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Naidoo, Nicolette Prea

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ORGANISATIONAL CAPACITY OF PUBLIC SECTOR ART PROVISION IN GAUTENG PROVINCE AND ITS IMPACT ON PATIENT ADHERENCE: CASE STUDIES OF TWO FACILITIES

Nicolette Prea Naidoo

A research report submitted to the Faculty of Health Sciences, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Masters in Public Health

Johannesburg, 2006

Candidates Declaration

I, Nicolette Prea Naidoo declare that this research report is my own work. It is being submitted for the degree of Masters in Public Health in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this point or any other University.

_____ (Signature of candidate)

_____day of_____, 2006

Executive Summary

In November 2003, the Department of Health launched the Operational Plan for Comprehensive Care, Management and Treatment (CCMT) for South Africa. This policy has as its central goal universal access to antiretroviral therapy to 1 million people living with HIV by the end of 2007. National implementation of the operational plan began in April 2004 and as at the end of October 2006, South Africa had initiated 213 828 people onto ART through the Plan, making it the biggest programme in the world. Of these, 55 580 people had been placed on treatment in Gauteng Province.

Despite these early achievements, there are concerns as to whether the South African public health sector can rise to the challenge of universal access while achieving good clinical outcomes and programme performance. As Venter (2006: 298) states, "the health sector is buckling under the current load, and currently does not have the capacity to do anymore than dent the numbers needed to treat, unless a radical restructuring of health services occurs." A crucial factor in providing a comprehensive approach to HIV/AIDS is the reorientation of service delivery from acute to chronic disease care. In addition to the shift in focus to chronic disease management of HIV/AIDS, health system constraints need to be addressed. These include inadequate health system infrastructure and human resources.

This study aimed to comprehensively assess organisational capacity to provide antiretroviral therapy (ART) in two public sector CCMT sites in Gauteng Province and the influence of these organisational factors on follow-up and adherence to ART, with the view to understanding whether public sector CCMT sites are able to deal with new challenges posed by the Plan. The objectives were to assess: (1) levels of follow-up and adherence in patients registered at the CCMT site, (2) dimensions of organisational capacity, drawing on internationally recognised chronic disease care frameworks, namely the Wagner Chronic Care Model (CCM) and Innovative Care for Chronic

Conditions (ICCC). These dimensions were: presence of motivated and adequately staffed teams; delivery systems design; the quality of support systems; and facility information systems. 3) the similarities and differences between the two sites with respect to organisational capacity, follow-up and adherence.

The two sites were selected through a stratified (CHC and hospital) random sample of CCMT sites in Region A of the province, excluding the long–standing and well-established academic hospital CCMT sites in the sampling frame. The two sites, located in a District Hospital in the West Rand and a Community Health Centre (CHC) in Central Witwatersrand, were visited between May and July 2006. They had initiated 540 and 1001 patients on ART respectively since October 2004. A multi-method health service evaluation of capacity in the HIV related services (ART/Wellness, VCT, PMTCT, and TB) was conducted. This consisted of 11 semi-structured interviews with facility and programme managers; review of registers and routine facility data; an observation checklist and mapping to assess the physical infrastructure of the facility, presence of management and health information systems; 35 self administered questionnaires to assess the levels of motivation of nursing staff at each site. Data on self-reported adherence and viral loads were obtained from a separate study involving exit interviews with 356 patients who had been attending the services for at least four months in the two sites.[1]

Of the 540 and 1001 patients enrolled in the two services, 69.8% and 69.3% were still in the service after 18 months at the hospital and CHC, respectively. The monthly drop-out rate at the hospital had risen fairly sharply towards the end of the 18 month period, attributed by the staff to growing difficulties in access to the site by new enrolments. Nevertheless, based on self-reports (3-day recall period), viral load measures, and loss to follow-up, adherence levels at both sites appeared to be in line with national and international best practice. The percentage of patients with

[1] Also part of a separate MPH study report.

undetectable virus was 76.2% and 74.4% at the hospital and CHC, respectively.

Staffing of the CCMT sites matched the pre-requisites outlined by the National Department of Health for a 'core' health care team treating 500 patients. The CHC CCMT site, however, had more than 500 patients on ART and moreover was providing two services within one unit, i.e. ART/Wellness and VCT thus increasing the patient load. Sites were reaching saturation and this was due to the lack of sufficient space coupled with the high volumes of patients, shortage of certain scarce skills (in particular pharmacy staff), and the multiple responsibilities of nursing staff. In general, the staffing situation at the hospital appeared better. More staff had joined than left the hospital over the year prior to March 2006, and clinical workloads both in the ambulatory services and the CCMT site were less than at the CHC. Vacancy rates were low, at 13.8% and 4.8% for the hospital and CHC, respectively.

Strong leadership of CCMT sites by motivated ART programme managers was displayed; site managers were highly respected and revered by staff. Based on ratings in a self-administered questionnaire, overall levels of motivation and organisational commitment at both sites appeared good, although, worryingly, a sizeable proportion of respondents in both sites agreed with statement "I intend to leave this hospital/clinic." Lack of external support (from the HIV/AIDS, STI, TB Programme) and debriefing systems for programme managers and nursing staff was identified as weaknesses.

With some exceptions, both sites showed evidence of strong 'horizontal' mechanisms of referral and coordination between HIV and AIDS related services within sites; however the PMTCT programme at the hospital was less co-ordinated and networked with other services. In addition, ART and PMTCT programme managers at the hospital indicated that the relationship between hospital services and surrounding clinics was poor.

Apart from the lack of space at the CHC CCMT site, support systems were adequate. There were no reported drug stock outs and supply of drugs and general supplies was good at both sites. Both sites were able to offer a range of routine and HIV specific tests.

A combination of paper and electronic based information systems were used at both sites, however, the hospital CCMT site used a mixture of standard and locally designed data collection forms compared to the CHC which mainly used standard Department of Health forms. The information systems were adequate in monitoring and evaluating patients and programme performance; however, the study highlighted the absence of a clear patient register for individual and programme monitoring and only cross sectional patient data was reported. There was also considerable duplication at the hospital in collecting and compiling patient information.

The findings of the study suggest that the two sites, located in the 'routine' public sector environment of Gauteng Province have demonstrated ability to build organisational capacity for ART provision, through a degree of systems integration and design, decision support systems, generation and local use of information and motivated local champions. Through these elements of organisational capacity, both sites have achieved good adherence rates. The key factors to achieving this good programme performance were motivated local champions who drove programmes forward and good working relationships between the CCMT and other players.

In light of the weaknesses identified, the following key recommendations are proposed:

- Review sites to identify the reasons for the high-drop out rate and address these issues
- Due to evidence of early saturation at the CHC, it is suggested that additional roll-out sites be established, or alternatively increase staffing and space at the CHC to meet the needs of the high patient load. In addition, well patients should be decanted to lower level services e.g. community based care organisations, thus reducing the burden on the site

- Pay attention to the physical infrastructure needs of clinic based sites, especially as they become saturated
- Foremost, the current Employee Assistance Programme (EAP) implemented in Gauteng Province should be strengthened and marketed so that staff members are more aware of the service and make use of it accordingly. Alternatively, a culture of "caring for the caregivers" should be cultivated, through for example, specialist assistance, debriefing sessions, and better external programme support from HIV/AIDS, STI, TB (HAST) managers
- Improve support and supervision of ART programmes by facilitating greater communication and feedback between sites and district, national and provincial levels of government.
- Adopt a strategy of "task shifting", through better use of lay workers, counsellors, and mid level workers such as pharmacy assistants.
- Facilitate greater integration and coordination between the PMTCT programmes and other services, including the provision of VCT and training of staff. In addition, it is imperative that there is good integration between services provided by local and provincial Departments of Health
- Simplify and standardise information systems, particularly the development of clear patient registers to allow for cohort analysis.

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Table of Contents

		Page
Executive Summary		**iii**
Acknowledgements		**viii**
List of Tables		**x**
List of Figures		**xi**
1.	**Introduction**	**1**
1.1	Background and Rationale	**1**
1.2	Literature Review	**5**
1.3	Study Aim and Objectives	**14**
2.	**Methodology**	**16**
2.1	Study Design	**16**
2.2	Study Population	**16**
2.3	Sampling	**16**
2.4	Measurement	**17**
2.4.1	Domains and Measurement Tools	**18**
2.4.2	Tools	**19**
2.4.3	Planning and Fieldwork	**20**
2.5	Data Analysis	**21**
2.6	Ethical Considerations	**21**
3.	**Results**	**22**
3.1	Profile of Sites	**22**
3.2	Adherence as an Outcome	**24**
3.3	Motivated and Adequately Staffed Teams	**26**
3.3.1	Overall Staffing Profile of Sites	**26**
3.3.2	Workload	**28**
3.3.3	Health Worker Motivation	**30**
3.4	Delivery Systems Design	**35**
3.4.1	Integration of HIV related services and referral relationships	**35**
3.4.2	Adherence Management Systems	**41**
3.5	Decision Support Systems	**43**

		Page
3.5.1	Equipment and Physical Infrastructure	**43**
3.5.2	Drugs and Other Supplies	**44**
3.5.3	Testing and Laboratory Capacity	**46**
3.5.4	Staffing Guidelines, Policies and Protocols	**47**
3.5.5	Supervision and Support	**48**
3.6	Clinical Information Systems	**50**
4.	**Discussion**	**55**
5.	**Conclusions and Recommendations**	**68**
References		**70**
Annexure		**76**

List of Tables

Table 1	Domains and Measurement Tools	**18**
Table 2	Profile of sites studied	**23**
Table 3	Adherence – Self-reported missed doses at ART sites	**24**
Table 4	Adherence – Viral load Measurement	**24**
Table 5	Overall staffing, turnover and vacancy rates	**26**
Table 6	Staffing compliment of CCMT sites	**27**
Table 7	Number of Staff Trained in HIV of Services Assessed (ART, VCT and PMTCT)	**30**
Table 8	Self reported motivation of nursing staff working in HIV-related services at the District Hospital and CHC	**31**
Table 9	Views expressed by programme managers on integration of HIV/AIDS services	**36**
Table 10	Degree to which referrals to VCT service were common	**41**
Table 11	Treatment preparation, support and adherence assessment procedures	**42**
Table 12	Checklist of physical resources available at each CCMT site	**44**
Table 13	Availability of drug supplies at the two sites	**46**

		Page
Table 14	Testing and laboratory capacity of CCMT sites	**47**
Table 15	Checklist of essential treatment guidelines and policies	**48**
Table 16	Information systems utilised to initiate and follow up patients	**53**

List of Figures

Figure 1	Wagner Chronic Care Model (CCM)	**7**
Figure 2	Innovative Care for Chronic Conditions (ICCC) Framework	**7**
Figure 3	Number of deaths and loss to follow up in hospital CCMT site	**25**
Figure 4	Comparison of total head count vs. clinical workload in OPD	**28**
Figure 5	Mapping of referral relationships between HIV and AIDS related services at district hospital	**39**
Figure 6	Mapping of referral relationships and integration of HIV related services at CHC	**39**
Figure 7	Organogram showing cluster of services and management at district hospital	**50**

Annexure

Annexure 1	Map of district hospital CCMT site	**76**
Annexure 2	Map of the CHC CCMT site	**77**
Annexure 3	Facility Manager Interview Schedule	**79**
Annexure 4	CCMT Site Interview Schedule	**88**
Annexure 5	ANC/PMTCT Manager Interview Schedule	**99**
Annexure 6	VCT Manager Interview Schedule	**105**
Annexure 7	TB Manager Interview Schedule	**111**
Annexure 8a	Conceptual Framework for Health Worker Motivation	**117**
Annexure 8b	Self-administered questionnaire to assess staff motivation	**119**
Annexure 9	Ethics Approval Form	**123**

Abbreviations

- ART – Anti-retroviral Therapy
- ARV – Anti-retroviral
- CCM – Chronic Care Model
- CCMT – Comprehensive Care, Management and Treatment
- CHC – Community Health Centre
- DOT – Directly Observed Treatment
- FTE – Full Time Equivalent
- HAART- Highly Active Anti-retroviral Therapy (HAART)
- NDoH – National Department of Health
- PEPFAR – President's Emergency Plan for AIDS Relief
- PMTCT – Prevention of Mother-to-Child Transmission
- SSA – sub-Saharan Africa
- UNAIDS – Joint United Nations Programme on HIV/AIDS
- VCT – Voluntary Counselling and Testing
- WHO – World Health Organisation

Chapter 1 Introduction

1.1 Study Background and Rationale

According to UNAIDS (2006), at the end of 2005 38.6 million people were living with HIV/AIDS, of which the highest burden of disease was being felt in Sub Saharan Africa (SSA). South Africa stands at the forefront of the global epidemic with more than 10% of the people with HIV in the world (UNAIDS, 2004: 190). The National Department of Health estimated that there are between 5.6-6.5 million people living with HIV/AIDS (NDoH, 2006) and the South African epidemic has been noted as the worst in the world (UNAIDS, 2006).

The World Health Organisation (WHO) has established a comprehensive strategy to address the epidemic, which includes providing anti-retroviral treatment (ART) by the year 2005 to three million people worldwide (WHO, 2003). The "3 by 5" initiative set the goal of providing ART to 50% of those who need it in developing and middle-income countries (UNAIDS, 2006). As a result of this and other global initiatives, such as the Global Fund to Fight AIDS, TB, Malaria (GFATM) and Presidents Emergency Plan for AIDS Relief (PEPFAR), access to ART in developing countries has increased from 240 000 in 2001 to 1.3 million in 2005 (UNAIDS, 2006). At the same time, a decline in the prevalence of the disease in some countries around the world has been noticed (UNAIDS, 2006).

However, in South Africa, the epidemic has yet to show a decline. In addition, the greatest burden of HIV is felt by women, in whom the largest proportion and increase in prevalence is found between the ages of 15 -24 years (Shisana et al., 2005). Bradshaw et al. (2006: 8) reported HIV/AIDS as the leading cause of premature mortality in both males and females in 2000 for all nine provinces of South Africa. This ranged from 14% in the Western Cape to 51% in KwaZulu-Natal. The percentage of premature deaths due to HIV/AIDS in Gauteng was 42.8% of the total

(Bradshaw et al., 2006: 9). The problem of HIV/AIDS in South Africa is compounded by the legacy of apartheid and its resultant inequities. This has caused fragmentation in the health care systems, thus any national attempt to respond to the epidemic requires that existing weaknesses and inequities be addressed (Stewart and Loveday, 2005).

Since 2000, the response to the HIV/AIDS epidemic in South Africa has been governed by the HIV/AIDS/STD Strategic Plan (2000-2005), which outlines numerous priority strategies, but did not include plans for the provision of ART to the public sector (Stewart and Loveday, 2005). In November 2003, the Operational Plan for Comprehensive HIV and AIDS Care, Management and Treatment for South Africa was launched (Department of Health, 2003). This policy lays its foundation on two key interrelated operational goals. These are "to provide comprehensive care, management and treatment for people living with HIV/AIDS and to facilitate the strengthening of the National Health System (NHS) in S.A."(Department of Health, 2004a) The new policy has as its central goal the provision of ART to HIV positive individuals and aims to ensure free, universal access to ART in the public sector (Stewart and Loveday, 2005), treating 1 million people living with HIV with ARVs by the end of 2007 (Department of Health, 2003).

Subsequent to the announcement of the Comprehensive HIV/AIDS plan, the implementation of the programme was initiated in all provinces throughout the country. Currently, as at the end of October 2006, South Africa had initiated 213 828 people onto ART through the comprehensive, HIV/AIDS treatment plan, making it the biggest programme in the world (Department of Health SA, 2006) Of these 130 000 people were placed on treatment in the public sector in the last 18 months (Venter, 2006).

Due to the differences in infrastructure, wealth and capacities between the nine provinces, Gauteng Province and Western Cape have taken the lead in providing ART. The Gauteng Province currently has 43 designated ART delivery sites, which include hospitals, community and primary

health centres (Department of Health, 2006*).* In accordance with the comprehensive plan, Gauteng Province AIDS Programme provides a comprehensive package of services, which are:

- Anti-retroviral therapy (ART),
- Voluntary Counselling and Testing (VCT),
- Prevention of new infections,
- Diagnosis and treatment of opportunistic infections, including Tuberculosis (TB)
- Prevention of Mother-to-Child Transmission (PMTCT) of HIV/AIDS,
- Referral to hospital care and to support groups, community and welfare structures, palliative care and support to home-based care

(Floyd and Molekwa, 2000; Gauteng Department of Health, 2005)

By the end of October 2006, 55 580 people had been placed on treatment in Gauteng Province (Department of Health SA, 2006). The integration of prevention and treatment strategies to address HIV/AIDS in the Gauteng Province's 5-year programme for 2004-2009 highlights the crucial role that each of these have to play in developing an effective response to this global epidemic. Salomon et al. (2005) states that without effective prevention programmes, the number of people requiring care and treatment will grow each year. This implies that ART will keep more people alive and the treatment burden will have a devastating impact on an already overburdened health system. The authors go on to say that with a two pronged approach i.e. scale up of both prevention and treatment initiatives, coverage targets in Africa could be achieved at lower treatment costs and greater chances of sustainability (Salomon et al. 2005).

However, in spite of the comprehensive approach to service delivery by Gauteng Province, it faces, along with other provinces across the country health system failures that act as barriers to achieving a successful implementation of ART programmes. "Inadequate health systems have been identified as the underlying problem behind the failure of many health interventions and

programmes e.g. the Directly Observed Short Course (DOTS) for TB control, Integrated Management of Childhood Illness (IMCI) and integration of reproductive health services" (Schneider et al., 2006: 13). The reorientation of service delivery for HIV/AIDS from acute to chronic disease care is a crucial factor in providing comprehensive and life long care for HIV/AIDS patients. In Sub Saharan Africa, the impact of HIV/AIDS combined with other chronic diseases accounts for 86% of the total burden of disease (Epping-Jordan et al., 2004). Building chronic disease care requires a number of factors to work in synergy. These encompass "standardised protocols and procurement systems at national level, to good technical support at provincial level, and the development of integrated local networks of prevention and care locally." (Schneider, 2006: 31)

A marker of the performance of the ART programme is adherence to the Highly Active Anti-retroviral Therapy (HAART). Adherence is a major concern in ART programmes as patients need to take at least 95% of their doses to avoid the emergence of drug resistance (Sarna et al., 2004). Barriers to patient adherence include factors related to type of treatment regimen i.e. side effects from the medication, social and psychological factors, institutional resources (Goudge et al., 2004). Adherence requires understanding and willingness on the part of patients, but more so on, an enabling health service environment that has adequate resources (staff, drugs, expertise) supportive organisational cultures, referral systems and continuity of care. Weaknesses in these organisational factors may be the key elements in creating barriers to achieving patient adherence.

In order to assess the efficacy of the Comprehensive Plan in tackling the HIV epidemic, the South African government developed a monitoring and evaluation framework to determine if objectives are being achieved. The framework defines monitoring as "the routine assessment of activities applied to assess resources invested (inputs) in the programme, services delivered (outputs) by the programme, and outcomes that are related to the programme." A separate function

but complementary is the evaluation arm and this is further defined according to its ability to assess a "programmes impact on the health and lives of South Africans." (Department of Health, 2004:5).

This research explored the capacity of the health system in two Gauteng Provincial Comprehensive Care Management and Treatment (CCMT) sites to provide ART with adherence and follow-up as measures of performance. The research question was motivated by an interest in whether the rapidly expanding public sector ART sites were able to orient themselves towards chronic disease care and address health systems weaknesses to achieve this. It will provide information on management of ART rollout in the Gauteng Province to ensure that the province can successfully sustain the HIV/AIDS programme, in line with the CCMT Plan proposed by the government in 2003. By conducting in-depth evaluations of the organisational capacity of services to provide care to people living with HIV/AIDS, the research will assist the Gauteng Provincial Department of Health in identifying capacity gaps and its impact on outcomes. It will feed into management and policy guidelines, as well as development of techniques to monitor and evaluate the ART programme in the future.

1.2 Literature Review

1.2.1 HIV/AIDS and Anti-retroviral Treatment as Chronic Disease Care

According to Epping-Jordan et al. (2004: 304), "chronic conditions are increasingly becoming the primary concern of health care systems throughout the world and are soon to be the leading cause of disability." Along with non-communicable diseases such as diabetes and hypertension, HIV/AIDS too is being viewed as a chronic disease as there is no cure and care is life long (Epping-Jordan et al., 2004) In other words, HIV is a manageable condition but requiring complex and comprehensive approaches to health service provision (Shisana et al., 2005).

Wagner developed a conceptual framework, namely the Chronic Care Model, which summarises the tasks involved in the successful management of chronic illness. The model describes the interactions between essential elements of the health system, providers, patients and support systems in achieving outcomes (Figure 1). The CCM is an evidence-based framework that has been developed in the United States of America to improve the state of health systems addressing chronic disease care. The health system element of the model comprises of the following:

- Self- management support, which includes the provision of information and support to enable both patients and families to care better for their illness,
- Delivery system design that advocates for a change in health system delivery from acute to chronic disease care, oriented towards continuity of care and long-term follow-up of patients.
- Decision support comprises access to evidence based practice guidelines and protocols, and health care professionals with knowledge and experience in caring for people with chronic illness,
- Clinical information systems, which address the collection and compilation of data using computerised or paper based system. This is imperative for monitoring and evaluation of programmes
- In addition to the above, the productive interactions between a "prepared proactive practice team" and "informed activated patients" are important in achieving both functional and clinical outcomes.

(Epping-Jordan et al., 2004: 300).

Research in the USA on the adoption of the CCM has shown that the key obstacle to expanding the programme was the overall fragmentation of the health services. Others have also suggested that it cannot simply be transferred to resource-limited countries (Epping-Jordan et al., 2004). This

has resulted in the development, with the support of the World Health Organization of a framework, the Innovative Care for Chronic Conditions (ICCC) that builds on the CCM but that is specifically adapted to the demands and resources of the developing world (Figure 2).

