Public Sector Antiretroviral Therapy Rollout in Amajuba District, KZN, South Africa

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<td>Absolute Right of Kids</td>
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<td>DOTS</td>
<td>Directly observed therapy short-course</td>
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<td>Prevention of mother-to-child-transmission</td>
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<td>SACBC</td>
<td>Southern African Catholic Bishops' Conference</td>
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<td>STI</td>
<td>Sexually transmitted infections</td>
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<td>TB</td>
<td>Tuberculosis</td>
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<td>TOP</td>
<td>Termination of pregnancy</td>
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<td>VCT</td>
<td>Voluntary Counseling and Testing</td>
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EXECUTIVE SUMMARY

One year into the implementation of the antiretroviral therapy (ART) rollout program, Amajuba District’s treatment facilities are learning from the mistakes of the first few months and beginning to address many of the problems. Both treatment facilities are undergoing scale-up in terms of increased human resources and improved infrastructure and plans are in motion for decentralization of services to primary health care (PHC) clinics. One of the biggest challenges will be sustainable integration of ART services into an already strained health system that is at risk of being overwhelmed. Given the amount of resources being dedicated to the rollout program, its successful implementation offers a valuable opportunity for strengthening of the existing health system infrastructure. The coming months will be critical in determining the successes and/or failures of the scaled-up programs and the ability of the district’s treatment facilities to correct past mistakes and address ongoing areas of need.

The overall objective of this research project was to document a snapshot of the rapidly changing landscape of the public sector ART rollout in Amajuba District of KwaZulu Natal, South Africa. Findings from the project informed the context assessment component of the larger Amajuba Child Health and Wellbeing Research Project (ACHWRP). The bulk of the research was conducted during February, March, April, and May 2005. Findings from this research project were not intended to be generalized to any other district’s treatment program, but were meant to provide insights into one district’s experience in implementing the rollout.

Treatment Facilities

As of May 2005 there are two accredited ARV treatment facilities in Amajuba District—Nkosinathi Clinic at Newcastle Provincial Hospital and the VCT (Voluntary, Counseling, and Testing)/ART clinic at Madadeni Provincial Hospital. Both clinics opened in April 2004 to begin enrollment and to assess patients for eligibility in preparation for treatment, but patients were not initiated on treatment until Fall 2004. As of April 2005 there are 133 adults and 8 children on treatment and 450 patients on the waitlist at Nkosinathi clinic. The Madadeni VCT/ART clinic has 263 patients on treatment: 99 males, 164 females, and no children. The waitlist is ±1370 patients long.

Main Challenges Encountered in the ART Rollout

Shortage of Human Resources

The human resources deficit was mentioned by all key informants as being the biggest stumbling block in the efficient implementation of the ART program. Initially, personnel were transferred from other departments in order to staff the ART clinics. Nine of the eleven providers interviewed were either transferred from another department in order to work in the ART clinic or took on additional responsibilities in the ART clinic on top of their existing jobs. The shortage of physicians created a bottleneck early in the rollout program, which resulted in long waitlists of patients who had undergone the pretreatment procedures but were just waiting to see the doctor. At least 60 patients died while on the waitlist at the Madadeni treatment facility. Neither clinic has the full-range of personnel required to make up the multidisciplinary team stipulated by the National Treatment Guidelines. There is no staff dedicated specifically to conduct home visits...
for assessing patients’ home circumstances, to monitor adherence, or to provide psychosocial support.

**Lack of Children on ART**

As of April 2005, only eight children in the entire district have been started on treatment. Factors hampering provision of pediatric ART as mentioned by providers include: lack of confidence of providers in treating children; lack of knowledge and difficulties in capacitating caregivers to administer medication; complicated and unpalatable drug formulations; and lack of access points targeted towards enrolling children.

**Limitations on Accessibility**

The primary entry point to ART facilities has been the VCT clinics. Although all the primary health care clinics in the district offer VCT services they are not always easily accessed by people living in the rural areas. Mobile clinics circulate monthly to serve rural areas, however they do not offer VCT services. Availability and cost of transportation hinder some patients from making regular visits to the hospital. Some are too ill to get to public transportation sites. Eight of the providers interviewed indicated that cost of transportation has been problematic for many of their patients.

**Concerns about Adherence**

Adherence has been associated closely with viral suppression while inadequate adherence may lead to therapeutic failure, disease progression to AIDS, and the development of resistant viral strains. Adherence levels as measured by pill counts, patient self-reports, and provider estimates have been reportedly high. Repeat viral load tests are used to help detect nonadherence. Turnaround times for viral load test results, which are sent to Durban for processing, range anywhere from one to over three months. As patient numbers increase and the rollout program begins to enroll harder to reach populations, patient adherence is likely to emerge as a major challenge. Further research is needed to delve into the host of complicated factors that facilitate or hinder patient adherence.

**Capacity of PHC Clinics to Implement ART services: Findings from PHC Clinic Survey**

In the short-term, primary health care clinics are being capacitated to provide at least the pretreatment procedures—adherence counseling, treatment literacy classes, and clinical assessment. This will lessen the burden on the hospital clinics and speed up the process for patients on their first visit to the treatment facility. Two of the clinics surveyed are already being visited by a physician from the ART clinic at Madadeni Hospital. In addition to assessing patients for opportunistic infections (OIs), he is also drawing blood for CD4 count and viral load tests. PHC clinic staff has not yet been capacitated to perform CD4 count or viral load tests. The rate at which the decentralization process can take place will vary from clinic to clinic given the availability and adequacy of existing resources and infrastructure. The long-term goal is to integrate ART services at the level of primary health care and establish a system of management similar to the existing programs for chronic diseases such as diabetes and hypertension. Decentralization to PHC clinics will facilitate community-level involvement in the planning and decision-making processes of the ART program.

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All the primary health clinics surveyed reported the availability of comprehensive HIV/AIDS services. The problems and challenges faced by the primary health clinics include shortage of human resources, long wait times, lack of space, lack of doctors on staff, lack of NGO support, and inconsistent supply of nutritional supplement. The clinics uniformly mentioned the lack of human resources as one of the biggest anticipated challenges limiting their ability to implement ART rollout program. The clinics are not staffed with a physician and the nursing staff is already under great strain. Clinics lack the personnel to form a multidisciplinary team to manage the ART program. There are no pharmacists, dieticians, or social workers on staff at any of the clinics surveyed. Only one of the clinics surveyed has the physical space available for an ART clinic. Space constraints limit the ability of clinics to provide the treatment literacy modules and set up a pharmacy with a private area for counseling patients.

In terms of support services, all the clinics surveyed offer support groups for people living with HIV/AIDS (PLWHAs). Attendance varies week to week and from clinic to clinic. Most of the ancillary services that clinics refer to are providing home-based care. Three of the clinics surveyed indicated that NGO work in their area has been inconsistent and unreliable. Clinic managers mentioned difficulties and frustrations with relying primarily on volunteers to provide home-based care.

**Conclusion**

Findings from this exploratory research project suggest that given the limited resources and strained health system, the demand for ARVs is outstripping the capacity to deliver. Equitable distribution and long-term sustainability of the rollout program are both issues of concern. Pressure to meet target numbers must be tempered by the need for rational drug use by dispensers, providers, and consumers. Sheer numbers alone, therefore, are inadequate for assessing the progress of the program. National target numbers should be used as a guideline, but there is need for individual districts and treatment facilities to adopt their own goals based upon the ground reality of the situation. A continuous, ongoing system of monitoring and evaluation that provides constant feedback and channels for practical usage of the information collected is critical to improving programs. Relevant indicators are necessary for identifying gaps in treatment and inequities in service delivery.

While the existing management framework for chronic illnesses serves as a reasonable model for the ARV program to follow, the nature of the HIV virus is much less forgiving of nonadherence. Even as the logistical barriers for access begin to be resolved it is likely that patient adherence will persist as a major challenge for rollout programs. A complex array of factors serves as barriers to adherence; therefore comprehensive strategies with multiple methods for measuring and monitoring adherence need to be tailored to meet individual patient needs.

South Africa’s national ART rollout program is a public health intervention of unprecedented scale. The rollout program has not only the potential to mitigate the devastating consequences of the escalating HIV/AIDS epidemic, but offers a valuable opportunity to use the flow of money and resources in a manner that simultaneously strengthens the existing health system. By placing treatment on the national agenda, the rollout program has the potential to reduce stigma and break the silence around the epidemic. Lessons learned from the successes and failures of the
South Africa program will have implications for treatment provision in other resource-poor settings.

**Public Sector Rollout of Antiretroviral Therapy Rollout in Amajuba District**

**FOREWORD**
This descriptive research project documents the current situation of public sector antiretroviral therapy (ART) rollout in Amajuba District of KwaZulu Natal, South Africa. The research was carried out through an internship sponsored by the Center for International Health and Development (CIHD) at Boston University. This project falls under the context assessment component of the larger Amajuba Child Health and Wellbeing Research Project (ACHWRP), a collaboration between the Center for International Health and Development (CIHD), Boston University and the Health Economics and AIDS Research Division (HEARD), University of KwaZulu Natal.

ACHWRP is a three-year longitudinal study on the impact of parental mortality on child welfare in Amajuba District. In order for the research findings to have sustainable, practical application, ACHWRP seeks to actively engage local stakeholders throughout the duration of the study. The overall aim is to formulate an integrated management plan for child welfare services in the district. A prerequisite for effective and appropriate policies is a comprehensive picture of the current situation. The context assessment component of the study consists of a compilation of information on the existing social, political, economic, and cultural conditions in which ACHWRP operates. This research is a sub-project within the context assessment.

