10: NUMBER OF ART PATIENTS ON SECOND LINE REGIMEN 2011

Adult Regimen Line 2	Region				TOTAL
	Hhohho	Lubombo	Manzini	Shiselweni	
ABC+3TC+LPV/r	350	119	323	190	**982**
ABC+DDI+LPV/r	15	9	10	2	**36**
ABC+TDI+LPV/r	6	0	0	1	**7**
AZT+3TC+ABC+LPV/r	4	0	4	0	**8**
AZT+3TC+IDV+RTV	1	0	0	1	**2**
AZT+3TC+LPV/r	103	10	49	17	**179**
AZT+3TC+SQV+RTV	1	1	3	0	**5**
AZT+3TC+TDF+LPV/r	2	2	2	0	**6**
AZT+DDI+LPV/r	12	2	13	4	**31**
D4T+3TC+LPV/r	17	3	12	7	**39**
TDF+3TC+AZT+LPV/r	7	0	3	0	**10**
TDF+3TC+EFV+AZT	3	6	15	14	**38**
TDF+3TC+LPV/r	86	6	23	19	**134**
AZT+3TC+EFV+TDF	10	4	9	1	**24**
TOTAL	**617**	**162**	**466**	**256**	**1501**

Those on second line regimen often have less option to treatment given the availability of drugs. This also has the effect of increasing the number of people with drug resistant HIV strains. A comparative review of the regions, there is a greater number of people 617 out of 1,501 who are on the second line regimen among the adults. Manzini with 466 people follows closely. The region with the lowest number of people on second line region is Lubombo with 162 people on 2nd Line regimen of ART.

3.10 HIV/TB Collaborative activities

The goal of collaborative TB/HIV activities is to reduce the burden of TB and HIV in populations affected by both diseases by expanding the scope of TB and HIV control programmes. The objectives are to:

- Establish mechanisms for collaboration between TB and HIV control programmes
- Reduce the burden of TB in PLHIV
- Reduce the burden of HIV in TB patients

Collaborative TB and HIV activities aim to reduce human suffering, mitigate the socioeconomic burden of HIV and TB, protect vulnerable populations and reduce potential for developing resistance. Integration requires strong facility-community linkages and community participation, quality clinical services, laboratory support and drug management as well as effective programme monitoring and evaluation. Early case detection is critical (e.g., through Cough Screeners in clinics).

During 2011, careful attention was put in screening for TB for those who were HIV positive.

TABLE 11: TB/HIV COLLABORATIVE ACTIVITIES-LINKING TB, TESTING AND ACCESS TO ART

Block 5: 2011 DATA ON TB/HIV collaborative activities													
Type of TB	Age group	No. Tested for HIV			No. HIV positive			No. On CPT			No. On ART		
		Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
New SS+	0-4 years	-	9	9	-	5	5	-	4	4	-	3	3
	5-14 years	9	21	30	4	8	12	4	8	12	4	5	9
	15+ years	1,128	1,087	2,215	765	872	1,637	742	832	1,574	336	401	737
New SS-	0-4 years	6	9	15	3	8	11	3	6	9	2	5	7
	5-14 years	48	59	107	34	42	76	33	41	74	12	19	31
	15+ years	767	811	1,578	577	668	1,245	559	632	1,191	275	342	617
New EPTB	0-4 years	13	10	23	4	2	6	4	2	6	1	1	2
	5-14 years	27	27	54	18	13	31	17	11	28	9	5	14
	15+ years	613	590	1,203	510	522	1,032	501	508	1,009	265	302	567
New SND	0-4 years	233	213	446	113	85	198	107	83	190	46	39	85
	5-14 years	117	115	232	77	78	155	74	75	149	35	34	69
	15+ years	753	719	1,472	604	587	1,191	493	553	1,046	289	299	588
Other TB	0-4 years	4	6	10	5	4	9	5	4	9	2	2	4
	5-14 years	26	27	53	20	23	43	17	24	41	15	16	31
	15+ years	531	441	972	435	394	829	422	374	796	263	256	519
Total		4,275	4,144	8,419	3,169	3,311	6,480	2,981	3,157	6,138	1,554	1,729	3,283