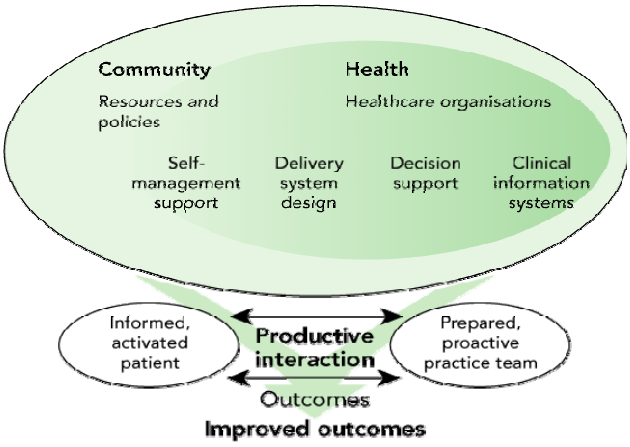

Figure 1: Wagner Chronic Care Model

Source: Epping-Jordan et al., 2004)

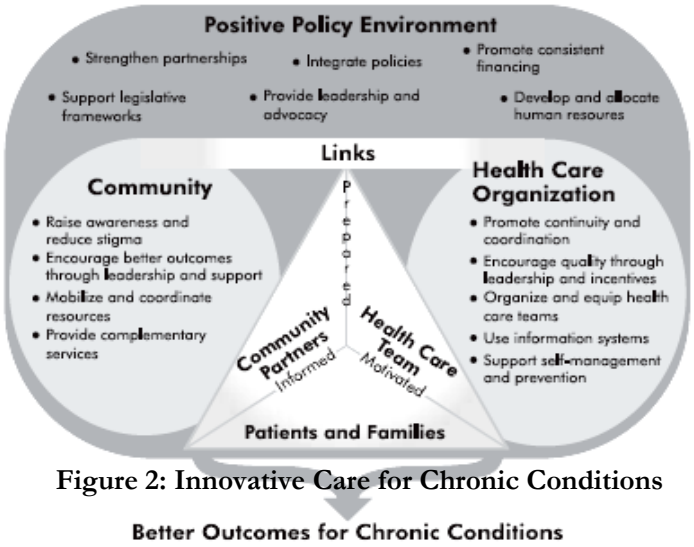

Figure 2: Innovative Care for Chronic Conditions

The ICCC differs from the CCM in that it acknowledges the influence of policy on implementation and sustainability of health interventions and thus includes a positive policy environment as an important element in the comprehensive management of chronic diseases (Epping-Jordan et al. 2004). The framework is structured into three different interacting levels, the micro (patients and family), meso (health care organisation and community) and macro (policy) levels (Epping-Jordan et al., 2004).

The CCM has a fairly limited view of decision support systems and does not make direct reference to the lack of resources in developing countries such as medication and diagnostic tools. While access to expert information and guidelines are not unimportant elements to enable good clinical and management decisions to be made, in developing countries some health care facilities

lack the basic infrastructure to deliver care. The ICCC thus advocates for organised and "well-equipped" health care teams instead of decision support.

Analogous to systems delivery design, the ICCC framework highlights the need for continuity and coordination. In order to achieve these, integration of services is required. Integration is 'an extension of coordination and involves making the parts come together into a functional whole so that the response system is experienced from the user side as more or less coherent and easy to negotiate one's way around." Afroaids info (http://www.afroaidsinfo.org/public/Policy/localresponses/coordinate.htm). The World Bank et al. (2003:112) describes functional integration as "integration at the points of delivery of the health services, to ensure a continuum of engagement with systems of service delivery, recognizing that integration must primarily be oriented around utility. It also involves development of referral networks and consistency of norms and standards of practice across functionally related services."

In sum, from a health systems perspective, the steps involved in providing a comprehensive approach to service delivery are dependant on the development of an ART programme that is accessible to the community, patient-centred, and is strengthened by support systems, referral relationships, and monitoring and evaluation to assess effectiveness of the programme (Schneider, 2006).

1.2.2 Adherence to ART

Follow-up and adherence to ART are important measures of the performance of ART programmes. ART programme performance is generally assessed using a combination of follow-up, mortality and viral load suppression (ART-LINC, 2006; ART-CC, 2006); such as patient self-reports of adherence (e.g. doses missed over a standard period such as 3 days or 1 month, percentage of prescribed pills taken). Clinical and laboratory measures (viral load, CD4 count) are

correlated with self-reports of adherence although failure of virological suppression can occur with perfect adherence (Goudge et al., 2004). The best examples of programmatic and service experience are with adherence to TB and Directly Observed Short Course Treatment (DOTS). According to Goudge et al. (2004:11) the "TB programme has been commonly proposed as an intervention to increase adherence to ARVs due to its multi-faceted programme, which includes case detection, stable drug supply, good follow up systems, commitment from the community and local government, as well as greater social participation of patients."

While adherence is influenced by many factors, such as patient characteristics and treatment regimen, Ickovics and Meade (2002) have prioritised the patient provider relationship and enabling clinical settings within reliable and comprehensive, integrated primary care as key to adherence to ART. If these systems are not in place, non-adherence becomes a public health concern as it results in the spread of HIV resistant strains (Ickovics and Meade, 2002) and the "development of resistance to specific ARV agents may confer resistance to other drugs within the same class and can significantly limit future treatment options." (Stewart et al. 2004: 38). Bekker et al. (2006: 315) refer to this as "ART anarchy".

There are fears that resource limited countries are unable to ensure adherence to ART due their weak health systems, lack of capacity and infrastructure, and as a result prevent the rapid expansion of ART programmes and services (Bekker et al., 2006). These fears stem from experiences with non-communicable diseases where adherence has been found to be poor. For example, a study in Gambia showed that 73% of people who had been prescribed treatment for hypertension had stopped treatment, however the period for which patients had been on treatment was not reported (Epping-Jordan et al., 2001).

However, programmes initiated by Medicins Sans Frontieres (MSF) and others in South Africa over the last few years and have successfully demonstrated that good clinical outcomes and

treatment can be achieved in resource-constrained settings (MSF, 2003; MSF, 2006; Bekker et al., 2006). The outcomes achieved by these NGO-run sites have been dependant on developing a model of care that caters for the individual contexts of each site, in addition to a transfer of innovation in their approach to service delivery, e.g. task shifting (Nelson Mandela Foundation and MSF, 2006) and nurse initiated treatment to alleviate human resource constraints. This has set precedence for public sector sites, which are facing similar problems.

Mills et al. (2006) conducted a meta-analysis to evaluate estimates of adherence to anti-retroviral therapy in sub-Saharan Africa (SSA) and North America. The study found that favourable levels of adherence as measured through patient self-report could be achieved in the SSA and that concerns related to the expansion of the ART programme are unwarranted. This was evident from the findings, which showed that from a pooled estimate of ART adherence in North America, 55% of patients achieved adequate levels of adherence compared to 77% of patients in SSA (Mills et al., 2006).

Similarly, correlates of adherence, namely viral load suppression and gain in median CD4 count have been shown to be similar in the developed and developing world. Pooled analysis of 30 treatment cohorts (18 from Africa, Asia and South America and 12 from Europe and North America) showed that 76% of patients in low-income countries compared to 77% in high income countries achieved viral load suppression after 6 months of being on ART (ART-LINC and ART-CC Group, 2006). The highest mortality occurred during the first few months after starting treatment, where 78% of deaths in low-income countries and 62% in high-income countries occurred during the first 6 months. The higher mortality in low-income countries was attributed to comorbidities of TB and other opportunistic infections as access to prophylaxis, diagnostic facilities and effective treatment is often limited (ART-LINC and ART-CC Group, 2006: 822). In addition, the high mortality within the first few months on ART can also be attributed to patients presenting

with late stages of HIV infection due to testing late. There are a number of possible reasons why people test late, some of which are denial, stigma and confusing political statements. Loss to follow up of patients during the first year of being initiated on HAART was found to be 15% in low-income countries compared to 5% in high-income countries (ART-LINC and ART-CC Group, 2006).

1.2.3 Health Systems Capacity

In order to achieve a comprehensive care, management and treatment approach for people living with HIV/AIDS, a shift in organisation of service delivery towards chronic disease care is necessary. This will ultimately strengthen responses to the epidemic and improve adherence to ART. However, in order to achieve a comprehensive approach to service delivery, the capacity of the health system to deliver and sustain the ART programme as a whole needs to be strengthened. According to the World Health Organization "although individual contexts necessitate different models of care, an effective HIV/AIDS treatment programme is defined by its *capacity* to quickly and effectively treat a substantial number of people living with HIV/AIDS." (WHO, 2003: 9) However, South Africa lacks this capacity and this can be attributed to inadequate health systems infrastructure and human resources, which have hampered government responses to HIV/AIDS (Tawfik et al. 2002). Schneider et al. (2006) describe these constraints in terms of supply and demand, where affordability and the stigma associated with HIV act as demand barriers and factors such as the inadequate service delivery infrastructure, and weak drug distribution and procurement systems denote the supply element. Schneider et al. (2004) summarise this by stating that the main systemic constraints to scaling up is the reorientation of service delivery towards chronic disease care, the inadequate supply of human resources and existing unsupportive service delivery cultures. Thus, building of health systems capacity is imperative if the ART programme is to be an effective

tool in reaching the treatment targets set by government. Along with this shift in care and reorientation of health systems towards addressing HIV/AIDS as a chronic illness, there needs to be an increase in the allocation of funds to both treatment and prevention programmes. The concern that resources will be drained from other health services in an attempt to strengthen the ART programme is a valid one, however, this can be avoided by integrating health services and providing HIV/AIDS treatment care and support under the umbrella of primary health care as originally envisioned.

Organisational capacity is defined as the interaction of resources, knowledge, and processes employed by the organization (Lusthaus et al., 1995). These include staffing, infrastructure, technology, financial resources, strategic leadership, programme and process management, and networks and linkages with other organizations and groups in successfully attaining its goals.

Experiences from various ART programmes have shown that the lack of human and physical resources is a major constraint to effective provision, such as non-availability of drugs in resource poor settings, inadequate or lack of management of the ART programme, the complex nature of treatment, and the resources and infrastructure available to each rollout site (Busgeeth and Rivett, 2004). In addition, difference in infrastructure of the provinces, clinic and staff characteristics, such as lack of staff motivation and organisational culture has been noted to cause disparities in the provision of services at health care facilities (McKinney and Marconi, 2002).

In 2000, Modiba et al. (2002) conducted research to assess the level and capacity for integration of HIV/AIDS care and support into primary health care in Gauteng Province. Weaknesses that affected the delivery of comprehensive HIV/AIDS care in Gauteng included poorly developed referral systems, fragmentation of services and absence of continuity of care. In addition, the study provided crucial insight into how systems in Gauteng Province were addressing the HIV/AIDS epidemic prior to the government rollout in 2004. It was evident that HIV/AIDS

was not being managed properly at the primary health care level; providers' clinical knowledge related to various stages of HIV was generally poor, with 25% or less being able to correctly stage and diagnose opportunistic infections (Modiba et al., 2002)

Prior to the start of the official government ART programme in 2003 public sector ART programmes were initiated with the support of NGOs in various parts of the country. The ART programmes in Khayelitsha, Lusikisiki and Guguletu were initiated between 2001 and 2003 (WHO, 2003; MSF, 2006; Bekker et al., 2006). The ART site in Guguletu is a community-based programme and one of the longest running programmes of its kind in Sub-Saharan Africa (Bekker et al., 2006). Experiences from these 'innovator sites' have provided insight into the functioning of these programmes and strengths and weaknesses of delivering ART in the public sector. The Khayelitsha programme implemented by the Western Cape Department of Health and the MSF was recognised by the World Health Organisation (WHO) as one of the models for an integrated HIV programme. This was due to its comprehensive package of services and integration of HIV/AIDS activities into the services provided at the primary care level where there could be maximum coverage and community participation (MSF, 2003; WHO, 2003). In addition, the Lusikisiki programme in the Eastern Cape demonstrated that universal access to treatment in one of the most under-resourced and disadvantaged areas of South Africa was possible without compromising quality of care (MSF, 2006). It adopted various strategies to address the constraints to service delivery, which included task shifting to mobilize existing human resources, creation of additional capacity, improvement of clinic infrastructure and strong community engagement to support the health system (MSF, 2006).

Each programme faced human resource shortages and inadequate physical infrastructure, but overcame these constraints to service delivery by developing models of care that catered to the individual contexts of each site (MSF, 2006; WHO, 2003; Bekker et al., 2006). Lessons learnt from the model of care developed by MSF initiated and other programmes have demonstrated that it is

feasible to deliver a comprehensive package of HIV services in an integrated manner in resource-limited settings, and to create the necessary organisational capacity to achieve this (MSF, 2003; Bekker et al., 2006; MSF, 2006).

1.3 Aim and Objectives

The aim of the study was to comprehensively assess organisational capacity to provide antiretroviral therapy (ART) in two public sector Comprehensive Care Management and Treatment (CCMT) sites in Gauteng Province and the influence of these organisational factors on follow-up and adherence to ART.

The objectives were to assess:

(1) Levels of follow-up (default and mortality) and adherence in patients registered at the CCMT site (using a combination of routine facility data, viral load measures and patient self-reports).

(2) Organisational capacity according to the following dimensions:

(2.1) The presence of motivated and adequately staffed teams (skills mix, numbers, workload and motivation);

(2.2) Delivery systems design (adherence management and patient support, integration of services and referral networks);

(2.3) The quality of support systems (drug supplies, laboratory services, equipment, physical infrastructure, supervision and leadership, guidelines and protocols);

(2.4) Facility information systems (paper/electronic based for tracking clinical outcomes, identifying dropouts and monitoring facility performance).

(3) Compare and contrast the differences and similarities between the two CCMT sites with respect to organisational capacity factors, follow-up and adherence.

Definition of terms:

- Adherence refers to the taking of medication as prescribed for the required duration (life-long in the case of ART). This research used three approaches to assessment of adherence: attendance at follow-up appointments, self reported adherence using a 3 day recall period and viral load suppression
- Organisational capacity refers to the combination of elements from the CCM and ICCC framework that advocates for the redesign of health systems and inclusion of key elements in addressing chronic illness in a holistic, integrated manner. These elements revolve around physical, human and management resources available to provide an effective and comprehensive ART programme.
- Task shifting refers to two processes which are:
    - Shifting tasks to from one cadre of health worker to an existing lower-level cadre
    - And, shifting tasks to a new cadre developed to meet specific health care goals

(Bluestone, 2006)

Chapter 2 Methodology

2.1 Study Design

A multi-method health service evaluation was conducted of two public sector facilities in Gauteng Province, accredited to provide ART. This involved triangulation of qualitative and semi-quantitative methods and detailed case studies to establish a composite and in-depth assessment of the inter-related factors underlying the relationships between organisational capacity and patient adherence to ART in two facilities (Katzenellenbogen et al., 2004).

2.2 Study Population

The study population comprised of 13 facilities, both community health centres and hospitals, providing ART in Regions A (Central Witwatersrand and West Rand Districts) and B (Ekurhuleni and Sedibeng Districts) of Gauteng Province, which were following up at least 500 patients as at the end of October 2005, and which were not located in an academic hospital. On request of the Gauteng Department of Health, only two out of the three regions in the province was selected.

2.3 Sampling

The 13 facilities were divided into community health centres and hospitals. Two facilities (total four) in each stratum were randomly selected. The two facilities falling in Region A form the subject of this report.[2] Within each site, all HIV services (ART/Wellness, VCT, PMTCT, TB), as well as outpatient and casualty departments were studied.

[2] The other two facilities were studied by a second MPH student and will be reported separately.

Sample size

Programme managers were purposively chosen as key informants based on their knowledge and expertise related to service delivery. All nurses working within the HIV/AIDS related services assessed during the course of the study were asked to participate. Only the district hospital sample included staff from the TB ward, as at the CHC TB services were provided at the local government TB clinic. In addition, only nurses were chosen to participate in the self-administered questionnaire as they bear the core responsibility for the care delivered to people with HIV/AIDS. During the course of the research, 11 programme managers were interviewed and 35 nurses completed self-administered questionnaires assessing motivation.

2.4 Measurement

2.4.1 Conceptual Framework

In this research, the elements and principles of organisational capacity for implementing an ART programme were derived from a combination of both the CCM and ICCC conceptual frameworks in which the various domains defined by the models, were adapted to address the aim of the study. These domains were (1) adherence and patient follow up as outcomes, (2) motivated and adequately staffed teams, (3) delivery systems design, (4) decision support systems and (5) clinical information systems. Domains and their measurement are outlined in Table 1.

Table 1: Domains and Measurement Tools

Domains		Measurement Tools
(1) Adherence and patient follow up as outcomes		
Patient self report	3 day recall	• Patient exit interviews[3] (n=356) • Record review of routine facility data
Viral load suppression	Individual patient data	
Follow up rates	Defaulters; transfers; deaths	
(2) Motivated and adequately staffed teams		
• Adequately staffed teams	Staffing compliments for programmes and sites; turnover; vacancy rate; workloads	• Facility and programme manager interviews (n=11) • Self administered questionnaires to nurses (n=35)
• Motivation of health care teams	Assess motivational determinants and outcomes	
(3) Delivery Systems Design		
• Service Integration	Assess degree of integration of HIV related services, both physical and functional	• Facility and programme manager interviews (n=11) • Mapping of site • CCMT site interviews (n=2)
• Referral and networking relationships	Presence of referral relationships between services, NGOs and support groups	
• Adherence Management Systems	Assess methods of treatment preparation, adherence and support	
(4) Decision Support Systems		
• Equipment and physical infrastructure	Presence of computers; telephones; lockable cabinets for patient files and drugs; visual and auditory privacy for counselling and consultations	• Mapping of site and checklist • Facility manager and CCMT interviews (n=4) • Drug checklist • Programme manager interviews (n=8) • Self administered questionnaires to nurses (n=35)
• Drug Procurement and distribution	Description of drug supply and presence of general drugs, supplies and anti-retroviral drugs	
• Laboratory capacity	Range of lab tests performed; on-site/off site testing and turnover of test results	
• Staffing guidelines, policies and protocols	Availability of written guidelines to assist with clinical management	
(5) Clinical Information Systems		
• Mechanisms for tracking clinical outcomes; programme monitoring and evaluation	Alert systems for defaulters; monthly and yearly reports and registers and types of information collected at a programme level to track patients	• Facility and programme managers interviews (n=11) • Record review of routine facility data

[3] Exit interviews were conducted as part of a separate MPH study, and permission to access and utilize the information for the purposes of this report was obtained from the primary researcher of that team

2.4.2 Tools

Data collection involved the following:

- An observation checklist and mapping to assess the physical infrastructure of the facility, presence of management and health information systems (Refer to Annexes 1 and 2)
- Eleven semi-structured interviews with facility and ART, Antenatal/PMTCT, VCT and TB programme managers were conducted. The interviews comprised both structured and open-ended questions. The aim of the interviews was to obtain information from managers about service provision, staff workload, turnover and staffing levels, approaches to leadership and supervision, variety and content of HIV/AIDS services provided and the role of the site in networking with other services (Refer to Annexes 3-7 for the tools used during the course of the study)
- Thirty-five self administered questionnaires to assess the levels of motivation of nursing staff at each site, using an existing tool developed in the Centre for Health Policy (Penn-Kekana et al., 2005) (Refer to Annex 8 for both the conceptual framework and tool)
- Reviews of registers and routine facility data to obtain information pertaining to clinical workloads, and numbers of patients on treatment, lost to follow up, transferred and died.
- Data on self-reported adherence and viral loads were obtained from a separate study involving exit interviews with 356 patients who had been attending the service for at least four months in the two sites.[4] This involved the development of a questionnaire for collecting data from patients on ART. The questionnaire aimed to understand the factors affecting adherence to ART in poor urban communities in South Africa.

The response rates were 100% for the key informant interviews and 98.3% for the exit interviews with only 6 people declining to participate. The response rate of the self-

[4] Information collected by a separate researcher (Ms Williams) as part of a separate MPH report.

administered questionnaires was low and ranged from 48% at the hospital to 56% at the CHC.

Reliability of data was ensured by standardising the tools used to conduct interviews with programme managers. In addition, the interviews comprised mainly of checkboxes and close-ended questions, thereby reducing the amount of measurement error. Information pertaining to the numbers of patients on treatment, on the waiting list etc. obtained from key informant interviews was verified by reviewing the routine facility data from monthly CCMT reports. The primary researcher collected all data pertaining to the organisational capacity assessment, i.e. record review of routine facility data, programme and facility manager interviews, and mapping of sites, thereby ensuring reliability of the information collected. Fieldworkers for a separate MPH study report collected information pertaining to social support and ART adherence through exit interviews and permission to access this information was obtained from the primary researcher and her team.

2.4.3 Planning and Fieldwork

During the initial phase of the research, meetings were held with the relevant provincial and district HIV/AIDS and health authorities. This process ensured that all authorities were notified of the research and that permission to gain entry to sites was granted. This was followed by scheduled appointments with the CEO of the district hospital and facility manager of the CHC in the respective sites. Following the initial visits, interview times were scheduled with the programme managers.

The primary researcher conducted all research related to the organisational capacity assessment, drafting and submission of the protocol, collection of data and analysis, and

write up of the final report. Fieldwork took place over a three-month period (May to July '06).

2.5 Data Analysis

Qualitative data was analysed using a thematic content analysis. Semi-quantitative data such as routine data was tabulated using an excel spreadsheet upon which descriptive and summary statistics was utilised to determine trends in loss to follow up (mortality and default rate). Data on health worker motivation was grouped according to categories described in the health worker motivation and analysed using the Epi Info 3.3.2 statistical package. Analysis was accomplished using a triangulation method to produce a complex picture of the relationships that may exist between organisational factors and adherence (Katzenellenbogen et al., 2004).

2.6 Ethical Considerations

Ethical clearance for the study was obtained from the University of the Witwatersrand's Human Research Ethics Committee (R14/49) (refer to Annex 9), while authorisation to conduct the research was secured from the Gauteng Provincial Department of Health. Further permission to conduct the research was obtained from provincial, district and facility authorities. All subjects who participated did so on the basis of informed, voluntary consent. The participants were assured that the information obtained for the study would be kept confidential and this was accomplished by only using a questionnaire number, participant code and facility/site code. Names of the facility and site managers are not reported. All research findings and reports will be made available to all participants and rollout sites in the coming months.