**BACKGROUND INFORMATION**

**HIV/AIDS and Antiretroviral Therapy in South Africa**
South Africa, with an estimated 5.3 million people living with HIV/AIDS and 636,000 people in need of antiretroviral therapy (ART),² is facing one of the most devastating HIV/AIDS epidemics in the world. In response to this escalating crisis, the South African government has issued a commitment to national rollout of ART. Released in November 2003, the “Operational Plan for Comprehensive HIV and AIDS Care, Management, and Treatment” (the Operational Plan) outlines the government’s initiative to provide comprehensive care and treatment for people living with HIV/AIDS while simultaneously strengthening the overall national health system. The target number of people on treatment set for the end of March 2005 was 53,000. The reported number of people on treatment by that date was 42,000.

The HIV/AIDS epidemic lies at the root of a rapidly impending orphan crisis in South Africa. While data from 2003 indicated that over 1 million children in South Africa have already lost one or both parents to AIDS³, by 2015 the number of orphans will have doubled or even tripled. The epidemic is straining traditional models of orphan care and stretching existing social safety nets to breaking point. Increased commitment needs to be placed on keeping caregivers alive.

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<http://www.plusnews.org/aids/treatment/South-Africa.asp>

³ UNICEF. At a Glance: South Africa. 17 June 2005
<http://www.unicef.org/infobycountry/southafrica_statistics.html>
With the ability to prolong the life expectancy of HIV positive individuals and delay onset of AIDS, ART can potentially play a role in mitigating or abating the orphan crisis. Without ART, the Joint Health and Treasury Task Force (JHTTT) estimates that 1.8 million children will be orphaned between 2003 and 2010. In a scenario where 20% of all South Africans in need of ART are able to access it that number could be reduced by 140,000. With 50% ART access there would be 350,000 fewer orphans, and with 100% ART access there would be 860,000 fewer orphans.4

Given the importance of the ART rollout, the unexpected challenges the program stands to face, and its potential implications for child welfare, it is vital that ACHWRP remain informed on this issue. The complexity of social science research warrants that researchers maintain an understanding of the context within which they are operating. The rapidly changing landscape underscores the importance of up-to-date information. Findings from this project contributed to the context assessment component of ACHWRP.

This research project documents public sector ART rollout in Amajuba District as it currently stands. It provides insight on the local policies and priorities, personnel and operational details of treatment facilities, procedures and criteria for access, as well as demographics of the population being served. Designed to be descriptive and exploratory in nature, this project also seeks to begin to identify critical issues and raise questions in areas requiring further research.

**Location of Research Project**
The site for the research project was set in Amajuba District located in the northern part of KwaZulu Natal Province in the Ukhahlamba region. Amajuba District is divided into three municipalities: Danhauser, Newcastle, and Utrecht. In 2003 the population was estimated to be 430,000. As a predominantly industrial area, the local economy consists of light and heavy manufacturing as well as agriculture in the more rural areas. The population is generally poor and unemployment is high. Many families depend on family members who are migrant laborers in mines and other industries outside of KZN.

Data from antenatal clinics in KwaZulu Natal in 2003 indicated an HIV prevalence of 37.5 percent, the highest in South Africa. Amajuba District, with a reported prevalence of 37 percent among pregnant women, is one of the province’s most affected districts.5 Currently there are two accredited ARV treatment sites in Amajuba District—Newcastle Provincial Hospital (Nkosinathi clinic) and Madadeni Provincial Hospital. Utrecht Niemeyer Hospital, the third hospital in the district, is undergoing the accreditation process.

**BACKGROUND OF ART**

**Procedures for Enrollment**
The KZN provincial department of health’s current priority is to provide universal access to treatment for all clinically eligible individuals who enter the ARV clinics.6 Entry points to the

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6 Interview with KZN DoH Deputy ART Director
program include Prevention of Mother to Child Transmission (PMTCT), Voluntary Testing and Counseling (VCT), Sexually Transmitted Infections (STI), tuberculosis (TB) programs and general wards. There are currently no programs in place providing publicly funded treatment to specific subpopulations such as skilled workers, educators, government officials, etc. Allocation, effectively, is based on a “first-come-first served” basis.

The eligibility criteria for enrollment on treatment consist of a combination of clinical and psychosocial criteria. Clinically, in accordance with the World Health Organization (WHO) treatment guidelines, patients must have CD4 count below 200 cells/mm$^3$ or be WHO Stage IV, irrespective of CD4. All patients must demonstrate mental readiness, acceptance of their HIV status, and willingness and ability to adhere to the treatment regimen. Disclosure to at least one person and the identification of a treatment supporter/buddy are also part of the criteria.

On their first screening visit to the ART clinic patients are registered and for those who have not had the test elsewhere (i.e. VCT clinic, general ward), blood samples are taken for CD4 count. Patients initiate the treatment literacy program which consists of three modules, taking place over a period of three weeks.

- Module 1: stigma and disclosure
- Module 2: positive living and the basics of HIV/AIDS
- Module 3: adverse side effects of treatment and adherence.

All patients are required to attend Modules 1 and 2. Those whose CD4 counts are less than 200 cells/mm$^3$ attend Module 3. Treatment supporters are required to accompany patients to all the modules.

Clinically eligible patients (CD4<200) who have undergone at least the first two modules wait to see a doctor who performs the clinical assessment, WHO staging, and screening for opportunistic infections (OIs). Patients are placed on bactrim prophylaxis (cotrimoxazole) and vitamin supplements for at least 28 days after which they return for a second doctor’s visit. Those who are adherent on bactrim and are deemed to be mentally ready by the treatment providers start on ARVs. The viral load test is done at this baseline visit. Patients return monthly to the ART clinic to collect medication. If no adverse side effects bring the patients in sooner, they see the doctor at two weeks after baseline, then four weeks, then monthly after that. Eventually the visits extend to every three months and then every six months.

According to the “National Antiretroviral Treatment Guideline” (the Treatment Guideline) every ART clinic is supposed to have a multidisciplinary team composed of a doctor, nurse, lay counselor, pharmacist, patient advocate, and therapeutic counselor. During the pretreatment period a treatment counselor is to make a home visit to assess patients’ family circumstances, accuracy of contact details, support network, and drug storage capacity. The entire team should then meet to assess each individual patient’s readiness for treatment.

**Treatment Regimens**
Currently, there are 2 first-line regimens being used for adults by the public ART program. Regimen 1a consists of Stavudine/Lamivudine/Efavirez (d4T/3TC/EFV) and Regimen 1b consists of Stavudine/Lamivudine/Nevirapine (d4T/3TC/NVP). All men and women on
injectable contraception and condoms are put on Regimen 1a and women of child-bearing age
who are unable to guarantee reliable contraception while on therapy are placed on Regimen 1b.
Patients who fail both regimens are placed on Regimen 2, zidovudine/didanosine/lopinavir/
ritonavir (AZT/ddI/LPV/RTV).

The pediatric first-line treatment being used for children ages 6 months-3 years is
d4T/3TC/LPV/RTV. For children with no prior nevirapine exposure LPV/RTV can be
substituted with nevirapine. d4T/3TC/EFV is used for children older than 3 years and weighing
more than 10kg. d4T solution and LPV/RTV in both capsule and solution form, require
refrigeration.

RESEARCH OBJECTIVES
The overall objective of this research project was to document the current situation of public
sector ART rollout in Amajuba District.

The specific objectives were:
• To describe the current program at the treatment facilities.
• To identify the primary challenges and barriers to implementation of the ART program.
• To explore the capacity of treatment clinics to meet nationally and provincially determined
target numbers and to follow the protocols.
• To determine the extent to which there is integration of services and a referral system in
place for patients who are enrolled on ART.
• To explore the capacity of primary health care (PHC) clinics to implement ARV program
related services.
• To explore the impact of the ART rollout on the existing healthcare infrastructure.
• To identify the role of civil society in the ART rollout.
• To identify the programs and strategies being planned in the next phases of the rollout.

METHODS
The bulk of the field research was conducted during the months of February, March, April, and
May 2005. The field research included a combination of qualitative and quantitative research
methods.

A. Literature Review:
A literature review was done of existing documents with information relevant to policy
and programming for the ART rollout in Amajuba District. This included operational
plans, treatment guidelines, protocols, and progress reports issued at the national and
provincial levels. Documents providing information on nongovernmental and other donor
funded projects contributing to the rollout were also collected.

B. Key Informant Interviews and on-site visits:
a. Treatment facilities
Semi-structured interviews were conducted with a total of 10 healthcare providers
working at the two ARV treatment facilities (Newcastle Provincial Hospital and
Madadeni Provincial Hospital) and one healthcare provider working at Utrecht Neimeyer
Hospital, which is undergoing accreditation. Specifically, three doctors, four nurses, two
pharmacists, one lay counselor, and one social worker were interviewed. The interviews which averaged from 45 minutes to an hour consisted of a combination of open and close-ended questions. With the consent of the informant all interviews with the exception of one were audiotaped. The interviews were directed by an interview guide listing general topics and more specific issues under each topic. Topics not enumerated on the interview guide were also discussed at the discretion of the informant.

Key informant interviews were also conducted with the hospital medical managers of the two ARV treatment facilities. These discussions were shorter and generally only covered a few relevant topics.

b. NGO and other relevant organizations
Program managers of NGOs and other organizations working in Amajuba District on ART rollout-related issues were contacted and interviewed. Depending on the location of the NGO program managers and at the convenience of the informant, interviews consisted of a combination of emails, phone conversations, and in-person interviews.

c. Primary health care clinics
In order to get a preliminary sense of the capacity of primary health care clinics in the district to implement the ARV program, five randomly selected and one non-randomly selected PHC clinic were included in the research project. Initially the research plan, taking into consideration logistical challenges (difficulties in getting permission and with transportation), was to focus specifically on the Newcastle Provincial Hospital ART clinic and use it as a case study. It seemed logical that the next step for the rollout would be to implement the ARV program at Newcastle Primary Health Care Clinic located within close proximity of the hospital. Therefore, Newcastle PHC Clinic was included in the study although it was not randomly selected. As the research got underway, the decision was made to expand the project to include the entire district.