The need to strengthening Collaborative TB and HIV activities is geared at ensuring that the strategy reduces the human suffering and socioeconomic burden associated with TB, protect vulnerable populations from TB, TB/HIV and multidrug-resistant TB. This has necessitated strong strategic incursions in linking community level participation, Clinical, laboratory support, drug management, its availability and adherence to treatment. This has necessitated the need for the country to ensure early case detection (Cough officers in clinic), advocate for adequate and sustained financing of the program. This is also bringing to the foreground, the need for medical personnel to be involved in monitoring and evaluation as an integral part in determining the effectiveness of their programming efforts.

The figures we see, point to the need to empower people with TB, and communities through partnership with the clinics and ensure that they also have access to ART.

Of the TB cases presenting at facilities countrywide, all were tested for HIV, from these tests, about 77% tested HIV positive. To control for other bacterial and parasitic infections, about 95% were on CPT and 50.6% were on ART.

Challenges faced in this program have included but have not been limited to the challenges in tracing of defaulters, ensuring that data collection and monitoring of the patients is sensitive to catch defaulting before it is too late, the fact that stigma at community level has promoted behaviours like issuing false numbers to avoid being traced, Employers have at times not cooperated

CHAPTER 4: CONCLUSIONS AND RECOMMENDATIONS

The ART program did perform relatively well on the core indicators being tracked. Firstly, the numbers actively on ART has steadily increased over the years from 2004. The strategies that have been adopted to improve the quality of data are fast bearing fruits and within the next year, one would expect even better quality. The unique identifiers that are being utilized for those on ART ensure better data for planning and budgeting. With the exception of 2011, ART enrolment has seen a steady upward trend over the years. Greater coverage and access, better treatment outcomes and stronger health systems can be attributed to MOH-SNAP leadership and the collaborative approach to programming by Implementing Partners in country, especially during the fiscal crisis which affected the provision of ARV drugs during the year. The government led strategy of decentralization of services to peripheral clinics, the NARTIS which focused on increasing the pool of people with skills to initiate ARV's and stronger M & E systems suggest that there will be even more improvements.

In the development of the current report, an important window of opportunity has been opened. It is important that the forum which helped to gather the data, provide analysis and determination of gaps be allowed to flourish as it helps in program implementation as issues raised are immediately addressed. Despite the steps made to mitigate the impact of the epidemic through treatment and care, the program still faces challenges that affect their ability to perform on their remit; these are:-

- Male involvement and the late entry into treatment as a result of the stigma and health seeking behaviors
- The quality of support given by caregivers to children in need of ART.
- ART is not yet available in all health facilities and their distribution across regions is uneven with some regions underserved and this impact on equity of services, coverage and adherence
- While a lot has been done in improving the drug management, forecasting and utilization of information for program implementation there is need to better plan for sustainable funding
- Adherence and retention rates need to be increased and this would need stronger and better logistics for ARV consumables, a comprehensive and integrated system for caring for PLWHIV
    - Improve and increase resources to better trace defaulters both for TB and those on ART
- There is great need to link pre- ART program and the ART program to ensure better care for those in need of ART services

Recommendations

Define and implement a follow up system for patients enrolled in ART program in all ART sites in collaboration with RHMs, PLWHA and other local organizations to minimize the number of lost to follow up which is at an unacceptable level;

- Measurement of adherence levels for individual on ART and transition from 1st line drug regimen due to the next as a result of treatment failure
- The reporting from different regions need to be integrated to allow for better analysis and understanding of the national picture on laboratory, Pre-Art and laboratory data.
- Strengthen linkages and monitoring of Pre- ART programs(especially management of OI's) and ART
- Improve the tracking of the Early warning indicators and ensuring that at all levels service providers are aware of the same indicators
- Devise methods to improve retention and adherence on the ART by recipients to avoid drug resistance
- Improve data capturing and recording from patients enrolled in ART program through sensitization of data managers, nurses working in ART sites and involvement of ART doctors