Chapter 3 Results

This chapter will report on adherence as a patient outcome, and the organisational capacity domains of motivated and adequately staffed teams, delivery systems design, decision support systems, and clinical information systems as identified by the Chronic Care Model (CCM) and Innovative Care for Chronic Conditions (ICCC) framework. The presentation of the findings, the two sites are compared and contrasted to develop an understanding of the organisational capacity and its relationships to outcomes.

3.1 Profile of Sites

Table 2 provides a profile and brief description of the sites and all the HIV-related (ART, VCT, PMTCT, TB) services provided at each site. Services assessed were not limited to the departments providing HIV/AIDS related care, and included their interactions with the general curative care services at the CHC and Casualty and Outpatients Departments at the district hospital, however, it should be noted that the outpatient and general curative care departments at both the hospital and CHC respectively, addressed the basic needs in relation to HIV i.e. referral to the ART clinics where patients received comprehensive care, management and treatment of HIV/AIDS and VCT. The district hospital situated in the West Rand of Gauteng Province had a capacity of 180 beds for inpatient services. The CHC on the other hand was located in Central Witwatersrand and provided a comprehensive array of outpatient services. Both sites provided comprehensive HIV/AIDS, STI and TB (HAST) services, however, these were not necessarily provided in an integrated manner (see later). Both CCMT sites were initiated in October 2004 and provided wellness and ART services. As of March 2006, 540 and 1001 patients had been initiated on ART in the hospital and CHC respectively, of which 694 (69.3%) were being followed up in the CHC service compared to 377 (69.8%) at the hospital.

Table 2: Profile of Sites Studied

Site A	Site B
General Profile	
➢ Provincially run district hospital situated in the West Rand of Gauteng Province ➢ Provides both outpatient and inpatient care ➢ Outpatient hours: 7am – 4-pm (Monday to Friday) ➢ Capacity of 180 beds, of which 30 are allocated specifically for the TB ward ➢ Acts as a referral site for antenatal care **Mission Statement:** "This hospital will provide and promote improved health services to the community. Achieved through efficient and effective and quality service and developed HR ability." **Vision:** "To be an optimal public health service provider."	➢ Provincially run community health centre located in a large, well established urban township in Central Witwatersrand ➢ Only provides outpatient care, except for the 24hr maternity service ➢ Opening hours: 7am - 4pm (Monday to Friday) ➢ TB clinic run by local government authority **Mission Statement:** "To improve the quality of life of residents of this area, by active participation of all stakeholders and to improve comprehensive primary health care." **Vision:** "A vibrant suburb with a health community, that is actively participating in planning for their own health needs by the year 2005."
HIV related services assessed	
➢ Outpatient Department (referrals to VCT and ART clinic) ➢ Voluntary Counselling and Testing (VCT) Service ➢ TB Focal Point ➢ TB Ward ➢ Prevention of Mother To Child Transmission (PMTCT) of HIV ➢ Comprehensive Care Management and Treatment (CCMT) service	➢ General Curative (referrals to VCT and ART clinic) ➢ Antenatal Care/PMTCT ➢ Voluntary Counselling and Testing Service ➢ CCMT service
Profile of CCMT sites	
➢ Operational since 18 October 2004 ➢ Provides a general HIV wellness Clinic: Mondays to Friday ➢ ART Clinic: Mondays – Wednesday ➢ 540 initiated on ART since October 2004 ➢ Are still on ART in this service – 377 (69.8%) ➢ Followed up in the wellness programme (CD4 >200) - 195 ➢ Children on ART (<14 years) – 52 ➢ Initiated treatment during pregnancy – 10	➢ Operational since 4 October 2004 ➢ Physically integrated with VCT (called 'Khululeka" – To be free) ➢ Initiation of treatment: Mondays – Thursdays ➢ Wellness and Follow up: Tuesdays and Thursdays ➢ Friday: Administration and emergencies ➢ 1001 initiated on ART since October 2004 ➢ Are still on ART in this service - 694 (69.3%) ➢ Followed up in the wellness programme (CD4>200)- 900 ➢ Children on ART (<14 years) – 55 ➢ Initiated treatment during pregnancy – 10

3.2 Adherence as an Outcome

In order to ascertain the rates of adherence, patient self-report (3-day recall), viral load suppression and patient follow up rates were assessed. A total number of 356 patient interviews were analysed for the self-report and viral load measures (164 and 194 for the hospital and CHC respectively). Patients were asked to report any missed dose over the previous prior three days and ever previously (Table 3).

Table 3: Adherence - Self-reported missed doses at ART sites

	District Hospital (n=164)	**CHC (n=194)**
Ever missed a dose	9.1% (15)	8.2% (16)
Missed dose in last three days	2.4% (4)	2.6% (5)

Fully 90.9% hospital and 91.8% patients at the hospital and CHC respectively reported that they had never missed taking their treatment, while 2.4% and 2.6% of patients at the hospital and CHC, respectively reported missing a dose in the last three days.

Table 4: Adherence - Viral Load Measurements

	District Hospital (n=164)	**CHC (n=194)**
Viral load		
Total with viral load result	143	121
0- 399 (Undetectable)	109	90
>= 400	34	31
% Undetectable	76.2	74.4

When comparing viral load suppression (last viral load measurement taken), the two sites performed equally (76.2% versus 74.4%, at the hospital and CHC sites, respectively). However, it should be noted that one quarter of the patient files and viral load results at the CHC were not available.

Loss the follow-up of people on ART was assessed on the basis of the routine data. Both services had been in operation for 18 months. Excluding the small number of patients transferred out of the service (who presumably do not represent true loss to follow-up),

69.8% and 69.3% of patients initiated on treatment since the start of the clinic were still being followed up in the service after 18 months of operation at the hospital and CHC site respectively. Examination of monthly statistics for the six-month period just prior to the fieldwork (October 2005 to March 2006) at the hospital site, showed the following:

- A monthly drop out rate (deaths and loss to follow-up) ranging from 0.5% to 5.3% for the hospital
- Cumulatively, over the six-month period, there was a 12.8% loss to follow-up at the hospital site, consisting of a 5.7% death rate and 7.1% loss to follow-up. Towards the end of this period, the hospital site experienced a sudden jump in both deaths and drop outs (Figure 3). Staff at the site were aware of the problem and ascribed it to a highly migrant population served by the clinic combined with patient reports of increasing difficulty with transport to the facility

Unfortunately, data obtained from the CHC site was incomplete and thus monthly analysis of the drop out rate and total loss to follow (including death and default rate) could not be calculated.

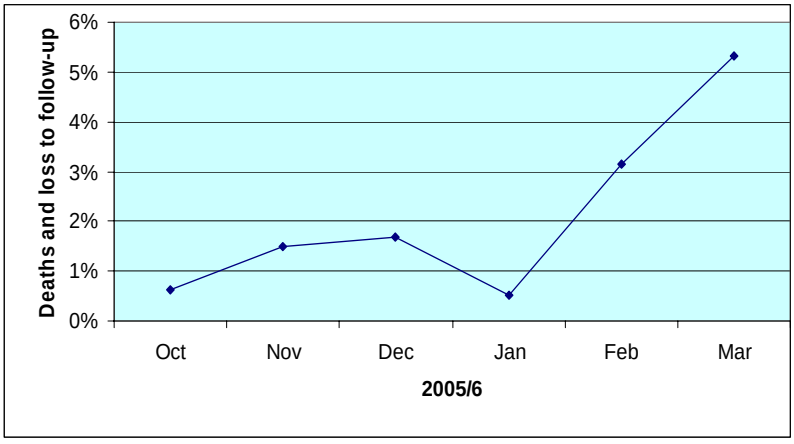

Figure 3
Number of deaths and loss to follow up in hospital based CCMT site (Oct to Mar 06')

3.3 Motivated and Adequately Staffed Teams

3.3.1 Overall staffing profiles of the sites

To obtain a general picture of staffing in the two sites, the facility managers provided information on staffing of their sites including numbers per category of health professionals, vacant posts and turnover of health care workers since April 2005 (Table 5). Overall, the vacancy rates for both sites were low i.e. 13.8% and 5% for the hospital and CHC respectively. However, vacancy rates for 'scarce' personnel, namely dieticians, social workers and pharmacy assistants potentially created key bottlenecks i.e. caused a delay in the provision of essential HIV service. Data also indicated that within the last year, more staff joined the hospital than left, whereas in contrast, a greater number of staff left the CHC. Of the two pharmacists present at the respective sites, one is dedicated to the CCMT site. However, it should be noted that staffing data for the CHC as a whole was difficult to obtain due to some reluctance on the part of the facility manager to provide the data. [5]

Table 5: Overall staffing, turnover and vacancy rates of District Hospital and Community Health Centre

Hospital							CHC				
Staff Category	**Total No.**	**Left**	**Joined**	**Vacant**	**Vacancy Rate (%)**		**Total No.**	**Left**	**Joined**	**Vacant**	**Vacancy Rate (%)**
Doctors	16	1	6	4	25.0		6	0	3	1	16.6
Professional Nurses	58	3	16	5	8.6		30	8	0	0 ?	0
Enrolled Nurses	17	3	0	3	17.6		9			0	0
Nursing Assistants	55	0	10	9	16.4		0				0
Pharmacist	2	0	1	0	0		2		1		
Pharmacy assistants	6	0	5	0	0		0				
Dietician	4	0	1	1	25.0		1			2	66.6
Social worker	1	0	0	1	50.0		3				
Total	167	7	39	23	13.8		62	13	7	3	4.8?
Lay counsellors*	8						11	5	3		

[5] Data was predominantly gathered from other sources, i.e. programme managers from within the site

* Recruitment and placement of lay counsellors is conducted by a separate agency, and therefore complete counsellor data was unavailable

Description of staffing in CCMT site

In accordance with the Operational Plan for Comprehensive HIV and Aids Care, Management and Treatment for South Africa, each designated ART site should have specific cadres and numbers of health professionals in order to provide treatment to people living with HIV and AIDS (PLWHA). As stated, for 500 patients on ART, there should be the following number of health professionals:

- 1 Medical Officer
- 2 Professional Nurses
- 5 Lay counsellors or community health workers
- 1 Pharmacist
- 1 Admin clerk
- 1 Data Capturer

In addition, this core team should also comprise of one nutritionist and a half time social worker (Department of Health, 2004; Stewart and Loveday, 2005)

Table 6: Staffing compliment of CCMT sites

	District Hospital					Community Health Centre			
Staff	**No. Staff**	**Left**	**Joined**	**Vacant**		**No. Staff**	**Left**	**Joined**	**Vacant**
Doctors	1					1	1	1	
Prof. Nurses (inc. programme manager)	2	1		1		2			
Enrolled Nurses	0					0			
Nursing Ass't	1					2			
Lay Counselors	5					5	5		
Dieticians	1 (PT)					1			2
Social Workers	1 (PT)			1		1			
Psychologist	0					0			
Admin Clerk	2			1		1			
Pharmacy Ass't	0			1		0			
Pharmacist	1			1		1			
Data capturer	1					1			

As compared to the pre-requisites outlined by the Operational Plan, the CCMT site at the hospital appeared to have sufficient human resource capacity. However, at the CHC considering the number of patients on treatment (694) suggests this site is inadequately

staffed to deal with the patient load. In addition, both sites provided wellness services, and at the CHC VCT as well.

Programme managers in both sites felt that they were understaffed and the service would benefit from the injection of additional health care workers. This may be attributed to the many different roles and responsibilities of health care workers, in particular, nurses and site managers. Apart from their managerial duties and reporting to matrons and district offices, they assisted with clinical tasks such as taking blood, staging patients, issuing of prophylaxis and taking in patients from referral clinics.

3.3.2 Workload

The monthly "head counts" in the ambulatory services of the hospital over the six month period October 2005 to March 2006 were slightly higher (mean 2854) than that of the CHC (mean 2233). However, the clinical workload of OPD staff (ratio of patients to clinical staff), was lower in the hospital (mean 357 per month) than the CHC (mean 447 per month) (Figure 4).

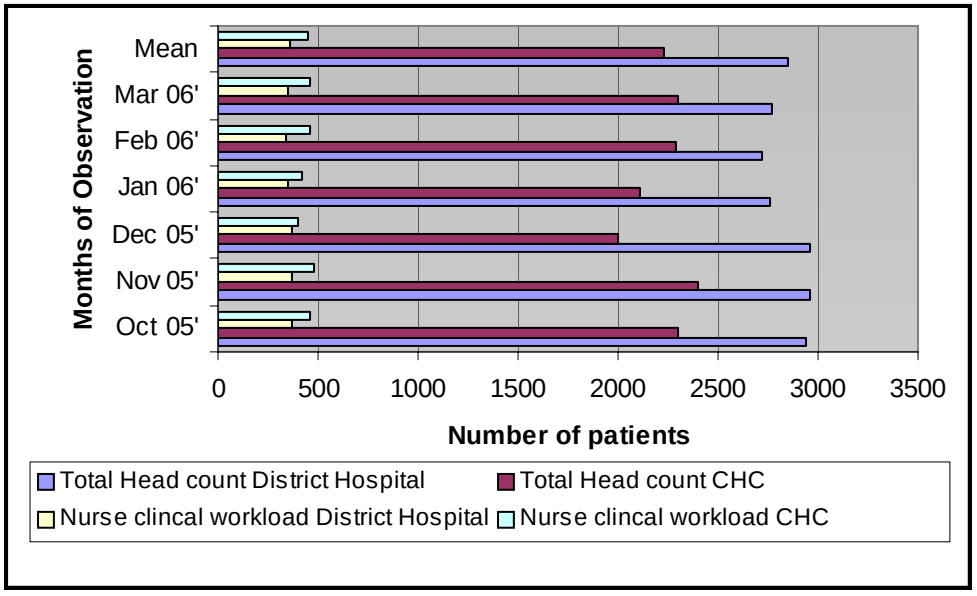

Figure 4
Comparison of Total Head Count vs. Clinical Workload in Outpatient Departments

According to the CCMT site manager, the hospital-based CCMT service saw approximately 50 patients per day including some HIV testing (rapid and ELISA), initiation on treatment and into the wellness programme, counselling and follow up appointments. The CHC based ART site attended on average 200 patients per day for both ART/Wellness and VCT.

In addition to examination of routine data, nursing staff in the various HIV-related services completing the self-administered questionnaires were asked to indicate both the average number of patients seen in the most recent working day and the average number of hours worked in the last week. Although both sites reported large workloads, daily patients seen were much higher at the CHC (62 per person) than at the hospital (49 per person). Mean hours worked in the last week ranged from 40.2 to 37.64 hours for the hospital and CHC respectively.

3.3.3 Skills Development and Training

Programme managers working in the HIV-related services were asked to identify the type of training received in relation to HIV/AIDS and the number of health workers assigned to undergo such training. Virtually all the staff working in these services had received some kind of training (Table 7). Managers noted that the most common type of training was a 5-day intensive course on management of HIV/AIDS, followed by a 3-day course on management of HIV/AIDS, adherence and counselling. Additional sources of skills development involved courses specifically on adherence. Programme managers commented on the good availability of courses, however, the CCMT site programme manager identified that despite the availability of on-going training and skills development opportunities, attendance for these courses is made difficult by the shortage of staff, coupled by the many responsibilities of nursing staff.

Table 7: Number of staff trained in HIV of services assessed (ART, VCT, and PMTCT)

	District Hospital		Community Health Centre	
Category	**No. Trained**	**Type of Training**	**No. Trained**	**Type of training**
Professional Nurses	8/8	Foundation course on HIV and PMTCT, clinical management of HIV	6/6	HIV training; ARV drug training and adherence counselling courses
Auxiliary/Enrolled Nurses	2/2	CPR for babies and HIV/ART training, TB-HIV collaboration	3/3	HIV training; ARV drug training and adherence
Lay Counsellors/ Volunteers	8/8	3 day course in HIV and adherence	15/16	HIV training; adherence and counselling courses
Pharmacist	1/1	HIV/ART course	1/1	HIV/ART course
Clerical	2/2	HIV training	1/1	ARV course and data capturing training
Dietician	1/1	HIV/ART course	1/1	HIV/ART course

3.3.4 Health Worker Motivation

Nursing staff, i.e. professional nurses, enrolled nurses and enrolled nursing assistants present at the two ART sites as well as those working in other HIV related programmes were invited to fill out an anonymous questionnaire regarding his or her working experiences and perceptions. The questionnaire was based on a conceptual framework that assessed motivational determinants (demographics, individual differences, and perceived contextual factors) and motivational outcomes (worker affect and cognition and worker behaviour and performance). Respondents were asked to list their degree of agreement with statements (strongly disagree, disagree, not sure, agree and strongly agree). The number of respondents per site was twenty-one and fourteen for the district hospital and CHC respectively. Table 8 lists the responses to the items.

Table 8: Self reported motivation of nursing staff working in HIV-related services at the district hospital (n=21) and CHC sites (n=14) * Numbers of respondents in each category (proportion in each brackets)

	District hospital				CHC			
Statement	**Strongly Disagree/ Disagree***	**Not sure**	**Strongly Agree/ Agree**	**(n)**	**Strongly Disagree/ Disagree**	**Not sure**	**Strongly Agree/ Agree**	**(n)**
Overall motivation								
Overall, I am satisfied with my job	2 (0.10)	5 (0.24)	14 (0.66)	21	3 (0.21)	0	11 (0.79)	14
I am motivated to carry out my duties	2 (0.1)	6 (0.3)	12 (0.6)	20	3 (0.21)	0	11 (0.79)	14
I only do this job to get paid at the end of the month	16 (0.8)	1 (0.05)	3 (0.15)	20	14 (1)	0	0	14
I feel I'm positively influencing other people's lives through my work	2 (0.1)	4 (0.2)	14 (0.7)	20	1 (0.08)	0	12 (0.92)	13
Major satisfaction in my life comes from my work	3 (0.14)	4 (0.19)	14 (0.66)	21	2 (0.15)	0	11 (0.85)	13
These days I don't feel motivated to work as hard as I could	9 (0.45)	2 (0.1)	9 (0.45)	20	5 (0.36)	0	9 (0.64)	14
Organisational loyalty and commitment								
I am proud to be working at this facility	3 (0.15)	5 (0.25)	12 (0.6)	20	1 (0.08)	0	13 (0.92)	14
I am glad I work for this facility rather than other facilities in the province	7 (0.33)	6 (0.29)	8 (0.38)	21	2 (0.14)	1 (0.07)	11 (0.79)	14
I prefer to work in the public sector than in the private sector	4 (0.19)	2 (0.10)	15 (0.71)	21	3 (0.23)	2 (0.15)	8 (0.62)	13
I feel very little commitment to this hospital/clinic	12 (0.63)	1 (0.05)	6 (0.32)	19	8 (0.57)	0	6 (0.43)	14
I intend to leave this hospital/clinic	10 (0.48)	4 (0.19)	7 (0.33)	21	4 (0.31)	3 (0.23)	6 (0.46)	13
I can see myself working overseas in the future	8 (0.4)	5 (0.25)	7 (0.35)	20	4 (0.29)	4 (0.29)	6 (0.43)	14
Workload and staffing								
The amount of work I have to do is too demanding	5 (0.24)	1 (0.05)	15 (0.71)	21	4 (0.29)	0	10 (0.71)	14
There are enough staff to work in this unit	13 (0.68)	4 (0.21)	2 (0.11)	19	12 (0.92)	1 (0.08)	0	13
Burnout								
I feel emotionally drained at the end of every day	7 (0.33)	2 (0.10)	12 (0.57)	21	2 (0.14)	0	12 (0.86)	14
Management and team work								
Hosp/clinic management communicates well with staff	5 (0.25)	5 (0.25)	10 (0.5)	20	5 (0.36)	0	8 (0.57)	14
If I had a personal problem which affected my work I would feel free to discuss it with my supervisor or manager	5 (0.24)	1 (0.05)	15 (0.71)	21	2 (0.14)	0	12 (0.86)	14
In this facility, conflict hampers our work	9 (0.53)	2 (0.12)	6 (0.35)	17	11 (0.79)	0	3 (0.21)	14
There have been too many changes at this hospital/clinic in the past year	7 (0.33)	5 (0.24)	9 (0.43)	21	9 (0.64)	1 (0.07)	4 (0.29)	14
In the last month, have any of your colleagues been unexpectedly absent?	12 (0.57)	0	9 (0.43)	21	10 (0.71)	0	4 (0.29)	14
Individual/personal factors and attitudes								
I am confident about my ability to do my job	1 (0.05)	0	19 (0.95)	20	0	0	14 (1)	14
I feel vulnerable to HIV in my personal life	5 (0.28)	0	13 (0.62)	18	4 (0.29)	0	10 (0.71)	14
HIV positive patients make too much extra work for staff	8 (0.42)	0	11 (0.58)	19	10 (0.71)	2 (0.14)	2 (0.14)	14

For analysis, the data was grouped according to themes, which were overall motivation; organisational loyalty and commitment; workload, staffing and burnout; management and teamwork; and lastly individual/personal factors and attitudes.

Overall Motivation

The majority of nurses indicated that their overall motivation levels were good, more so at the CHC than the hospital. For example, 11/14 CHC respondents agreed or strongly agreed with the statement "I am motivated to carry out my duties", compared to 12/ 20 of hospital respondents. Staff at the CHC were unanimous in disagreeing that they were only doing their job "to get paid at the end of the month", whereas 3/20 at the hospital agreed with this statement. Interestingly, nursing staff at the hospital were divided equally in response to "these days I don't feel motivated to work as hard as I could" compared to two-thirds (9/14) who agreed or strongly agreed with this statement at the CHC.

Organisational loyalty and commitment

In general, staff at both sites expressed allegiance to their facilities; however, there was a higher number of staff at the CHC who expressed organisational pride (13/14 vs. 12/20). Interestingly though, a sizeable proportion indicated intentions to leave (6/14 and 7/20 for the CHC and hospital respectively).

Workload, staffing and burnout

Although more than two thirds of nursing staff at both sites agreed with the statement "the amount of work I have to do is too demanding", CHC staff were more likely to report that there was not enough staff to work in their units (12/14 vs. 13/19 at the hospital) and

experience emotional exhaustion leading to burnout (12/14) compared to 12/21 of hospital respondents.

Management and Teamwork

Overall impression of the management at both sites was favourable. Staff at both sites were comfortable in discussing personal problems with their supervisors, however CHC staff were more likely to express trust in their supervisors (12/14), compared to 15/21 at the hospital; and also to indicate that conflict did not hamper their work (11/14 vs. 9/17 at the hospital).