Five clinics were randomly selected out of the remaining 16 primary health care clinics in the district. In total, six clinics, four urban and two peri-rural, were included in the project. Key informant interviews were conducted with all PHC clinic managers. The discussions focused primarily on the clinics’ HIV/AIDS related services, perceived capacity to implement ART related services, and anticipated challenges and barriers.

d. Other key informants
Other key informants interviewed included government officials from the provincial and district Departments of Health (DoH) and the Department of Social Welfare (DoSW), the Community Health Worker (CHW) program coordinator, and community health workers. These interviews were semi-structured and directed by an interview guide.

C. Health Facilities Survey
A survey was designed and distributed to the six primary health care clinics included in the research project. The survey focused on the existing HIV/AIDS related services, human

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7 All 16 clinic names were written on pieces of paper and put into a container. Five clinics were randomly picked out.
resources, space and infrastructure, and referral networks. The same survey was distributed to the three hospitals to provide a point of comparison.

LIMITATIONS TO THE RESEARCH PROJECT
Several unexpected challenges introduced limitations and possible bias to the research project.

Sample Size
The specific geographic area in which the research project was focused provided limitations to the sample size. There are currently only two active ARV treatment facilities in Amajuba District. Key informants interviewed at these facilities were not randomly selected; therefore they may not be representative of all healthcare providers working at the ART clinics. The research findings should by no means to be generalized to treatment facilities in other districts. Although the findings may serve to suggest barriers and challenges other districts are encountering, each treatment facility will face unique circumstances and issues specific to itself.

There are in total 17 primary health clinics in Amajuba District. Six were selected to be included in the research project. The lack of a rural clinic in the sample limits the ability to generalize findings to all the primary health care clinics in the district.

Purposive Sampling
One of the six clinics included in the research project was not randomly selected, but was selected for a specific reason. This may have introduced bias.

Timeframe
The short time frame provided the primary restriction to the scope of the research project. Due to bureaucratic red tape, the majority of the first two months was spent seeking permission to speak to officials at the district Department of Health and healthcare providers at the treatment clinics and primary health care clinics.

The timing of the project also affected the research. On the one hand, the research was timely in that it was conducted at a point when problems stemming from the first few months of the ART rollout were being recognized and addressed. Both treatment facilities were in the process of scaling-up their programs. On the other hand, it was still too early to assess the impact and success/failure of the scale-up. Researching in the midst of the scale-up also made it difficult to keep consistently up to date with the changes.

Interviews with patients
The research failed to capture an important element—the voice of the patients who are on treatment. Due to ethical restrictions, the research was focused only on healthcare providers in their occupational capacity. Without the daily lived experiences and stories of patients who are on treatment the research was only able to capture a part of the complete picture.

Research Instrument
The health facility surveys used in the research project were self-administered which made it difficult to manage the quality of the data collected. Although the survey was made as straightforward and clear-cut as possible there was room for misinterpretation and confusion. For
instance, slight differences in use of certain terminology created problems. In the survey, the term ‘clinician’ was intended to refer only to doctors, but some clinic managers interpreted the term as including professional nurses as well. Although follow-up discussions were conducted to ensure the completeness of the survey and to clarify any additional problems that arose, misinterpretations were still possible.

**KEY FINDINGS**

**ART Program at the Hospitals**

There are three hospitals in Amajuba District. Two render regional level services: Newcastle Provincial Hospital and Madadeni Provincial Hospital. There is one district hospital: Utrecht Niemeyer Hospital.

*Newcastle Provincial Hospital (Nkosinathi Clinic)*

Newcastle Provincial Hospital is a 186 bed hospital located within the urban center of Newcastle. Although the ART clinic (Nkosinathi Clinic) opened in April 2004 to enroll patients and provide treatment literacy classes, patients were started on treatment only beginning in September 2004. The target set by the Department of Health (DoH) was 500 patients on treatment by April 2005, but the clinic only managed to reach about 25% of the goal. In the first month, 33 patients were started on treatment, but since then patient influx has been rapidly increasing. As of April 2005 there are 133 adults and 8 children on treatment. Statistics were not available at the facility of the breakdown between the number of men and the number of women who are on treatment. The clinic is receiving mentorship and support from the UK-based group, Children’s HIV Association of UK and Ireland (CHIVA, see below), in administering pediatric ART. CHIVA has visited Nkosinathi Clinic twice to assist in capacity-building for treating children.

Initially, when the clinic opened, other departments in the hospital sent all HIV positive patients to Nkosinathi Clinic without doing CD4 cell tests. This resulted in a waitlist in excess of 1000 people, who were not all in need of treatment. In order to lessen the workload of the ART clinic, the hospital has been working to educate providers about the criteria for treatment eligibility. Providers are now doing CD4 count tests in their respective departments and waiting for the results before sending only the clinically eligible patients to Nkosinathi clinic. Currently, the 450 patients on the waitlist at Nkosinthi Clinic are all eligible for treatment. They have been enrolled in the program and most have undergone treatment literacy classes, but have not yet started on ART. Most are waiting to see a doctor.

Nkosinathi Clinic is open Monday-Thursday from 7am-4pm and Friday from 7am-1pm. Without a full-time doctor dedicated to the clinic, three doctors working part-time for the clinic, have been dividing their time between the general wards and the ARV program. If the positions for three new doctors that the hospital recently posted are filled, one physician will be dedicated full-time to the ART clinic. There are two full-time nurses staffed in the clinic. There is no pharmacy in the clinic and ARVs are dispensed at the hospital pharmacy. A data capturer and social worker were recently hired. The district DoH has promised to install computers to allow the clinic to change to a computerized data capturing system. However, as of May 2005 the system has not yet been installed.
The newly hired social worker sees patients from the entire hospital, but she is based in Nkosinathini Clinic and thus far has spent the majority of her time with patients from the clinic. Effectively, the social worker will serve as both a therapeutic counselor and a patient advocate. She will most likely be making home visits to assess patients’ family situation and provide psychosocial support. The hospital is still lacking a dietician. The position has been advertised, but there have been no applicants.

The hospital medical manager indicated that plans are being developed to begin decentralization of the ARV program to the three primary health care clinics that fall under Newcastle Provincial Hospital—Thdanani, Newcastle PHC, and Duracol clinics. However, his main concern is that none of these clinics have the human resources to implement additional services. Rollout to Newcastle PHC Clinic, located within close proximity of the hospital, would be especially helpful in easing the burden on the staff at Nkosinathini Clinic.

**Madadeni Provincial Hospital**

Madadeni Provincial Hospital is a 1600 bed hospital located in Madadeni township. Space was an initial obstacle to getting the site accredited, but a general ward was freed up. The ART clinic began enrolling patients in April 2004, but did not start anyone on treatment until August 2004. The target number set by the DoH was 500 patients on treatment by April 2005.

When the clinic first opened the two doctors working in the Department of Medicine were committed to work part-time in the ART clinic. Since these doctors were essentially each working two jobs simultaneously, the clinic was only able to be open two days a week. The shortage of doctors created a bottleneck in the rollout program and as a consequence, a lengthy waitlist developed of enrolled patients just waiting to see a doctor. Most of these patients completed the treatment literacy classes and some were started on bactrim prophylaxis and vitamin supplements.

In March 2005, with the support of the organization ARK (Absolute Right of Kids, see below), the ARV program was revamped and scaled up. The VCT clinic merged with the ART clinic and the professional nurse who was managing the VCT clinic became co-coordinator of the joint clinic. One of the two doctors from the Department of Medicine was dedicated full-time to the ART clinic. The other doctor returned full-time to his previous position. ARK hired another full-time doctor, a part-time doctor, a data capturer, two nurses, and a pharmacist to join the clinic. In total, there are now two full-time doctors, one part-time doctor, three full-time nurses, two part-time nurses, one pharmacist, one data manager, and seven lay counselors working in the joint VCT/ART clinic. There is no social worker on staff and the nutritionist recently resigned.

The clinic began in March 2005 to use a computerized tracking system to store patient data. The database captures all relevant clinical data, laboratory test results, as well as patients’ family information. The increase in human resources and improvements in infrastructure has allowed the clinic to increase its hours of operation to 8am-4pm Monday to Friday. As of May 2005 there are 263 patients on treatment, 99 males and 164 females. The facility has not yet started treating children. While CHIVA has also visited the clinic twice, the lack of human resources has been stated as the primary reason for the delay. Providers at the clinic indicated that they would prefer to have a pediatrician on board before initiating the pediatric ART program. Patient numbers are
increasing rapidly. In the month of April alone 75 new patients were started on ART. To
decrease the amount of time patients have to wait before initiating treatment, the clinic is
considering condensing the treatment literacy modules, now spread out over a three week three
period, to one week for those patients that demonstrate readiness to start on treatment.

As of May 2005 there were ±1370 patients on the waitlist. The time patients spend on the waitlist
vary greatly. Patients who came to the clinic beginning in March of 2005 (following the increase
in providers) have been able to get an appointment with a physician within a reasonable amount
of time. The problem has been tracing patients who have been on the waitlist for longer periods,
some as far back as fall of last year. The clinic does not have enough human resources to commit
to tracing and making home visits for those patients who have been on the waitlist for a long
time. Some of the patients have moved or sought treatment elsewhere. Others will need to repeat
the treatment literacy classes and adherence counseling. The clinic co-coordinator knows of at
least 60 patients who have died while on the waitlist. She is working to her utmost capacity to
trace patients on the waitlist, but it is likely that many of the patients who accessed the clinic
before the March scale-up are going to fall through the gap.