References

1. Health Sector Response Plan 2009-2014
2. National Strategic Framework 2009-2014
3. National ART Guidelines

Appendix

TABLE 12: INDIVIDUALS ON PRE-ART PROGRAMME - ICAP SUPPORTED PROGRAMME

Clinics					
	QTR 1	QTR 2	QTR 3	QTR 4	Total
Males(>14 years)	631	602	599	564	2396
Females(>14 years)	1594	1621	1469	1311	5995
TOTAL adults	2257	2223	2060	1875	8415
Male Children (< 2yrs)	9	19	9	14	51
Male Children (2-4yrs)	12	9	31	24	76
Male Children (5-14 yrs)	26	13	25	13	77
Female Children (< 2yrs)	6	10	9	5	30
Female Children (2-4yrs)	12	7	9	15	43
Female Children (5-14 yrs)	29	27	29	18	103
TOTAL Children	93	84	112	89	378
TOTALS	2350	2307	2172	1964	8793

TABLE 13: INDIVIDUALS ON PRE-ART PROGRAMME IN 2011

Mother Sites					
Males(>14 years)	650	356	425	512	1943
Females(>14 years)	983	517	603	702	2805
TOTAL adults	1584	873	1028	1214	4699
Male Children (< 2yrs)	4	5	5	6	20
Male Children (2-4yrs)	9	6	6	20	41
Male Children (5-14 yrs)	13	11	12	15	51
Female Children (< 2yrs)	5	1	8	11	25
Female Children (2-4yrs)	2	1	3	10	16
Female Children (5-14 yrs)	19	10	17	26	72
TOTAL Children	52	34	51	88	225
TOTALS	1636	907	1079	1302	4924

TABLE 14: TB SCREENING AND RESULTS

YEAR SUMMARY		2011					
1	TB Screening	Male		Female		TOTAL	
		<15 years	>15 Years	<15 years	>15 Years	<15 years	>15 Years
1.1	No. of Patients seen at facility	5 046	19 919	5 853	35 049	10 899	54 968
1.2	No. of Patients screened for TB	3 624	29 903	5 216	54 739	8 840	84 642
1.3	No. of Patients that screened positive for TB	293	3 058	363	4 231	656	7 289
1.4	No. out of 1.3 above confirmed or diagnosed	13	307	15	317	28	624

2	Breakdown by Type of TB	Smear Positive	Smear Negative	No Sputum	EPTB	TOTAL
2.1	No. of confirmed TB patients (in 1.4 above) by type of TB	487	84	27	9	607
2.2	No. of confirmed TB patients (in 2.1 above) started on anti-	374	85	27	9	495

3	Breakdown by TB symptoms	Cough	Fever	Night sweats	Chest Pain	Weight loss	TB Contact
3.1	No. of confirmed TB patients (in 1.4 above) by	354	151	223	259	204	127

TABLE 15: CHILDREN ON 1ST LINE REGIMEN

Regimen Children		Region			
		Hhohho	Lubomb	Manzin	Shisel
		Count	Count	Count	Count
	ABC+3TC+AZT	0	0	1	0
	ABC+3TC+D4T	0	1	0	0
	ABC+3TC+EFV	6	5	2	3
	ABC+3TC+EFV+EFV	0	0	1	0
	ABC+3TC+LPV/	0	1	2	2
	ABC+3TC+LPV/r	2	4	3	4
	ABC+3TC+NVP	1	2	6	1
	ABC+DDI+LPV/r	1	3	1	1
	AZT+3TC	4	0	6	7
	AZT+3TC+ABC	0	0	1	1
	AZT+3TC+ABC+LPV	0	0	0	2
	AZT+3TC+AFV	0	3	0	0
	AZT+3TC+EFV	145	141	140	144
	AZT+3TC+EFV+TDF	0	0	1	0
	AZT+3TC+LPV/r	48	39	56	21
	AZT+3TC+NVP	535	530	901	616
	AZT+3TC+SQV+RTV	0	0	1	0
	AZT+DDI+LPV/r	1	0	0	0
	CTX	0	1	0	9
	D4T+3TC+ABC	2	1	0	0
	D4T+3TC+EFV	117	100	129	77
	D4T+3TC+EFV+EFV	13	4	3	1
	D4T+3TC+LPV/r	29	48	33	14
	D4T+3TC+NVP	556	743	844	563
	NULL	226	365	295	196
	prophylaxis	0	0	0	1
	Prophylaxis	0	0	0	1
	TDF+3TC+EFV	33	44	44	31
	TDF+3TC+EFV+	1	0	1	0
	TDF+3TC+EFV+AZT	0	1	0	0
	TDF+3TC+EFV+EFV	2	0	3	1
	TDF+3TC+LPV/r	0	1	1	1
	TDF+3TC+NVP	4	17	10	4
	Total	1726	2054	2485	1701