Individual/personal factors and attitudes

Both sites showed high levels of confidence in ability to carry out duties. Staff at both sites expressed a perceived vulnerability to HIV in their personal lives. Interestingly, 11/19 staff at the hospital indicated that "HIV positive patients make too much extra work for staff" compared to 2/14 of the respondents at the CHC. The CHC manager CHC, who when asked to comment on motivation in the facility said the following, "in order to motivate your staff, there must be satisfactory working conditions; on-going training and skills development, give praise when deserved. Demotivation at the CHC is due to the shortage of staff, but recently there has been an increase in the number of doctors posted at the clinic and this has relieved the pressure. Also, salaries are usually issued an increment in July and one of the main factors that demotivated staff is the lateness in increment. This usually carries on throughout the year." Similarly, the assistant director of nursing at the hospital highlighted that due to most departments being understaffed, remaining staff are overworked and as a result felt that there was high burnout and absenteeism.

A key observation during fieldwork was of strong leadership at both CCMT sites. This was no doubt an important source of motivation. The on-site programme managers appeared to be highly respected and revered by staff, not only in the CCMT site but also in the whole facility.

Nursing staff at the CHC identified a lack in clinical and counselling debriefing mechanisms, whereas staff at the hospital-based site stated that they were aware of the employee assistance program (EAP) but did not make use of the service. The nature of some of the problems experienced by staff at the CHC was patient related. For example, an interview with the ART programme manager captured this statement concerning the need for debriefing sessions in handling the stressors of day-to-day tasks, "problems of the patients become problems of the health care workers. Lack of debriefing sessions for the staff from HAST and we cannot de-stress and we are not given the opportunities to do so." However, nursing staff at the CHC had established an informal mechanism of support, which involved a monthly forum and 'get together'.

3.4 Delivery Systems Design

3.4.1 Integration of HIV related services and referral relationships

Programme managers were asked to rate the degree of integration of HIV/AIDS related services at their sites. Degree of integration was assessed along a scale of 1-4, where 1 represented series of vertical HIV/AIDS activities completely separate from each other and 4, a well-integrated set of activities that is also well integrated into the activities of the hospital/clinic as a whole. Programme managers were also asked to identify areas of weakness or strengths that exist within their respective departments that hinder or assist them in delivering an integrated approach to treatment care and support. Table 9 summarises the responses from the programme managers in the various sections of the facility.

Table 9: Views expressed by programme managers on integration of HIV/AIDS services

HIV related services	Factors which facilitate integration	Barriers to integration
District Hospital		
Outpatient Department (OPD)	➔ Well integrated set of activities that is also well integrated into the activities of the clinic as a whole ➔ Good referral relationships between OPD, VCT and ART/Wellness which ensures continuity of care	➔ Unclear lines of referral between casualty and outpatients thus causing fragmentation of services.
ART/Wellness	➔ Well integrated set of activities that is also well integrated into the activities of the clinic as a whole ➔ Programme manager and staff motivated and highly respected amongst staff working in other HIV related services	➔ Lack of human resource capacity to ensure integration, continuity of care and follow up of patients is a barrier to providing a comprehensive approach to service delivery
Voluntary Counselling and Testing (VCT)	➔ Well integrated set of activities that is also well integrated into the activities of the clinic as a whole ➔ Continuity of care between VCT, OPD and ART/Wellness is maintained by the strong referral relationships, which also avoids duplication of services	
TB Focal Point	➔ Well integrated set of activities that is also well integrated into the activities of the clinic as a whole ➔ Management of HIV/AIDS and TB is approached in a cohesive manner, rather than separate ➔ Acts as a key link between OPD, VCT and ART ➔ Information systems are effective in preventing duplication of results	➔ Combination of human and physical resources problems (e.g. direct telephone lines) acts as barriers to integration, in particular lack of adherence management tools and staff ➔ Programme manager's view is that there is an inequity in access to TB services compared to HIV services.
TB Ward	➔ A series of partially co-ordinated services with each other ➔ Patients co-infected with HIV and TB are fast tracked onto ART due to functional integration of ART and TB services ➔ Monitoring of co-infected patients is made easier due to the close physical proximity of the TB ward to the ART/Wellness clinic (See map of site)	➔ Poor communication channels between TB ward and ART/Wellness clinic. Information is relayed informally through verbal communication channels ➔ Inadequate information systems to document patients who are co-infected with HIV and TB.
Prevention of Mother-to-Child Transmission (PMTCT)	➔ A series of partially co-ordinated services with each other ➔ Programme is integrated into the postnatal care and maternity ward, therefore is available to patients on a 24hr basis ➔ Due to the availability of the service, patients who do not feel comfortable in attending the surrounding antenatal clinics, can seek care from the hospital based PMTCT programme	➔ Fragmentation of services on two levels: - patients bypassing community antenatal clinics and primary health care clinics and lack of communication between hospital and clinic services -Relationships between HIV/AIDS related services within the hospital are weak

		• Programme manager states that there is a lack of consultation with the ART/Wellness clinic, due to the unavailability of a dietician for consultation
Facility manager	• HIV services are well integrated into the activities of the hospital as a whole. • Strong referral relationships between different service points • Information systems are efficient in preventing duplication of test results • Good communication and feedback between staff due to integrated management and supervision	• Lack of communication between the hospital and surrounding clinics in relation to adherence counselling • Lack of integration of hospital HIV services and clinics has resulted in the duplication of services at the ART/Wellness Clinic
Community Health Centre		
ART/Wellness	• A well integrated set of activities that is also well integrated into the activities of the CHC as a whole • Dedicated and motivated staff known to all departments • Good communication and strong referral relationships between different service points	• Shortage of staff • Multiple roles and responsibilities of nursing staff • Physical integration of the ART/Wellness and VCT increases the scope of work for health care team • Lack of space
Voluntary Counselling and Testing	• A well integrated set of activities that is also well integrated into the activities of the CHC as a whole • Good interpersonal relationships between staff within the department and that of the ART/Wellness Clinic • Integration of the VCT and ART/Wellness moves beyond functional integration to physical thus sharing of space and staff ensures continuity of care	• Lack of space due to sharing rooms with ART/Wellness • Shortage of staff • Sharing of space and staff could undermine service delivery and quality of care rendered • Multiple roles and responsibilities of nursing staff
PMTCT/ANC	• A well integrated set of activities that is also well integrated into the activities of the CHC as a whole • Integration of PMTCT with the antenatal clinic ensures that a multidisciplinary team tests all pregnant women for HIV	• Lack of feedback from the ART/Wellness clinic • Lack of communication about PCR testing and HIV in the child immunisation programme
Facility manager	• HIV services are well integrated into the activities of the CHC as a whole • Comprehensive list of services provided, in addition to a comprehensive approach to service delivery • Although the TB clinic is run by local government, the integration between the ART/Wellness and TB clinic can be considered a success	• Lack of space • Shortage of staff

Apart from the PMTCT and TB ward managers at the district hospital, managers were unanimous in their view that HIV/AIDS activities were well integrated in their facilities. This was enabled by an integrated approach to management. For example, the hospital based ART/Wellness clinic and TB focal point are situated within the same cluster of outpatient services under the same nursing line of management, thus facilitating an effective TB-HIV collaboration. On the other hand, VCT and PMTCT at the hospital fell under a different reporting line. This may explain why the programme manager for PMTCT considered the programme partially co-ordinated with other HIV related services in the hospital. However, in the case of the VCT service separate reporting lines were compensated for by good *informal* relationships between the VCT and other services.

Therefore, in summary, both sites identified that good communication, efficient referral networks, motivated programme managers and staff as well as strong interpersonal relationships between the staff and patients were key strengths in facilitating integration of HIV related services. However, shortage of staff, lack of space, and lack of feedback between referral points and surrounding facilities were barriers to integration.

With some exceptions, there was evidence of strong 'horizontal' mechanisms of referral and coordination, both formal and informal, between managers of various HIV/AIDS activities in both facilities (Figures 5 and 6). For example, a patient with HIV seeking care at the District Hospital Outpatient Department would be immediately referred to the VCT service for testing, or the TB focal point if TB were suspected. Patients with a positive HIV test result are then referred on the same day to the HIV clinic for an appointment. Although all these services were located in different parts of the facility, from observations and reports of managers, the referral processes between services appeared to function smoothly. This appeared to be due in part to good inter-personal rapport between staff of the various services.

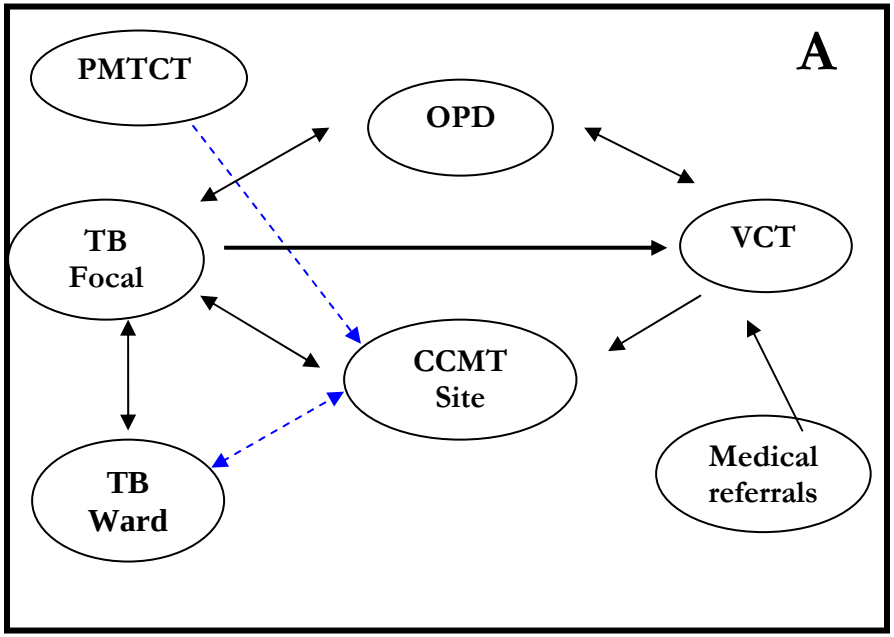

Figure 5: Mapping of referral relationships between HIV and AIDS related services at the district hospital

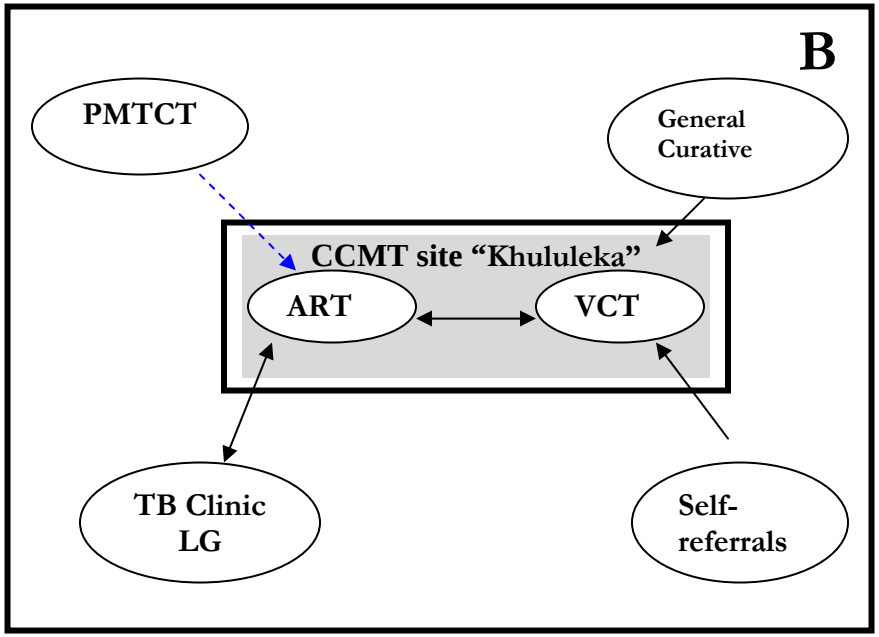

Figure 6: Mapping of referral relationships and integration of HIV and AIDS related services at the CHC

Key: **Formal forward referral relationships** → **Informal referral relationships** - - - - - - - - - - →

Formal two-way referrals ↔ **Informal two-way referral relationships** ← - - - - - - - - - - →

In order to develop a composite picture of the referral relationships and co-ordination mechanisms between the various service delivery points at the two sites, information regarding referral pathways and integration was obtained from programme managers with the use of semi-structured interviews.

The district hospital (figure 5) exhibited strong referral relationships between services in addition to functional integration that ensures continuity of care. Sources of entry to HIV and AIDS related services at the hospital included both the TB Focal Point and the Outpatients Department. In comparison, the CHC (figure 6) had a larger degree of physical integration of the ART/Wellness and VCT (as opposed to functional integration). Pre-ART care for patients presenting at the general curative care department of the CHC involved an initial assessment upon which the patient was referred to the CCMT site for VCT and treatment. At the hospital, it was routine procedure to refer TB patients suspected of having HIV to VCT; however some patients preferred to go directly to the CCMT site, where they could undergo testing and assessment. In comparison, the referral of TB patients at the CHC was along a single path, i.e. directly to the CCMT site, which was physically integrated with the VCT department, thus eliminating a step in the process.

Referral relationships between the provincially run and the local government (LG) TB clinic remain strong despite the differences in governance. Management of individual patients are routinely discussed, therefore strengthening the referral links between the two services. The facility manager noted the strength of this relationship as follows: "Having the TB clinic located on the premises and knowing that this service is provided, ensures that there is continuation of treatment. Of late, the two services have been functioning well together, despite the local government and provincial government divide. The TB service has united the two clinics."

As another indicator of the strength of referrals and networking relationships that exist within each site, programme managers from the Voluntary Counselling and Testing (VCT) departments were asked to rate the frequency of referrals to VCT from various sources, on a scale from 1 to 5, where 1 is never or uncommon and 5 very common. Of the

options of services listed (TB service, Antenatal, General Curative care, other clinics, community-based health promotion and campaigns, self-referred and other), general curative care (hospital) and self-referral (clinic) were cited as the two most common sources of referral (Table 10). Community –based health promotion and antenatal care were the least commonly ranked sources of referral at both sites. This may be due to the availability of testing at the antenatal clinics therefore not requiring referrals to VCT.

Table 10: Degree to which referrals to VCT service were common (1=uncommon, 5=very common)

	District Hospital	CHC
General curative	5	3-4
Self referred	3-4	5
TB service	2	3-4
Other clinics	2-3	1
Antenatal	1	1
Community-based health promotion and campaigns	1	1

3.4.3 Adherence Management Systems

CCMT programme managers were interviewed in order to determine the processes involved in treatment preparation, support and adherence available for patients on ART. The emphasis of treatment preparation at both sites was a combination of individual face-to-face counselling and group sessions. This was also complimented by home visits by the social worker at the CHC (Table 11). Information obtained during a conversation with an adherence counsellor at the CHC revealed that counselling comprised three stages. The first involved examining the life history of the patient and a home visit by the social worker to assess the social environment and how this may affect treatment uptake. The second stage comprised intensive group education and counselling on the importance of adhering to treatment. The final stage involved a final assessment of the patient's readiness for treatment,

which included screening for opportunistic infections and referral to the doctor. This information could not be obtained for the hospital site.

Table 11: Treatment preparation, support and adherence assessment procedures

	District Hospital CCMT site	CHC CCMT site
Treatment Preparation		
Individual counseling/briefing	Yes- Pre and post test counselling	Yes- Pre and post test counselling
Group education	Yes- Group education serves as a mechanism of support for the patient	Yes- This forms part of 2nd stage of adherence counseling
Nomination of treatment supporter/buddy	No- Peer support is developed between patients on their own accord without prompting and this plays an important role in providing support for the patient	Yes- Patients are encouraged to have treatment buddies
Home visit	No- lack the capacity to conduct home visits i.e. vehicle	Yes- Social worker assesses patients social background as related to treatment readiness and determines if there are barriers to adherence
Knowledge questionnaire	No	No
Consent forms or patient contract	No	Yes- Sign consent for an HIV test
Written info/pamphlets	Yes	Yes- Made available in different African languages
Treatment Support		
Follow-up appointments	Yes	Yes
Pill boxes	Yes	No
Tick sheets	Yes	Yes- Diary sheet kept by patients to monitor treatment
Other		Clinic Community Committee- Liaise with ART staff on progression of illness and support
Support groups	Yes – NGOs and home based care organizations. These are Kokosi Home based care and Carletonville Home based care	Yes- NGOs and a support group for patients and families affected and infected with HIV. These are Red Cross and Hope Worldwide. In addition, ECHO provides both clinical and support functions, by providing a children's VCT clinic for one day during the week .
Adherence Assessments		
Self reported adherence	Yes- 3-4 day recall period Due to peer support and a close network of patients, if a patient misses their appointment other patients notice and notify the doctor, counsellor etc.	Yes- 14 day recall period for self reported adherence

➔ Pill count	Yes	Yes
➔ Viral load monitoring	Yes- Viral load and CD4 count tests are carried out every 6 months	Yes- Viral load and CD4 count tests are conducted every 6 months
➔ Return for follow-up	Yes	Yes

With respect to treatment support available for patients, the hospital-based site utilised three methods of support; namely, follow up appointments, tick sheets and pillboxes, whilst the CHC only made use of the first two methods. Adherence assessment comprised of self-reported adherence, pill counts, viral load monitoring and monitoring of returns for follow up. Loss to follow up was defined as not attending an appointment for over three months and thus defaulting treatment. Attempts to follow up the patient are made by the pharmacist, social worker and programme manager.

The hospital-based site had two functioning support groups for people living with HIV/AIDS (PLWHA), one in the VCT department and the other in the ART/Wellness Clinic, of which the latter was reported to be the most functional. In comparison, the Hope Worldwide NGO ran the support group at the CHC.

3.5 Decision Support Systems

Programme managers were asked a range of questions related to the clinical support systems, equipment and physical infrastructure, drug procurement and distribution, laboratory capacity, staffing guidelines, policies and protocols that promote access to HIV and AIDS services and supervision and support for staff. In addition, maps of the CCMT sites were drawn to obtain an understanding of the physical layout and space available to the (Annex 1).

3.5.1 Equipment and Physical Infrastructure

Physical space to conduct voluntary counselling and testing appeared to be a major problem at the CHC, due to the integration with the ART clinic. Plans to renovate the unit were reported to be in the pipeline however, staff were unsure as to when this would

materialise. As a result, visual and auditory privacy required for counselling, for both individual and group sessions was not guaranteed at this site. The hospital site, on the other hand had more than enough space to consult and counsel patients. Each site had a dedicated administration room and locked cabinets for patient files (Table 12). Sites were also equipped with computers, and telephones. However, the lack of a dedicated outgoing telephone line at the hospital based ART clinic, and TB focal point reportedly posed a barrier in tracking defaulters.

Table 12: Checklist of physical resources available at each CCMT site

	District Hospital CCMT site	**CHC CCMT site**
Drugs kept in lockable space	Yes- Drugs are stored in the pharmacists' office.	Yes- Drugs are stored in the pharmacists' office in addition to a store room that is situated next to the pharmacy
Records kept in locked space/cabinet	Yes- All files are kept in a separate room which is designated only for patient files	Yes- Files are kept in the administration room within lockable cabinets and drawers
Visual privacy of: • counselling • consulting rooms	Yes- There is sufficient space and dedicated rooms to conduct counselling and consulting with patients.	Yes- Some degree of visual privacy, as, group counselling is conducted in the open as there is lack of space
Auditory privacy of: • Counselling • Consulting rooms	Yes- Rooms for counselling are located along the 2nd corridor of the clinic where not many people are, thus sessions with patients cannot be heard.	Yes- Some degree of auditory privacy due to the lack of space. Rooms are crammed within one small area allocated for these services, thus sessions with health care workers could sometimes be heard
Telephones	Yes- 4 telephones, 1 at each station, i.e. the programme manager, booking clerk, pharmacist and help desk.	Yes- 1 telephone that was seen. This was in the booking clerks office.
Computers	Yes- 3 computers of which the booking office, programme managers office and pharmacists office have 1 each	Yes- 1 computer in the booking and administrative office

3.5.2 Drugs and Other Supplies

The hospital based CCMT site had a dedicated pharmacy with the support of a pharmacy assistant, while a retired pharmacist who does not have support staff dispensed drugs at the clinic based site. Facility and ART programme managers identified that they did not experience any problems with drug procurement and distribution. In addition, neither site had experienced drug stock outs in the previous 6 months. The staff at the general pharmacy at the hospital did however indicate that they sometimes ran out of essential drugs. The pharmacists at the ART clinics were asked to complete a checklist, which included a list of general drugs, supplies and anti-retroviral drugs (Table 13). Supply of drugs, both general and anti-retroviral appeared good at both sites. General supplies such as sharps containers, condoms, latex gloves and sputum containers were also available in both sites.

Shortage of pharmacy staff within the pharmacy (both general and ART) remains a problem. In the hospital, if the ART pharmacist is absent, a replacement from the general pharmacy has to stand in. This poses a problem as the general hospital pharmacy had unfilled posts. At the CHC CCMT site patients are sometimes sent home without receiving their full supply of medication; a problem highlighted in the patient exit interviews. As one patient stated: "the pharmacist was closed and they told us to go home without our tablets." This appeared to be due to inconsistent pharmacy hours, a quota system in which only 40 patients were seen on any given day and the rest asked to return the following day. In addition, the pharmacist did not see patients on a Friday.