With the increased human resources the Madadeni clinic is moving to the next step in the ARV
rollout program, decentralization to primary health care facilities. Beginning in May 2005 the
full-time ARK-employed physician is being deployed to five clinics located in the Madadeni-
Osizweni area that fall under Madadeni Hospital. The clinics are: Madadeni 1, Madadeni 5,
Madadeni 7, Stafford, and Osizweni 1. On his weekly visits, he assesses patients, initiates those
with OIs on bactrim prophylaxis, and draws blood for CD4 count and viral load tests. His visits
save the patients a trip to the hospital and lessen the patient influx at the Madadeni ART clinic.
Since his visits to PHC clinics only started at the end of the field research period, the impact was
not assessed.

_Utrecht Niemeyer Hospital_

Utrecht Niemeyer Hospital, an 82 bed facility, is set to be the next accredited site in Amajuba
District. Between July 2004 and March 2005, the Niemeyer VCT clinic referred 82 patients to
the Madadeni ART clinic. Thirty-three of those patients are still attending treatment literacy
classes, twenty-six are on bactrim prophylaxis, and seven are on treatment.

The Provincial ART Program Director first visited the Utrecht site in February 2005. At the time
the Utrecht site had no physician, part-time or full-time, who could be dedicated to the ARV
clinic. Since the ART clinic will not have space for its own pharmacy it plans to utilize the
hospital pharmacy. The hospital pharmacy, however, was not secure and did not have a private
area available for counseling. While the Utrecht site has resolved these first two problems, space
remains the primary stumbling block to accreditation. The VCT clinic and the adjoining general
ward, which will make up the future ART clinic, still needs to be partitioned in order to create
space for private doctor consultations. The renovations have not yet been completed. The
hospital’s HIV/AIDS coordinator foresees shortage of human resources as a challenge for the
Utrecht site. One full-time doctor and one full-time nurse will be working in the joint VCT/ART
clinic. There is no dietician in the hospital. There is also no data capturer or pharmacist who will
be dedicated to the ART clinic. The sole lay counselor currently working in VCT will have to do
all the VCT, ART, and PMTCT counseling once the site is accredited.
The HIV/AIDS coordinator commented that accreditation of the Utrecht site would be very beneficial to the local population. She mentioned transportation as one of the main barriers hindering patients from accessing treating. An operational Utrecht ART clinic will also serve to decrease the patient load at Madadeni Hospital.

**Treatment Regimens and Drug Supply**
Both treatment facilities are currently providing regimens 1a and 1b. Neither Newcastle Provincial Hospital nor Madadeni Provincial Hospital is currently permitted to prescribe Regimen 2; therefore all patients in need of Regimen 2 are referred to Grey’s Hospital in Pietermaritzburg or to facilities in Durban.

Interruptions in drug supply were not mentioned as a major issue at either clinic. In fact, the Madadeni treatment facility has experienced no problems with its drug supply. Informants at the Newcastle ART clinic mentioned a brief interruption with drug supply about one month after the clinic began providing treatment. Part of their stock was being recalled and for about a two-week period the clinic had to borrow medication from local private providers. A healthcare provider noted the enormous stress that even a brief stint of shortage can cause.

> ...when you run out of stock you begin to stress. You don’t know when the stock is coming. We counsel patients so closely on adherence, and on what happens if you miss a dose. Then they come in all frantic and we have to deal with the problems.

**Adherence**
To maintain good health and avoid complications with drug resistance, ARV programs require no less than excellent levels of adherence. Ideally, according to the Treatment Guidelines, patients should be taking more than 95% of their doses. Several strategies are being employed to promote adherence. At both treatment facilities patients are put on cotrimoxazole for 1-2 months during the pretreatment phase in order to accustom them to taking medication daily. The treatment literacy modules are spread out over a period of three weeks to reinforce the importance of regular visits to the clinic.

Prior to the initiation of ARVs, one of the hospital pharmacists counsels patients on storage and use of the medication. The Madadeni clinic has a private room for the pharmacist to conduct counseling sessions. The small side space at Nkosinathi clinic where patients are counseled has standing room only. The area is private, but the counter creates a physical barrier between the patient and the pharmacist. On average, the first counseling session generally lasts from 15-20 minutes, with shorter subsequent sessions. Once on treatment, patients are provided with a calendar to mark appointments and on every visit a pharmacist does the pill count to check for missed doses. Although time-consuming, this more patient-oriented approach allows the pharmacists to reinforce the importance of adherence every visit. Pillboxes are not being used although one pharmacist mentioned that they would be very helpful, especially for the caregivers of children who are on treatment. Pillboxes can provide a visual way to demonstrate to patients the number of pills they should be taking and how many times a day. Treatment progress and potential drug resistance problems are monitored by viral load repeats every six months.
Interviews with providers indicated that patient adherence has not been a major problem. All the providers said there have been few defaulters and the majority of patients have been taking their medication properly. In fact, one provider when asked about adherence rate said,

*Adherence is almost 100%. It hasn’t been a problem. Patients are very good I would say. The patients are adhering doing what they are supposed to do.*

Rigorous research, however, was not conducted to assess adherence levels at the clinics. Viral load results were not reviewed in order to determine whether patients on treatment maintained undetectable viral loads.

**Laboratory Facilities**

Under the Treatment Guidelines, CD4 count provides the primary clinical criteria needed to determine patient eligibility for ART. Madadeni Hospital has a CD4 count machine and ARK (Absolute Right of Kids) is planning on funding the purchase of a second machine. Newcastle Hospital sends blood samples for CD4 count to Madadeni Hospital and Utrecht Niemeyer Hospital, once accredited, plans on doing the same. Thus far, laboratory results for CD4 count, available within a few days, have not been a hindrance for patients accessing treatment. Problems, however, have arisen regarding viral load lab results. Viral load is not used for determining eligibility, but is important in monitoring patient progress. Since neither hospital currently has the laboratory facility for processing viral loads, blood samples are sent to Inkosi Albert Luthuli Hospital in Durban. Responsible for processing blood samples from all over the province, Albert Luthuli’s laboratory facilities are being overloaded and turn around time is increasing. Both cost of the equipment and lack of trained lab technicians preclude increased availability of viral load machines in the district.

The Newcastle treatment facility has been receiving their viral load results within a month. Informants at Madadeni ART clinic said that although baseline viral load results have returned within 3-5 weeks they have not received any results for six-month viral load repeats. Some of the results have been outstanding for three months.

**Other Players in the ART Rollout in Amajuba District**

*SACBC (Southern African Catholic Bishops Conference) AIDS Office*

SACBC AIDS Office, a faith-based organization based in Pretoria, is helping to coordinate the Catholic Church’s HIV/AIDS related programs in South Africa, Swaziland, and Botswana. Previously involved in home based care, PMTCT, and orphan care, SACBC began its ART program in February 2004. Funding for its programs come from a variety of sources including PEPFAR and Cordaid (based in the Netherlands). SACBC is currently providing ART at 20 sites in South Africa, three of which are in KwaZulu Natal.

Building upon an already existing home-based care program in the Newcastle area, SACBC contracted a local doctor based in town with experience providing ART in the private sector. He began providing ART free of charge in October 2004. A professional nurse and three lay counselors were hired to work on the ART project. The project also has 15 home-based carers who report to the Project Coordinator whose office is located in Osizweni township.
The program targets primarily underserved populations and its patients are concentrated in the Madadeni, Osizweni, Blauwbosch, Springbok Farm, and Groogeluk Farm areas. The program’s home-based carers operate within these communities and help to identify eligible patients through public primary health care clinics. The public VCT clinics in these areas inform HIV positive patients of the public ART facilities as well as the SACBC program. The home-based carers make home visits and bring patients who fit the program’s socioeconomic criteria to the program doctor’s office. Free transportation is provided as part of the program.

Following national treatment guidelines, the program is providing Regimens 1a and 1b for patients with CD4 count less than 200. Blood tests are sent to Togo Laboratory, a private facility, located in Johannesburg and results generally return within a few days. Before starting on treatment, patients undergo a treatment literacy program which includes prevention and adherence counseling. Adherence rates at SACBC’s ART programs are reportedly high, averaging over 90% across all its 20 South African sites.8 As of mid April 2005 there are 302 patients enrolled on treatment, including ±15 children. The 174 patients on the waitlist are either being treated for opportunistic infections or were deferred because of high CD4 counts. They are reassessed every two months. The target was to start 400 patients on treatment by the end of April 2005.

The Project Coordinator indicated that as the program expands the home-based carers responsible for recruitment, follow-up, and monitoring are being overloaded. Although there are attempts to train family members, there is a lack of capacity to care for terminally ill patients. Funding is currently being sought to increase the number of home-based carers in the area. The program is also looking to develop closer relationships with the public ART clinics. While managers at both hospital ART clinics knew of the SABCB program neither were familiar with the details or the protocols and procedures being followed for treating patients. The program has no patient advocates or dieticians on staff. No funding is available to purchase nutritional supplements for patients.

CHIVA (Children’s HIV Association of UK and Ireland)
CHIVA is a UK-based organization composed of professionals committed to the care of children who are infected or affected by HIV/AIDS. In KwaZulu Natal, CHIVA is currently providing support and training for rollout of pediatric ART at 27 sites. Funding for CHIVA’s activities in KZN, administered by the Union of Jewish Women, is provided by the Prince Helesizulu Benedict Gift (an umbrella fund for monies from a number of KZN charitable trusts).