TABLE 16: LIST OF FACILITIES TRAINED ON NARTIS

Hhohho	Manzini
Horo	Cana
Ndwabangeni	Bhekinkosi
Motshane	Mliba
Siphocosini	Lamvelase
Sigangeni	Mankayane ART,PHU
Bhalekane Nazarene	Mkhulamini
Mahwalala	RFM ART,TB
Mangweni	Mahlangatsha
Mbabane PHU,ART,TB	Bhawini
Dvokolwako ART , PHU	TB Centre
Mkhuzweni ART	Mpuluzi
PPK ART,TB,PHU	Luyengo
	KS2
Lubombo	Sigombeni
GSH TB,PMTCT,ART	St. Theresa
Shewula	Shiselweni
Sithobela ART	Hlathi PHU,ART
Siteki PHU	Matsanjeni ART
Ilovo	
Lubulini	
Nhlangano PHU,ART	
Siphofaneni	
Mpolonjeni	
Sinceni	
Tikhuba	
Lomahasha	
Cabrini	

TABLE 17: BASE CD4 COUNT ALONG GENDER AND AGE

Age	Gender	BaseCD4 cut-off		
		0-200	201-350	Above 350
<1yrs	Female	174	104	336
	Male	119	46	294
	Total	**293**	**150**	**630**
2-4yrs	Female	109	55	340
	Male	80	55	325
	Total	**189**	**110**	**665**
5-14yrs	Female	534	303	557
	Male	481	288	514
	Total	**1,015**	**591**	**1,071**
15-24yrs	Female	3,061	2199	939
	Male	499	231	116
	Total	**3,560**	**2,430**	**1,055**
25-34yrs	Female	10,716	5648	2,501
	Male	5,221	1820	709
	Total	**15,937**	**7,468**	**3,210**
35-44yrs	Female	6,592	3,148	1,414
	Male	5,401	1,679	727
	Total	**11,993**	**4,827**	**2,141**
45-54yrs	Female	2,975	1,595	713
	Male	2,782	1,068	455
	Total	**5,757**	**2,663**	**1,168**
55yrs & over	Female	1,485	859	341
	Male	1,517	692	227
	Total	**3,002**	**1,551**	**568**

TABLE 18: BASE BY WHO STAGING ALONG AGE & GENDER

Age	Gender	Base.WHO.Stage			
		I	II	III	IV
<1yrs	Female	198	231	482	135
	Male	141	164	411	135
	Total	**339**	**395**	**893**	**270**
2-4yrs	Female	108	203	427	85
	Male	97	160	427	83
	Total	**205**	**363**	**854**	**168**
5-14yrs	Female	203	501	1,180	177
	Male	153	450	1,074	174
	Total	**356**	**951**	**2,254**	**351**
15-24yrs	Female	1,928	2,011	2,815	592
	Male	144	302	466	129
	Total	**2,072**	**2,313**	**3,281**	**721**
25-34yrs	Female	4,564	6,075	9,383	2,032
	Male	1,135	2,370	4,556	1,226
	Total	**5,699**	**8,445**	**13,939**	**3,258**
35-44yrs	Female	2,002	3,714	6,000	1,217
	Male	947	2,425	4,644	1,268
	Total	**2,949**	**6,139**	**10,644**	**2,485**
45-54yrs	Female	827	1,830	2900	543
	Male	528	1,293	2544	627
	Total	**1,355**	**3,123**	**5,444**	**1,170**
55yrs & over	Female	374	964	1,446	232
	Male	338	786	1,469	287
	Total	**712**	**1,750**	**2,915**	**519**