Table 13: Availability of drug supplies at the two sites

General drugs and supplies			Anti-retrovirals (Wellness Clinic)		
	Hospital	**CHC**		**Hospital**	**CHC**
Ciprofloxacin tablets	Y	Y	Stavudine caps 30mg (Stavir/d4T)	Y	Y
Flagyl (Metronidazole) 400mg	Y	Y	Stavudine caps 40mg (Stavir/d4T)	Y	Y
Erythromycin 250mg tabs	Y	Y	Stavudine solution1mg/ml (Stavir/d4T)	Y	Y
Doxycycline100mg tabs	Y	Y	Lamivudine tabs 150mg (3TC)	Y	Y
Rapid HIV/AIDS testing kits	Y	Y	Lamivudine solution 10mg (3TC)	Y	Y
Purple topped blood specimen containers	Y	Y	Efavirenz caps 200mg (Stocrin /EFV)	Y	Y
Nevirapine tablets 200mg	Y	Y	Efavirenz caps 50mg (Stocrin /EFV)	Y	Y
Nevirapine suspension 50mg/5ml	Y	Y	Efavirenz tabs 600mg (Stocrin /EFV)	Y	Y
Nystatin	Y	Y	Didanosine tabs 200mg (Videx/ddI)	Y	N
Analgesia (paracetamol)	Y	Y	Didanosine tabs 100mg (Videx/ddI)	Y	Y
Cotrimoxazole (Bactrim) syrup	Y	Y	Didanosine tabs 50mg (Videx/ddI)	Y	Y
Cotrimoxazole (Bactrim) tablets	Y	Y	Zidovudine tabs 300mg (Retrovir/AZT)	Y	Y
Acyclovir 200mg	Y	Y	Zidovudine syrup 50mg/5ml (Retrovir/AZT)	Y	Y
Amitryptaline 10mg	Y	Y	Lopinavir/Ritonavir caps 133/33mg (Kaletra)	Y	Y
Amitryptaline 25mg	Y	Y	Lopinavir/Ritonavir suspension 80/20mg/ml (Kaletra)	Y	Y
Hydrocortisone cream	Y	Y	Ritonavir suspension 80mg/ml (Norvir)	N	N
Loperamide 2mg	Y	N	Ritonavir caps 100mg (Norvir)	Y	Y
			Abacavir tabs 300mg	N	Y
			Abacavir solution 20mg/ml	N	Y

3.5.3 Testing and Laboratory Capacity

Both sites were able to offer routine (pregnancy test and haemoglobin) and HIV specific tests (rapid test and ELISA, CD4 counts, viral load, PCR, syphilis) and screening for TB (sputum AFBs) (Table 14). Samples were analysed on site at the hospital laboratory and off site at a nearby hospital for tests requested by the CHC. The turnaround times ranged from 3 days for an ELISA test, in the case of a rapid test 20-30 min and 2-3 days for a viral load and CD4 count. Turnaround times for CD4 counts, viral loads and PCRs was longer for both sites and these were done in central laboratories.

Table 14: Testing and Laboratory Capacity of CCMT Sites

	District Hospital CCMT Site				CHC CCMT Site		
Tests performed	**Yes/No**	**On/off site**	**Turnaround times**		**Yes/No**	**On/off site**	**Turnaround times**
Rapid HIV test	No–VCT	Off site	20-30min		Yes	On-site	20-30min
Pregnancy	Yes	On-site	Not available		Yes	On-site	Not available
Haemoglobin	Yes	On-site	Not available		Yes	On-site	Not available
Syphilis (rapid RPR)	Yes	On-site	Not available		Yes	On-site	Not available
HIV (ELISA)	Yes	On-site	3 days		Yes	Off site*	3 days
CD4 Count	Yes	Off site*	4 days		Yes	Off site*	3 days
Viral Load	Yes	Off site*	4 days		Yes	Off site*	3 days
PCR	Yes	Off site*	2 weeks		Yes	Off site*	2 weeks
Sputum AFBs	Yes	On-site	Not available		Yes	Off site*	Test results are not returned to CCMT site, but rather sent to the LG TB Clinic.
Baseline Tests							
Full Blood Count	Yes	On-site	24 hours		Yes	Off site*	2-3 days
Liver Enzymes	Yes	On-site	24 hours		Yes	Off site*	2-3 days
Electrolytes	Yes	On-site	24 hours		Yes	Off site*	2-3 days

*Tests are requested from Chris Hani Baragwanath Hospital for the CHC and the National Health Laboratory Services (NHLS) for the hospital.

3.5.4 Staffing Guidelines, Policies and Protocols

ART programme managers were asked to indicate if they made use of the specific guidelines and policies from a predetermined list, and where possible, shown copies of these items. Reflecting the variable integration of these services, gaps in the protocol availability related to the PMTCT and TB services (Table 15).

Table 15: Checklist of essential treatment guidelines and policies

	Hospital CCMT site	**CHC CCMT site**
Essential drug list and standard treatment guidelines for S.A Primary Health Care services	Yes	Yes
Feeding of infants of HIV positive mothers	Yes- Dietician	No- PMTCT programme
Prevention and treatment of opportunistic and HIV related diseases in adults	Yes	Yes
Prevention of mother-to-child HIV transmission and management of HIV positive pregnant women	Yes	No- PMTCT programme
Managing HIV in children	Yes- Pharmacist	Yes
VCT protocol/manual/booklet	No	Yes
Tuberculosis (TB) and HIV/AIDS	No- TB Focal Point	Yes
Protocol for management of a person with a STI (1998 or 1999 or more recent)	Yes	Yes
HIV strategic plan for South Africa 2000-2005	Yes	Yes
National guideline on home-based care and community based care	No	No
Protocol/guidelines for PMTCT	Yes	Yes- But don't use it
Management of occupational exposure to HIV (PEP guidelines)/Protocol for needle-stick injury	Yes	Yes
The South African TB Control Programme Practical Guidelines 2000 (or more recent)	Yes	Yes
Flow charts on TB diagnosis	No- TB ward and TB focal point	Yes- However did not see any

3.5.5 Supervision and Support

Facility managers and ART programme managers were asked to identify the support mechanisms and processes in place for supervision and management of staff. In both facilities, supervisory support and lines of reporting followed the nursing hierarchy reflecting the nurse driven nature of these services (see organogram of hospital, Figure 7). Supervision of programme activities thus did not extend to the CEO of the hospital, but stopped at the level of the Assistant Director of Nursing. At the CHC, the facility manager acted as the highest level of supervision and leadership who reports to sub-district and district managers.

Interviews with CCMT site programme managers revealed that their roles and responsibilities comprised of both clinical and managerial tasks. They were required to report

to different authorities, one being internal (facility manager) and the others external (HAST directorate, district, provincial and national authorities). These multiple reporting lines imposed additional administrative tasks and burdens on site managers.

Support for programme managers and CCMT site staff from external sources, district, province and national was not perceived as good. This was evident in statements made on the lack of feedback and communication from these authorities. Feedback was limited to minutes of quarterly steering committee meetings and rarely involved verbal and written communication on programme performance.

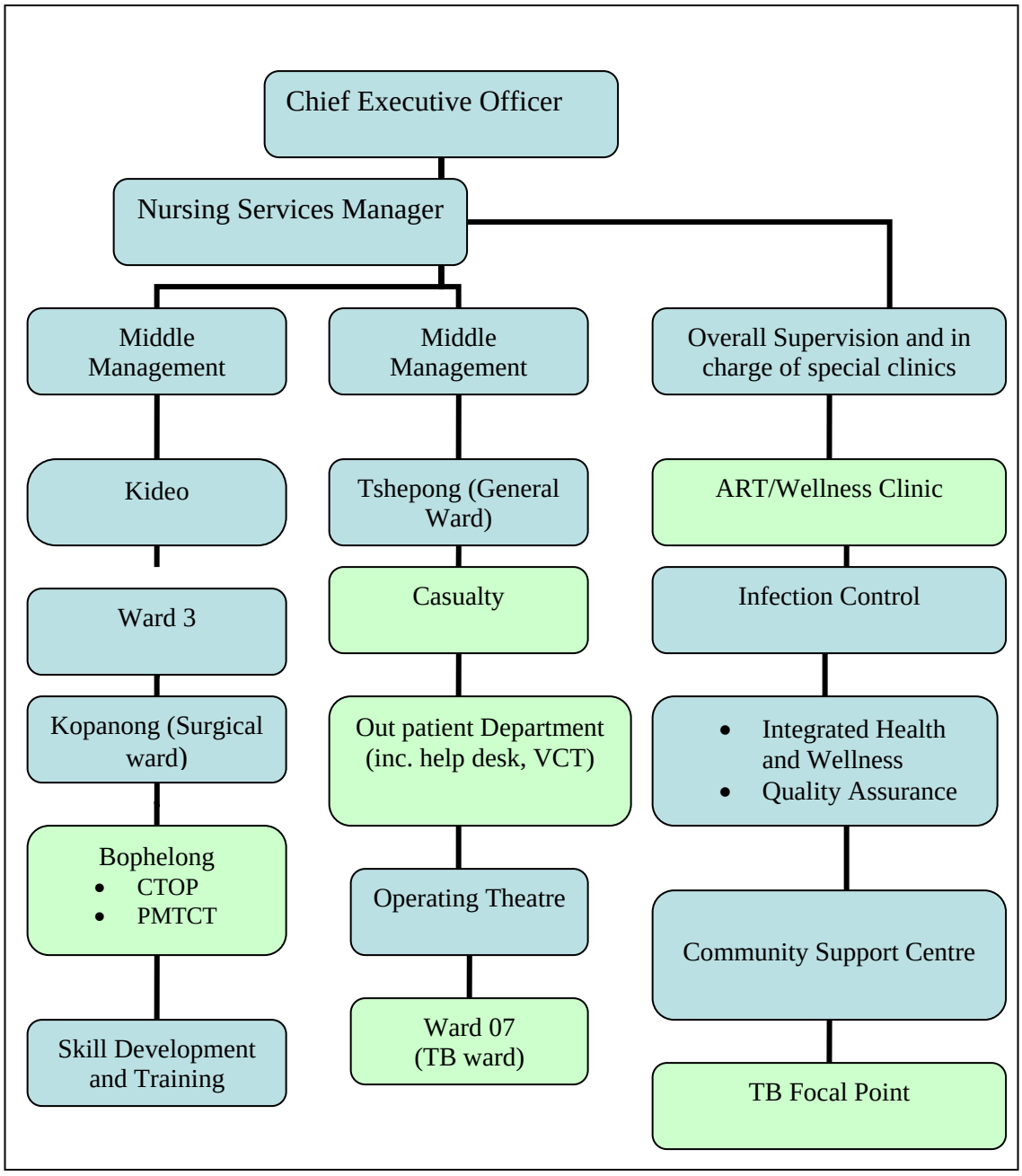

Figure 7
Organogram showing cluster of services and management at the district hospital

3.6 Clinical Information Systems

Both the hospital and the CHC used a combination of paper and electronic based information systems. The hospital based CCMT site used a mixture of standard and locally designed forms to collect record and compile patient information and statistics, whereas the CHC mainly made use of standard DoH forms (Table 16). Patient information recorded in

clinical notes was the same in the two sites, i.e. personal details, recording of vitals, clinical notes from all health care workers, laboratory results and stage summary, counselling stages and nutritional notes. At both sites, patients kept a copy of their files with them, which ensured that if they attended another clinic, the staff would be aware of the progression of illness and the treatment of the patient

Both sites used three registers, which assisted in monitoring patients return for follow up and adherence to medication. Booking clerks and data capturers kept the appointment registers, whilst the pharmacist compiled treatment registers. However, the study showed that the hospital CCMT site had different points at which the *same* patient information was collected and compiled, thereby leading to duplication of tasks. The study also highlighted the absence of a clear patient register for cohort analysis as only cross sectional patient data was collected.

Programme monitoring and evaluation at both sites was conducted through the compilation of reporting forms, particularly the monthly and quarterly CCMT site reports that were made available to district, provincial and national levels of government. These reports provided information on cumulative numbers of patients on treatment and loss to follow up.

ART programme managers were asked to describe the processes involved in tracing defaulters. The processes differed slightly between sites. At the hospital, the booking clerk established the number of patients booked for follow up on a daily basis. The information was relayed to the programme manager and head of the unit, and patients who had missed their appointments contacted. The pharmacist also made a note of the patients who had not returned for their medication. At the CHC, the pharmacist identified all those who had not

collected their monthly supply of treatment and with the support of the counsellors and social workers, tracked defaulters.

In order to determine whether programme managers and their staff were engaging with the data collected and whether they used it to inform management of the service, programme managers were asked to report on standard programme indicators. It included questions on TB completion and cure rates, number of patients receiving TB and ART simultaneously, HIV testing and positive rate amongst individuals attending the VCT and ANC. CCMT monthly site reports were complete and up to date thus outlining the future needs and requirements of the programme. In addition, the programme manager at the hospital site was able to correctly cite current numbers on treatment. In contrast, the programme manager of the hospital-based TB focal point, a service centre that is instrumental in TB notification and referral for TB treatment, but also recording data on TB-HIV collaboration, was not engaging with the data and was not able to recall the programme statistics off hand. In addition, routine data was found to be incompletely recorded for the 6-month period (October 05' – March '06). Both the VCT and PMTCT programmes at the CHC collected monthly routine data since the establishment of the programmes , however, in comparison, the hospital VCT department only began collecting this information since January 2006. The study also highlighted the absence of information systems in the hospital PMTCT programme and as a result, routine information was obtained from the district HAST office.

Table 16: Information Systems Utilised to Initiate and Follow up Patients

	District Hospital CCMT Site					Community Health Centre CCMT Site			
	Description	**Point at which completed**	**Paper vs. Electronic Based**	**Local, provincial or national design**		**Description**	**Point at which completed**	**Paper vs. Electronic Based**	**Local, provincial or national design**
Forms found in patient records/files	Patient Demographic form	Booking Clerk	Paper	Local		Patient demographic form	Booking clerk and data capturer	Paper	National
	Record of vitals	Nurse and doctor	Paper	Local		ART Assessment and Baseline Form: Adults (>14yrs)	Completed by clerk, nurse, counsellor, and doctor	Paper	National
	Counselling and stage summary	Counsellor, nurse	Paper	Local		Follow up form for each new visit	Completed by clerk, nurse and doctor	Paper	National
	Clinical notes	Doctors, counsellors, dietician, social worker	Paper	Local		Transfer of patient between service points form	Doctor	Paper	National
	Laboratory results page	CD4 counts, viral load	Paper	local					
Registers and record books	Appointment Register for patients returning for follow up (notes defaulters of appointments)	Booking clerk at the point of entry into the clinic	Paper	Local		Appointment Register for making a note of returning patients for follow up visits	Booking clerk	Paper and electronic	
	Appointment register for next visit	After seen by the doctor and pharmacist	Paper	Local		Wellness and ART laboratory test register	Programme manager	Paper Based	National

	Pharmacy record to assess patient adherence to treatment	Pharmacy	Electronic and paper	National		Pharmacy record to assess patient adherence to treatment	Pharmacy	Paper based	National
Reporting Forms	Monthly CCMT Site Report capturing total number of patients on treatment, new enrolments, total loss to follow up (deaths, transfers and defaulted)	Programme manager	Electronic and paper	Local		Monthly CCMT Site Report capturing total number of patients on treatment, new enrolments, total loss to follow up (deaths, transfers and defaulted)	Programme manager	Electronic and paper based	Local
	Quarterly tabulated CCMT Site report with standard indicators	Programme manager	Paper based	National		Not available	Not available	Not available	Not available
	Tabulated report with DORA* clinical indicators	Programme manager	Paper based	National		Not available	Not available	Not available	Not available

* DORA: Division of Revenue Act

It was noted that the Medicom information system was present at the district hospital; however, the staff were not using it as originally anticipated. The reason sited by the hospital Assistant Director of Nursing was the high turnover of staff, which had led to the non-functionality of the system. However, despite this, the system is gradually being revived. The CHC had established a computer literacy 'school' that assisted staff within the clinic and neighbouring clinics staff in learning how to implement and utilise the information system successfully.

Chapter 4 Discussion

The study conducted a health facility evaluation of two public sector ART sites in Region A of Gauteng Province, focussing on organisational capacity to implement the ART programme and assessing how these organisational factors influence adherence. We examined organisational factors along the following: 1) adherence and patient follow up as outcomes, 2) motivated and adequately staffed teams, 3) delivery systems design, 4) decision support systems and 4) clinical information systems.

4.1 Adherence as an outcome

Based on 3-day recall period, viral load suppression and follow up rates, adherence levels as an outcome measurement appeared to be similar at both sites and at reasonable levels. The 3 day recall of adherence and reports of having ever missed treatment were better than that reported in the meta-analysis by Mills et al. (2006), in which 77% of patients in low-income countries adhered to treatment.

Viral load suppression and an increase in CD4 count are important clinical outcomes to monitor in order to assess progression of disease of a patient on ART. Comparison of viral load suppression showed that 76.2% and 74.4% of patients at the hospital and CHC respectively had undetectable viral loads. This is equal to the findings of the ART-LINC Collaboration and ART-CC groups (2006), where after 6 months on treatment 76% of patients in low-income countries reached viral load suppression (ART-LINC Collaboration and ART-CC groups, 2006). However, it should be noted that the similar level of viral load suppression achieved at the Gauteng sites were found in patients who had been on treatment for 4 months or more (compared to 6 months).

Total loss to follow up over the six-month period at the hospital was 12.8%, taking into account death rate and loss to follow up due to dropouts. If extrapolated to one year this would be 25.6% of patients lost to follow up. This finding is slightly higher than that reported by low-income countries (21.4%) (ART-LINC and ART-CC, 2006), and that obtained from the Lusikisiki ART programme in the Eastern Cape, which reported that 19% of patients who had been on treatment for more than 12 months at the hospital based site were lost to follow up (MSF, 2006).

Adherence as an outcome measure of programme performance does not directly address the question of whether the service is accessible to those who need it. Difficulties in access, however, appeared to be emerging as a problem in the hospital site, with the sharp increase in drop outs and deaths towards the end of the observation period. This finding confirms the observation by Tawfik et al. (2002) that issues around lack of transport, transport infrastructure and distance from the clinic in developing countries are important to consider when initiating a patient on ART.

In sum, the study showed that despite the difference in type of facilities providing ART, similar levels of adherence (based on patient self-report) and that good levels of adherence can be achieved in the routine public sector setting.

4.2 Motivated and Adequately Staffed Teams

According to Steyn et al. (2006: 95) "although human resources are the backbone of a health system, they are often considered a neglected element in the development of health systems." In general the staffing situation at the hospital appeared better. More staff had joined than left the hospital over the year prior to March 2006, and clinical workloads both in the ambulatory services and the CCMT site were less than at the CHC. Vacancy rates were

low, at 13.8% and 4.8% for the hospital and CHC, respectively, although this may be an under estimate for the CHC as there was difficulty obtaining information on this issue.

Staffing at the CCMT sites, when compared to the pre-requisites in the NDoH Operational Plan for HIV/AIDS Management, Care and Treatment on core staffing establishments for ART sites, were adequate for 500 patients on ART. However, the CHC CCMT site had more than 500 patients on ART and was providing two services within one unit, i.e. ART/Wellness and VCT thus increasing the patient load, i.e. 200 patients per day compared to the 50 patients per day at the hospital. The high daily workloads at the CHC CCMT site may also be in part due to the provision of services over a 4-day rather than 5-day week. The combination of limited space and high volumes of patients gave the impression that the CHC CCMT site had reached saturation. With the availability of ART in the public sector it is anticipated that there would be a decrease in morbidity and mortality rates, a marked reduction in the number of opportunistic infections seen and hospital admissions (Walker et al. 2007). Therefore, an important avenue to explore in alleviating the high patient loads comprising of both healthy and sick individuals, would be to decant well patients to lower level services, thus freeing up scarce resources for those patients in dire need.

Recommendations from the National Department of Health (2003:117), state that the recruitment of retired health professionals could alleviate the human resource shortages. Evidence of this practice was found at the CHC based ART programme which currently employs a retired pharmacist in the dedicated ART pharmacy. However, without sufficient support personnel such as pharmacy assistants, this arrangement does not seem to be adequate. This was evident through the expressed dissatisfaction by patients of being turned away from the pharmacy. An additional strategy to address human resource shortages

experienced by ART programmes is task shifting. The Lusikisiki ART programme in the Eastern Cape adopted a model of care that addressed the human resources constraints by adopting a strategy of task shifting to mobilise existing resources and creating additional capacity through the establishment of new posts particularly for counsellors (MSF, 2006). This strategy could be adopted to reinforce nurse-based care, which allows nurses to take on greater responsibility and obtain relief from menial tasks (MSF, 2006).

In addition to the shortage of health care workers, the lack of *skilled* workers has also been identified as a barrier to the delivery of ART. Programme managers reported favourably on the availability of training and skills development opportunities, however, attendance was difficult due to sites being understaffed, and nursing staff performing multiple tasks and responsibilities.

Based on self-administered questionnaires, nursing staff at both sites appeared reasonably motivated, perhaps more so at the CHC than the hospital. However, nursing staff at this site were most likely to report burnout and a higher workload. Also, lack of clinical and counselling debriefing system at CHC and lack of use of EAP at the hospital could be contributing to the levels of burnout. According to Schneider et al. (2006: 19), "demotivated health workers are less inclined to orient their actions towards the achievement of organisational goals and may be less willing to balance self-interested behaviour with altruism and solidarity towards users of services."

On the whole nurses were positive about the roles they played and indicated commitment to both the public health sector and organisations for which they were employed. This was voiced through interviews and questionnaires with nursing staff and programme managers, who acknowledged that being apart of the ART programme and other HIV related services has allowed them to positively influence people's lives through

their work, in addition to playing a favourable part in their own lives. However, a worrying proportion in both sites indicated intentions to leave.

Relationships and communication with management was looked upon favourably as most staff indicated that they were comfortable in confiding with their supervisors or managers when faced with a personal problem. This may explain why staff at both sites indicated that in spite of workloads and staff shortages, they were still motivated to carry out their duties. It confirms other research conducted in South Africa, which reveals "primary health care nurses who reported a trusting relationship with their immediate supervisor had two-thirds less burnout than those who did not report such a relationship." (Schneider et al., 2004: 23; Zondi et al., 2003) Nursing staff at both sites were confident in their ability to do their jobs and this may be related to training and skills development opportunities being offered at their site.

Leadership at both sites came in the form of locally motivated champions who were ART programme managers. This is an important element in improving motivation and morale of staff at the ART sites. In addition to strong leadership, trust and dependence on co-workers was also evident. The significance of this is captured in the statement made by Walker and Gilson (2004:1251) in that "developing interpersonal competence and trust within organisations is necessary to strengthen implementation." The close interpersonal relationships between staff were not limited to work tasks only, but also served as an informal mechanism of support. In the absence of formal debriefing sessions, as was the case at the CHC based site, Steyn et al. (2006) documents that nurses employed at public sector sites experience significant psychological and emotional strain. However, teamwork and trust in co-workers was an important factor in coping with job related stress in the absence of formal debriefing systems. This can be attributed to initiative displayed by

nursing staff at the CHC in cultivating an atmosphere of teamwork and camaraderie by gathering on their own and hosting an informal forum for discussion and motivation at the end of each month. Therefore, this demonstrates resilience by health care workers in a resource-limited setting and proves that in the face of hardship, nursing staff can motivate and be motivated through sharing of common experiences and concerns.