The sites, selected in collaboration with the provincial DoH and providers at Grey’s Hospital in Pietermaritzburg, include both Newcastle Provincial Hospital and Madadeni Provincial Hospital. The mentorship and ongoing support is provided by teams that consist of pediatricians, nurses, nutritionists, and pharmacists experienced in treating children. The teams conduct site visits every six months and in the interim between the visits, the team communicates with local providers through email. Providing ongoing mentorship and building the confidence of providers to treat children are the primary goals of the partnership. During the CHIVA team’s recent visit

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8 Method of assessing adherence was not determined.
to Nkosinathi Clinic, a pediatrician saw patients with the clinic’s doctors and nurses and advised the pharmacists on dosing of pediatric ART.

ARK (Absolute Return for Kids)
ARK, a UK-based NGO, is dedicated to providing ART to mothers and other caregivers affected by HIV/AIDS. Initially operating only in the Western Cape, ARK has recently expanded its programs into KZN. ARK derives the majority of its funding for the treatment project from PEPFAR and the Elton John AIDS Foundation. ARK’s primary objectives are to build infrastructure, increase capacity of public health facilities to implement the ARV program, and improve the efficiency of service provision. The organization hires clinicians, nurses, and other providers to work at the public treatment facilities and provides funding to purchase equipment such as CD4 count machines. The aim is to improve the health system infrastructure and incorporate ART programs into the primary health care system in a sustainable manner.

In order to guarantee sustainability, ARK maintains close working relations with the provincial DoH and forms partnerships only with public hospitals and clinics. The government has pledged to take full responsibility for the programs when ARK’s period of funding ends in three years. Working in conjunction with the provincial Department of Health, ARK identified secondary/tertiary centers with great need and the potential to support nearby feeder sites. Madadeni Hospital was identified as such a site and the ARK program was launched there in March 2005. Currently at Madadeni Hospital, ARK is working towards creating a team consisting of community health workers, patient advocates, and people living with HIV/AIDS (PLWHAs) that will conduct home visits and assist in monitoring adherence and patient care.

ARK will also begin activities to capacitate Newcastle Hospital and Utrecht Niemeyer Hospital, feeder sites that can refer complicated cases to Madadeni Hospital.

Other NGOs/CBOs
Civil society appears to be weak in Amajuba District. The majority of NGO/CBOs provide limited services and generally have short life spans. Several providers mentioned that NGO/CBO support for the rollout has been weak and inconsistent. While both treatment facilities indicated that there are NGOs providing home-based care working with them, the VCT/ART clinic manager at Madadeni Hospital could only name one organization that submits regular reports. The manager at Nkosinathi clinic said none submit regular reports. Given the patchy report-back system it was difficult to assess the quality of service provision and the extent to which these NGOs/CBOs are contributing to the rollout program.

Sustainable and adequate funding seems to be the primary limiting factor to development of effective and stable NGOs/CBOs.

...it’s like a catch-22 situation...DoH says if you do the work and show us how much it costs to do that work, we’ll pay you the money. NGOs say without money to start off they can’t do anything.
Consistent funding is contingent upon performance, but NGOs/CBOs say they cannot mobilize without initial funding. Lack of funding also means that these organizations depend primarily on volunteers. In general, accountability on the part of these volunteers has been lacking.

Community Health Worker Program
With funding from the NGO Valley Trust\(^9\) the Amajuba District Department of Health has employed 198 community health workers spread out among the rural areas in district. Each community health worker (CHW) is responsible for managing 150 households. The community health workers program takes a ground up approach in seeking to involve individuals within communities that have low access to clinics in primary healthcare provision. The wide range of issues they work with include: surveillance, monitoring individuals on various treatment regimens, DOTS, PMTCT, health education, home-based care, community gardening projects, and nutritional counseling.

Thus far, there have been no coordinated efforts to involve CHWs in the ART rollout. Training programs are still in the planning stages. Interviews with community health workers and a community health worker supervisor indicated that CHWs are already under a lot of strain. Problems raised include the lack of support, difficulty with transportation, and inconsistent supervision. Equipped with minimal resources in order to carry out their multi-faceted jobs, CHWs often have to supply clients with transportation money out of their own pockets or when possible, personally provide transportation. The referral link between the CHW program and the DoSW appears to need strengthening. The CHWs mentioned that they often feel that they are acting as the social workers.

Department of Social Welfare
In order to explore the extent to which other governmental departments are going to be or have already been engaged in the ART rollout program, the Newcastle Department of Social Welfare (DoSW) supervisor and a social worker employed there were interviewed. Although there are some plans in motion, thus far, the Newcastle DoSW has not been actively involved in the ART rollout. Currently, most of the department’s programs target the general population which might directly or indirectly benefit people living with HIV/AIDS (PLWHAs). They are not running any specifically targeted programs. The department is not involved in any home-based care programs although training sessions are being planned to teach children to care for the elderly and other chronically ill.

The DoSW was until recently, experiencing shortage of human resources. Now that new personnel have been hired the department is looking to increase their involvement in the rollout program. They are in the process of evaluating the gaps that need to be bridged and identifying critical intervention points.

Challenges of the ART Rollout
A. Shortage of Human Resources
The shortage of human resources was mentioned by all providers and government officials interviewed as being the biggest stumbling block in the smooth and efficient rollout of the ART

\(^9\) Additional information about Valley Trust can be found at the following website: <http://www.thevalleytrust.org.za/index.php?page=com_health>
program. Neither clinic has the full-range of personnel required to make up the multidisciplinary team stipulated by the Treatment Guidelines. At both treatment facilities the lack of doctors created a bottleneck early in the ART rollout process and resulted in long waitlists. Madadeni Hospital is still struggling to trace some of those patients.

The provincial DoH is planning on adopting a combination of the following strategies to address the human resources shortage:

a. Attract more applicants to needed posts by increasing salaries.
b. Avoid overlap in job responsibilities and ensure appropriate division of labor. For instance, increase the amount of time the doctors have with patients by hiring additional administrators and clerks to handle the paperwork. Or, adopt a more nurse-driven model for the ART program.
c. Train and capacitate more readily available personnel to perform tasks that would otherwise have to be performed by personnel in short supply. For instance, capacitate staff nurses to perform nutritional assessments in order to address the apparent national shortage of dieticians.

B. Diversion of resources from other services
The scarcity of human resources is forcing the ARV program to divert resources from other areas of health services. Of the 11 providers interviewed, 9 were either transferred to work in the ART clinic from another department in the hospital or they took on new responsibilities in the ART clinic in addition to their existing jobs. Only two providers interviewed were newly hired. Treatment facilities have only recently begun to hire additional personnel to refill the vacated positions.

C. Gaps in patient monitoring and follow-up
The human resource deficit has also limited the ability of treatment facilities to dedicate staff to monitor and supervise patients. According to the Treatment Guidelines treatment counselors are responsible for making home visits before the initiation of ART in order to assess patients’ home circumstances, accuracy of contact details, support network, and drug storage facilities. Clinic managers at both facilities said they made a few home visits initially, but there was not enough staff to continue. Neither facility has employed patient advocates to supervise and to provide psychosocial support for patients on treatment. Community health workers have not yet been included in the picture.

Providers mentioned difficulties in follow-up for patients that are accessing multiple ART service points. While providers encourage patients to attend the clinic closest to their place of residence, issues such as stigma and perceptions of quality of care at the facilities lead some patients to use treatment sites that are farther away.

D. Lack of Children on ART
Children have been largely underserved in the ART service delivery programs. Since ARVs are currently being provided on a “first-come-first serve” basis, children are not being prioritized. Their access to the ART clinic depends largely on their caregivers as well as the possession of the required documentation. At the time the research was conducted about 700 children in KwaZulu Natal are on treatment which meets less than the 10% of the estimated
number of children in need of treatment. With eight children on treatment as of mid-April 2005, Nkosinathi Clinic is the only site providing pediatric ART in Amajuba District. The Madadeni VCT/ART clinic has not yet begun to treat children, but they hope to do so by June 2005. Both ART clinics perform PCR tests for newborns and send samples to Albert Luthuli Hospital for processing. The report back times for PCR results can vary from 2 weeks to 6 weeks.

The low number of children on treatment can be attributed to several factors. Some of the problems mentioned by the providers include:

a. **Lack of confidence among providers.** The doctors currently working in the ART clinics are either general practitioners (GPs) or internists. There are no pediatricians on staff at either ART clinic. The Treatment Guidelines stipulate that children less than six months who are starting on ARVs must be referred to pediatricians. While many of the GPs and internists working in the ART clinics are capable of providing pediatric ART to older children, some are not accustomed to and have limited experience working with children. GPs at Nkosinathi clinic began treating children in January and rely on ongoing support from pediatricians at Grey’s Hospital as well as their CHIVA contacts. The Madadeni treatment facility acknowledges the need to start children on ART, however there appears to be some hesitation from the clinic doctors in initiating pediatric ART without having a pediatrician on board. Both CHIVA and ARK are working to provide on-site mentorship and capacitate doctors to work with children.

b. **Caregivers** Successful treatment of children relies largely on the capacity of their caregivers. Providers at Newcastle ART clinic mentioned difficulties in educating and capacitating caregivers. Many children in need of treatment are orphaned and being cared for by aunts or grandmothers. The apparent increase in migration experiences for orphaned children makes it difficult to find a stable caregiver who can oversee the treatment regimen. Since pediatric formulations may be complicated, caregivers are often hesitant and lack confidence in administering the medication. Illiteracy among some of the caregivers creates additional complications with explaining the treatment regimen to them. Furthermore, lack of support in the home environment was also cited as problematic.