4.3 Delivery systems design

As outlined by the CCM and ICCC frameworks, the foremost issues regarding systems design of health organisations is facilitating continuity and coordination of services. In order to achieve this, integration of services is necessary. Integration is one of several core principles of the Comprehensive HIV and AIDS Care and Treatment for SA in achieving universal access and health system strengthening.

As reported earlier, the sites varied in relation to the degree of integration of services, i.e. functional integration of hospital services as opposed to the physical integration of HIV/AIDS services, namely the ART/Wellness and VCT departments, at the CHC.

Functional integration of HIV/AIDS related services at the hospital-based site ensured that patients were able to access care in a coherent manner, from the point of initial contact to being screened and initiated on ART. This was also supported by the smooth referral relationships between the various departments within the hospital. In contrast, physical integration of the ART/Wellness and VCT departments at the CHC was more obvious. This interconnected package of services functioning within the same space ensures that patients can negotiate around accessing care and treatment with ease along a clear pathway. From a programmatic level, it makes sense to physically integrate certain HIV/AIDS services, as done so by the CHC, in an attempt to minimise the number of service delivery points that a

patient would have to attend during a single visit. Considering the number of tasks involved in screening, initiating and monitoring a patient for ART and the physical condition of patients, it is not just a practical step but also a patient centred approach to service delivery. In addition, this would be an ideal approach to the delivery of TB care, as 70% of patients with TB are co-infected. This will ensure that patients have access to similar support systems for adherence (Corbett et al. 2006).

However, the combination of physical integration and constraints that exist at both the facility and system level created barriers to sustaining this integrated system. Lack of space to conduct counselling, testing and wellness monitoring and shortage of human resources impact the quality of care patients receive and workload of nursing staff. Multiple work responsibilities coupled with a staff shortage and increase in workload will influence worker performance and quality of care, thus making it increasingly difficult to sustain an integrated system.

Interviews with programme managers at the hospital highlighted the lack of co-ordination with clinics in their catchment areas. The services affected by this lack of coordination were the PMTCT and ART programmes. Interviews held with the hospital PMTCT manager revealed an increasing trend in patients bypassing PHC facilities in favour of accessing care and treatment at the hospital due to dissatisfaction of services rendered at clinics. As a result, health care workers have to perform tasks that would have been routinely performed at antenatal clinics thereby increasing staff workload, duplicating tasks and responsibilities and reducing efficiency of the programme not just at the hospital but also at antenatal clinics. These findings of poor co-ordination mechanisms between clinics and hospitals is not uncommon as similar reports from a study conducted by Modiba et al.

(2002) uncovered that there were generally poor formal referral relationships between hospitals and clinics when attempting to integrate primary HIV/AIDS care and support. Based on these findings, it is clear that integration promotes continuity of care, however in order to realise efficiency of service delivery, referral and coordination mechanisms between different levels of care needs to be considered.

Although the study used adherence as a good outcome measure, it was found that lack of integration of HIV and AIDS related services may affect *access* to services more especially sub-populations such as PMTCT and TB. PMTCT programmes at the sites appeared to be somewhat marginal to the CCMT programme, as programme managers reported that the services were only partially co-ordinated with the other HIV/AIDS related activities at the hospital/clinic. This may be due to the fact that the PMTCT programme is not reliant on other services for VCT, as is the case with ART/Wellness departments.

Treatment preparation at both sites concentrated on individual and group counselling. This facilitated empowerment of patients by educating them on HIV and treatment and the importance of adherence. This corresponds with methods adopted by the ART programme in Khayelitsha, which advocates for a strong patient centred adherence system which promotes patients understanding of their therapy (MSF, 2003). Individual and group counselling was supported by home visits made by the social worker in which barriers to adherence in the home environment was identified. However, the ability to conduct home visits was limited at the hospital due to the absence of a motor vehicle and lack of dedicated full time staff to conduct this activity. Similar methods of treatment support were used at both sites, of which presence and involvement of support groups and NGOs was integral. The differences arose in the function of these organisations. Similar methods of adherence assessment were performed at the two sites.

4.4 Support Systems

Support systems to deliver comprehensive care, management and treatment to HIV/AIDS patients were on the whole adequate. However, there were areas for concern at the CHC site. Lack of space in the CCMT site, which provides a 'one stop shop' approach of HIV/AIDS services by delivering ART/Wellness and VCT under the same roof is a problem. According to Du Plooy (2006), lack of space leads to compromised confidentiality and privacy during consultations. Due to the close confines at the CHC CCMT site, chance of auditory and visual privacy being compromised is high. Future implications of this could be a decrease in patients accessing this particular service, as they are afraid of their status being inadvertently disclosed during a consultation or counselling session. Similar findings have been reported by Ramkissoon et al. (2004), in a survey of South African public sector facilities showed that 20% of consultations with STI clients could be seen and 11% could be heard. This was mainly due to the lack of space and close confines.

Both sites had no reported drug stock outs over the past 6 months; however, lack of human resource capacity at the CHC pharmacy was a major concern. The inabilities to dispense medication regularly, the recent adoption of a quota system for dispensing drugs and closure of the pharmacy on a Friday are some of the factors contributing to the problems experienced at the pharmacy. According to Stewart et al. (2004), a well functioning and reliable supply chain of anti-retroviral drugs to patients ensures that the ART programme is successful in meeting the treatment needs of patients. This ensures that patients are satisfied and confident in the ability of the health care setting to provide ongoing treatment. However, as is the case of patients seeking care at the CHC, reported dissatisfaction of service delivery related to dispensing of ARVs may indicate that patients

are losing confidence in the ability of the public sector site to be a reliable source of anti-retroviral drugs.

According to Setswe (2004:202), "a wider approach is needed to build implementation capacity and this must involve process-oriented dimensions such as leadership, vision building and participation." In order to achieve a common purpose and vision, management structures within sites play an integral part. The management team at the district hospital comprised of three assistant directors of nursing, of which each had the responsibility of general supervision of nursing staff under their command, whereas a single individual performs this duty at the CHC.

Motivated champions in the form of site managers were an integral part of the daily functioning. Familiarity of programme performance and popularity of ART managers amongst staff across all programmes within sites was evident as the binding force between departments. However, in contrast to the strengths of local leadership displayed at the level of implementation, supervision and feedback outside of the health care settings i.e. between sites and district, provincial and national levels of government were perceived as weak. Weaknesses identified by programme managers were the lack of communication between key actors, limited feedback (in the form of minutes of meetings) from quarterly steering meetings and inexperience of higher level officials to provide guidance, supervision and support for ART programmes.

At the facility level, that lack of communication between ranks at the CHC, namely the Assistant director of Nursing and facility manager, was an initial barrier to access to treatment sites. From observation, the interaction between different levels of management is crucial, particularly when negotiating entry to sites, in addition to being the point of reference for how other interactions will proceed within health care settings.

4.5 Clinical Information Systems

As alluded to earlier, both sites made use of an electronic and manual system to conduct monitoring and evaluation of the programme. Patient information was captured using, either locally designed tools as in the case of the hospital based ART site, or standardised Department of Health forms. The common factors in this process were the types of information collected from each individual, which spanned identification, contact details and type of regimen. Information systems at both sites served two purposes. Firstly, it allowed the health care team to monitor individual patient's progress through a system of both clinical and personal data collection for each patient, and secondly, provided an indication of the overall performance of the programme by locally analysing patient and programme outcomes, namely patient retention, adherence to treatment, lost to follow up, default and deaths. This information was compiled in monthly and quarterly summary reports.

From observation of sites, it was evident that ART managers and staff within sites were engaging with data, locally analysing numbers of patients on treatment and providing information to higher levels of supervision. However, the study highlighted that information systems lacked efficiency and completeness at the hospital and CHC respectively. Collection of information at the hospital CCMT site was inefficient as the same type of patient information was collected and compiled at various points within the service and paucity of routine data at the CHC CCMT site was evident. Also absence of a clear register for cohort analysis of routine data meant that programme and patient data was compiled in a cross-sectional manner.

4.6 Study Limitations

In considering the findings of the study, it is important to bear in mind the following limitations. Case study methods tend to highlight the unique organisational cultures and environments of different sites and specific findings may not be generalisable to the entire Gauteng Province. However, at general level, the findings are probably transferable to other sites of the same level.

Much of the TB-HIV collaboration data was unavailable and incomplete at the hospital-based site therefore making it difficult to develop a composite picture of the impact that patients with TB and HIV are having on the district hospital setting. In addition, assessment of the local government TB service offered at the CHC could not be conducted as permission to enter sites was limited to provincial government authorities and not locally run services. As a result, comparisons of the TB services offered could not be made and pertinent TB-HIV data could not be analysed. This limits the capacity to reflect on the degree of integration of TB and HIV services being offered.

Lack of reliability related to responses made by programme managers may be important to consider. It should be noted that programme managers and supervisors come from an organisational environment that is burdened with a high patient load on any given day. Therefore, time taken to give an interview may be seen as a missed opportunity in providing patients with valuable contact time or administrative duties and as a result, there was the sense that some managers rushed through the interviews. In some cases, this resulted in vague and monosyllabic answers to questions and thus if respondents were to be interviewed on a later date for follow up, answers may not be consistent to what was given previously and therefore lacking reliability.

There were low response rates to self-administered questionnaires on motivation at both sites. Many attempts were made to ensure that questionnaires were answered, however, many nurses were on leave or off duty and as a result, the sample comprised of staff working per shift and not the entire staffing compliment. In addition, the low response rate may have been an indication of respondent fatigue and demotivation towards their work situation. Therefore, results obtained from the motivation assessment may not be generalisable to the entire nursing population at the two sites; however, questionnaires were administered to nurses within a particular department and thus may provide valuable information on how nursing conditions could be improved within a particular service setting.

Unavailability of routine CCMT data for the CHC prevented an analysis of total loss to follow up and as a result comparisons between both sites could not be made. In addition, data collected for the patient exit interviews were restricted to adults; therefore, the results may not be applicable to infants and children. Analysis of routine data revealed that patient and programme information for both sites was compiled in a cross-sectional manner. Therefore, a cohort analysis could not be performed of patients who began treatment at the beginning of the observation period, i.e. October 2005 – March 2006.

Chapter 5 Conclusions and Recommendations

The findings of the study suggest that the two sites have demonstrated ability to build organisational capacity for ART provision, through a degree of systems integration and design, reasonable decision support systems, generation and local use of information and motivated local champions. Comparisons of sites have shown that in spite of the different environments, they do however face similar problems. These include shortage of human resources (especially for critical functions such as in pharmacies) and lack of formal debriefing sessions for programme managers and nursing staff, a perception of lack of support from district, provincial and national levels of government, poor communication and referral relationships between sites and surrounding clinics and specifically in reference to the CHC, lack of space and human resource capacity, the marginalisation of the PMTCT programme from other HIV related services and inefficient information systems.

However, despite the weaknesses, both sites have demonstrated good performance, namely good adherence levels according to patient self reports and viral loads, motivated champions who drive programmes forward, teamwork and organisational commitment, integration and co-ordination of HIV and AIDS services which facilitate continuity of care and good referral relationships with the local government TB clinic at the CHC. These findings bode well for other programmes with similar patient loads and health facility barriers.

Recommendations

- Review the hospital based site to identify the reasons for the high-drop out rate and address these issues
- Due to the evidence of early saturation at the CHC i.e high volumes of patients, it is suggested that additional roll-out sites be established, or alternatively increase staffing

and space at the CHC to meet the needs of the high patient load. In addition, well patients should be decanted to lower level services e.g. community based care organisations, thus reducing the burden on the site

- Pay attention to the physical infrastructure needs of clinic based sites, especially as they become saturated
- Foremost, the current Employee Assistance Programme (EAP) implemented in Gauteng Province should be strengthened and marketed so that staff members are more aware of the service and make use of it accordingly. Alternatively, a culture of "caring for the caregivers" should be cultivated, through for example, specialist assistance, debriefing sessions, and better external programme support from HIV/AIDS, STI, TB (HAST) managers
- Improve support and supervision of ART programmes by facilitating greater communication and feedback between sites and district, national and provincial levels of government.
- Adopt a strategy of "task shifting", through better use of lay workers, counsellors, and mid level workers such as pharmacy assistants.
- Facilitate greater integration and coordination between the PMTCT programmes and other services, including the provision of VCT and training of staff. In addition, it is imperative that there is good integration between services provided by local and provincial Departments of Health
- Simplify and standardise information systems, particularly the development of clear patient registers to allow for cohort analysis.

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Annexure 1 Map of district hospital CCMT site located on the 4th floor of hospital, opposite the TB ward

Waiting benches for patients – · – · – ·

Room for Support group Meetings	Social Worker	Counselling Room 3	Dietician	Emergency Room e.g. put drips, take blood	Counselling Room 1	Counselling Room 2	Television Room and Waiting Area

MAIN CORRIDOR

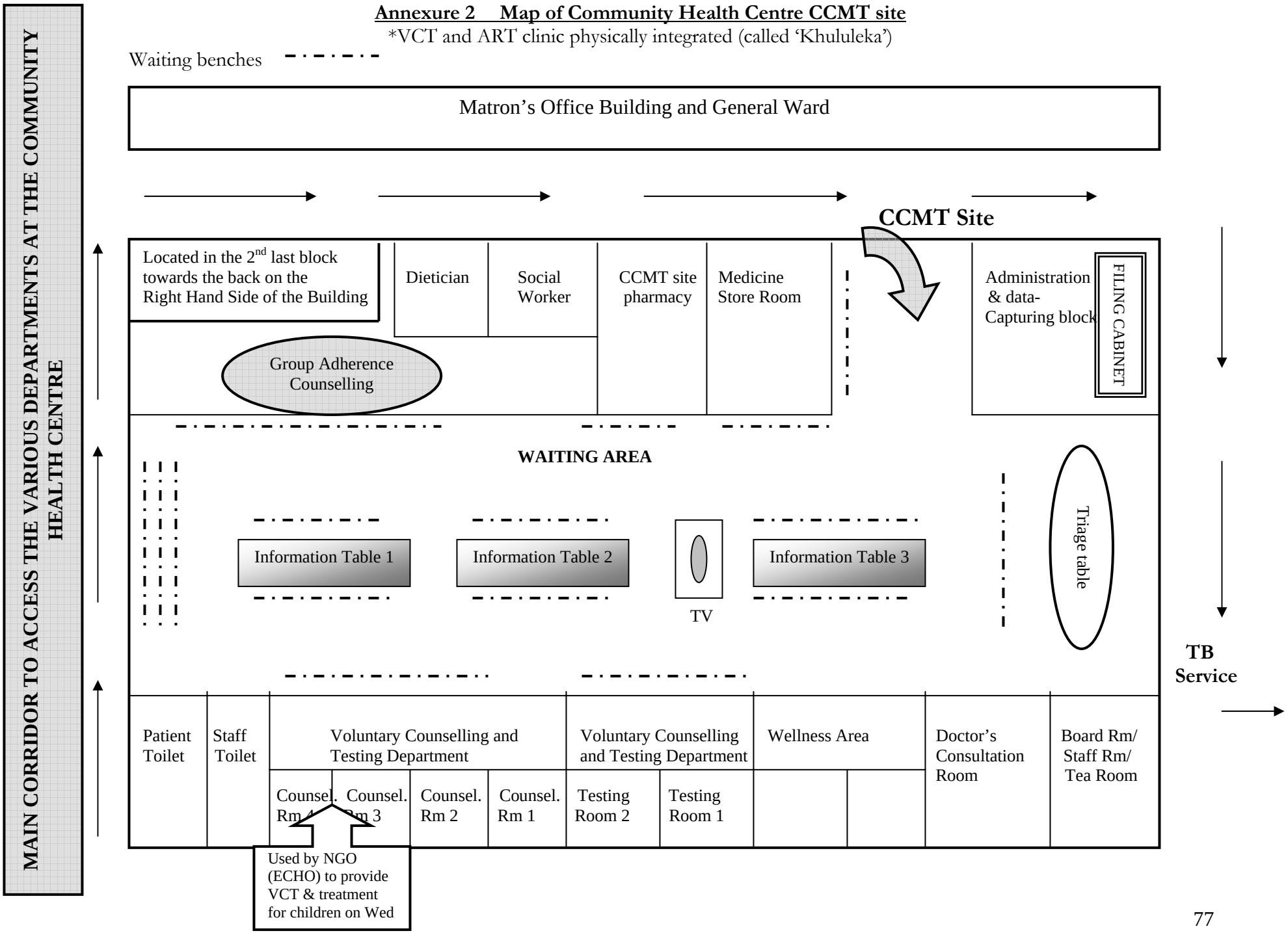
Record Room where all patient files regarding booking appointments are stored. *Door is kept closed at all times and a\only accessible to the booking clerk	**Corridor**	Data capturer and Administration office *First point of contact is Made here at this station	T Bathroom T	**Corridor**	Help desk	Preparation/ Triage Room Observation Room Cupboard	Sluice Room	Linen/ Store	**Corridor** T B T

Entrance → **MAIN CORRIDOR** – · – · – · – – · – · – · – – · – · – · –

Waiting area outside clinic	Programme Manager's Office	Medicine Store Room	Booking Clerk's Office Photocopy Room	Pharmacy	Doctors Consultation Room 1	Doctors Consultation Room 2	Doctors Consultation Room 3	Television Room and waiting area

Annexure 2 Map of Community Health Centre CCMT site

*VCT and ART clinic physically integrated (called 'Khululeka')



Annexure 3

University of Witwatersrand
School of Public Health
Faculty of Health Sciences

Information Sheet – Facility Manager

Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province

Good Day,

We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have cooperated on a number of HIV/AIDS projects in recent years. The theme of the current research project is adherence to anti-retrovirals. Specifically, we are tasked with investigating the facility factors (for instance, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you

Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. As the manager of the facility we would like to interview you. The purpose of the interview with you is to obtain a general understanding of the facility in which the ARV site is located, such as the staff and resources in the facility as a whole, and how you see the link between the ARV programme and the rest of the facility.

What can I expect and what will be expected of me?

One of us will interview you and take notes using a semi-structured questionnaire. We will also ask your assistance in gathering information on aspects such as staffing, drug supplies and facility statistics. The interview will take about one hour or so to complete. Your views will be combined with those of other facility managers and neither your name nor that of the facility will feature in the report.

Are there benefits or risks to the participants?

There are no physical risks to the participant. The knowledge obtained from the interview or any additional information obtained from registers and routine data will only be known to the researcher. This information will not reflect peoples names or patient numbers and will only show case numbers via a coding system. By participating you will help us understand the challenges facing managers in implementing a major new programme.

Can I withdraw from this study?

You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality

All information that is obtained in this study will be kept confidential. Please note that to ensure that this is maintained, interview schedules will be coded and will only indicate the date of the interview and the facility code. Your participation will remain anonymous. Information pertaining to interview schedules will be kept in a separate file from the rest of the report, under lock and key in a safe place by the researcher.

Should you have any questions concerning this study, please contact us:

Nicolette Naidoo Tel: 082 490 1214 Email: nickynaidoo@gmail.com
Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za
Our supervisor is Professor Helen Schneider and she is contactable on:
Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za

Sincerely, **Nicolette Prea Naidoo** **Rebecca Pursell**



Consent Form for Facility Manager

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Facility Manager Interview Schedule

Interview details

1.1 Interview schedule No: _____

1.2 Interviewer: _____

1.3 Date of interview: _____

1.4 Facility code: _____

1.5 Data capturing: Date: By:

---

2. Clinic profile and staffing

2.1 Could you tell me what services are provided at this outpatients department/clinic?

(*Fill in the table and prompt for remainder once finished*)

Service	**Provided (Y/N)**	**Days/Hours of operation**
Curative care (minor ailments)		
Antenatal		
Maternity		
PMTCT		
Child health/immunisation		
Family planning		
TB diagnosis		
TB treatment		
Chronic disease care		
VCT		
Home based care		
Post sexual assault services		
Other		
Other		

2.2 Can you tell me when each of these services are available? (*fill in second column*)

2.3 I'd now like to ask you to draw me an organogram of the facility, showing me the structure of services and the reporting lines *(Show example of an organogram; draw on the next page)*

Probe: if there are services which do not report to her/him what are their reporting lines? (draw a second diagramme if necessary)

2.4 Who do you report to? _____

Facility Organogram

2.5 Can you tell me what staff you have available in this clinic/OPD?

Category	Full-time	Part-time	Unfilled posts	Left in last year	Joined in last year
Doctors					
Professional nurses					
Enroled nurses					
Enroled nursing assistants					
Health promoters					
Dietician					
Social worker					
Psychologist/ Counsellor					
Clerical staff					
Cleaning staff					
Other					
Other					

2.6 Do you have any unfilled posts in this clinic? (*fill in number next to category in table*)

2.7 In the last year, since ____ (*month*) have any staff left? (*ditto*)

2.8 In the last year, since ____ (*month*) have you recruited any new staff (*ditto*)

2.9 Please describe to me how the nursing staff are allocated to activities, in other words, who does what, in this clinic/OPD?

Probe overlapping functions; rotations

2.7 Are there volunteers, lay workers or other kinds of community workers linked to this OPD/Clinic?
Yes/No

2.8 If yes, could you list the types of volunteers used and the tasks that they perform?

Categories of Volunteers	Tasks	Remuneration

2.9 Are any of these workers remunerated? *(fill in the table – amount or N)*

2.10 Do you know your current daily clinical nurse workload in this clinic/OPD, in other words, on average how many patients do your primary health care nurses see on a daily basis?

_____ patients

2.11 Do you know how many patients you currently see in total in this OPD/clinic, on a:

Daily basis? _____ patients

Weekly basis? _____ patients

3 Drug supplies

3.1 Who manages the drug supply in this facility?

Pharmacist	
Pharmacy assistant	
Professional nurses	
Other (*state*)	

3.2 How would describe the drug supply in this facility? (*prompt a choice by reading out options*)

Almost never or never run out of essential drugs	
Sometimes run out of essential items	
Regularly run out of essential items	
Almost always out of some essential items	

Comments on drug supply

3.3 *Ask if you can check availability of the list of drugs at the end of the questionnaire and who to go to for this (e.g. person working in pharmacy)*

4 Laboratory Capacity

4.1 Are any of the following tests available <u>on site</u> at your facility?

Syphilis (rapid RPR)	Y	N
Pregnancy test	Y	N
Haemoglobin	Y	N
HIV rapid test	Y	N

4.2 Are you able to order the following tests (*if yes, ask turnaround times*)?

HIV (ELISA)	Y	N	Turn around time for results
CD4 count	Y	N	
Viral load	Y	N	
PCR	Y	N	
Sputum AFBs	Y	N	
Full blood count	Y	N	
Liver enzymes	Y	N	
Electrolytes	Y	N	

Comments on laboratory service

---

5 Referral systems

5.1 Where do you refer patients who need hospitalisation? (*relevant for clinic only*)

Name of facility

5.2 How are patients transported to hospital? *(relevant to clinic only)*

By ambulance if acutely ill	
Hospital/clinic taxi service	
Patients have to arrange their own transport	
Other (*state)*	

5.3 Where do you refer patients who need TB care? (*if not provided on site*)

Name of facility

5.4 *If refer TB cases,* do you (*read out each question*):

Know the name of the person in charge of the TB service where you refer patients?	Y	N
Ever discuss the management of individual patients with staff in the TB service?	Y	N
Send patients with referral letters to the TB service?	Y	N
Receive information back from the TB service on your patients you referred?	Y	N
Provide transport for patients to get to the TB service?	Y	N

Comments on referral system

_____

5.5 Do you run any support groups from this OPD/clinic? Yes/No
If yes, Can you list these support groups for me *(prompt for target group if not obvious)?*

Type of support group	**Target group**

5.6 Do you have any relationships with NGOs in this area? Yes/No
If yes, Can you tell me about these and what your relationship is with them?

Name of NGO	**Nature of relationship**

6 Information Systems

6.1 I'd like to know now about the collection of statistics in this OPD/clinic. Can you describe to me how the system of collecting statistics in this clinic works?

Write verbatim response

6.2 Do you have any computers in this OPD/clinic? Yes/No

If yes, how many? _____

Which services do they cover? _____

6.3 Do you know, more-or-less, the following statistics for your clinic/OPD?

Number of suspected TB cases in the last month?	
% of patients on ARVs who have dropped out?	
% pregnant women tested for HIV?	
Number of HIV tests conducted?	

7 Supervision

Apart from yourself, are there any other people who provide support and supervision to the OPD/clinic? Yes/No

If yes, please tell me about these people

Source of supervision	**Who they supervise**

8 Integration

I'd now like to ask your opinion of HIV/AIDS services in this clinic:

8.1 In your opinion what are the strengths of the HIV/AIDS-related services in this OPD/clinic?

8.2 In your opinion what are the areas of the HIV/AIDS-related services that are weak or that require attention in this OPD/clinic?

8.3 Which best describes the HIV/AIDS activities in this facility *(read out and ask to choose one)?*

A series of vertical activities completely separate from each other	
A series of activities partially coordinated with each other	
A well integrated set of activities	
A well integrated set of activities that is also well integrated into the activities of the clinic/OPD as a whole	

9 General

9.1 Is there anything else that you would like to say about the facility and health care services provided?

9.2 Do you have any questions you would like to ask me?

THANK YOU, THE INTERVIEW IS OVER

Ask for assistance in doing the inventory of drug supplies, consulting the routine data and indicate that you are going to be drawing a map of the area

Map of the facility (including waiting areas)

Check-list of drug supply *(to be collected in dispensary)*

(a) General drugs and supplies			(b) **Anti-retrovirals**		
(c) Sharps disposal containers	Y	N	Stavudine caps 30mg (Stavir/d4T)	Y	N
(d) Condoms	Y	N	Stavudine caps 40mg (Stavir/d4T)	Y	N
Ciprofloxacin tablets	Y	N	Stavudine solution1mg/ml (Stavir/d4T)	Y	N
Flagyl (Metronidazole) 400mg	Y	N	Lamivudine tabs 150mg (3TC)	Y	N
Erythromycin 250mg tabs	Y	N	Lamivudine solution 10mg (3TC)	Y	N
Doxycycline 100mg tabs	Y	N	Efavirenz caps 200mg (Stocrin /EFV)	Y	N
Latex gloves	Y	N	Efavirenz caps 50mg (Stocrin /EFV)	Y	N
(e) Rapid HIV/AIDS testing kits	Y	N	Efavirenz tabs 600mg (Stocrin /EFV)	Y	N
(f) Purple topped blood specimen containers	Y	N	Didanosine tabs 200mg (Videx/ddI)	Y	N
(g) Nevirapine tablets 200mg	Y	N	Didanosine tabs 100mg (Videx/ddI)	Y	N
(h) Nevirapine suspension 50mg/5ml	Y	N	Didanosine tabs 50mg (Videx/ddI)	Y	N
Nystatin	Y	N	Zidovudine tabs 300mg (Retrovir/AZT)	Y	N
(i) Analgesia (paracetamol)	Y	N	Zidovudine syrup 50mg/5ml (Retrovir/AZT)	Y	N
Cotrimoxazole (Bactrim) syrup	Y	N	Lopinavir/Ritonavir caps 133/33mg (Kaletra)	Y	N
Cotrimoxazole (Bactrim) tablets	Y	N	Lopinavir/Ritonavir suspension 80/20mg/ml (Kaletra)	Y	N
(j) Acyclovir 800mg	Y	N	Ritonavir suspension 80mg/ml (Norvir)	Y	N
(k) Amitryptaline	Y	N	Ritonavir caps 100mg (Norvir)	Y	N
(l) Hydrocortisone cream	Y	N	Abacavir tabs 300mg	Y	N
(m) Loperamide 2mg	Y	N	Abacavir solution 20mg/ml	Y	N
(n) Sputum containers	Y	N			

Routine data

From the routine information system record the following data elements for the **previous** six months

Indicate which 6-month period you have recorded data: _____

Indicator	Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6
Total head count						
Nurse clinical workload						
Absenteeism rate professional nurses						
Number of HIV tests (excluding antenatal)						
Number of HIV tests in antenatal clinic						
Number of first antenatal visits						
Total number of TB sputum sent						
Number of CD4 counts requested						
Number of PCR requested						
Number of viral loads requested						
Number of liver tests requested						
Total seen for ART – adults						
Total registered on ART- adults						
Deaths on ART						
Transfer out on ART						

Interviewer Notes *(after the site visit on the same day record critical incidents, observations and general impressions)*

Annexure 4

University of Witwatersrand
School of Public Health
Faculty of Health Sciences

Information Sheet – Comprehensive Care Management and Treatment (CCMT) Manager
Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province

Good Day,
We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have collaborated on a number of HIV/AIDS projects in recent years. The theme of the current research is adherence to anti-retrovirals. Our interest is specifically in the facility factors (for example, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two of studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you
Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. As the person responsible for the ARV programme in this facility we would like to interview you. The purpose of the research is to obtain a detailed understanding of the CCMT programme within this facility. This will include aspects such as staffing and resources within the programme, and how you see the link between the ARV programme and the rest of the facility.

What can I expect and what will be expected of me?
One of us will interview you and take notes using a semi-structured questionnaire. We will also ask your assistance in gathering information from registers. The interview will take about one hour or so to complete. Your views will be combined with those of other staff interviewed and neither your name nor that of the facility will feature in the report.

Are there benefits or risks to the participants?
There are no physical risks to the participant. The knowledge obtained from the interview or any additional information obtained from registers and routine data will only be known to the researcher. This information will not reflect peoples names or patient numbers and will only show case numbers via a coding system. By participating you will help us understand the challenges facing managers in implementing a major new programme.

Can I withdraw from this study?
You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality
All information that is obtained in this study will be kept confidential. Please note that to ensure that this is maintained, interview schedules will be coded and will only indicate the date of the interview and the facility code. Your participation will remain anonymous. Information pertaining to interview schedules will be kept in a separate file from the rest of the report, under lock and key in a safe place by the researcher.

Should you have any questions concerning this study, please contact us:
Nicolette Naidoo Tel: 082 490 11214 Email: nickynaidoo@gmail.com
Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za

Our supervisor is Professor Helen Schneider and she is contactable on:
Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za
Sincerely, **Nicolette Prea Naidoo** **Rebecca Pursell**

Consent Form for CCMT Manager

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province
CCMT (ART) Provider Interview Schedule

1 Interview Details

1.1 Interview schedule No: _____

1.2 Interviewer: _____

1.3 Date of interview: _____

1.4 Facility code _____

1.5 Data capturing: Date: _____ By _____

_____

2 Department Profile

2.1 On which days and during which times does the ART unit provide services to the public?

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of operation							

2.2 When did the service open for the first time? _____month_____year

2.3 When did you start providing ART? _____month _____year

2.4 Since starting the service, how many patients …

have you started on ART?	**Number or don't know**
are still on ART in this service?	
on ART are children (<14 years)	
started treatment during pregnancy?	
are on the waiting list to start ART (cd4<200)?	
are still in the wellness programme (cd4>200)?	
are still waiting to be assessed (no cd4 count done)?	

2.4 On average, how many patients does the unit see in one day?

2.5 I'd now like to ask you to draw me an organogram of the unit, showing me the structure of services and the reporting lines *(Show example of an organogram; draw on the bottom of the page)*

Probe: if there are services which do not report to her/him what are their reporting lines? (draw a second diagramme if necessary)

Unit Organogram diagramme

3 Staffing

3.1 Please tell me about the staffing for the ART service

Category	Full-time	Part-time	Unfilled posts	Left in last year	Joined in last year
Doctors					
Professional nurses					
Enroled nurses					
Enroled nursing assistants					
Lay counsellors					
Volunteers					
Dietician					
Social worker					
Psychologist					
Clerical staff					
Cleaning staff					
Other					
Other					

Do you have any unfilled posts in this unit? (*fill in number next to category in table*)
In the last year, since ____ (*month*) have any staff left the unit? (*ditto*)
In the last year, since ____ (*month*) have you recruited any new staff to the unit? (*ditto*)

3.2 In a typical day, what are your duties?

Probe overlapping functions, rotations-

_____

_____

_____

3.3 What training have the staff received in this unit on HIV/ART?

Category	No trained	Type of training
Doctors		
Nurses		
Lay counsellors/volunteers		
Clerical		
Other		
Other		

4. Information Systems

I'd now like you to ask questions about the record keeping system in your unit *(fill in the table)*

4.1 Can you show me an example of a patient record at this clinic?
Are there any standard forms in this record?
Who designed this record?

4.2 Is patient information recorded anywhere else? If yes, where?

4.3 Do you keep any special registers at the clinic?

	Description	Specific to ART service	Paper or electronic	Local, provincial or national design
Standardised patient records				
Registers and record books				
Reporting forms				

4.4 How do you track the follow-up of patients in this unit? (*alternatively* how do you track defaulters from the service?)

4.5 What information (statistics, reports) do you send to the clinic/OPD, district, province and national authorities? *(get copies of forms)*

Form/report	To	Via	Frequency

4.5 How do you assess whether your service/unit is performing adequately or not? (fill in table and *probe if necessary)*

Analyse own data locally	*If yes, indicate frequency*
Get verbal feedback district or province	
Get written reports from district or province	
Get verbal feedback from national	
Get written feedback from national	

5. Treatment preparation, adherence and support

5.1 I'd now like to ask you about how you manage treatment preparation and adherence

Step/procedure	Description
Describe the steps (verbal or written) or procedures involved in preparing people for ART	
Describe how you ensure that patients remain on (adhere to) treatment?	
How do you monitor adherence in individual patients?	

5.2 Does treatment preparation and support involve any of the following (*if not already mentioned*):

Treatment preparation	
Individual counseling/briefing	**Y/N D/K**
Group education	
Nomination of treatment supporter/buddy	
Home visit	
Knowledge questionnaire	
Consent forms or patient contract	
Written information/pamphlets	
Treatment support	
Follow-up appointments	
Pill boxes	
Tick sheets	
Adherence assessment	
Self reported adherence (3 or 4 day recall)	
Pill count	
Viral load monitoring	
Return for follow-up	

6 Pathways of care and referral

I am going to ask you now to take me through what happens to a person before they arrive at this service and the various referral services at this clinic.

6.1 A person attending a clinic or the OPD is suspected of having HIV infection or requests an HIV test …

Where do they receive VCT?	
Where do they go after that? (cd4 counts etc.)	
If their cd4 count is >200 what happens to them?	
If they are pregnant where do they go?	
When are patients referred to this service?	
Where do most of your patients come from? (e.g. referred after admission, from general OPD, ANC, TB, VCT)	

6.2 Where do you refer your patients who need TB care? (*if not provided on site*)

Name of facility

If refer TB cases, do you (*read out each question*):

Know the name of the person in charge of the TB service where you refer patients?	Y	N
Ever discuss the management of individual patients with staff in the TB service?	Y	N
Send patients with referral letters to the TB service?	Y	N
Receive information back from the TB service on your patients you referred?	Y	N
Provide transport for patients to get to the TB service?	Y	N

6.3 How would you describe your relationships with the following services:

	Good	Fair	Poor
VCT			
TB			
PMTCT/antenatal			
In-patient departments			
General outpatient			

6.4 Do you run any support groups from this unit? Yes/No

If yes, Can you list these support groups for me *(prompt for target group if not obvious)?*

Type of support group	**Target group (youth, women etc.)**

6.5 Do you have any relationships with NGOs in this area? Yes/No

If yes, Can you tell me about these and what your relationship is with them?

Name of NGO	**Nature of relationship**

6.6 Where do you refer patients who need hospitalisation? (*relevant for clinic only*)

Name of facility

7 Support Systems

7.1 Can you describe to me who provides support and supervision to this service (*position of person)?*

	Inside facility	Frequency	Outside facility	Frequency
General supervision (e.g. promotion, absenteeism)				
Supervision of programme activities (ARV/CCMT)				
Clinical support				

8. Supplies and infrastructure

8.1 Who manages the drug supply for this service?

Dedicated pharmacist for service	
By facility pharmacist	
Other (no pharmacist)	

8.2 Where are the drugs stored?

Separately from other facility drug supplies	
With other drug supplies	

8.3 Has the unit experienced stock out of ARV drugs in the past 6 months? Yes/No

If yes, how many times did this occur? _____

8.4 Comments on drug supply

_____

_____

_____

10 Laboratory Capacity

10.1 What laboratory tests are offered at the ART clinic?

HIV (ELISA)	Y	N	On or off-site	Turn around time if off-site
CD4 count	Y	N		
Viral load	Y	N		
PCR	Y	N		
Sputum AFBs	Y	N		
Full blood count	Y	N		
Liver enzymes	Y	N		
Electrolytes	Y	N		

11 Policy, Protocols and Standard Treatment Guidelines

11.1 W hat written guidelines do you have available in the ART/CCMT service?
(Take note of guidelines posted on the walls when doing the walkabout)

Essential drug list and standard treatment guidelines for South African Primary Health Care services	*Y*	*N*
Feeding of infants of HIV positive mothers		
Prevention and treatment of opportunistic and HIV related diseases in adults		
Prevention of mother-to-child HIV transmission and management of HIV positive pregnant women		
Managing HIV in children		
VCT protocol/manual/booklet		
Tuberculosis (TB) and HIV/AIDS		
Protocol for management of a person with a STI (1998 or 1999 or more recent)		
HIV strategic plan for South Africa 2000-2005		
National guideline on home-based care and community based care		
Protocol/guidelines for PMTCT		
Management of occupational exposure to HIV (PEP guidelines)/Protocol for needle-stick injury		
The South African TB Control Programme Practical Guidelines 2000 (or more recent)		
Flow charts on TB diagnosis – New patients (blue) (either in TB control guidelines book or on a clinic/CHC wall, nurse should show it to you)		

12 Integration

I'd now like to ask your general opinion of HIV/AIDS services in this clinic:

12.1 In your opinion what are the strengths of the HIV/AIDS-related services in this OPD/CHC?

_____

_____

_____

_____

12.2 In your opinion what are the areas of the HIV/AIDS-related services that are weak or that require attention in this OPD/CHC?

_____

_____

_____

12.3 Which best describes the HIV/AIDS activities in this facility (*read out and ask to choose one)?*

A series of vertical activities completely separate from each other	
A series of activities partially coordinated with each other	
A well integrated set of activities	
A well integrated set of activities that is also well integrated into the activities of the clinic/OPD as a whole	

13 General

Is there anything else that you would like to add about the ART programme at your unit?

Response/Comments:

_____

_____

_____

Do you have any questions that you would like to ask me?

_____

THANK YOU, THE INTERVIEW IS OVER.

Interviewer Notes *(after the site visit on the same day record critical incidents, observations and general impressions)*

_____

_____

Map of the facility *(including waiting areas, and indicating functions of various rooms – counselling, treatment, record keeping etc.)*

Drugs kept in lockable space	Y/N
Records kept in locked space/cabinet	
Visual privacy of: • counselling • consulting rooms	
Auditory privacy of: • Counselling • Consulting rooms	

Routine data ***(if not already obtained)***

From the routine information system record the following data elements for the prior six months

Indicate which 6-month period you have recorded data: _____

Indicator	Mnth 1	Mnth 2	Mnth 3	Mnth 4	Mnth 5	Mnth 6
Number of CD4 counts requested						
Number of PCR requested						
Number of viral loads requested						
Number of liver tests requested						
Total seen for ART – adults						
Total registered on ART- adults						
Deaths on ART						
Transfer out on ART						

Annexure 5

University of Witwatersrand
School of Public Health
Faculty of Health Sciences

Information Sheet – Antenatal Care Provider
Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province

Good Day,
We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have cooperated on a number of HIV/AIDS projects in recent years. The theme of the current research is adherence to anti-retrovirals. Our interest is specifically in the facility factors (for instance, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you
Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. We would like to interview you as an antenatal care provider in this facility. Specifically we are interested in the prevention of mother to child transmission (PMTCT) of HIV aspects of your work and how this links with the HIV treatment programme in this facility.

What can I expect and what will be expected of me?
One of us will interview you and take notes using a semi-structured questionnaire. We will ask you questions about examinations and tests done on pregnant women and where you refer them if they need HIV care. All the findings of the study will be anonymous. Your views will be combined with those of people interviewed and neither your name nor that of the facility will feature in the report.

Are there benefits or risks to the participants?
There are no physical risks to the participant. The knowledge obtained from the interview or any additional information obtained from registers and routine data will only be known to the researcher. This information will not reflect peoples names or patient numbers and will only show case numbers via a coding system. By participating you will help us understand the challenges facing managers in implementing a major new programme.

Can I withdraw from this study?
You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality
All information that is obtained in this study will be kept confidential. Please note that to ensure that this is maintained, interview schedules will be coded and will only indicate the date of the interview and the facility code. Your participation will remain anonymous. Information pertaining to interview schedules will be kept in a separate file from the rest of the report, under lock and key in a safe place by the researcher.

Should you have any questions concerning this study, please contact us:

Nicolette Naidoo Tel: 082 490 1214 Email: nickynaidoo@gmail.com
Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za

Our supervisor is Professor Helen Schneider and she is contactable on:
Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za

Sincerely,
Nicolette Prea Naidoo **Rebecca Pursell**

Article II. Consent Form for PMTCT/Antenatal Care Provider

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Antenatal Care Provider Interview Schedule

Interview Details:

1.1 Interview schedule No: _____

1.2 Interviewer: _____

1.3 Date of interview: _____

1.4 Facility code _____

1.5 Data capturing: Date: _____ By _____

_____

2. Department Profile

2.1 What days and times do you provide antenatal care at this OPD/clinic?

Days	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Times							

2.2 Do you provide PMTCT (prevention of mother to child transmission of HIV as a part of antenatal care? Yes/No

2.3 Could you describe what your role is in the PMTCT service?

---

3. Pathways of Care

I am going to ask you now to take me through the steps of what happens when a pregnant woman visits this clinic.

A woman presents at the clinic for a booking visit. She arrives at the clinic - what happens then? *(probe for physical routing through facility)*

Step 1	
Step 2	
Step 3	
Step 4	

Probe for the following activities if not mentioned

HIV–related activity	Yes/No/Comment
VCT offered?	
Counsellors in ANC?	
HIV testing on site?	
Other tests?	

If she turns out to be HIV positive what happens to her next?

Step 1	
Step 2	
Step 3	
Step 4	

Probe for specifics if not mentioned

HIV-related activity	Comments
Follow-up counselling?	
Staging?	
Who does CD4 count?	
Referral to any other service?	

If the woman is HIV positive and you suspect TB what do you do?

Step 1	
Step 2	

4. Staffing

4.1 Have staff in this antenatal service received training in HIV? Yes/No

4.2 If yes, what training have the staff received with regards to HIV?

Staff	**No. trained in HIV**	**Name of training course**
Doctors		
Professional Nurses		
Auxiliary Nurses		
Other		

4.3 Does this unit share staff with other services within the OPD/clinic? Yes/No

If yes,

Which service?	**Which staff?**

4.4 Do you share space with the other service centres/units located in this OPD/clinic? Yes/No

If yes,

Which service?	**Which space?**

5. Information Systems

5.1 What information is collected to allow for follow up of mothers and their infants?

5.2 Do you know what percentage of pregnant women in this antenatal clinic are:

Tested for HIV?	
Test positive for HIV?	

6. Integration

I'd now like to ask your opinion of HIV/AIDS services in this clinic:

6.1 In your opinion what are the strengths of the HIV/AIDS-related services in this OPD/clinic?

6.2 In your opinion what are the areas of the HIV/AIDS-related services that are weak or that require attention in this OPD/clinic?