*We have a patient now, about 6 years old. He can’t swallow the efavirenz pills so we showed the mother how to mix it in the water. The problem is that the mother is very young. She’s very scared, very emotional. We try to give them confidence. We tell them if they have a problem...Anything they want to talk about to come back to us. We are always willing to help.*

c. **Difficulties with pediatric formulations.** Dosing for pediatric ART is inherently more complicated than adult ART, but the pharmacists noted that there are fewer guidelines available. The available guidelines often require complicated calculations and there is no specific training being provided. One informant noted:

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10 Provincial DoH.
When we first started the program we didn’t know much. We were on our own doing whatever we thought was right. When [the CHIVA pediatrician] came I told her things that we were doing and she said ‘No, that’s fine.’ We were really relieved.

Calculated based on the child’s weight and/or body surface area, doses may require monthly adjustments. Furthermore, the Amajuba ART clinics do not have all three drugs in the triple combination available in syrup form available. For young children who cannot swallow pills, the caregivers are taught to break the capsules in water then extract the right medication amount with a syringe. The medication is often unpalatable.

d. Access points Currently, VCT clinics are the primary entry point to ART programs. There is no specific service point dedicated to identifying children in need of treatment. HIV PCR tests for children are not available at all clinics and in some instances the long turnaround time makes it difficult to get the caregivers to come back for the results.

E. Gap in treating mothers
Several providers noted the lack of referrals from PMTCT clinics as a gap in treatment provision. All PHC clinics in Amajuba District offer PMTCT services—doses of nevirapine (NVP) to the mother and the baby. The PHC clinics surveyed indicated that mothers and their babies are followed-up on after childbirth and referred to the ART clinics, however some informants at the ART clinics say that the mothers are not coming back. One possible explanation noted by a provider is that traditionally the PMTCT program emphasizes the doses of NVP and feeding formulas. Focus lies in preventing the baby from infection. ARVs and long-term care for the child’s parents are not a standard part of the PMTCT initiative. With the traditional program, mothers and other caregivers are generally not followed up on and urged to return for treatment.

F. Limited Accessibility
Thus far, the ART rollout has only reached two sites in the district, both are hospitals located in the district’s urban center within 19 km of each other. The ART program requires that the patient make multiple visits to the hospital to see the doctor, attend the treatment literacy classes, and return monthly to collect medication. Eight of the healthcare providers interviewed indicated that transportation money has been problematic for many of their patients. For patients living in the rural areas, some are too ill to even get themselves to public transportation sites.

...some of the patients stay very far away. There’s no transport. [Or] transport there, is only once in the morning. Once you miss it, you can’t. You have to hike. So, we do have a problem with those clients.

Informants at both ART clinics indicated that VCT clinics provide the majority of referrals to the ART clinic. More women than men are accessing VCT services as shown by the district VCT statistics from the 2004-2005 fiscal year: 9879 women were tested as compared to 6315 men. Records from Madadeni treatment facility reflect this trend: 164 women on treatment compared to 99 men. The breakdown of the number of men and number of women on treatment was not available from the Newcastle ART clinic. While these numbers seem to
suggest that fewer men are accessing treatment, further research is needed. Providers mentioned that stigma and lack of confidence in the efficacy of ARVs as some possible barriers deterring men from accessing treatment.

Although all the primary health clinics in the district provide VCT services, these clinics are not always accessible by people living in the rural areas. Mobile clinics service rural areas once a month, but currently they do not have the physical space necessary to provide VCT services.

G. Nutrition
Antiretroviral medication needs to be taken in conjunction with a balanced and nutritious diet. People suffering from hunger and/or nutritional deficits are more likely to contract OIs and have a more difficult time recovering.11 According to the Operational Plan all individuals attending ART service points are supposed to receive counseling and information on healthy diets and have regular assessments by a nutritionist. There is no dietician on staff at either treatment facility.

Both treatment facilities surveyed indicated that nutritional supplement packages consisting of milk, porridge (Philani), and beans are being provided on a monthly basis to their patients. Nkosinathi Clinic mentioned no problems with their supply, but the Madadeni VCT/ART clinic mentioned that their supply is not consistently available. The clinic has been out of milk and beans for a while, but they do not know when the Department of Health will restock.

H. Monitoring and Evaluation
The Deputy Director of the provincial ARV program noted the monitoring and evaluation system in place before the ART rollout was inadequate. The rollout has highlighted the urgency of improvements in the system. New M&E forms were devised and recently distributed to the treatment sites. A few providers at the treatment facilities complained about the additional paperwork for M&E purposes they are now being required to complete.

DISCUSSION SUMMARY
Interdepartmental Cooperation
A successful ART program needs to be integrated into a full HIV/AIDS prevention, management, and care continuum. Comprehensive provision of services will necessarily involve interdepartmental cooperation and commitment among government programs. As mentioned above, the DoSW, thus far, has not been an integral participant in the rollout program. The lack of mobilization could probably be attributed to the relative newness of the rollout. Given the shortage of social workers staffed at district hospitals and primary health care clinics, the DoSW will need to play an increased role in addressing the psychosocial issues faced by patients who are on ART. Social workers at the department may need to receive additional training in order to work with some of the unique challenges faced by patients on ART. Improved communication lines need to be established between treatment facilities and the DoSW to ensure that patients’ psychosocial needs are adequately addressed.

There needs to be better definition of responsibilities and coordination of efforts between the DoSW and the community health worker program. This would most likely decrease overlaps in and expand the scope of social service provision. Home-based care is another area of great need that the DoSW can play an increased role in.

Additional research is necessary to access the potential roles of other government departments.

**Access to ART Facilities**

Access to the ART program can be evaluated from multiple perspectives. One way would be to focus on the common entry points to the program. As stated above, the lack of entry points for children and gaps in PMTCT referrals appear to be limiting access for mothers and children. Since the majority of the patients at ART clinics were referred from VCT clinics, access to VCT services may provide insights as to who is accessing treatment. District statistics from last year indicate more women than men are utilizing VCT services and it appears that more women are on treatment than men. Statistics on differences in HIV prevalence among men and women in the district were not collected. Further research needs to be done to explore the factors that deter men from accessing VCT clinics and whether low numbers of men accessing treatment have implications for their partners accessing treating.

The lack of access to VCT clinics for people living in rural areas may be preventing them from accessing the ART facilities. Since mobile clinics do not provide VCT services, a possible option would be to send out additional vans dedicated solely to providing VCT. Stigma, however, may still prevent people from utilizing the service.

The geographical concentration of ART clinics at the hospitals in the urban areas may also limit access, especially for people who do not have regular transportation. Both cost and the availability of transportation create barriers. As it stands, it appears that the rural poor are least likely to access treatment.

In addition to examining environmental and economic factors affecting access to treatment, individuals’ health-seeking behavior also plays an important role. More research is needed to assess facilitators and barriers within the local context that affect individuals’ decisions to seek treatment. There appears to be little empirical data on the level and dissemination of knowledge about ARVs among the general population in the district. The lack of knowledge and confidence in the efficacy of ARVs may affect people’s decisions to access treatment.

**Laboratory Facilities**

Delays in processing of viral load results may prevent providers from properly monitoring adherence and detecting problems with resistance. Although CD4 cell count can also be used to monitor adherence, viral load tends to be a better immediate indicator of adherence. While CD4 cell count measures the immune competence of the patient on treatment, viral load indicates the activity of the virus. Clinical studies suggest that decrease in viral load is usually accompanied
by increase in CD4 count, however the change in CD4 count tends to be delayed and therefore in the short-term less likely to show the impact of adherence.\textsuperscript{12}

**Patient Care and Monitoring**

While the core team of doctors, nurses, pharmacists, and lay counselors in ART service delivery is absolutely essential, access to additional services provided by dieticians, social workers and or psychologists, and home-based carers is important as well. The shortage of personnel such as social workers, dieticians, lab technicians, and pharmacists compromises the ability of facilities to provide a full-range of services for people accessing ART service points. The lack of nutritional counseling services is one noticeable gap in the care continuum. The apparent national shortage of nutritionists necessitates the training and capacitating of existing staff at ART clinics to meet nutritional needs and offer healthy diet counseling.

The treatment facility providers indicated that patients who at the time of evaluation have CD4 count above 200 are provided with prevention and care services and the Treatment Guidelines state that these patients are supposed to be referred to “Wellness Clinics.” Some patients are being referred back to their PHC clinics, but the actual referral network, process, and retention rate of these patients is unclear. It is unclear who is responsible for the follow-up, what exactly is being done to follow-up on these patients, and whether these patients actually come back for repeat CD4 count tests.

The Treatment Guidelines stipulate that the entire, multidisciplinary care team is supposed to be involved in assessing patient readiness for treatment. ARVs are suppressive and not curative. And given the limited capacity of the clinics to dedicate staff to monitoring patients and making home visits, adherence and retention rates may become more problematic as patient numbers increase. Pill counts, a patient-oriented method of supervising treatment, are time consuming and may no longer be sustainable with large patient numbers. Furthermore, as the rollout begins to reach the rural areas a new set of challenges may arise in monitoring adherence and follow-up of rural populations. Cost of transportation and poor roads may affect the ability of people from rural areas to make frequent visits to the hospitals. For providers, regular home visits to rural areas where the population is more spread out will most likely require more time and additional resources. It is important that treatment facilities work towards providing comprehensive services to minimize the number of visits patients have to make to the clinic and the number of different queues patients have to wait in to access services.

**Adherence Issues**

Adherence is currently being measured by a combination of pill counts, patient self-reports, provider estimates, and viral load tests. It is unclear whether Madadeni ART clinic’s decision to shorten the intensive pretreatment phase to one week will have implications for adherence levels. At the time the research was conducted the ART program was still relatively new and few patients have had their 6-month viral load repeats; therefore no viral load data was obtained. Furthermore, there appears to be delays in getting the results from Albert Luthuli Hospital’s laboratory facilities. While factors such as pharmacokinetics and viral resistance make viral load

an indirect measure of adherence, studies have shown a strong correlation between patient adherence and viral load. Timely return of viral load results will also improve providers’ ability to monitor their patients’ progress. In this instance, viral load data would have been helpful in substantiating the accuracy of the reportedly high adherence levels.

If patients are aware of the procedure and throw out pills in advance to demonstrate adherence, then pill counts may be over estimating adherence. Patients may not always remember to bring in their pill containers. Self-reporting and provider estimates may both be biased. The provider-patient relationship plays an important role in determining the reliability and honesty of patient reports. Patients may be reporting high levels of adherence because they know that is what their provider wants to hear. Providers may be estimating high levels of adherence because that is what they would like to believe is happening. Since only one of the physicians at either of the two Amajuba’s treatment facilities speak isiZulu the language barrier may serve as an additional limitation to the accuracy of these methods of adherence measurements. Given the role of non-adherence in treatment failure and in breeding viral resistance, appropriate and accurate measures for adherence are crucial to the success of ART programs. Availability and use of additional adherence devices such as pillboxes may facilitate adherence.

**Pediatric ART**

To prevent children from falling through the cracks increased resources need to be dedicated to addressing challenges unique to pediatric ART provision. The Treatment Guidelines stipulate that children less than 6 months of age starting on ARVs should be referred to a pediatrician. For older children, treatment sites will not be able to wait for pediatricians to show up. Existing staff needs to be capacitated now. Providers need more than just theoretical knowledge when working with children. Practical, hands-on experience that is adequately mentored is essential in building confidence of providers. A wider selection of available medications, improved guidelines, and simplification of pediatric formulations will make dosing easier.

To increase access for children, additional entry points will have to be targeted. Integration of PMTCT clinics with VCT and ART services may be one way to reach more caregivers and children who are in need of treatment. In addition to increasing the number of children on treatment, the pediatric ART program will need to be substantiated by increased patient advocacy, psychosocial support, monitoring, and follow-up. Additional challenges will arise as children on ART reach adolescence.

**Patient Information Systems and M&E**

Patient tracking systems need to be improved to ensure that all patients get quality care and are properly followed up on. This will be especially important when the ART program begins to decentralize to the level of primary health clinics and patients are referred back to their respective clinics to be followed-up on. A networked, computerized system that can be accessed district-wide, province-wide, and even nation-wide will improve tracking of patients who might be moving around or accessing different service points. Besides providing the necessary equipment, the Department of Health will also have to train relevant personnel to manage the equipment.
A more uniform and efficient patient tracking system will also be valuable for improving the monitoring and evaluation (M&E) system. An effective M&E system is crucial for identifying areas in need of improvement and detecting gaps in service provision. Indicators need to get at not only the number of patients who are put on treatment or are coming back for treatment, but also how many of those patients are adherent. Interviews with providers suggest that some see M&E forms as just burdensome paperwork that further takes up their already strained schedules. M&E needs to be an ongoing process and site managers must be trained to use and to understand how the data collected is going to feed back and improve their programs. Often information collected is seen and analyzed only by government officials, but not used in a practical way by the individuals who are providing treatment. A system of constant reinforcement of what is being done well and what needs improvement will make providers more engaged in the M&E process and will likely improve the quality of data being collected.

**Community-based Approach**

*Community Health Workers*

The nature of ART requires strict patient adherence in order to avoid complications with drug resistance. Dr. Paul Farmer and colleagues demonstrated through their ART program in rural Haiti that successful implementation in resource-poor settings necessarily involves full participation of the local community. In their program community health workers played an integral role in patient supervision and social support. While the local context of Amajuba District clearly differs from rural Haiti, the Haiti project can still provide some useful insights. As members of their respective communities, CHWs in Amajuba District can provide essential psychosocial support to patients on treatment and be instrumental in monitoring adherence. They can widen the reach of the ART rollout by disseminating information about treatment among the district’s rural populations who are often the poorest and most vulnerable. The considerable success of CHW involvement in the DOTS program further suggests the crucial role they can play in ART rollout. Given the increase in cases of co-infection of TB and HIV, more consideration may want be given to integration of TB and HIV/AIDS services. The existing community-based infrastructure put in place to provide DOTS may provide a valuable opportunity for the ART program to improve monitoring and follow-up of patients. Integrated in a sustainable manner, the result may be more efficient and effective management of both diseases.

While theoretically speaking community health worker involvement is the ideal way to reach out to the local communities, how that will play out practically remains to be seen. CHWs may not be able to take on additional responsibilities on top of their already heavy workload. Their involvement in the rollout program will have to be accompanied by increased resources, training, and capacity-building.

*Community Involvement*

The discrepancy between demand and available resources means not everyone who is in need of treatment will be able to access it immediately. It is necessary that the local communities

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affected be more engaged in the planning and decision-making process of ART provision. The collaboratively run ART project in Khayelitsha township in Cape Town, by MSF (Médecins Sans Frontières) and the Provincial Administration of Western Cape, devised a method of allocation that actively involves the local community. A committee comprised of community members, people living with HIV/AIDS, and clinicians not related to MSF makes the final decisions on eligibility for enrollment to the ART program. Their decision is based on consideration of a combination of clinical, social, and adherence criteria including the number of dependents, disclosure, and income.\textsuperscript{14}

The MSF model is by the means the only way to involve communities. However, with the current situation of ART rollout in Amajuba District similar levels of community integration and involvement is not possible. Treatment remains concentrated at the higher level facilities that service the entire district. Voices and concerns of individuals within communities are not being heard. Community-level involvement should be more feasible at the level of primary care facilities. Decentralization of the rollout to primary health care clinics will need to be accompanied by increased engagement of local communities in the planning and decision-making processes. Engagement of local communities is essential in order to provide a more complete understanding of the role of knowledge, attitudes, and perceptions in the uptake of ARVs.

**Sustainability of the ART Program**

There is concern that the ARV rollout program is being implemented at the expense of existing healthcare services. The shortage of staff has forced facilities to divert providers from other departments to work in the ART clinic. Balance needs to be struck between efficient implementation of and over-prioritizing the ART rollout. Since the program is still in its early stages and facilities are only now attempting to refill posts, the ramifications of the rollout on the health system still remains to be seen. To ensure a sustainable program, ART rollout needs to be implemented in conjunction with efforts to strengthen the existing national health system infrastructure.

**THE WAY FORWARD: FUTURE PLANS FOR THE ROLLOUT**

**Background: ART Rollout to Primary Health Care Clinics**

Logically, the ART rollout once established at the hospitals will have to cascade down to the level of the primary health care clinics. The hospital medical managers, department of health officials, and the ARK South Africa Director have all expressed the intent for decentralization to begin. A uniform national policy or set protocol outlining the process of decentralization has not yet been developed.

In Amajuba District, management of chronic diseases such as hypertension and diabetes has already been integrated into primary health care services. Most patients go for an initial doctor’s visit and then are referred back to their respective primary health clinics where they are followed-up and monitored. Medication can be collected monthly from the primary health clinics and patients make biannual visits to a doctor at one of the hospitals.

\textsuperscript{14} WHO. Antiretroviral Therapy in Primary Health Care: Experience of the Khayelitsha Programme in South Africa Case Study. World Health Organization. 2003.
The long-term plan is to integrate ART at the level of primary healthcare and establish a system of management that is similar to the chronic disease program. Given the varying range of capacity among the district’s PHC clinics it will likely take considerable time before that goal can be achieved. In the short term, PHC clinics are being capacitated to provide at least the pretreatment services—the adherence counseling, treatment literacy classes, and clinical assessment. The intent is that by the time patients make their initial visits to the hospital they will already have their blood work results, be on bactrim prophylaxis, have completed the treatment literacy program, and be “ready” to start on ART. Once started on ART they will be referred back to their respective primary health clinics for monitoring and follow-up. They will have to return to the hospital monthly to collect medication, but will only have to see the doctor twice a year.

The Madadeni treatment facility, with the assistance of ARK, is already in the process of capacitating the primary health clinics that fall under it. One of its clinics has begun to provide treatment literacy classes. Newcastle Hospital does not yet have enough human resources to begin rolling out to the clinics.

Given variations in staff and facility infrastructure, each primary health care clinic will be able to implement the rollout to varying degrees. Rollout to the clinics will need to be phased in gradually and tailored to the capacity of each clinic. Doing too much too quickly runs the risk of overwhelming the already strained clinic staff and compromising service provision. While some clinics may be able to conduct adherence and treatment education classes others do not have enough counselors or physical space. In order to get a preliminary sense of the capacity of clinics to implement the rollout a survey was distributed to five randomly selected clinics in the district and Newcastle PHC clinic. Key informant interviews were conducted with each of the clinic managers. The survey and discussions focused on the existing HIV/AIDS related services, human resources, space and infrastructure, and referral network. Six clinics in total, four urban and two semi-rural, were surveyed.

**Key Findings from the PHC Surveys**

A. **Current Challenges**

To get a sense of the anticipated challenges of the ARV rollout clinic managers were asked the open-ended question, “What are the problems and challenges currently faced by this clinic?” Most managers provided more than one answer. The following graph sums up the responses of the clinic managers.
Clearly, in order for the clinics to be able to integrate ART services without compromising existing care and over-burdening the already strained system, much capacity-building will need to be done in the coming months.

B. Existing HIV/AIDS services
All the clinics reported the availability of comprehensive HIV/AIDS services. Survey results indicated two gaps in reproductive health services: the provision of female condoms and the availability of termination of pregnancy (TOP) services. Only one of the six primary health clinics surveyed has female condoms available. Some of the obstacles hindering increased availability of female condoms as mentioned by the clinic managers are high cost, acceptability, and the one-on-one counseling and education required.

Termination of pregnancy (TOP) services are difficult to access in the district. Madadeni Hospital performs TOP only for women who are HIV positive or rape victims. All other women are referred to King Edward’s Hospital in Durban. Logistical barriers, however, preclude most women from actually accessing the service. Women seeking TOP have to find means to pay for their transportation to Durban. Once in Durban they often have difficulty finding lodging within close vicinity of the hospital.

C. Laboratory Facilities
None of the primary health clinics surveyed have laboratory facilities to process CD4 count or viral load tests. The clinic staff has not been trained to draw blood for these tests, which can be sent out for processing. Beginning in May 2005 two of the clinics are being visited weekly by one of the ARK-employed physicians from the Madadeni VCT/ART clinic. In addition to assessing patients for OIs, he is also drawing blood for CD4 count and viral load tests. CD4 count is processed at Madadeni Hospital and viral load at Albert Luthuli Hospital. The physician is planning on capacitating the clinic staff to perform these tests in the near future.
All the clinics take TB sputum samples and send them to Madadeni Hospital for analysis. The report time ranges from 24 hours to 72 hours. All the clinics except for one do PCR tests for babies born to HIV positive mothers. All samples are sent to Inkosa Albert Luthuli Hospital in Durban and report back times vary from 2 weeks to more than 4 weeks.

D. Human resources

All informants expressed that the shortage of human resources is a major hindrance in their ability to begin providing ART services. PHC clinics are generally not staffed with doctors. One clinic indicated the availability of a part-time physician who visits once a week. He spends two hours at the clinic per visit and sees mostly chronic patients. Two of the clinics as previously mentioned are included in the Madadeni ART decentralization strategy and are now being visited weekly by the ARK physician who assesses HIV positive patients. Although nurses can perform the majority of primary health care services, patients with chronic illnesses are required to see the doctor at least once every 6 months. Clinic managers mentioned the difficulty some patients have with accessing public transportation. Others cannot afford transportation to the hospitals. While services provided at primary health care clinics are free of charge, patients have to pay for services accessed at the hospital. Given the inconvenience that the lack of physician services imposes on patients with chronic illnesses, similar challenges are foreseeable for the ART rollout program.

The nursing staff is already strained by the amount of responsibilities and the number of services they have to provide. Implementation of additional ART related services without an increase in the number of personnel could compromise provision of existing services and lower the quality of care. One clinic manager expressed frustrations with the constant demand by the DoH for increased services, but lack of support in terms of additional staff. Dedicating existing staff to manage newly introduced programs such as LoveLife and PMTCT has compromised the clinic’s efficiency and quality of service delivery. Patients coming to the clinic are faced with long waiting lines. The clinic manager said expectations for quality care are difficult to meet under these resource-constrained circumstances.

Clinics lack the personnel to form a multidisciplinary team to manage the ART program. None of the clinics surveyed are staffed with pharmacists, dieticians, or social workers. Access to dietician services is limited to a district nutritionist who circulates once or twice a month to the primary health care clinics. However, because of the unpredictable nature of the visits it is difficult to inform patients in need of a nutritional consultation ahead of time. Only one clinic has a part-time data capturer. The other clinics do not have a person dedicated and trained for data capturing and management. Clinics also currently do not have staff available to do home visits and provide the necessary supervision and social support for ART patients.

The graph below shows the number of clinics that have each type of healthcare provider on staff.
E. Space and infrastructure
Lack of physical space to initiate an ART clinic is another problem pervasive among all the clinics. Only one of the clinics surveyed indicated that they have an area available for an ART clinic. Two clinic managers mentioned that the Department of Health promised site renovations and expansion over a year ago, but so far no action has been taken. To illustrate constraints imposed by shortage of staff and space, one clinic manager indicated that although there should be a 100% counseling rate in the antenatal clinic only 20% of the women who come in actually receive counseling. The clinic, however, cannot hire more counselors because there is no space to accommodate them. The amount of space places limitations on the ability to increase human resources.

Available space to conduct treatment literacy modules and provide counseling is also problematic. One of the clinics being visited by the ARK physician has not yet begun providing treatment literacy courses due to space restrictions. Two of the clinics surveyed indicated they have a pharmacy, but only one clinic has a private area in the pharmacy for counseling patients on medication use and adverse effects. The PHC clinics have very limited capacity to begin dispensing ARVs.

F. Referral Services
Since antiretroviral treatment is only one component along a continuum of care, ART clinics will need to be integrated with other services that address patient needs. To get a sense of the existing referral network at the clinics, the clinic managers were asked to list ancillary organizations that they refer patients to.

The following graph below summarizes their answers.
The quality of services that the ancillary organizations provide will need to be further examined. Three of the six clinic managers interviewed indicated that NGO work in their area has been inconsistent and unreliable. Clinic managers mentioned difficulties of depending on volunteers to do home-based care. The report-back system is erratic and there is lack of accountability. While all clinics reported support groups for PLWHAs, clinic managers indicated difficulties in maintaining good attendance. The number of people attending the support groups varies greatly from week to week. Sporadic attendance and dwindling numbers compromises the effectiveness of the sessions.

Patients who are in need of social work services are referred to the local Department of Social Welfare. Clinic managers were also asked if there are any child service organizations in the area that they can refer to. One clinic mentioned the Newcastle Child and Family Welfare Organization. All the other clinics refer patients needing child welfare services to their local Department of Social Welfare. The extent to which the social workers are able to address these issues was not assessed.

CONCLUSION
This report documented the experiences of one district in implementing the ARV rollout program. Initially hampered by severe shortage of human resources and weak infrastructure, the rollout program in Amajuba District did not happen as quickly and efficiently as anticipated. One year after the initiation of the ART program, Amajuba District’s treatment facilities are facing large patient numbers and the increasing pressure to scale-up. Given the existing strained health system, the scale-up will need to carefully balance ambitious goals and the clear, unmet need for lifesaving drugs with on the ground reality. A successful ART program is contingent upon not only the availability of free drugs, but rational use, equitable distribution, and long-term sustainability as well. Considerations for how best to deal with issues of nonadherence will be as crucial as addressing structural barriers to access. The rollout program can be an opportunity to reinforce and strengthen the health system as opposed to divert resources and deepen inequities. Each district and treatment facility will need to adapt national guidelines and target numbers to most appropriately accommodate the circumstances within the local context.
“...treatment is the current agenda. It will remain the current agenda until the agenda is met. As Nelson Mandela said: it is an elemental matter of human decency, and history will judge where decency was wanting.” (Speech by Stephen Lewis, UN Special Envoy on HIV/AIDS in Africa)\textsuperscript{15}

All eyes are on South Africa. As one of the largest and most ambitious ART programs in the world, the rollout, with great expectations to meet, remains under constant scrutiny. A program of this magnitude requires continuous self-monitoring and sustained political will to implement initiatives to meet evolving demands. Lessons learned from the South Africa ARV rollout program, its successes and its failures, will have important implications for ART rollout to other resource-poor areas of the world.

**Areas in Need of Improvement**

- **Improve human resource plan.**
  - Consider a more nurse-driven model of ART provision.
  - Ensure a multidisciplinary team at every ART service delivery point.
  - Improve capacity of existing healthcare workers to provide nutritional assessment and counseling.

- **Improve patient monitoring and follow-up.**
  - Hire patient advocates to make home visits and to provide social support.
  - Improve patient information systems.
  - Actively engage providers in the monitoring and evaluation system. Provide a channel for practical application of feedback information.
  - Select appropriate indicators for measuring adherence levels.
  - Use multiple strategies to measure adherence.
  - Consider individual patient needs when addressing issues of adherence.

- **Implement a more community-based approach**
  - Improve capacity of PHC clinics to follow-up on patients.
  - Increase the involvement of community health workers in supervision, follow-up, and providing social support. Place more emphasis on reaching out to the poor and vulnerable communities.
  - Increase education about ART: availability, eligibility, treatment efficacy, etc.
  - Increase the involvement of local communities in the planning and decision-making processes of the rollout program.
  - Conduct operations research to explore possibilities of integrating TB and HIV/AIDS services. Explore possible use of existing infrastructure for DOTS to monitor ART.

- **Evaluate equity of access to ART facilities.**
  - Improve access for the rural poor.

- **Streamline the process for decentralization of ART services to primary health care clinics.**

- **Capacitate PHC clinics**
  - Increase the number of professional nurses.
  - Train staff to draw blood for CD4 cell count and viral load tests.
  - Increase available space and physical infrastructure.

• Improve referral network.
• Install patient information systems.

• Increase the number of children on treatment.
  • Capacitate ART clinic providers through a combination of theoretical knowledge and mentored hand-on, practical application.
  • Capacitate PHC clinics to work with children.
  • Improve support network and social services for caregivers.
  • Develop methods and adherence tools to ease caregiver administering of medication.

• Consolidate HIV/AIDS services. Merge VCT, ART, and PMTCT clinics.
• Increase emphasis on PMTCT-plus where mothers and caregivers are also followed up and provided with treatment.
• Improve nutritional services.
  • Ensure constant supply of nutritional supplements.
  • Assess patients to ensure their nutritional needs are being met.

• Increase interdepartmental cooperation among government agencies. HIV/AIDS-related issues are not mutually exclusive from problems such as poverty and unemployment.
• Increase availability of female-controlled barrier methods. HIV prevalence among women, especially among young women, is rapidly increasing. Treatment and prevention must go hand in hand.
• Strengthen existing health system.
  • Use resources dedicated to rollout to establish infrastructure that is sustainable and can also be used for management of other chronic diseases in the future.
REFERENCES