6.3 Which best describes the HIV/AIDS activities in this facility *(read out and ask to choose one)?*

A series of vertical activities completely separate from each other	
A series of activities partially coordinated with each other	
A well integrated set of activities	
A well integrated set of activities that is also well integrated into the activities of the clinic/OPD as a whole	

6.4 Is there anything else that you would like to add about the PMTCT/Antenatal programme at your unit?

Response/Comments:

6.5 Do you have any questions that you would like to ask me?

THANK YOU, THE INTERVIEW IS OVER

Interviewer Notes *(after the site visit on the same day record critical incidents, observations and general impressions)*

Annexure 6

University of Witwatersrand
School of Public Health
Faculty of Health Sciences

Information Sheet – Head of VCT Service
Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province

Good Day,
We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have cooperated on a number of HIV/AIDS projects in recent years. The theme of the current research is adherence to anti-retrovirals. Our interest is specifically in the facility factors (for instance, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you
Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. We would like to interview you about your role as a VCT Service Provider. The purpose of the interview with you is to obtain a general understanding of the VCT service in which the ARV site is located, such as the staff and resources in the VCT service, and how you see the link between the VCT programme and the rest of the facility.

What can I expect and what will be expected of me?
One of us will interview you and take notes using a semi-structured questionnaire. We may also ask your help to collect information about staffing and statistics on the uptake of the VCT service. The interview will take about one hour or so to complete. All findings will remain anonymous. Your views will be combined with those of other facility managers and neither your name nor that of the facility will feature in the report.

Are there benefits or risks to the participants?
There are no physical risks to the participant. The knowledge obtained from the interview or any additional information obtained from registers will only be known to the researcher. This information will not reflect peoples names or patient numbers and will only show case numbers via a coding system. By participating you will help us understand the challenges facing managers and professional health care staff in implementing a major new programme.

Can I withdraw from this study?
You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality
All information that is obtained in this study will be kept confidential. Please note that to ensure that this is maintained, interview schedules will be coded and will only indicate the date of the interview and the facility code. Your participation will remain anonymous. Information pertaining to interview schedules will be kept in a separate file from the rest of the report, under lock and key in a safe place by the researcher.

Should you have any questions concerning this study, please contact us:
Nicolette Naidoo Tel: 082 490 1214 Email: nickynaidoo@gmail.com
Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za
Our supervisor is Professor Helen Schneider and she is contactable on:
Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za
Sincerely,

Nicolette Prea Naidoo **Rebecca Pursell**

Consent Form for VCT Service Provider

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

VCT Service Provider Interview Schedule

1. **Interview details**

1.1 Interview schedule No: _____

1.2 Interviewer: _____

1.3 Date of interview: _____

1.4 Facility code: _____

1.5 Data capturing: Date: By:

---

2. Clinic profile and staffing

2.1 What days and times do you provide VCT at this OPD/clinic?

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of operation							

2.2 For how long has this facility been providing VCT to patients? _____ *months/years*

2.3 More or less, how many patients attended the voluntary counselling and testing service in the last month? _____

3 Pathways of Care

I am going to ask you now to take me through the steps of what happens when a person visits this service.

A person is referred to or attends the VCT unit for an HIV test. What steps do you follow?

Step 1	
Step 2	
Step 3	

If the test is positive for HIV what happens next?

Step 1	
Step 2	
Step 3	

If not already indicated If a patient is found to be HIV+, what is the process by which they receive ongoing care?

Continue receiving care at this facility		
Referred to surrounding hospital		*Site of referral*
Referred to Community Health Centre		*Site of referral*

4. Staffing

4.1 Please tell me about the staffing for the VCT service

Category	Full-time	Part-time	Left in last year	Joined in last year	Salary/Renumeration
Doctors					
Professional nurses					
Enroled nurses					
Enroled nursing assistants					
Lay counsellors					
Volunteers					
Other					
Other					

In the last year, since ____ (*month*) have any staff left the unit? (*ditto*)
In the last year, since ____ (*month*) have you recruited any new staff to the unit? (*ditto*)

4.2 Is there an ongoing programme of training and skills upgrading for staff in this clinic?

Yes	
No	

4.3 If yes, what training have the staff in this unit received?

Staff	No. trained	Name of training course
Doctors		
Professional Nurses		
Auxiliary Nurses		
Lay counselors		

5. Integration

5.1 Does this unit share staff with other services within the OPD/clinic? Yes/No
If yes,

Which service?	Which staff?

5.2 Do you share space with the other service centres/units located in this OPD/clinic? Yes/No
If yes,

Which service?	Which space?

5.3 What are the most common ways in which people reach the VCT service *(read and ask to rank):*

TB service	
Antenatal	
General curative service	
Other clinics	
Community-based health promotion and campaigns	
Self referred	
Other	

5.4 Do you (*read out each question*):

Know the name of the person in charge of the closest ART site?	Y	N
Ever discuss the management of individual patients with staff in the ART service?	Y	N
Send patients with referral letters to the ART service?	Y	N
Receive information back from the ART service on your patients you referred?	Y	N
Provide transport for patients to get to the ART service?	Y	N

5.5 What procedures for formal communication and feedback are there between this unit and staff in the referral facility?

Procedures	**Yes**	**No**
Written records in patient file		
Duplicate test results distributed		
Case meetings between clinicians		
Telephonic Contact		

6. Information Systems

6.1 What information is collected at facility level within the VCT service?

6.2 Is there any mechanism for tracking referred patients movement through the health system?

Yes	
No	

If yes, please explain further

7. Views on HIV/AIDS related services

I'd now like to ask your opinion of HIV/AIDS services in this clinic:

7.1 In your opinion what are the strengths of the HIV/AIDS-related services in this OPD/clinic?

7.2 In your opinion what are the areas of the HIV/AIDS-related services that are weak or that require attention in this OPD/clinic?

8. General

8.1 Can you think of anything that you feel would improve the functioning of the VCT service and its interaction with the ART programme?

8.2 Do you have any questions you would like to ask me?

THANK YOU, THE INTERVIEW IS OVER.

Interviewer Notes *(after the site visit on the same day record critical incidents, observations and general impressions)*

Annexure 7

University of Witwatersrand
School of Public Health

Information Sheet – Manager of Tuberculosis Clinic / Unit

Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province

Good Day,

We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have collaborated on a number of HIV/AIDS projects in recent years. The theme of the current research is adherence to anti-retroviral treatment. Our interest is specifically in the facility factors (for example, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two of studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you

Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. As the manger of the TB service, we would like to interview you. The purpose of the interview with you is to obtain a general understanding of the service you provide and how you see the link between the ART and TB programmes.

What can I expect and what will be expected of me?

One of us will interview you and take notes using a semi-structured questionnaire. We will also ask your assistance in gathering information on aspects such as staffing and facility statistics. The interview will take about one hour or so to complete. All the findings of the study will be anonymous. Your views will be combined with those of other facility managers and neither your name nor that of the facility will feature in the report.

Are there benefits or risks to the participants?

There are no physical risks to the participant. The knowledge obtained from the interview or any additional information obtained from registers will only be known to the researcher. This information will not reflect peoples names or patient numbers and will only show case numbers via a coding system. By participating you will help us understand the challenges facing managers and professional health care staff in implementing a major new programme.

Can I withdraw from this study?

You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality

All information that is obtained in this study will be kept confidential. Please note that to ensure that this is maintained, interview schedules will be coded and will only indicate the date of the interview and the facility code. Your participation will remain anonymous. Information pertaining to interview schedules will be kept in a separate file from the rest of the report, under lock and key in a safe place by the researcher.

Should you have any questions concerning this study, please contact us:

Nicolette Naidoo Tel: 082 490 1214 Email: nickynaidoo@gmail.com
Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za

Our supervisor is Professor Helen Schneider and she is contactable on:

Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za

Sincerely,

Nicolette Prea Naidoo **Rebecca Pursell**

Consent Form for Manager of Tuberculosis Unit / Clinic

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

TB Manager Interview Schedule

1. Interview details

1.1 Interview schedule No: _____

1.2 Interviewer: _____

1.3 Date of interview: _____

1.4 Facility code: _____

1.5 Data capturing: Date: By:

---

2 Profile of service

2.1 What TB services do you provide at this clinic? (*Prompt and tick relevant one*)

Diagnosis of TB (sputum & x-ray)	
Initiation of treatment of TB	
Follow-up treatment	
Voluntary counselling and testing for HIV	
None	

2.2 If yes, what days and times do you provide TB care at this OPD/clinic?

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Hours of operation							

2.3 *If does not provide full spectrum* where do you refer patients for…

	Name of place where refer	On-site or off-site
Diagnosis of TB (sputum & x-ray)?		
Initiation of treatment of TB?		
Follow-up treatment?		
Voluntary counselling and testing for HIV?		

3. Staffing

3.1 Have staff in this TB service received training in HIV? Yes/No

3.2 If yes, what training have the staff received with regards to HIV?

Staff	**No. trained in HIV**	**Name of training course/content**
Doctors		
Professional Nurses		
Auxiliary Nurses		
Other		

(Prompt for the following if not mentioned: clinical management, counselling, health promotion)

4. Integration

4.1 Does this unit share staff with other services within the OPD/clinic? Yes/No

If yes,

Which service?	**Which staff?**

4.2 Do you share space with the other service centres/units located in this OPD/clinic? Yes/No

If yes,

Which service?	**Which space?**

4.3 Is it routine procedure within your facility to refer all TB patients to the VCT service?

Yes	
No	

4.4 Similarly, is it routine procedure to refer HIV+ patients to be screened for TB?

Yes	
No	

4.5 Do formal methods of communication and feedback exist between TB clinics and ART units, if patients are taking TB treatment and ART simultaneously?

Yes	
No	

4.6 If yes, can you describe the process of feedback and communication between the two service centres?

_____

_____

_____

4.7 Do you (*read out each question*):

Know the name of the person in charge of the closest ART site?	Y	N
Ever discuss the management of individual patients with staff in the ART service?	Y	N
Send patients with referral letters to the ART service?	Y	N
Receive information back from the ART service on your patients you referred?	Y	N
Provide transport for patients to get to the ART service?	Y	N

4.8 Do you guidelines or protocols for initiating HIV+ patients who are taking ART on tuberculosis treatment?

Yes	
No	

4.9 What other protocols or treatment guidelines are used in the management of TB in patients with HIV?

4.10 Have you observed any *general patterns* of adherence to tuberculosis treatment among patients who are taking ART? If so, please describe these.

5. Information Systems

5.1 Do you know what percentage of TB patients at this clinic are:

Tested for HIV?	
Test positive for HIV?	
Complete treatment for patients with only TB? (treatment completion rate)?	
Complete treatment in patients receiving ART simultaneously?	
Are cured? (cure rate)	

5.2 Are there routine follow-up systems that are able to identify patients who are defaulting or have not returned for their drugs?

Yes	
No	

5.3 If yes, please describe further

5.4 If such systems exist, who is responsible for follow-up?

6. Views on HIV services

I'd now like to ask your opinion of HIV/AIDS services in this clinic:

6.1 In your opinion what are the strengths of the HIV/AIDS-related services in this OPD/clinic?

6.2 In your opinion what are the areas of the HIV/AIDS-related services that are weak or that require attention in this OPD/clinic?

7. General

7.1 Can you think of anything that you feel would improve the functioning of the TB service and its interaction with the ART programme?

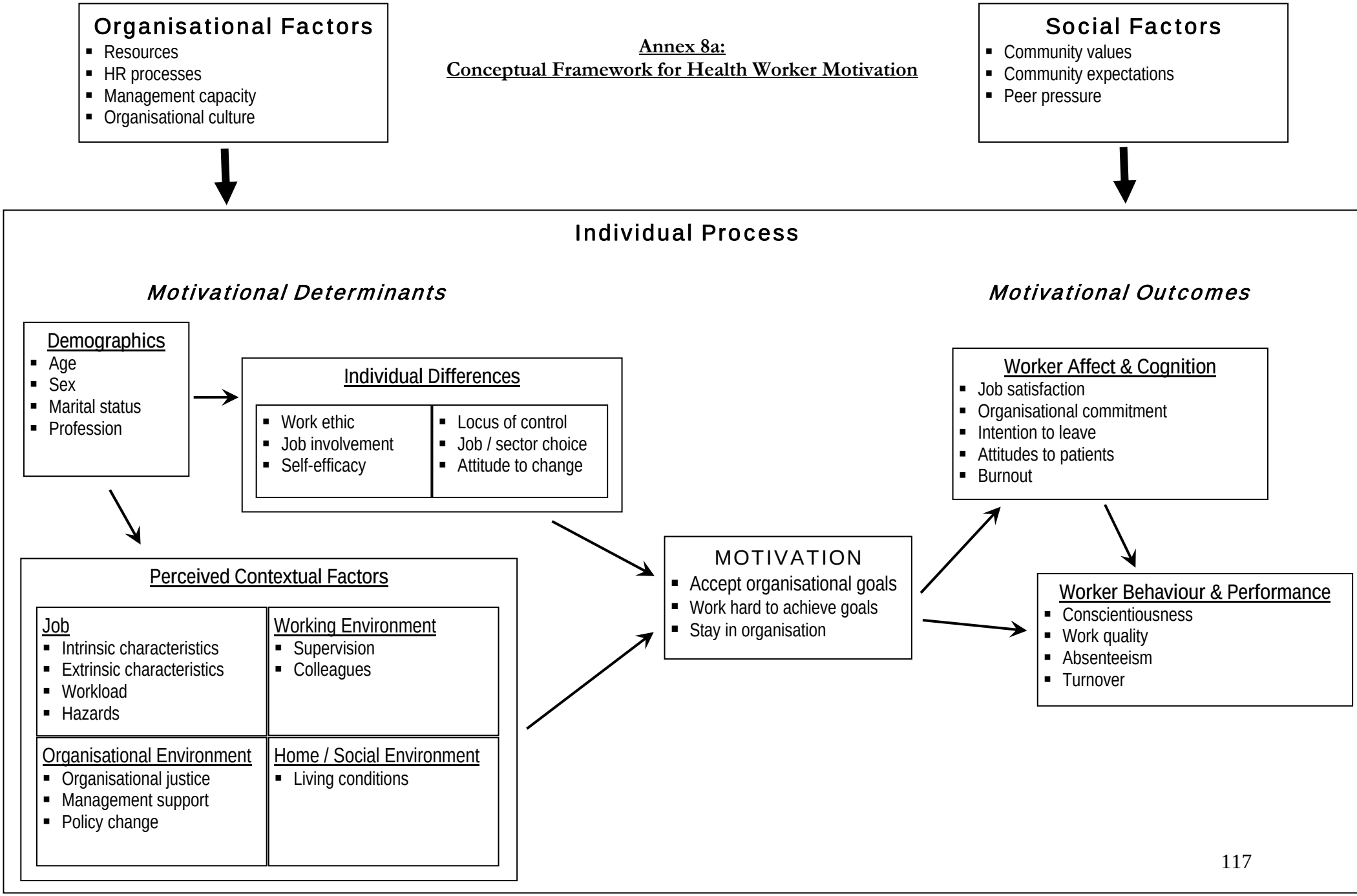
7.2 Is there anything else that you would like to say about this facility and health care services provided?

7.3 Do you have any questions you would like to ask me?

THANK YOU, THE INTERVIEW IS OVER

Interviewer Notes *(after the site visit on the same day record critical incidents, observations and general impressions)*

Annex 8a:
Conceptual Framework for Health Worker Motivation



Annex 8b: Tool for assessing motivation

University of Witwatersrand
School of Public Health
Faculty of Health Sciences

Organisational capacity affecting patient adherence to anti-retrovirals in Gauteng Province
Information sheet for health care workers in clinics and outpatient departments concerning the completion of a self-administered questionnaire

Good Day,
We are two Masters in Public Health (MPH) students at the University of the Witwatersrand. One of us (Rebecca) is a social worker by training and the other (Nicolette) previously studied anatomy. As part of our MPH course we are participating in a collaborative research project between the Centre for Health Policy (CHP) in the School of Public Health and the Gauteng Department of Health (GDOH). CHP and GDOH have cooperated on a number of HIV/AIDS projects in recent years. The theme of the current research is adherence to anti-retrovirals. Our interest is specifically in the facility factors (for instance, presence of lay counsellors) that promote adherence in patients, which we refer to as "organisational capacity". Another team of students will be doing research on the patient side of adherence. Once completed, the two studies will be combined in one report for Gauteng Province in which we hope to make recommendations for the strengthening adherence in treatment sites. We would be most grateful if you could help in this research by providing information on these factors that relate to anti-retroviral adherence in patients.

Why we would like to interview you
Your facility is one of four ARV treatment sites (two CHCs and two hospitals) in Regions A and B that were randomly selected for the project. As part of a general assessment of the facility we are approaching all medical and nursing staff with the request to complete an anonymous questionnaire. This questionnaire asks some personal information (e.g. your age, current job description) and enquires as to your recent experiences of work (e.g. number of patients seen). However, most of the questionnaire asks you to rate your agreement with job-related items and feelings. The questions are drawn from tools designed for people working in human service professions and have been tested in other settings. Completion of the questionnaire should take you no more than 15 minutes. When completed each questionnaire must be placed and sealed in the envelope provided. Envelopes are to be handed to the person nominated by the staff for collection of completed questionnaires.

Are there benefits or risks to the participants?
There are no physical risks to the participant. The knowledge obtained from the questionnaire will only be known to the researcher. This information will not reflect peoples names and will only show coding numbers. By participating you will help us understand the challenges facing managers as well as professional staff in implementing a major new programme.

Can I withdraw from this study?
You can at any point in time withdraw from the study. This is a voluntary study and there will be no negative consequences should you choose not to participate or to withdraw.

Confidentiality
When you fill in the questionnaire, a descriptor or code will be allocated to you instead of your name. In addition, being that the questionnaire is anonymous, you are not required to fill in your name. This means that no one will be able to link what you have answered back to you. There will be no adverse consequences should you choose not to fill it in.

What we plan to do with the information
The results of the survey will feed in to recommendations to creating better management and evaluation mechanisms of the ART programme. This will be accomplished by identifying gaps in service provision and management of the programme.

Should you have any questions concerning this study, please contact us:
Nicolette Naidoo Tel: 082 490 1214 Email: nickynaidoo@gmail.com

Rebecca Pursell Tel: 082 828 7387 Email: mwrebecc@mweb.co.za

Our supervisor is Professor Helen Schneider and she is contactable on:
Tel: 011-242 9905 Email: helen.schneider@nhls.ac.za
Sincerely, **Nicolette Prea Naidoo** **Rebecca Pursell**

Consent Form for Professional Staff

Organisational capacity affecting patient adherence to ARVs in Gauteng Province

Do you understand the purpose of the study, and what will be required of you if you agree to participate? Yes/No

Have all your questions been answered? Yes/No

If no, what further questions do you wish to ask?

Do you understand that you are not obliged to agree to participate in this study? Yes/No

Do you understand that your decision to participate or not participate will not affect your job security in any way? Yes/No

If answers to all above are yes

Do you agree to be interviewed for the project Yes/No

Signature of Respondent (If yes) _____

Names and contact details of investigators:

Nicolette Prea Naidoo
Tel: 082 490 1214
Email: nickynaidoo@gmail.com

Rebecca Pursell
Tel: 082 828 7387
Email: mwrebecc@mweb.co.za

Organisational capacity affecting patient adherence to ARVs in Gauteng Province
Self-administered Questionnaire for Professional Staff Working in ARV Sites

INSTRUCTIONS

This questionnaire requires you to tick (√ or X) or fill a series of boxes/lines. Please do not write your name on this questionnaire. If you feel uncomfortable answering any individual questions, you can leave it blank.

BACKGROUND INFORMATION

Today's date: /2006

Your age _____ years

Your sex:

MALE	FEMALE

Your current position (choose the one that best describes your position)

Nursing assistant	
Enrolled nurse	
Professional nurse	
Ward or unit manager	
Other, specify	

Unit in which you are working:

TB	
PMTCT/Antenatal	
ART/HIV	
VCT	
General Curative	
Other, specify	

What year did you start working at this clinic or hospital? _____

WORK AND PERSONAL SITUATION

In the last week, how many hours would you say you worked? _____ hours

On your most recent working day, how many patients did you see? _____ patients

In the last month, have any of your colleagues been unexpectedly absent from work?

Yes	No

In the last year, have you experienced a needle-stick injury at work?

Yes	No

Do you feel vulnerable to HIV in your personal life?

Yes	No

In the last month, did your department/clinic run out of any of the following?

	Yes	No
Drugs		
Disposables e.g. gloves		
Soap/hand spray		

Please indicate your degree of agreement with the following statements:

	Strongly disagree	Disagree	Not Sure	Agree	Strongly Agree
I am confident about my ability to do my job					
HIV positive patients make too much extra work for staff					
I am motivated to carry out my duties					
There are enough staff to do the work in this unit					
Overall, I am very satisfied with my job					
Hospital/clinic management communicates well with staff in this site/hospital					
I feel very little commitment to this hospital or clinic					
The amount of work I have to do is too demanding					
I can see myself working overseas in the future					
The major satisfaction in my life comes from my work					
I am proud to be working at this clinic/hospital					
I only do this job so that I get paid at the end of the month					
I prefer to work in the public sector than in the private sector					
These days I don't feel motivated to work as hard as I could					
I am glad I work for this facility rather than other facilities in this province					
I feel I'm positively influencing other people's lives through my work					
I feel emotionally drained at the end of every day					
I intend to leave this hospital					
There have been too many changes at this hospital /clinic in the past year					
In this facility conflict hampers our work					
If I had a personal problem which affected my work I would feel free to discuss it with my supervisor or manager					

Thank You for Your Time

Annexure 9 Ethics Approval Form

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

HUMAN RESEARCH ETHICS COMMITTEE (MEDICAL)
R14/49 Naidoo et al

CLEARANCE CERTIFICATE	**PROTOCOL NUMBER M060206**
PROJECT	Organisational Capacity of Public Sector Antiretroviral (ARV) Provision in Gauteng Province and Its Impact on Patient.....
INVESTIGATORS	Misses N et al Naidoo et al
DEPARTMENT	School of Public Health
DATE CONSIDERED	06.02.24
DECISION OF THE COMMITTEE*	Approved unconditonally

Unless otherwise specified this ethical clearance is valid for 5 years and may be renewed upon application.

DATE 06.03.31 **CHAIRPERSON** .....
(Professor PE Cleaton-Jones)

*Guidelines for written 'informed consent' attached where applicable

cc: Supervisor : Prof H Schneider

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and **ONE COPY** returned to the Secretary at Room 10005, 10th Floor, Senate House, University.
I/We fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee. **I agree to a completion of a yearly progress report.**

..... 11/04/2006

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES