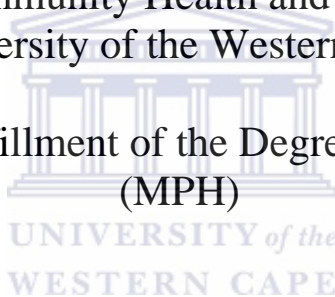# Patient waiting time at a HIV Clinic in a Regional Hospital in Swaziland

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ABSTRACT

Swaziland is currently facing a high HIV prevalence rate in the general population and about 220,000 of the 1 million population is living with HIV. It is projected that 58,000 of the people living with HIV are in need of antiretroviral therapy yet only 20,556 are on ARVs. The demand for ARVs is reported to be overwhelming the few HIV clinics in the country resulting in overcrowding and long queues. Anecdotal evidence shows that patients arrive as early as 04.00hrs to avoid missing the service. These problems raise a high level of suspicion of long waiting times, which is likely to deter patients from continuing to receive ART services from the clinics, leading eventually to poor adherence to their regimen leading in turn to poor health outcomes for the patients.

The aim of the study was to measure patient waiting and service times, describe the causes of high waiting time as well as to determine staff and patient derived norms on waiting times at the Manzini Regional Hospital HIV Clinic. Literature reviewed show that complaints regarding long waiting time have been effectively dealt with through patient flow analysis studies, which measure patient waiting and service times as well as other characteristics. A descriptive cross sectional quantitative survey methodology was undertaken using a time-delimited sample of all patients attending the HIV clinic over one week and all the staff who were in contact with the patients. Waiting time tracking instruments and short questionnaires were used to collect data from both patients and staff. Data were analysed quantitatively.

The study found that there is high waiting time as the complete median waiting time for services at the HIV clinic was 107 minutes. The complete median service time was 6 minutes and there were variations per service points with some service points allocating adequate time whilst others did not. The percentage time staff spend attending to patients at most of the service points was low and there was spare staff capacity that could be used elsewhere. Based on the patients' and the staff's opinions the norm complete waiting time was estimated and is proposed to be 70 minutes. The causes of a high patient waiting time at several of the service points were found to be a mixture of mismatches, lack of efficiency in time usage, batches and logistics problems. It is recommended that the Clinic adopts the proposed norm and establishes a programme to reduce the high patient waiting time at the HIV clinic.

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TABLE OF CONTENTS

TITLES   **PAGE**

Chapter 1: Introduction

Chapter 2: Literature review

Chapter 3: Methodology

Chapter 4: Results

Chapter 5: Discussions

References

LIST OF TABLES

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This chapter presents the introduction and background to the study. The issues discussed will be presented in line with following topics:

- Quality of care and waiting time

- The HIV, VCT and ART situation

- The setting of the study

- High suspicion of high waiting time

- The problem

- The purpose of the study

1.1 Quality of care and Waiting times

Swaziland has over the years committed itself to provide high quality health care as a core principle in the provision of health care services. This explicit health policy committed to providing high quality, relevant, equitable, socially acceptable, comprehensive and universally accessible health care in line with the Alma Atta declaration of primary health care (Swaziland Ministry of Health and Social Welfare, 2007). Quality of health care has been defined as the proper performance (according to standards) of interventions that are known to be safe, that are affordable to society in question, and have the ability to produce an impact on mortality, morbidity and malnutrition (Aldana; Piechulek & Al-Sabir, 2001).   Reviewed literature shows that quality of care is also a core principle behind the performance of institutions and developing countries are increasingly getting interested in assessing quality of their health care. There has been growing interest in quality improvements in health care by health care institutions specifically targeting health care provider efficiency, conducive environment for

health care provision, cost effectiveness of services, health outcomes and patient (consumer) expectations from services delivery points (Aldana; Piechulek & Al-Sabir, 2001).   Further more in 'recent years the World Bank and other donors have been advising developing countries to ensure that limited resources not only have an optimal impact on the population's health at affordable cost, but also that health services are patient oriented'(Aldana et al, 2001)

According to Haussmann, 1970, Quality assessment studies often measure one of three outcomes: medical outcomes; costs and patient satisfaction. The latter involves asking patients to assess their own health status after receiving care as well as their satisfaction with the services delivered.   Patient satisfaction studies reviewed sought to understand patient satisfaction with a number of issues including the following: waiting and consultation time, behavior of the service provider, information given, examination, prescribed medication, and cost of service and accessibility of service delivery points (Haussmann, 1970; Singh, Haqq & Mustapha, 1999; Management Science for Health, 1992; Aldana et al, 2001).   Waiting time is an important determinant of quality services as it is noted that in health care provision 'delays are expensive, not only in terms of direct costs incurred, but also in terms of the potential costs of decreased patient satisfaction and adverse outcomes' (Haussmann, 1970).. Waiting time studies have been done in settings such as specialized clinics like child health, maternal health clinics and medical clinics for priority conditions such as HIV and AIDS;   elective surgery clinics such as those dealing with organ transplant and other cosmetic surgery clinics and general outpatients' clinics.

Assessment of quality health service assists managers to develop a common understanding of significant management problems. Long waiting times have been found to be one of the common problems for managers and as such can compromise the quality of care by creating

barriers that prevent much needed services reaching patients. Research in this area has facilitated development of simple and inexpensive programmes and tools that could be used to improve patients' satisfaction; strengthen capabilities of organizations and increase staff productivity.

1.2 The HIV, VCT and ART situation

1.2.1 HIV and AIDS

HIV and AIDS continue to be a global challenge with respect to the rate of its spread and impact. UNAIDS, 2004 estimated that there were about 37.8 million people living with HIV worldwide, with 25 million of these living in Sub-Saharan Africa. Swaziland is currently leading the world with a high HIV prevalence of 19% in the populations 2 years and older; 26% among the reproductive age groups (15-49 years) and 14% among the population 50 years and older. Higher HIV prevalence was observed among women (22.1%) compared to men (18.8%). See Appendix 8.0 for more age specific HIV prevalence in the general population (Swaziland Central Statistics Office, 2006/2007). Data from the HIV prevalence among pregnant women attending Antenatal Care (ANC) in Swaziland show that the epidemic grew rapidly from 4% in 1992 to 42.9% in 2004 before slightly declining to 39.2% in 2006 (Swaziland Ministry Of Health and Social Welfare, 2006). The most hard hit population groups are those aged 20 -29 years where the prevalence increased from about 15% in 1994 reaching about 56% in 2004 (Swaziland Ministry Of Health and Social Welfare, 2004). Although there appears to be very slight differences between rural and urban areas, evidence show that the HIV prevalence trend increased from 36% in 2000 to 45% in 2004 and from 33% to 40% in the same period respectively in urban and rural areas (Swaziland Ministry of Health and Social Welfare, 2004).

The impact of the epidemic is already being felt as about 220,000 people of the one million population are living with HIV and AIDS (UNAIDS, 2006). Using the current prevalence rates it is projected that 58,000 people required ARVs in 2007 because they had developed AIDS and worse still about 70% of the people who are living with HIV are infected with Tuberculosis (TB) (Swaziland Ministry of Health and Social Welfare, 1998). As a result of the epidemic 13,000 people are estimated to have died from HIV related conditions in 2003 (UNAIDS, 2004). Subsequently the crude death rate from all causes in Swaziland increased from 9.9 in 1997 to 22.7 deaths per 1000 population in 2003 (WHO, 2003). This situation poses a major challenge to sustainable development as it curtails human capabilities and prevents them from leading long and healthy lives. This HIV and AIDS situation together with its impact has necessitated a different approach to health service provision to ensure that more responsive services are put in place at strategic levels and geographical areas.

1.2.2. Voluntary Counseling and Testing (VCT)

Recognizing the threat posed by the HIV epidemic, the Swaziland Government developed a national strategic plan with a health sector response programme as early as 1987. An array of services and programmes were put in place and these cover HIV prevention, care and psychosocial support and impact mitigation. As part of the prevention programme the Ministry of Health and Social Welfare has since 2002 established 37 VCT service sites within existing public health services. These services are available in 100 of the 300 communities in Swaziland. By the end of 2005 about 100,000 people had accessed VCT services. Prevention of Mother to Child Transmission of HIV (PMTCT) services are integrated in existing maternal and child health services and 30 of the 165 health facilities provide PMTCT (Ministry of Health and Social Welfare, 2006). Since VCT is a gateway to accessing Antiretroviral Therapy (ART) the need to make it accessible to people cannot be overemphasized (UNAIDS, 2004).

The introduction of these services as part of the existing primary health care services has necessitated a reorientation of service delivery in outpatients departments in the country. New service rooms were established and the existing health staff were trained and re-deployed to provide HIV related services. In view of the stigma attached to HIV and AIDS and the need to reach more people, service points had to be established in semi private locations within the health facilities reorienting patient flow and patient loads for the few staff that were trained to provide these services. Patients who seek different services are encouraged to consider VCT or PMTCT and often these patients have to queue twice to access these services.

1.2.3. Anti Retro viral Therapy (ART) services

As part of the response to the impact of the epidemic, an ART programme was first introduced in 2003. This development was in line with the declaration of commitments made by the United Nations General Assembly Special Session on HIV/AIDS (UNGASS) in 2002, where for the first time, treatment, care and access to ARVs were recognized by the world as an essential element of the response to the HIV/AIDS pandemic (UNAIDS, 2002). The ART national programme was rolled out as part of the World Health Organization (WHO) worldwide strategy of reaching three (3) million people with ARVs by the end of 2005 (WHO, 2002). The Swaziland national target was set at 13,000 patients treated with ARVs by the end of 2005 (WHO, 2005). Swaziland met this target in the given time (WHO, 2005).

Patients on the ART programme increased from13, 000 in 2005 to 24,556 in 2007 (Swaziland Ministry of Health and Social Welfare, 2007). In an effort to reach this target Swaziland first established six treatment sites located within the four regional hospitals, one referral hospital and one private sector hospital with a target to reach 11 sites by the end of 2005. The Manzini

Regional Hospital, HIV clinic is one of the ART sites that were established to cater for patients in the Regional Hospital catchment area. The demand for ART services has been reported to be overwhelming the facility in that long queue have frequently been observed.

1.3 The setting of the study

The study was undertaken in the HIV clinic of the Regional hospital for the Manzini region. The hospital provides health services to the public using the government framework for service delivery and fee-structure. The Manzini Regional Hospital, although a mission Hospital, is a referral hospital for private and public hospitals and clinics in the region. The hospital and its different service units draw patients from the region and also from neighbouring communities in the adjacent regions including the Mbabane-Manzini-Siteki corridor.

The hospital is the second largest in the country with 350 beds with an occupancy rate of 68 to 70% in 2004 (Manzini Regional Hospital, 2004). It has separate medical and surgical wards for males and females, a children's ward, a maternity ward, theatres and private wards. Outpatient services are organized to offer primary health care services for both children and adults; curative services and emergency services. There are also paramedical support services that include laboratory, radiography, physiotherapy and pharmacy. The hospital technical team includes 19 doctors and 115 nursing staff, nine laboratory technicians and nine X-ray technicians (Manzini Regional Hospital, 2004).

1.3.1 The HIV clinic of the Manzini Regional Hospital, 2004

There are a number of special clinics that were launched in 2004 and these are ophthalmology, ART, VCT and PMTCT clinics. Anti Retro Viral Therapy (ART) and VCT are offered in a special HIV clinic while PMTCT services are provided in a separate clinic. Although this clinic

is set outside the hospital main service area, patients seeking HIV services still receive laboratory, X-ray and pharmacy services from the central points in the same way as other patients. In 2004 there were about 55,859 ART/VCT outpatient visits recorded with an average of 215 patients a day assuming a five-day working week. In 2006 the patient load increased to about 470 patients a week (Interview with ART Senior Nursing Officer, 2006; HIV clinic registers, 2005/2006). In 2007, the number of patients increased to between about 800 patients a week (HIV Clinic record, 2007)

Anti Retro Viral Therapy services are offered throughout the weekdays. Although the clinic is open to all patients every weekday, Monday is set-aside for patients who are initiating ART, whilst Wednesday and Friday are days for patients to refill their medication. On Tuesday and Thursday the clinic prioritizes laboratory tests and patient education. The number of patients attended to is controlled on Monday, Tuesday and Thursday for ART. In spite of this work schedule the clinic has had to provide all the different services everyday including attending to complications and other emergencies (Interview with ART Senior Nursing Officer, 2007). Patients seeking VCT services are seen daily during the week and only 15 patients are registered on a daily basis. Once the limit for that day is registered, the remaining patients are turned away with an appointment for another day. There is no pro-active appointment system at the HIV clinic and only 'overflow' patients who were not seen on the day they attended the clinic are given a subsequent appointment.

The staffing complement in the HIV clinic includes: two doctor, seven professional nurses, two nurse assistants, two receptionists, one food programme officer, five trained expert patients and one pharmacy assistant. The doctors are not fulltime at the clinic, they also see patients in the main hospital when the need arises. The expert patients are patients who are on ARVs and have

been identified because they were complying and responding very well to the treatment regimen. They were trained as counselors and hired to work full time in the HIV clinic.

The workstations within the clinic include two reception areas (one for ART patients and the other for VCT patients), two counseling rooms for VCT patients; two consultation rooms for medical Officers; four nurse consultation rooms; the ART centre Pharmacy and the Food distribution Office. Often some patients have to go to the common laboratory, pharmacy, and x-ray departments which are situated in the main hospital complex not far from the HIV clinic. The HIV clinic has three main waiting areas with seats for patients.

In order to improve compliance, four trained expert patients have been deployed in the HIV clinic to provide ad hoc counseling to other patients who have difficulty taking their medications as well as those who are experiencing side effects. The patients are referred to the by the Nurses, doctors and Counselors at any point during the consultation process
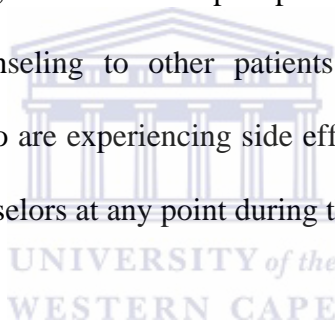
The nursing staff and the receptionist open the clinic and provide services from 8:am to 4.30 pm Mondays to Fridays. The clinic is closed on weekends. All the staff that work in this clinic have been trained on either VCT counseling and / or management of ART. One of the staff that serve at the reception for the ART services is a trained nurse counselor and the reason for having a trained nurse receptionist is that the care of patients requesting VCT and ARVs requires that all staff coming in contact with the patients have a good understanding of the medical and psychosocial needs of the patients and they are able to provide the necessary counseling when required (Interview with ART Senior Nursing Officer, 2007).

1.4 High suspicion of high waiting times at the HIV clinic

The national ART programme is a challenging activity in Swaziland because there are only a few highly centralized ART sites. Currently all the ART sites are in urban areas; however there is a plan to roll out the programme to rural areas as well. Patients flock from all over the country to access ARVs resulting in overcrowding of the few ARV/VCT sites. Anecdotal evidence shows that patients have reported arriving at the sites as early as 04.00hrs in the morning to avoid missing the service. Often patients have complained of overcrowded waiting rooms especially in the morning (Swaziland Ministry of Health and Social Welfare, 2004). It has also been observed during monitoring visits that all the ART sites are frequently overcrowded. Service providers have also expressed dissatisfaction pointing out that services are hurried. On the other hand, patients have complained that service providers are unfriendly. Some of the problems that have been observed by and reported to the HIV/AIDS programme Monitoring Office include poor staffing patterns, negative attitude of the staff, lack of patient information, poor compliance with treatment regimens, overcrowding of the waiting rooms and long patient waiting times. These problems raise concerns about the quality of services in the HIV clinics in Swaziland.

1.5 The Problem Statement

As indicated earlier, the high and increasing prevalence of HIV continues to increase the burden of AIDS in Swaziland. Currently there are about 58,000 people living with HIV who are in need of ARVs and at the same time only 24,556 of them have access to ARVs (Ministry of health and Social welfare, 2007). It is therefore clear that there is an urgent need to make ARVs and other HIV related services accessible and available to those who need them, in order to mitigate the impact of HIV and AIDS. From the foregoing it is clear that the uptake of the programme is slow as it has not yet reached even half of the intended beneficiaries in five

years. The need to scale up access to ARVs cannot be overemphasized. The suspected long waiting time, if it exists, is likely to deter some patients from starting treatment and/or discourage those patients who have started treatment. Some patients will stop coming to the clinics as well as discontinue the treatment, possibly triggering resistance to the drugs and/or activating increased levels of viral load. As a result, more people will die prematurely worsening the impact of HIV/AIDS. For a mental picture of the problem analysis refer to Figure 1 below.

Figure 1: Patient waiting time problem Tree
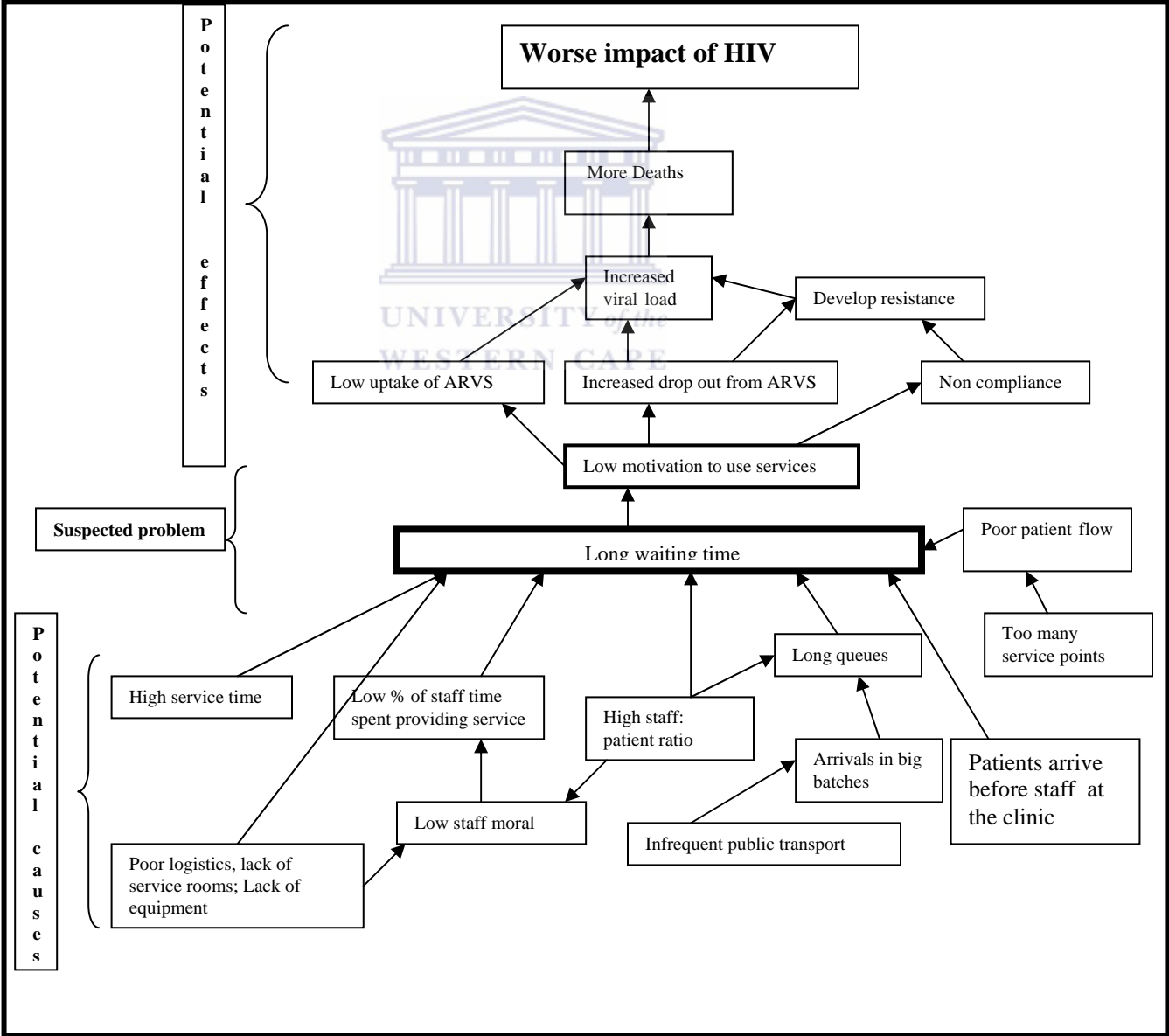
1.7 Purpose of the study

The purpose of the study is to improve quality of care by reducing waiting time at the HIV clinic as well as establish acceptable waiting time norms and standards for the HIV clinic of the Manzini Regional Hospital.

2.0 LITERATURE REVIEW

2.1 Introduction

Patient waiting time plays an important role in the process of quality assurance and quality of health management services (Huang, 1994; Lynam, 1993). At the same time quality of health services involves a number of complex variables such as timeliness of health services which in turn affects service utilization and by extrapolation, patient health (Kuguoglu, Aslan, & Icli, 2006; Haussmann, 1970). Quality care assessment studies usually measure three types of outcomes: medical outcomes, costs, and client satisfaction. For client satisfaction, patients are asked to assess not only their own health status after receiving care but their satisfaction with the services delivered. Clearly feedback from patients is vital if deficiencies are to be identified and improvements achieved. Patient satisfaction studies have been motivated by the perceived need to stress the interests of the patient as a consumer emphasizing the consumer significance.
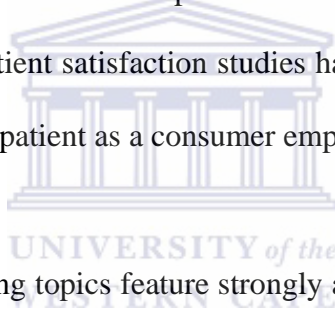
Within the literature, the following topics feature strongly and will be explored in the course of this review:

- Patient satisfaction and waiting time

- Key concepts and measures of waiting time

- Location and extent of the problem of high waiting time

- Effects of high waiting time on Patients and services

- Factors contributing to high waiting time

2.2 Patient Satisfaction and Patient Waiting Time

Provision of health services is supposed to respond directly to patients' preferences and demand (Kwan, 1994). Consequently patient satisfaction is undoubtedly a useful measure, and to the extent that it is based on patients' accurate assessment, it may provide a direct indicator of quality of care (Aldana, et al, 2001). A number of client satisfaction studies have been undertaken, some in developing countries. A study undertaken in Bangladesh which aimed at assessing user expectation and the degree of client satisfaction and quality of care provided in rural primary health care, explored client satisfaction with a few other aspects of quality health services. The aspects of client satisfaction explored included provider behaviour, technical competency of the provider, waiting and service times. In this study, patient waiting time was found to be one of the predictors of clients' satisfaction. The study concludes that the efficacy of medical treatment is enhanced by greater patient satisfaction with the quality of services (Aldana, et al, 2001). In order to be satisfied patients expect to wait short times. However these perceptions have been found to be individualistic and dynamic, in that the criteria or element used for judging quality at any one point may not be the same for another facility and that consequently client satisfaction reflects only part of the quality of services and care of the entire process (Singh, Haqq & Mustapha, 1999; Aldana et al, 2001).

Patients who wait long periods for health services have been found to be dissatisfied with the services and are likely to stop using them. A study carried out in Tobago Trinidad primary health care facilities on patients' perception and satisfaction with health care professionals found that patients waited about 160 minutes on average with a range of 60 to 360 minutes. Of the 1451 users surveyed, 41% were satisfied and 48% were dissatisfied and the rest were undecided with waiting time. Similarly, a study undertaken in ART clinics among ARV users in Africa (Botswana, Tanzania and Uganda) found that long patient waiting time was a major

challenge to adherence (Hardon, Akurut, Comoro, 2007). The length of patient waiting time recorded in each country varied but in all cases high waiting time was recorded. In Botswana 57% of the patients waited 240 minutes or more at the clinic whilst in Uganda the mean average waiting time was found to be 300 minutes. It should, however, be noted that what is referred to as waiting time in this study appears to be the total time spent at the clinic. All things being equal, it is more likely that the vast majority of the time spent at the clinic was spent waiting for a service rather than spent receiving a service (Hardon, et al, 2007). Hence it can be inferred that the waiting time was indeed high. Subsequently the long waiting time contributed to the patients' dissatisfaction with the clinic services and they asserted that waiting time was long and that they were more likely to stop coming to the clinic to pick up their medications (Dahab, Charalambous, Hamilton, 2008; Hardon et al, 2007). It then follows that if patients are reluctant to pick up their medication, they might default on treatment which is likely to result in a negative health outcome for them.
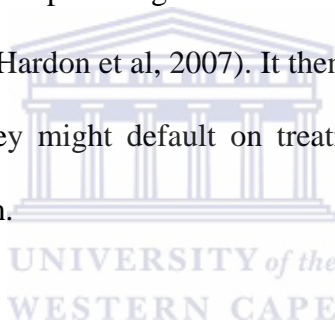
Adherence to the prescription instruction of HIV therapy regimens is one of the most important factors in obtaining optimal benefits from ART because it prevents the development of resistance (Bachiller, Arrando, Liceaga, 1998), reducing viral loads and increasing the probability of survival in the majority of patients (Coetze, Boulle, Hilderbrand, 2004). This emphasizes the importance of assessing waiting times and their causes in such clinics in order to develop and institute appropriate and timely responses to the improvement of quality health care and subsequently patient satisfaction.

2.3 Key Concepts and Measures of Waiting Time

Literature shows that patient waiting time surveys can be undertaken easily and inexpensively using a methodology referred to as client flow analysis (CFA) (Haussmann, 1970; Management

Science for Health, 1992;) and waiting and service times surveys (Lowe,2000; Reagon, 2006, unpublished). Client flow analysis is one method for quickly assessing the waiting time situation in a clinic to understand the length of time a patient spends in contact with a service provider and also the time spent waiting to receive a service at the clinic. In this process it is possible to determine how smooth patients are moving through the system of the health facility as they receive their services (Management science for Health, 1992).

A simple client flow analysis if well planned involves the staff of the facility to collect the data. A patient time tracking tool with all the possible service points in the facility is given to each patient and the staff enters the time the service started and the time the service ended. Any time unaccounted for is calculated as waiting time. Arrival and departure times are recorded by research assistants (Assefzadeh, 1996, Management Science for Health, 2005). Such studies yield information on patient service and waiting times per service points; percentage time staff spend with patients and causes of high waiting time.

Other literature reviewed show that another methodology used is the 'waiting and service times survey (WSTS)'(Mohamed & Bachmann, 1998; Lowe, 2000; Reagon, 2007, unpublished). The WSTS methodology appears to have a broader scope compared to the CFA reviewed in this literature. Evidently the waiting time studies have not only concentrated on arrival and departure times of patients at the health facility and at the point of service delivery, but have been expanded to incorporate assessment of the clinic environment, the infrastructure, clinical staff time usage, patient arrival patterns, patient queuing behavior, and views of staff and patients about the services (Mohamed & Bachmann, 1998; Lowe, 2000; Reagon, 2007 unpublished). The data collected enabled the researchers to report on the number of patients per service point, staff workload, percent time staff spend in contact with patients, service point

15

specific waiting and service times referred to as 'partial service and waiting times', and service and waiting times grouped in quartiles (Lowe, 2000; Reagon,2007, unpublished). Literature reviewed also show that based on the in-depth analysis of the patterns of patient arrival, total number of patients and also at each service point and the causes of high waiting time where it existed (Lowe, 2000; Reagon,2007, unpublished). Further to this the findings from the surveys have been used to set waiting time norms or standards against which the facility can measure the effects of interventions employed to reduce waiting time should the facility develop and implement a strategy to reduce waiting time (Reagon, 2007,unpublished).

Mohamed & Bachmann (1998) observed that what is important in measuring waiting time is not only how long patients wait but a continuous assessment of how long each patient waits or how many wait longer than is acceptable.

In order to establish waiting and service times, some studies have computed and concluded on the 'average' waiting and service times without indicating which of the measures of central tendency they refer to (Singh et al, 1999; Aldana et al, 2001; Hardon et al, 2007; Management Science for health, 2005). On the other hand some studies have used the median to make conclusions on waiting and service times (Lowe, 2000; Colebunders, Bukenya & Pakker, 2007; Reagon, 2007, unpublished). In view of the nature of the data on waiting and service time, literature shows that it would be appropriate to use the median as a measure for making conclusions on waiting and service times. According to Isaac & Michael, 1995, (pp165) the median is useful when' the distribution is markedly skewed' or when 'we are interested in whether cases fall within the upper and the lower halves of the distribution…'and not particularly on how far from the central point'. In the view of the foregoing it would be appropriate to use the median as a measure of waiting time in WSTS and CFA.

16

Literature reviewed show that client flow analysis and waiting and service times surveys can be undertaken over varying period of time. For example studies undertaken at an infectious disease clinic in Kampala, Uganda as well as Public health facilities in the Western Cape in South Africa collected data over a day Colebunders et al, 2007; Lowe, 2000 ; Reagon, 2007 unpublished), whilst another study undertaken in Qods Children's clinic in Iraq carried out the study over 30 days (Assefzadeh, 1996). The limitations of undertaking the study over one day has been observed to be that the information might not be applicable to other days particularly if the clinic days are not the same in terms of number of staff and patients seen and the type of service provided(Lowe 2000, Colebunders et al , 2007). To address this limitation an average day is chosen as the day for collecting data. The average day has been referred to as the day when the facility is neither too busy not very quiet, most of the staff are present, the services provided are the same, not a public holiday and the season is not a busy one (Lowe, 2000; Reagon, 2007 unpublished)
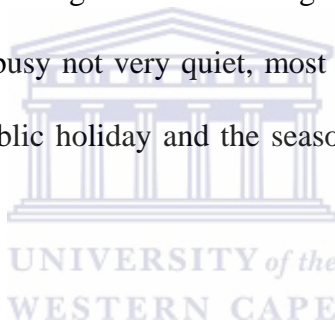
The tools found to have been used in several studies were simple a patient time tracking tool which list all possible service points against which a space where the service provider enters the time the service was started and when it ended (Lowe, 2000; Health Systems Trust, 2002; Management Science for Health, 2005; Reagon Unpublished) other data information collected included was the reason for attending the specific service points, whether the patient completed the service or was turned away, the staff code which identified which staff attended the patient at each service point (Reagon,2007, Unpublished). To complement the patient data, some surveys have included a staff time tracking tool (Lowe, 2000; Reagon,2007, unpublished). This tool was used to capture data on the staff arrival and departure times, The service points they worked in on the day of the survey, the 'time in' and the 'time out' at the service points they worked in as well as all breaks they took during the day (ibid).

Waiting times reflect the accessibility of health services and is a crude indicator of quality patient care (Haussmann, 1970) and the practice of setting norm patient waiting time has emerged in the literature as a means to contribute to improved client satisfaction and quality of care. In developed countries like Canada and the United Kingdom strategies targeted at reducing waiting times are implemented. In Ontario State, Canada, the Ministry of Health and Long Term Care is implementing a wait time strategy that monitors the wait times from when a patient and medical practitioner decide to proceed with the service until when the service is completed. Targets were set for each service area in 2005 and these targets are regularly monitored. A Wait Time Information System (WTIS)[1] is used as tool to monitor how well health facilities are performing against the targets. (Ontario Ministry of Health and Long Term Care, undated). An example of a target norm patient waiting time for a hip fracture service area is 'within 48 hours' and the target is '90% patients seen within target by 2009'.

In the United Kingdom, the Genitourinary Medicines clinic (Gum) is also implementing a patient waiting time audit which regularly collects data on patients who are waiting to be attended at the clinic within an appointment system. The audit shows that although there is some improvement in reaching the targets for improved access with shortened waiting times this has triggered increased demand for the services with subsequent difficulty in meeting the targets (GUM, undated). Evidently this indicates that as the clinic situation changes the wait times also changes indicating a need for continuous monitoring and adjusting of the waiting time targets as required.

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[1] In Ontario and the UK the wait time strategy reviewed was for patients on wait lists and as such the measure of waiting time is 'number of days' as opposed to ' minutes' .

In South Africa, an effort to establish norm waiting time is underway. Literature shows that in the Western Cape where waiting time surveys have been undertaken the facilities are assisted to set norm patient waiting time and subsequently set facility specific target and a programme. Reagon undated show that in the studies undertaken in the Western Cape, patients would accept a median waiting time of 30 minutes whilst the staff would prefer 60 to 120 minutes. In view of the fact that each health facility has its own patient waiting time norm, each facility has to set its own norm and target waiting time. There was, however no literature found on programmes that are implementing a waiting time strategy in South Africa.

2.4 The Location and Extent of the Problem of High Waiting Time

Patient waiting time has been defined as the time patients spend waiting for a service (Terris *et al*, 2003; Health Systems Trust, 2002, Lowe, 2000). Long patient waiting times have been found to be a problem in general public outpatients departments and condition or disease specific public clinics such as the HIV clinic in most countries in the world. This section will present the various patient waiting times as found in selected reviewed literature. The service time will not be discussed here much because the length of service time is influenced to a large extent by the type of service provided.

In Low and Middle Income Country (LMIC) contexts, for example in Trinidad and Tobago, the mean waiting time was found to be two (2) hours forty minutes with a range of one to six hours (Singh, Haqq & Mustapha, 1999); in Pakistan it was found that 50% of the patients waited three (3) to 12 hours (Jawaid, Amin, Khan, & Iqbal, 2005). A client flow analysis undertaken in prenatal clinics in Latin America found that overall waiting time ranged between 71 and 190 minutes (approx one to three hours) and the time spent with a service provider was found to range between 17 and 23 minutes (Kestler, 1993). Another patient flow analysis undertaken in

Qods children's teaching hospital in Iran found waiting time for pediatrician consultations to be 77 minutes. In public health facilities and hospital outpatients departments in South Africa, waiting time was found to be almost four hours (Mohamed & Bachamann,1998) whilst another study conducted in Tygerberg, Western Cape, Metropolitan, South Africa found that waiting time ranged between two and 97 minutes (Lowe, 2000).

Studies carried out in special clinics such as HIV clinics also found that patient waiting times were long in general and in the opinion of the patients (Assefzadeh, 1996; Hardon et al, 2007; Colebunders, et al, 2007). A study undertaken in Uganda's national referral HIV clinic set out to describe patient flow and to identify bottlenecks in the clinic which received patients on both scheduled appointments and unscheduled visits. All first time patients were unscheduled. The study findings showed complete median waiting time of 157 minutes with a range of 22 to 426 minutes. The waiting time was longer for new patients, unscheduled patients and patients on ART compared with those patients who were asymptomatic and those who came to replenish their ARVs. The median partial waiting time was longer than 30 minutes for Reception and Triage; and for the nurse and doctor, it ranged between 30 and 51 minutes. The longest partial waiting times were as long as four (4) hours for the doctor, three (3) hours for the nurse and five (5) hours for pharmacy. The study concluded that the causes of the long waiting time were staff workload, long service times for counseling and poor appointment system (Colebunders, et al 2007). Another study carried out in Botswana Uganda and Tanzania over one day by Hardon et al (2007) found waiting times to be high but still patients were satisfied with the waiting time as well as the quality of health services.

Evidently from the foregoing discussion, patient waiting times are notably high in special clinics including HIV and AIDS clinics. The methodologies employed in the HIV clinic studies

were similar. It however should be noted that the studies relied on the opinions of staff and patients to conclude on the causes of high patient waiting time. In the Uganda study (Hardon et al, 2007), staff workloads were measured using the number of patients seen per day per staff member. It would have been better to use percentage staff time spent attending to patients to arrive at conclusions on the staff workloads as the case mix of patients as well as the service time allocated to patients might vary substantially. In the study which is to be conducted in HIV clinic in Swaziland, finer measures will be employed to conclude on the causes and the staff workloads.

2.5 Effects of High Waiting Times on Patients and the Services

For many patients, waiting for a service is viewed as a negative experience particularly if it is perceived to be high, and as such improving the speed of providing a service becomes very critical to quality health services (Miles & Naumann, 2004). Rondeau (1998), quoted in Oermann (2003) suggested that when the clinic waits are too long, patient satisfaction may not only decrease but they may experience stress and emotional turmoil, lose time for other productive activities and furthermore the morale of the clinic staff may be adversely affected. Of concern also is that studies suggest that the longer patients wait at the clinic to see a service provider, the more they subsequently dread coming to the clinic, leading to high discontinuation rates of treatment and welfare programs (Oermann, 2003; Mc Cathy, McGee, & O'Boyle, 2000; Management Sciences for Health International, 2005).   They are also likely to spread the word amongst other patients and influence the expectation of others (Davies & Heineke, 1998; Management Science for Health, 2005); They also note that this occurrence in an HIV Clinic might turn away potential ART patients. Long waiting time has also been found to make working patients lose a day from work and in turn lose wages at the end of the month (Hardon et al, 2007).

2.6 Factors contributing to high waiting time

Literature has shown that the objective of the process of patient flow analysis and patient waiting time surveys is to design a system that can deal with variation in demand without unnecessary delays in attending to patients, so that the patients can flow through a health care system

(Sylvester, Lendon & Bevan,2004). In a case where patient waiting time is high identifying the causes of the high waiting time assists in designing responsive strategies to address the problem. Evidence from literature shows that the causes of waiting time vary from place to place. For example a study undertaken in an outpatient Department of the Hospital University Kebangsaan in Malasia, investigated the possible causes of long waiting time. The two main causes were identified related to logistics and lack of lack of human resource capacity (Sylvester et al, 2004). Other causes identified in an outpatient Chemotherapy clinic in Canada were long service time at some service points and insufficient service rooms (Murphy, Doyle & Van Clieaf, 2005).


2.7 Conclusion

It is clear from the reviewed literature that a number of studies have been undertaken worldwide to measure patient waiting time. It is also clear that client flow analysis studies and waiting time surveys do contribute to improved quality of care Considering that there are no known studies of patient waiting time in HIV clinics in Swaziland, there remains a gap in knowledge regarding quantification of the problem and if confirmed what strategies to employ in addressing it. This suggests that it would therefore be useful to undertake a study in Swaziland to assess waiting times of HIV clients and to recommend solutions to reduce waiting times if they are excessive.

2.8 Aim

The aim of the study was to measure patient waiting and service times and to derive standards and norms around complete and partial waiting and service times in the RFM regional hospital HIV clinic in Swaziland.

2.9 Objectives

1. Describe patient flow at the HIV clinic of the Regional Hospital in Swaziland.

2. Describe staffing patterns and staff workload and percentage of staff clinical time usage at the HIV clinic.

3. Assess complete and partial waiting time in the HIV clinic.

4. Assess complete and partial service times in the HIV clinic.

5. Describe the causes for high waiting time if it is high at the HIV clinic.

6. To determine staff and patient derived norms for waiting and service times for the HIV clinic.
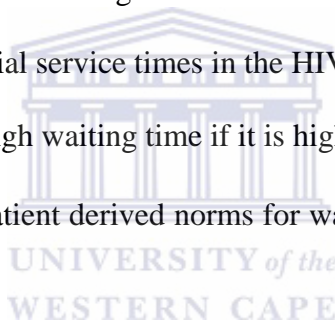
3.0 METHODOLOGY

3.1 Study design

This was a descriptive cross sectional quantitative study. The study entailed primarily measuring waiting and service times. Both these variables were established in categories that included partial and complete waiting and service times. Other related measures were: staff workload, staff clinical time usage, staff and patients' opinions regarding service and waiting time and a description of the adequacy in size and the comfort level of the waiting rooms.

3.2 Definition of terms

Service point: This refers to the various stations within the clinic where the patient receives a specific service

Arrival time: It is the time the patient reaches the entrance of the HIV Clinic

Departure time: This is the time when the patient leaves the clinic after either completing the business of the visit for that day, having been turned away or having been admitted to the ward.

Waiting time: This is the time that patients spend waiting to receive a service. This will be measured as complete waiting time and partial waiting time

Partial waiting time: This is time the patient spends waiting to receive a service at a specific service point within the clinic.

Complete waiting time: This is the sum of all the partial waiting times.

Median complete waiting time: It is the 50th percentile of the complete waiting times of all the patients.

Service time: This is time patients spend receiving a service from the service provider at any service point and this will be categorized into complete and partial service times.

Partial service time: This the time patients spend receiving a particular service at a particular service point.

Complete service time: This is the sum of all the partial service times

Median complete service time: This is the 50th percentile of the complete service time **Norm waiting time:** This a standard waiting time agreed upon by the service providers and service recipients to be used to assess the efficiency of service provision and quality of the service.

Batching: This is patient flow characterized by patients arriving in groups instead of singly.

Patient flow: This is the pattern of movement from one station to the other within a clinic or service unit.

Staff clinical time usage: The proportion of work time that the staff spend attending to patients in the facility

Staff Equivalent: This is a measure of staff numbers where eight hours working time is equivalent to one staff member. For example if the total work time of a staff member is four hours, then the staff equivalent is 'half a staff member'.

3.3 Study population.

The study population included all the patients who received services at the Manzini regional Hospital HIV clinic. All the staff members who were in contact with patients at the clinic were part of the study.

3.4 Sample size

There were two samples, namely, the patients and the health workers. The first sample was a time-delimited one comprising all patients who attend the Clinic during the week of the survey. The second sample were all the staff members (Two reception clerks, two Doctors; Seven Professional Nurses, one facility Nurse Manager, Two Nurse Assistants, five Expert patient

Counselors, two Assistant Pharmacist, one food distributor, one Assistant Laboratory Technician) who were in contact with patients attended to at the HIV clinic during the week of the survey.

3.5 Sampling procedure

The survey was conducted on an average week in the year. The week was one when the complement of staff is likely to be a full complement; in autumn because there were minimal rains; no public holiday; no school holiday and no special activities at the clinic and around the hospital. All patients (new and follow up) attending the Clinic during this week (Monday to Friday) were recruited to participate in the study. This sampling procedure was chosen because the arrival and queuing patterns of patients were different in the morning when compared to the afternoon and different services were prioritized on different days of the week.

3.6 Data collection

Data collection was undertaken in two major phases. The first was a facility assessment and the second phase was the actual waiting and service time survey. Details of the process are as follows:

3.6.1 Facility assessment

Based on the experience from Waiting and Service Time Surveys (WSTS) carried out in South Africa it was important to understand the setup of the health facility under study before the data collection tools were finalized. This was also a time when cooperation from the facility manager and staff could be secured (University of Western Cape, 2006). A health facility assessment was carried out using special health facility assessment forms (Appendices 1.1 and 1.2). The purpose of this assessment was, inter alia, to inform the process of finalization of the data collection tools for the WSTS and

provide an audit of the health facility. During the assessment the following information was collected: facility location and contact information; operating times; services provided each day of the week, patient flow; referral system; facility infrastructures; service organization (staffing and service points); toilet facilities; information, education and communications materials; diagnostic equipment, drugs and supplies. During this phase a floor plan (Appendix 2.2) for the health facility was validated and it was used to complement the information regarding as well as present information on how the service points and waiting areas were situated within the facility; the number and position of entrances and exit doors; accessibility of the facility to patients on wheel chairs and patient trolleys.

The health facility assessment tool was administered by the researcher. The data collection process entailed an interview with the facility manager and also observation and inspection of the health facility.

3.6.2 HIV Clinic WSTS data collection

The data collection tools for the WSTS survey were divided into four

- the Staff time tracking tool (Appendix 1.3)

- the Patient time tracking tool (Appendix1.4)

- The Patient questionnaires (Appendix 1.5)

- The Staff questionnaire and (Appendix 1.6)

The staff time tracking tool, a personal timesheet matrix, was given to each service provider each morning on the week of the survey. The matrix indicated all the possible service points of the HIV clinic with spaces for 'time in' and 'time out' after the staff arrival time was entered by a trained research assistant. Each staff was requested to

record the time they started work at their work stations at the beginning of the day and the time they stopped work at the end of the day.   If the service provider moved to another service point she/he recorded the time they started work at that service point and the time they left that service point. They did the same when they took breaks for tea and lunch. At the end of the day the service provider handed over the completed form to the research assistants who again recorded the departure time.

On the last day of the survey the service providers who consented to the survey were assisted by a research assistant to complete the Staff survey questionnaire which sought to establish their opinions about what they thought would be appropriate patient waiting and service times at the clinic.

On each day of the week of the survey patients who consented to the survey were each given a patient form in which the arrival time was recorded by the research assistant. When the clinic opened the patients proceeded to the first service point which is the reception where the start time of service provision and the time it ended were recorded by the service provider. From the reception, the patient proceeded to the next service point as required where the start and end times were recorded by the next service provider. The process was repeated at each service point the patient received a service on that day until he/she completed his/her business in the clinic. The staff did the same for all the patients they attended to each day. When the patient had completed his/her business they left the completed time tracking tool with the research assistant who recorded the patient departure time.

The Patient questionnaire (Appendix 1.5) was administered in two parts by the research assistants, part A on arrival and part B before the patient left the health facility. The patient survey questionnaire sought to establish the patients' opinions about waiting and service times at the facility.

Watches were synchronized at the beginning of the day and at noon every day to ensure that watch errors are minimized. All the questionnaires and time tracking tools were checked by the Researcher for completeness and for any errors every hour during the day for the whole week. Technical support was provided by the University of the Western Cape for the first three days of data collection to train the Researcher on supervision and quality control of the data.

3.6 3 Logistics for data collection

In order to secure cooperation from the Hospital management and the HIV clinic staff, meetings were held at different time before the survey week. After securing written permission from the Hospital management individual meetings were held with the heads of the Chief Nursing and Chief Medical officers. The purpose of the meetings was to explain the process of the survey and solicit their support. Three meetings were held with the HIV Clinic Nurse Manager to introduce the survey, administer the facility assessment forms and validate the floor plan. The final meeting was to plan for the process of data collection and to introduce the survey to the HIV Clinic staff and to train them on the time tracking tools and how they should record the times. The final meeting was held with the Hospital Research Board, senior management of the medical and nursing departments of the hospital and the quality assurance team.

The Researcher was the survey coordinator and team leader of the survey. Ten Research assistants (six females and four males) were recruited to assist in data collection. Some of the Research Assistants were University students whilst some were matric leavers and one was a University Lecturer. The Research Assistants were trained for two days on the concepts of the survey, methodology and how to administer the tools and also monitor the survey processes. A familiarization tour of the facility was undertaken with the research assistants to ensure that they were familiar with the facility and their positions before the survey began.

Technical Assistance was provided by the University of the Western Cape to assist in the preparation, training and start up of the survey. The HIV clinic Nurse Manager was part of the research team and she provided liaison with the hospital management and staff.
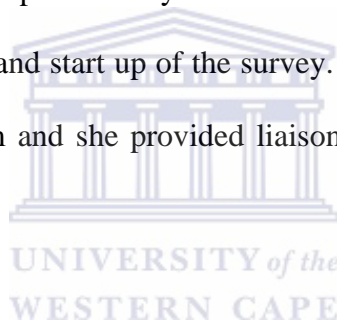
All questionnaires and time tracking tools were printed for each day and packed for each day of the survey. Since the number of patients expected per day was an estimate, 30% more patient questionnaires and time tracking tools were printed per day. All questionnaires and time tracking forms were numbered and kept in separate boxes.

The research team arrived at 5.00am every morning and left at 5.00pm in the evening after all staff and patients had left the clinic.

The Researcher supervised the survey ensuring that the process was proceeding smoothly, checking all the questionnaires and time tracking forms every hour and making corrections of errors where possible. Spot checks were also done by both the

Researcher and the Research Assistants. This helped in identifying errors and correcting them on the spot. The Researcher answered all questions that arose during the survey process.

3.7 Validity

Validity refers to the success of the scale in measuring what is meant to be measured (De Vaus 1985). The study design was appropriate for establishing the nature of the problem, which in this case was the length of waiting and services times. The sample size was big enough to make valid conclusions from the findings because the number of patients attending the clinic per day was relatively large and the response rate was also very high. Inherent in time delimited sampling technique is selection bias, however, this limitation is acknowledged and an average week in the year was selected in order to minimize this potential bias and in addition the findings of the study will be used with due consideration that if the situation changes, waiting times may change in line with the change. For example if the number of patients and service providers increases beyond or declines below the figures observed for the average weekly numbers during the year, then waiting times may also increase or decrease respectively. In order to reduce measurement bias, the researcher and the team were at the research site checking all timesheets and administering the questionnaires. Trained assistants were inside the Clinic ensuring that service providers were entering the time as expected. Reliable watches were synchronized twice per day and used during the week of the study. There was also a potential for observer bias, as the staff may have slightly changed the way they went about their duties considering that they were observed. Whilst this potential bias is acknowledged it should be noted that should it have occurred it had minimal effect on the results as waiting times are determined by systemic issues such as arrival patterns, flow, logistics and service provision patterns, in addition to the specific behaviour of individual staff.

The validity of the study was complemented by the fact that the study was done over a period of one week, which was a long enough time to allow for an adequate assessment of the entire range of services provided at the clinic.

3.8 Reliability

Reliability or repeatability refers to the extent to which the same results could be obtained if the same instrument is repeated under the same conditions (De Vause, 2002). The study has reasonable reliability, particularly the time tracking tools in that they had been adapted from other patient waiting studies that were done in the Western Cape and Tanzania and have been found to have high reliability. The Staff and patient questionnaires were not piloted because of resource and time constraints. As such some of the questions were not explicit enough for the respondents and the quality of the data collected was compromised. This has been acknowledged in the study report as a limitation. In order to ensure consistency of the questionnaire, all the Research assistants were trained on the administration of the tools and questions were asked in the local language using a translated copy and it was easily understood by all patients. Service providers were also trained on the time tracking tools for themselves and the patients. No formal test of reliability of the survey was done because of resource constraints.

3.9 Generalisability

The findings of the study can be generalized to the Regional Hospital's HIV clinic only, as waiting times are heavily dependent on staffing patterns, service provision patterns staff to patient ratios, patient characteristics and patient arrival patterns.

3.10 Data analysis

The proposed methodology for the study required that data be collected using six different tools and the data was predominantly numeric continuous data although a small section of the data was categorical data. The data collected from both patients and staff using the time tracking forms was analyzed using specially designed Waiting and Service Times Survey (WSTS) software which was developed and used by the University of the Western Cape (University of the Western Cape, 2006). The software was also able to provide summaries of the data presented in tables and graphs. SPSS version 13.0 (Statistical Package for Social Scientists) was used to analyze data that could not be analyzed with the WSTS software.

Since each day of the week was considered a unique day, each day's data was captured and analyzed individually and combined where necessary. The general survey report presents the number of patients and staff as follows: number of patients seen per day; number and percentage of patients turned away; number and percentage of patients who left voluntarily; number of staff; equivalent staff and percentage of staff absent on the day of the survey. Waiting and service times are presented to show summaries of the median complete and partial service and waiting times as well as interquartile ranges. These are presented for each day and combined for the week.

The specific survey report will be produced and presented either in a table or a graph as follows:

- 'Total Number of staff (equivalent staff) who worked at the service point
- Total Number of patients seen at the service point
- Workload: Calculated as patients seen per staff member per day

- Percentage Patient Time: This is the percentage of the total time that staff have to spend on patients, which is actually spent attending to patients. So if staff have 8 hours to spend on patients, but actually spend 6 hours seeing patients then they spent 75% of their time seeing patients. This allows one to assess to what extent staff time is efficiently used, as it is a sensitive measurement of both workload and staff time deployment.

- Service Point Specific (Partial) Waiting and Service times: This is the waiting time or service time for the patient at a particular service point e.g. reception, or doctor consultation.

- The Waiting Times: This is the amount of time that the patients wait. They are grouped as: 5% cut-off; median (50%) cut-off; 75% cut-off and 95% cut-off points.

- The Service Time:; This is the amount of time that the staff spend on each patient. They are grouped as: 5% cut-off; median (50%) cut-off; 75% cut-off and 95% cut-off points.' (Reagon, unpublished)
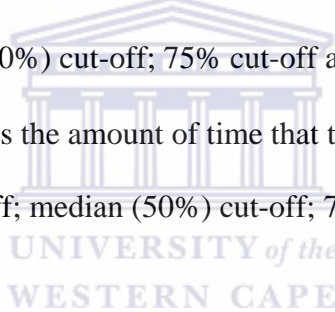
3.11 Ethics

Ethical principles which were considered were do no harm and obtain informed consent and ensure confidentiality. On confidentiality patients respondents were not recognized by their names and as such no data can be linked to a particular person. Respondents names were not entered on the questionnaire instead questionnaire identities were serial numbers. Permission to undertake the study was sought from the administration of the Regional Hospital and the Swaziland Research and ethics Committee (see Appendices 9 and 10). Informed written consent for participation was requested from the staff.

Informed consent was sought from all the patients who attended the HIV Clinic that week following a consent guide (page 1 Appendix 1.5 and 1.6). The research team fully described the nature of the study to the patients and staff and the implications on their participation in the study. Respondents were assured that their participation or non participation in the study was not going to affect their treatment at the clinic and that they were free to withdraw from the study at any time. Confidentiality for both staff and patients was ensured.

4.0 RESULTS

This section presents the findings from the survey covering the respondents background characteristics, patient waiting and services times as well as other characteristics relating to patient waiting and service times.

4.1 Patient profile

4.1.1 Response rate

The survey had a response rate of 99.3%.

The survey was carried out in autumn when there were no holidays and the schools were open. According to the facility records the number of patients did not vary much in the last three months prior to the survey as the weekly average was about 800 patients. The response rate from the staff was 96%.
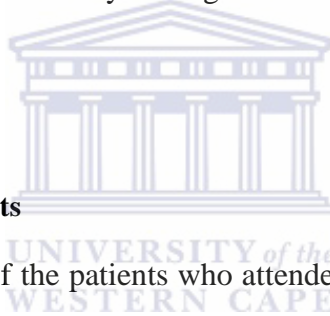
4.1.2 Age and gender of the patients

Figure.2 shows the distribution of the patients who attended the HIV clinic during the week by age and gender. Their ages ranged from 0 to 69 years.

About a third (31%) of the patients were males and the proportion of male to females was almost the same through out the week (See Table 1).

Table 1: Frequency distribution of patients by gender per day

Clinic day	Sex of patient		TOTAL
	Female Number (%)*	Male Number (%)*	Number (%)**
Monday	62 (**65%**)	32 (**35%**)	94 (**11.4**)
Tuesday	77 (**74%**)	27 (**26%**)	104 (**12.6**)
Wednesday	243 (**66%**)	125 (**33%**)	368 (**44.6**)
Thursday	47 (**66%**)	24 (**33%**)	71 (**8.60**
Friday	141 (**75%**)	47 (**25%**)	188 (**22.8**)
Total	**570 (69%)**	**255 (31%)**	**825**

*% of total patients seen per day; **% of totals seen during the week

36

Figure 2: Distribution of Patients who attended the HIV clinic during the week by Age and Gender in 5-year Intervals
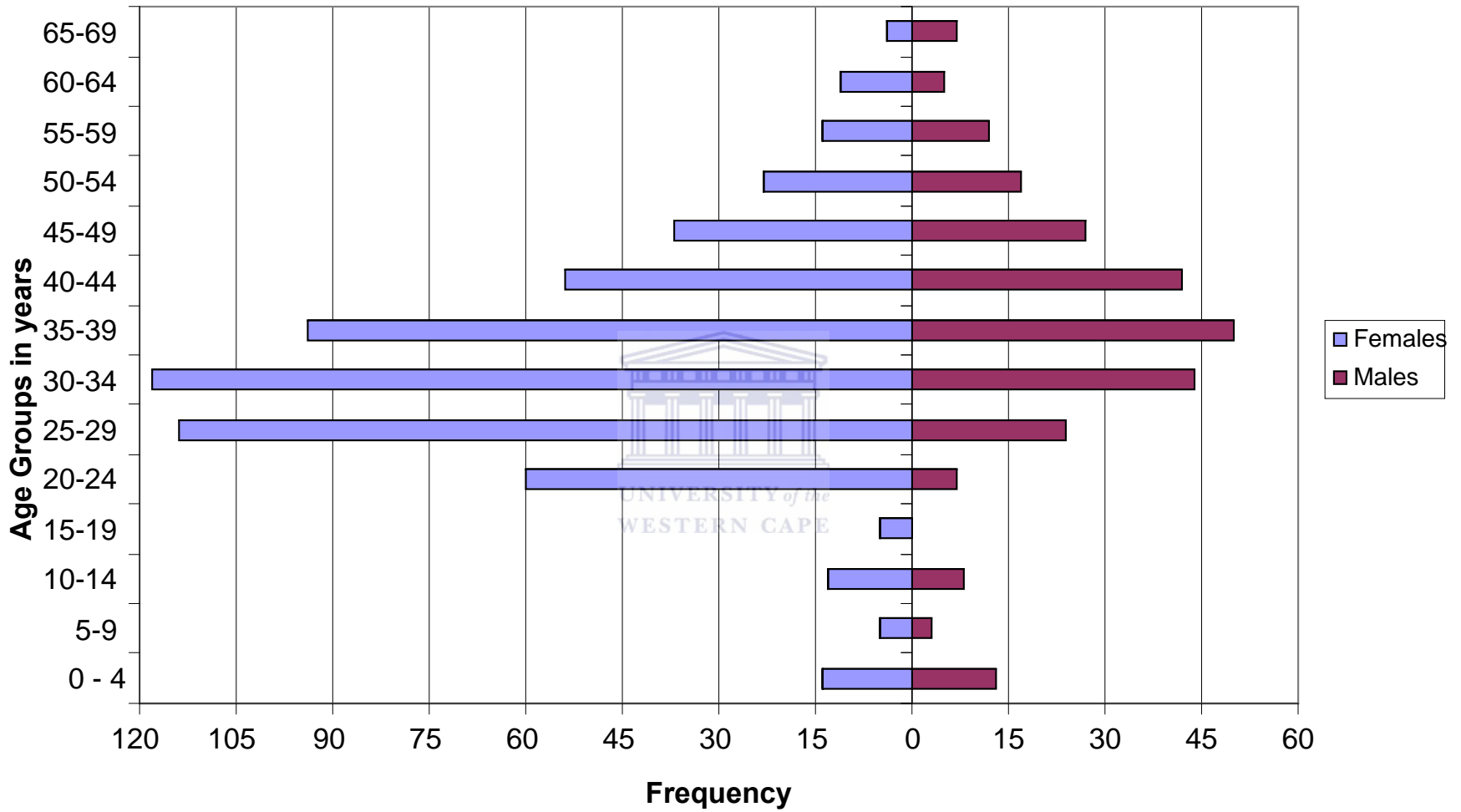
4.1.3 Drainage of the HIV Clinic

The Regional hospital is centrally located geographically and as such shares borders with the other three regions of the country. Its catchment area population includes mainly the people which resides within the Mbabane-Manzini- Siteki corridor. This corridor lies within a 40 to 50 kilometer-radius from the HIV clinic. Unfortunately this distance cuts into the other two regions of the country. This study did not measure which patients came from the corridor versus those who came from outside the corridor. It would be expected that most of the people who were attended to at the HIV clinic during the week of the survey come from the target drainage area of the clinic and although Table 2 seems to indicate that this is not the case, in fact it is likely to be the case.

Table 2: Distribution of patients by place of residence

Place of residence	Number	Percent
Manzini Town	69	8.3
Outside Manzini Town but within the formal region	128	15.5
Outside Manzini region	628	76.2
Total	825	100

4.1.4 Mode of Transport

The patients are dependent on public transport to reach the HIV Clinic.

Figure 3: Distribution of patients by mode of travel to the HIV clinic (n=825)
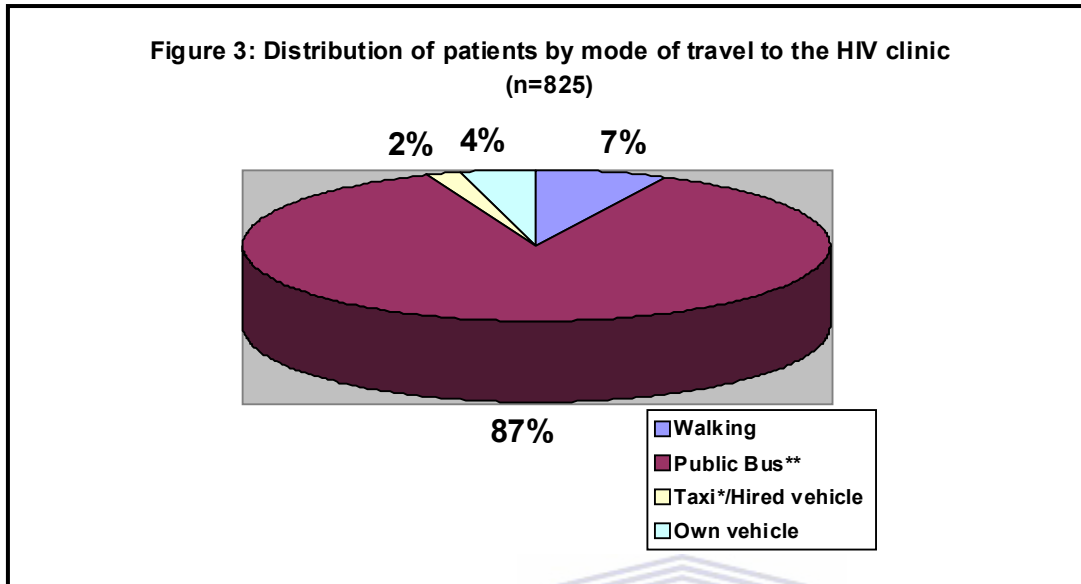
Taxi is a metered public transport; ** Public Bus includes mini and large buses
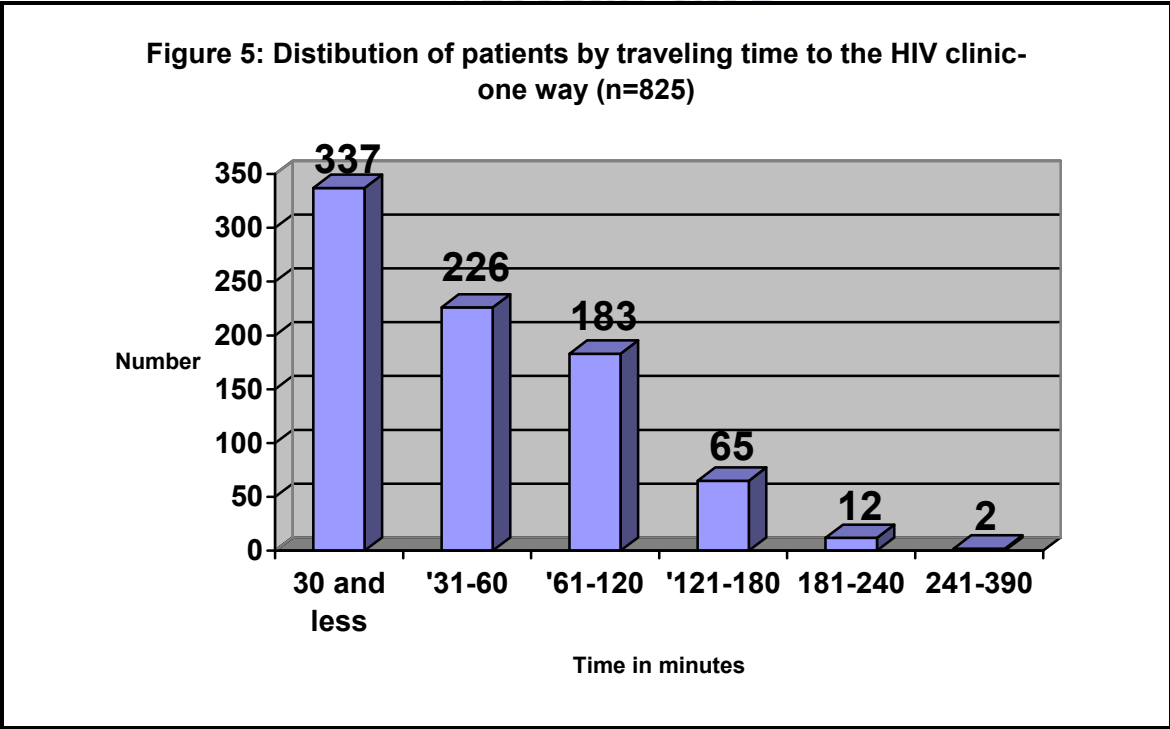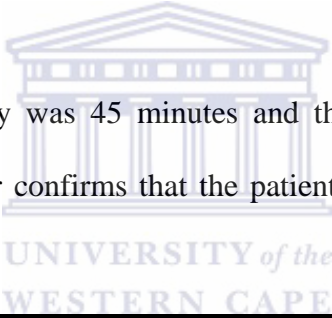
4.1.5 Cost of travel to the facility

The median cost of travel to the facility was $E^2$6.00 with 75 percentile of the patients paying E14.00. Most of the patients who paid E50.00 and above were those who used taxis and hired transport. This shows that most of the patients were coming from a reasonably close distance from the health facility.

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[2] ^{2} 'E' denotes 'Emalangeni', the Swaziland currency

Figure 4: Distribution of patients by cost of return travel to the HIV Clinic (n=825)

%

Cost in Emalangeni

'0   '1-9   '10-19   '20-29   '30-39   '40-49   '50-150
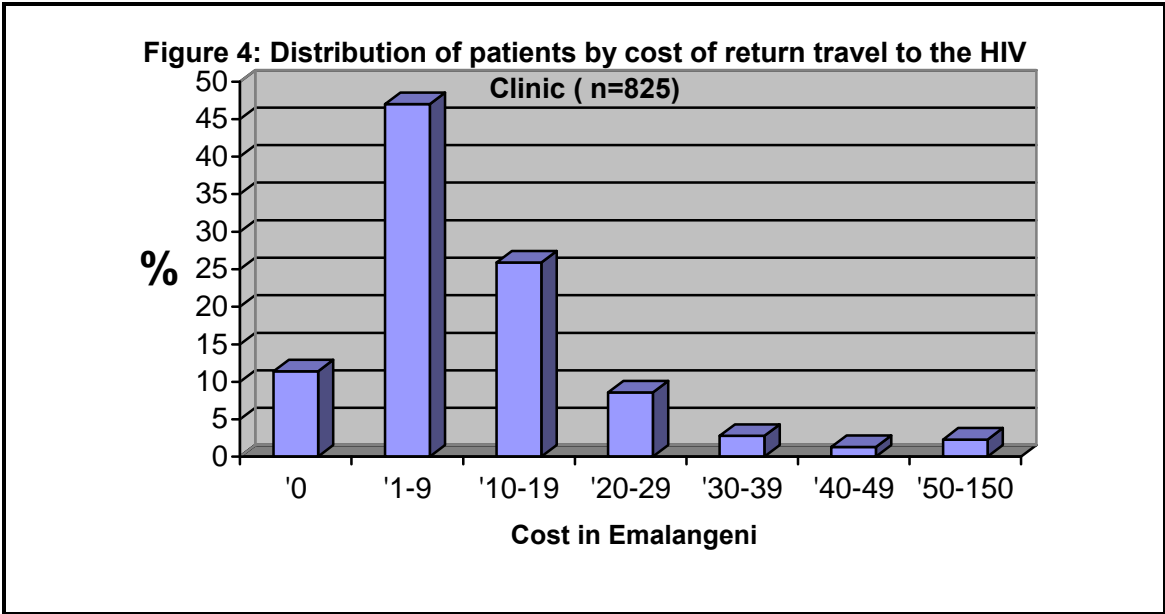
4.1.6 Travel time to the facility

The median travel time to the facility was 45 minutes and those who came from further away traveled an hour or more. This further confirms that the patients came from the Manzini drainage area.

Figure 5: Distibution of patients by traveling time to the HIV clinic-one way (n=825)

Number

337
226
183
65
12
2

30 and less   '31-60   '61-120   '121-180   181-240   241-390

Time in minutes

Considering the cost of travel together with the time of travel, it is not likely that the majority of the patients came from outside the formal Manzini region. This was unfortunately not sufficiently and accurately measured. It is also likely that many of those listed as 'outside Manzini region' reside along the 'Mbabane-Manzini-Siteki corridor' considering the proximity of the regional boundaries and the travel cost and time to the facility.

It is noted that the question on place of residence was close-ended with predetermined options where the data collector was expected to use own judgment and make conclusion on the appropriate place of residence. This caused an error in allocating the place of residence. The right thing to have been done was to record the actual place of residence and the Researcher then finalizes the categorization of the data during analysis.
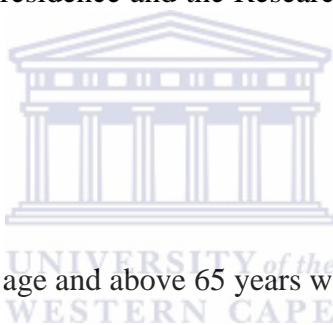
4.1.7 Employment

Patients who were below employment age and above 65 years were excluded from the analysis of this section, as they are considered not to be in the market for employment. Approximately a third of the patients who were eligible to be employed were unemployed.

Table 3: Distribution of patients by employment status

| Employment status	Male Number (%)*	Female Number (%)*	Totals Number (%)*
Unemployed	61 (**28.1%**)	191 (**38.5%**)	252 (**35.3%**)
Informally employed	37 (**17.1%**)	82 (**16.5%**)	119 (**16.7%**)
Employed	119 (**54.8%**)	223 (**45.0%**)	342 (**48.0%**)
Total	217 (**100%**)	496 (**100%**)	713

* % of column

4.2 Description of the HIV Clinic

The section summarizes the findings from the formal facility assessment which was carried out prior to the implementation of the waiting and service time survey. The summary covers information about the clinic infrastructure, resources for patient management and care, and patient attendance.

The floor plan of the clinic is shown in Appendix 2.2.

The assessment identified 23 officers who directly attended to patients and therefore were included in the survey. These were two doctors; seven professional nurses (five for ART and two for VCT), two nursing assistants; two pharmacy assistants; one laboratory assistant, one X-ray technician, five expert clients and three clerks. There were 10 service points identified for the study where patients could access specific services during the week. The service points were:

- ART reception and weighing
- VCT reception
- Vital signs and triage
- ARV consultation room – Professional Nurse (PN)
- VCT consultation room – PN
- ARV consultation room Doctor (Dr)
- ART pharmacy
- Food distribution room
- Hospital Laboratory and
- Hospital pharmacy.
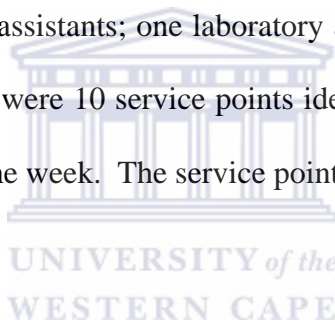
Patients (males separate from females) and staff had separate functional toilets with running water but there was no toilet paper for patients on the day of the survey but there was toilet paper for the staff.

There was one adult and one infant weighing scale, three wheel chairs and four condom dispensers. There was a functional telephone, a computer connected to the internet. A big directional sign to the HIV clinic was seen at the entrance of the main hospital. Within the Clinic there were no booklets /flyers for patients either to read or to take home, but there were wall posters on nutrition and VCT. There were two waiting rooms and only one had a functional television set used for educational programmes.

Staff identified patient information, education and communications materials such as booklets, pamphlets and demonstration kits. See appendix 2.1 for a more detailed description of the HIV clinic.
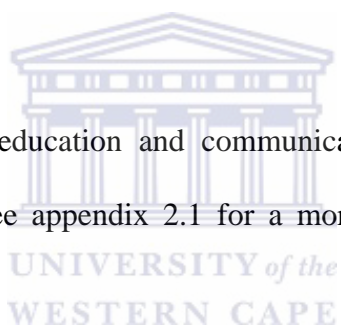
4.3 Complete waiting and service times; patients seen and patients turned away

This section presents the results of the survey for the week as well as for each day in the week by waiting and service times characteristics. These are patient attendance, patients who were turned away and those who left voluntarily, staffing levels, complete service and waiting times at the facility. See pages 24 and 25 in the methodology for definitions. Table 4 shows the summary of the findings.

Table 4: A detailed service report for each day and the whole week summary

Waiting and Service Times Characteristics	Clinic Days					Whole Week
	Monday	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	
Number of staff present in the facility	22	21	21	20	20	104
Number of staff absent	1 (4%)	2 (9%)	2 (9%)	3 (13%)	3 (13%)	12 (10%)
Equivalent staff	23	23	**27**	**15**	23	111
Number of patients seen	94	105	**373**	**70**	188	830
Number of patients turned away	17 (18%)	**31 (30%)**	5 (1%)	11 (16%)	10 (5%)	74 (9%)
Number who left voluntarily	0	0	1 (0.1%)	0	1 (1%)	2 (0.2%)
Median complete Service time in minutes	12	11	5	15	5	**6**
5%Complete service time in minutes	1	1	2	1	2	2
75%complete service time in minutes	27	26	7	23	8	11
95% complete service time in minutes	57	50	24	43	27	36
Complete median Waiting time In minutes	94	105	**125**	121	90	**107**
5% complete waiting time in minutes	10	17	13	11	13	12
75% complete waiting time in minutes	230	213	172	120	120	165
95% complete waiting time in minutes	**427**	413	237	190	277	**296**

The patient load ranged from 70 to 373 during the week of the survey. On Thursday there were very few patients whilst the highest numbers of patients were seen on Wednesday. The proportion of patients who were turned away also varied but was highest on Tuesday. Very fewer patients were turned away on Wednesday when the clinic attended to the highest number of patients. Very few patients left voluntarily.

The complete service time was low on Wednesday and Friday and was borderline to adequate on the other days. The complete waiting time was high on all the days

4.4 Partial service time and waiting time for each service point and Percent staff time spent

This section presents the partial service and waiting time per service point and percentage staff time spent attending to patients. The results will be summarized for the whole week and for each day. Refer to Tables 5.1 to 5.6 for the detailed service point reports.

4.4.1 Partial median service times[3]

The adequacy of the service times depended to a large extent on the type of service provided at each service point. The summary report of the whole week (Table 5.1) shows that the time allocated in most of the service points was adequate. For example it was adequate for the ART reception and weighing service point to spend one minute weighing and registering a patient. Some service points appear to have allocated a short service time and these were the 'Vitals signs and triage', 'ARV consultation PN' and the 'ART Pharmacy' (see tables 5.2 to 5.6). One minute is not an adequate time for the 'vital signs and triage' service point to take temperature, blood pressure and pulse efficiently.

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[3] For the definition of 'partial waiting' and 'service time' see methodology.

Survey dates: 3-7 March 2008   Whole week Report

Service Point Description	Actual Number of Actual Staff who worked at the service point	Equivalent Staff at the service point	Total Patients Seen	Workload measured as the number of patients seen per staff member per day	% Staff Time Spent Attending to patients	Service Times				Waiting Times			
						Median	5%	75%	95%	Median	5%	75%	95%
ARV Reception and weighing	43	22.1	677	31	8%	1	1	1	2	17	1	38	65
Vital signs corner and Triage	8	4.2	110	26	11%	1	1	3	5	41	1	70	121
Consulting Room - Prof Nurse	20	21	550	26	24%	3	1	5	14	51	2	85	128
ARV Consultation Room Dr	5	5	102	21	47%	10	4	14	20	80	10	153	262
ART Pharmacy	9	7	487	70	22%	1	1	2	3	11	1	29	88
VCT_ reception	5	3.8	46	12	4%	1	1	1	4	6	0	21	65
HIV Counseling and Testing_ PN	6	7.4	41	6	32%	25	15	32	45	22	1	58	109
Food distribution	7	3.8	87	23	10%	2	1	2	5	10	0	29	87
Hospital laboratory	5	5.7	142	25	12%	2	1	3	5	52	1	77	126
Hospital Pharmacy	5	5.8	69	21	11%	3	1	5	19	17	4	36	106

46

Whilst other service points allocated slightly higher service times on daily basis, the 'Vital signs and Triage and the 'ART pharmacy' allocated low service time throughout the week. The ARV consultation PN allocated lower service times on Wednesday and Friday and slightly higher service times on the other days and in both cases the allocated time was adequate. This variation is due to the different types of service offered by the service point on the different days. Compared to the hospital pharmacy, the ART pharmacy had a lower median service time. The Food distribution service inexplicably allocated a very high service time on Monday.

4.4.2 Partial median waiting times[4]

The median waiting times on Monday ranged from four (4) to105 minutes. The 'ART pharmacy', 'Food distribution', 'VCT reception' and 'HIV counseling and testing PN' had the lowest whilst the 'ARV Consultation Dr' and the 'ARV consultation PN' had very high median waiting times.   Although generally the median waiting time was not too high for most of the service points, some patients waited 90 to 300 minutes in some of the service points (see Table 6).

The median waiting time was high for the 'ARV Consultation Dr' throughout the week with a few other service points also having high median waiting times throughout the week. These were the 'Hospital laboratory', 'Vital signs and triage' and the 'ARV consultation PN' (see Table 5.1)

4.4.3 Percentage time staff spent attending to patients
The proportion of service time the staff spent attending to the patients was generally very low for all the staff. The 'ARV Consultation Doctor' spent 47% time attending to patients overall (see Table 5.1) but had an excellent percentage (72%) staff time usage on Monday (see table 5.2). Other service points spent between four percent and 32% of time during the week attending to patients.

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[4] For definition of partial waiting time see methodology

Survey week: 3-7 March 2008   **Survey Day: Monday**

Service Point Description	Actual Staff who worked at the service point	Equivalent Staff at the Service Point	Total Patients Seen	Workload measured as patients seen per staff member per day	% Staff Time spent Attending to patients	Service Times				Waiting Times			
						Median	5%	75%	95%	Median	5%	75%	95%
ARV Reception and weighing	10	5.4	71	13	5%	1	1	2	4	22	2	42	90
Vital signs corner and Triage	1	0.7	24	36	9%	1	1	1	2	32	11	41	60
ARV Consultation room PN	6	3.1	41	13	29%	9	2	15	28	46	2	68	123
ARV Consultation Room Dr	1	1	28	28	72%	12	4	15	22	105	5	219	300
ART Pharmacy	1	1	27	28	12%	2	1	3	4	4	0	40	78
Food distribution	1	0.5	5	11	17%	10	2	10	10	5	0	21	42
VCT_ reception	1	0.9	6	7	4 %	3	1	5	5	9	2	15	30
HIV Counseling and Testing_ PN	2	1.5	5	3	19%	32	19	33	35	4	0	25	49
Hospital laboratory	1	1.1	31	27	18%	3	1	5	6	27	1	35	112
Hospital Pharmacy	1	1.2	7	6	8%	4	1	10	21	13	2	77	181

TABLE 5.3: TUESDAY DETAILED SERVICE POINT REPORT PER SERVICE POINT IN FACILITY
HIV CLINIC

Survey week: 3-7 March 2008   **Survey Day: Tuesday**

Service Point Description	Actual number of staff who worked at the service point	Equivalent Staff at the service point	Total Patients Seen	Workload measured as number of patients seen per staff member per day	% Staff Time spent Attending to patients	Service Times				Waiting Times			
						Median	5%	75%	95%	Median	5%	75%	95%
ARV Reception and weighing	12	4.3	51	12	3%	1	1	2	2	30	5	52	91
Vital signs corner and Triage	1	0.6	22	36	15%	1	0	1	7	37	0	52	74
Consulting Room - Prof Nurse	5	3.7	31	82	14%	5	3	10	22	28	0	44	83
ARV Consultation Room Dr	1	1	18	182	58%	11	5	19	43	202	21	252	265
VCT_ reception	1	0.8	15	192	9 %	1	1	2	13	11	1	29	55
HIV Counseling and Testing_ PN	2	1.7	15	9	53%	25	10	40	45	22	1	61	96
ART Pharmacy	1	0.9	17	199	7%	1	1	2	3	9	1	107	436
Food distribution	1	0.4	0	0	0%	0	0	0	0	0	0	0	0
Hospital laboratory	1	1	26	239	10%	2	1	3	5	59	18	77	119
Hospital Pharmacy	1	1	17	15	10%	2	1	5	13	36	0	68	146

49

Survey week: 3-7 March 2008   Survey Day: Wednesday

Service Point Description	Actual staff who worked at the service point	Equivalent Staff at the Service Point	Total Patients Seen	Workload measured as number of patients seen per day	% Staff Time spent Attending to patients	Service Times				Waiting Times			
						Median	5%	75%	95%	Median	5%	75%	95%
ARV Reception and weighing	6	4.5	347	76	17%	1	1	1	1	25	1	44	57
Vital signs corner and Triage	2	1.1	26	24	18%	4	1	4	5	28	8	55	122
ARV Consultation room PN	6	6.2	286	46	32%	3	1	4	7	64	2	98	131
ARV Consultation Room Dr	2	1.8	24	13	22%	7	4	10	15	78	21	91	138
VCT_ reception	1	0.9	15	16	3%	1	1	1	1	1	0	10	88
HIV Counseling and Testing_ PN	2	1.8	12	7	36%	25	15	30	53	56	0	83	163
ART Pharmacy	3	3.1	285	92	30%	1	1	2	3	17	1	34	87
Food distribution	2	1.6	57	35	13%	2	1	2	4	16	0	37	94
Hospital laboratory	1	1.1	62	55	21%	2	1	2	4	70	2	88	138
Hospital Pharmacy	1	1.2	17	15	25%	4	1	8	36	19	1	36	151

50

Survey week: 3-7 March 2008   **Survey day: Thursday**

Service Point Description	Actual Staff who worked at the service point	Equivalent Staff at the Service point	Total Patients Seen	Workload measured as patients seen per staff member per day	% Staff Time spent Attending to patient	Median	5%	75%	95%	Median	5%	75%	95%
						Service Times				**Waiting Times**			
ARV Reception and weighing	7	3.12	46	14.74	4%	1	1	1	3	28	1	65	149
Vital signs corner and Triage	2	1.25	21	16.77	5%	1	1	2	3	47	12	116	127
ARV Consultation room PN	6	3.31	33	9.97	15%	6	1	12	17	13	1	38	120
ARV Consultation Room Dr	1	1.01	20	19.83	42%	10	5	12	17	49	9	96	147
VCT_ reception	1	0.83	6	7.27	2%	1	1	1	1	5	1	38	50
VCT consultation room PN	2	1.09	5	4.58	21%	23	14	25	26	8	1	9	16
ART Pharmacy	1	1.04	30	28.97	10%	1	1	2	4	3	0	6	43
Food distribution	2	0.47	3	6.4	3%	2	2	2	2	6	4	66	66
Hospital laboratory	1	1.13	11	9.74	6%	2	1	3	8	51	3	97	146
Hospital Pharmacy	1	1.14	10	8.81	12%	6	1	8	19	15	4	21	63

Survey week: 3-7 March 2008   Survey Day: Friday

Service Point Description	Total Staff who worked at the Service Point	Equivalent Staff at the Service point	Total Patients Seen	Workload measured as patients seen per staff member per day	% Staff Time spent by staff attending to patients	Service Times				Waiting Times			
						Median	5%	75%	95%	Median	5%	75%	95%
ARV Reception and weighing	8	4.7	162	34	8%	1	1	1	2	7	1	14	26
Vital signs corner and Triage	2	0.6	17	29	12%	2	1	2	3	72	1	76	95
ARV Consultation room PN	5	4.3	159	37	25 %	2	1	4	9	41	6	79	114
ARV Consultation Room Dr	1	1.2	12	10	17%	8	3	11	14	64	6	78	89
VCT_ reception	1	0.4	4	10	3%	1	1	1	2	12	1	21	65
VCT consultation room PN	2	1.24	4	3	22%	35	19	40	43	29	8	39	49
ART Pharmacy	3	1	128	128	32%	1	1	1	2	7	1	13	67
Food distribution	1	0.9	22	25	10%	2	1	2	3	6	0	10	19
Hospital laboratory	1	1.1	12	10.65	4%	2	1	2	3	52	1	58	99
Hospital Pharmacy	1	1.1	18	15.85	7%	2	1	4	5	9	4	25	53

4.5 Causes of high waiting time

There are a number of potential reasons for long waiting times and these are based on different but related causes. Reagon, 2006 (Unpublished) identified the following potential reasons for high waiting time:

- High staff workload.

- Patients arriving in more numbers than can be seen in an hour (batching).

- Staff not prioritizing attending to patients.

- Patients arrive earlier than staff at the service point (mismatch).

- Lack of equipment and supplies such that staff cannot attend to patients (logistics problems).

- When patients are delayed at one point causing sluggish progression of patients to the next service points (flow problems).

- Illogical order of attending to patients causing queuing problems.

- Inappropriately high service time at one or more service points.

For a detailed commentary on the potential reasons of high waiting time see Appendix 6.0. The application of the principles is demonstrated in two examples below.

The example presents the waiting and service times in two types of graphs for two service points, 'ARV Reception and weighing' and the 'ART Consultation Dr'. The graphs (Figures 6.1 and 7.1) present a report on the waiting and service times stratified by patient arrival times on the Tuesday clinic day for the respective service points. Figures 6.2 and 7.2 show a snapshot of patients waiting, those receiving a service and the number of staff available at each service point at any given time in the day in the time period.

<u>Example 1</u>

Figure 6.1 shows that between 06.00hrs and 06.59 hrs there were eight (8) patients that had arrived. Between 07.00 hrs and 07.59 hrs another 15 patients arrived, followed by 11 between 08.00 hrs and 08.59 hrs and seven patients between 09.00 hrs and 09.59 hrs.   The number reduced to one patient each hour arriving between 10.00 hrs and 10.59 hrs and between 11.00 hrs ands 12.59 hrs. The patients who arrived between 8.00 hrs and 08.59 hrs had high waiting time of about 60 minutes followed by those who arrived between 06.00 hrs to 06.59 hrs and 11.00hrs to 11.59hrs who waited 48 minutes. Other patients arriving at other times waited between five (5) and 30 minutes. The service time varied between one (1) to two (2) minutes during the various one hour periods on this day at the service point.

Although the graph shows that patients arrived in groups between 07.00hrs and 08.59 hrs, this does not qualify to be a batch considering that there were six (6) to eight (8) staff (see Figure 6.2) providing a service with a median service time of one (1) minute that day (Table 6.2). In this situation the available capacity at the service point would be able to clear 240 patients in an hour provided they arrived uniformly throughout the hour. To qualify as a batch[5] there would have to be more that 240 patients arriving at the service point within an hour. For batch sizes for each service point per day see Appendix 7.0.

Figure 6.2 on the other hand shows that the service providers started arriving at 06.00hrs and found one patient waiting indicating a slight mismatch, a situation which arises when patients arrive earlier than staff at a service point. Three staff arrived and they did not start seeing patients

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[5] A batch is defined as more patients arriving in a time period than can be seen in that time period. A small batch would therefore be at least one patient more and for purposes of this study a large batch is defined as 50% more patients than can be attended to in the time period.

until 07.30hrs whilst patients continued to arrive and wait. Meanwhile the number of patients who were waiting had increased to about 15.

This shows that staff did not prioritize attending to patients higher than doing other things. The patients were then seen but one at a time until at about 08.30hrs. From 8.30hrs until 09.15hrs no patients were seen although staff were present at the service point, again, show low prioritization of attending to patients. Between 9.15 and 10.20 although three or four staff were at the service point, however, only one patient was seen at any point in time. The possible reason for attending to one patient at a time could be that because there is only one adult weighing scale and one window through which services can be provided by staff at the service point, they were logistically unable to see more than one patient at a time. The alternative reason could be relative inefficiency. Two to four staff remained at the service point from 12.00hrs until16.40hrs but only one patient was attended to during that time. The service point was quiet for the rest of the afternoon until it closed at 16.40hrs.
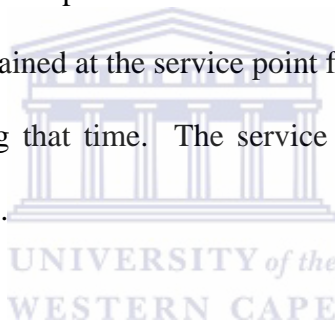
The long periods of time when staff were not attending to patients at the service point observed in Figure 6.2 confirms that this was the cause of the high waiting time for patients as shown on Figure 6.1.

Figure 6.1 : Detailed Arrival Service Point Report - ARV Reception and weighing-Tuesday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time
HIV Clinic
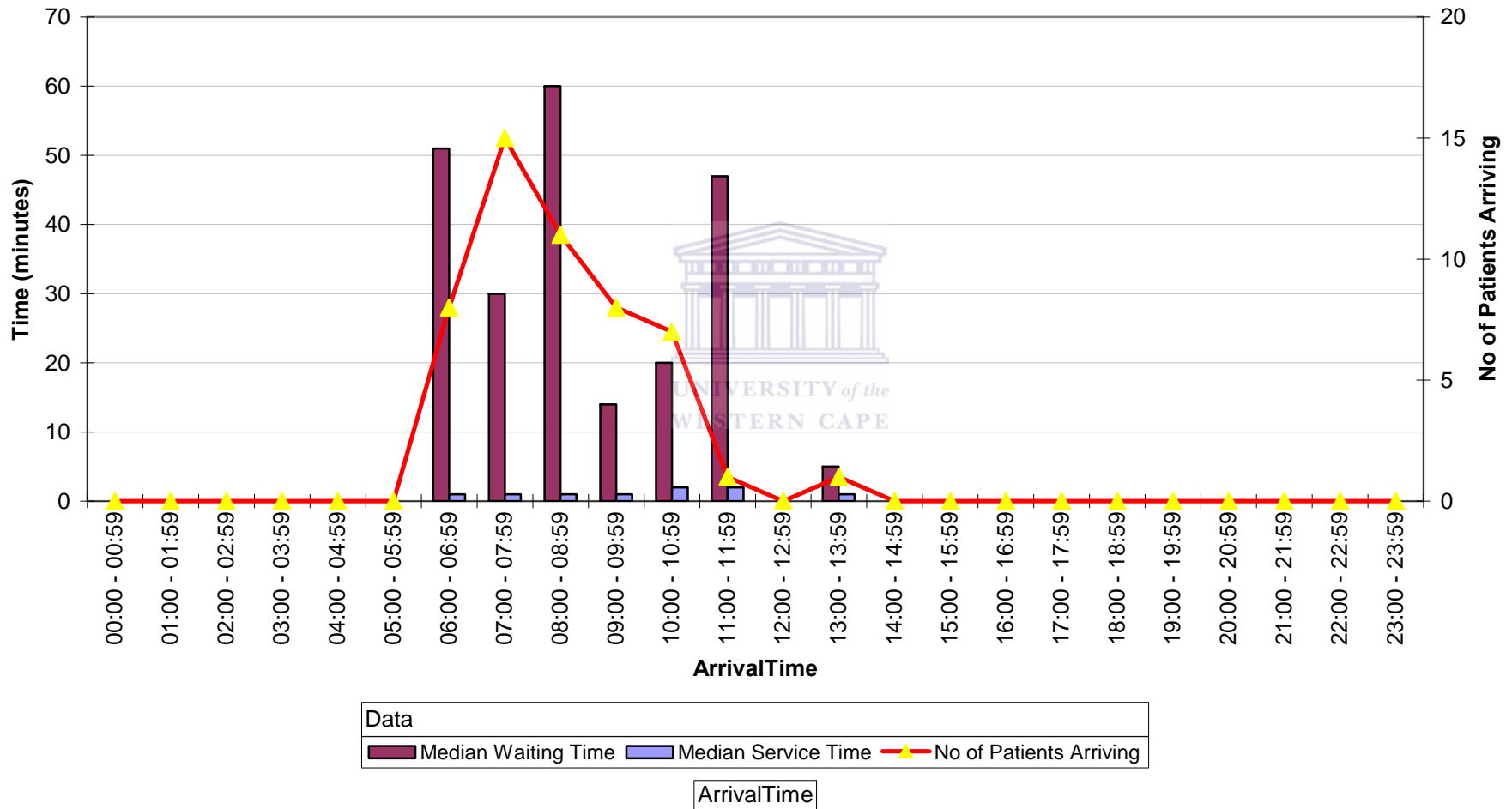
Figure 6.2 :
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time
ARV Reception and weighing on Tuesday
HIV Clinic
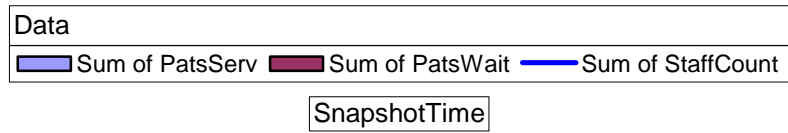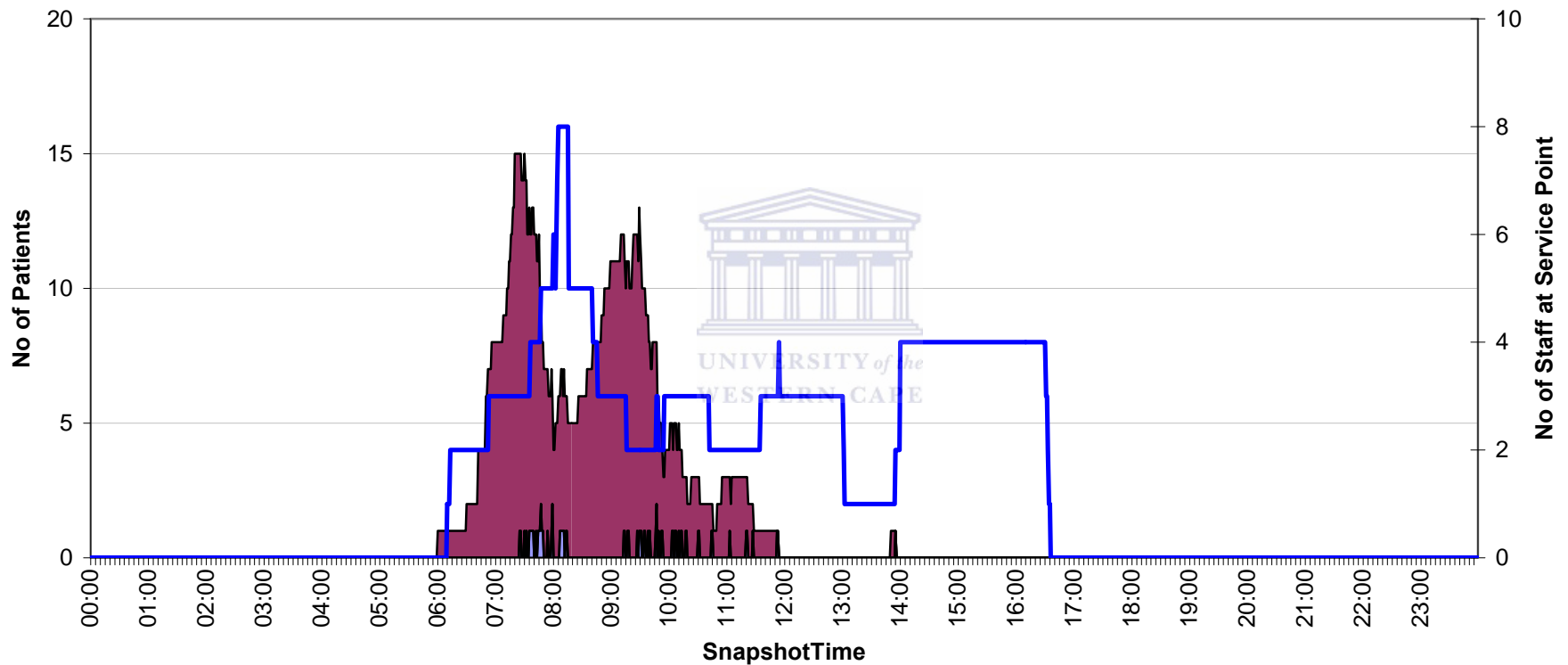
<u>Example 2</u>

At the ARV Consultation Dr Service point (see Figure 7.1), the first two patients arrived between 07.00 and 008.59, five each hour arrived between 09.00 and 10.59; four and less patient/s between 11.00 and 12.00hrs. The waiting time for patients who were at the service point at 08.00 was 90 minutes. The waiting time increased to 250 minutes for patients who arrived at the service point between 09.00 and 10.00hrs. The service time at this service point ranged between five and 43 minutes with a median service time of 11 minutes (Table 5.3).

The Service Provider at this service point, as it can be seen on Figure 7.2, arrived briefly at around 07.45hrs and left at 08.00hrs and realizing there were no patients, he/she resolved to do other clinical work away from the service point instead of remaining idle. Meanwhile, one patient arrived at about the same time. More patients arrived and waited for the service provider who returned at about 09.20hrs and found five patients waiting causing a mismatch. Between 08.00hrs and 09.59hrs, five patients arrived each hour indicating that there were about 10 patients waiting at 11.00hrs (see Figure 7.1) creating an artificial batch. Considering the median service time for this service point, and that there is only one staff at the service point, a batch would be six (6) or more patients arriving in an hour. No patients arrived from 13.00hrs to the end of the day.

 From about 09.20hrs to 17.00hrs the service provider remained at the service point attending to patients but would stop providing a service periodically each hour whilst patients were there waiting. The graph shows that the batch was cleared slowly but steadily from 13.00hrs until 17.00hrs that day even though no patients arrived after 13.00hrs.

The inefficiency in service provision, the artificial batching which occurred between 09.00hrs and 10.59hrs together with the mismatch between 08.00 and 09.20 caused the high waiting times for patients who were attended at this service point.

**Figure7.1: Detailed Arrival Service Point Report - ARV Consultation Dr-Tuesday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time
HIV Clinic**
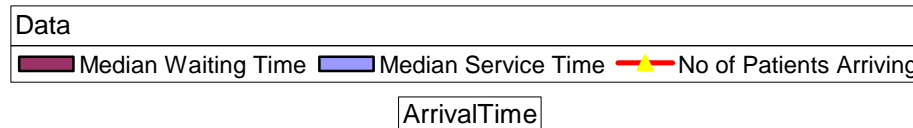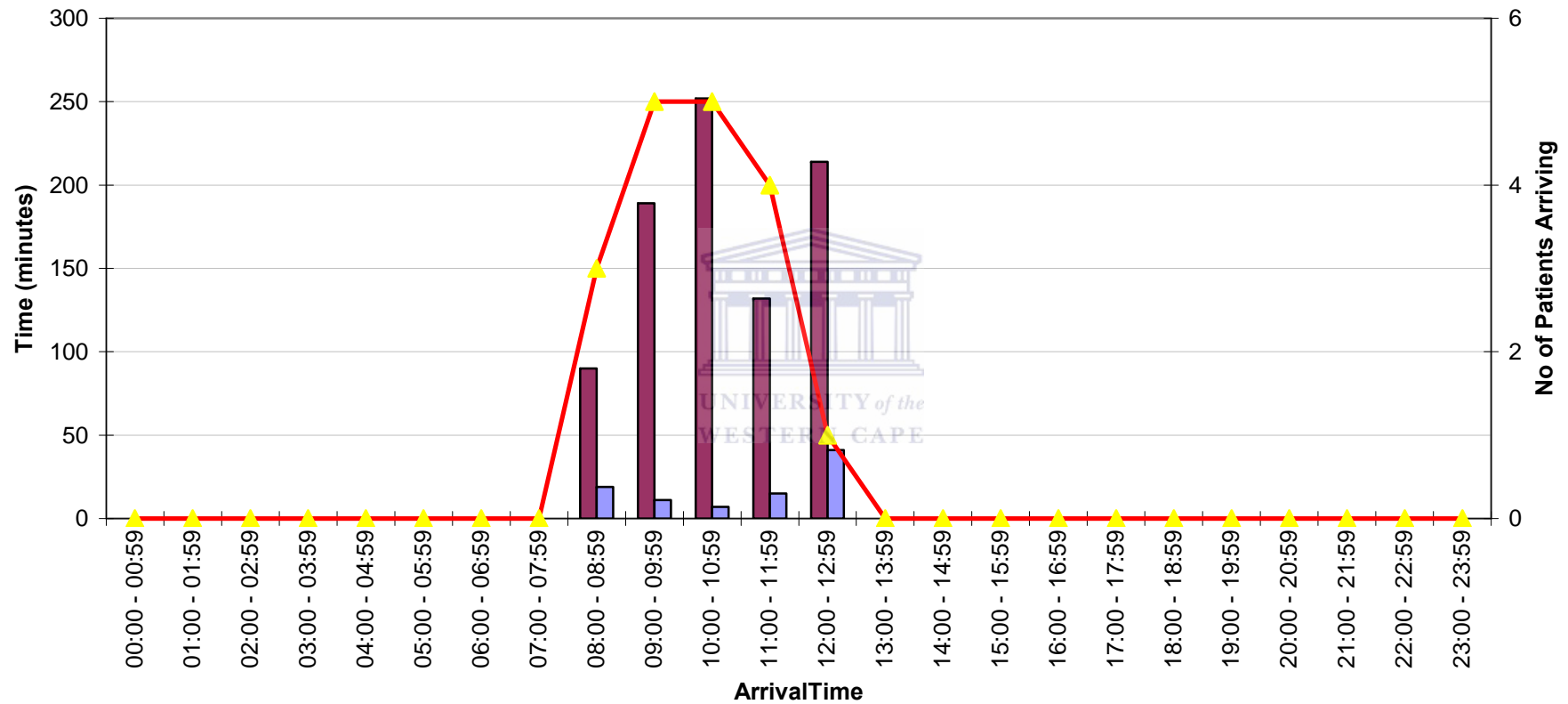
Figure 7.2 :
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time at the ARV Consultation Room Dr on Tuesday :HIV Clinic
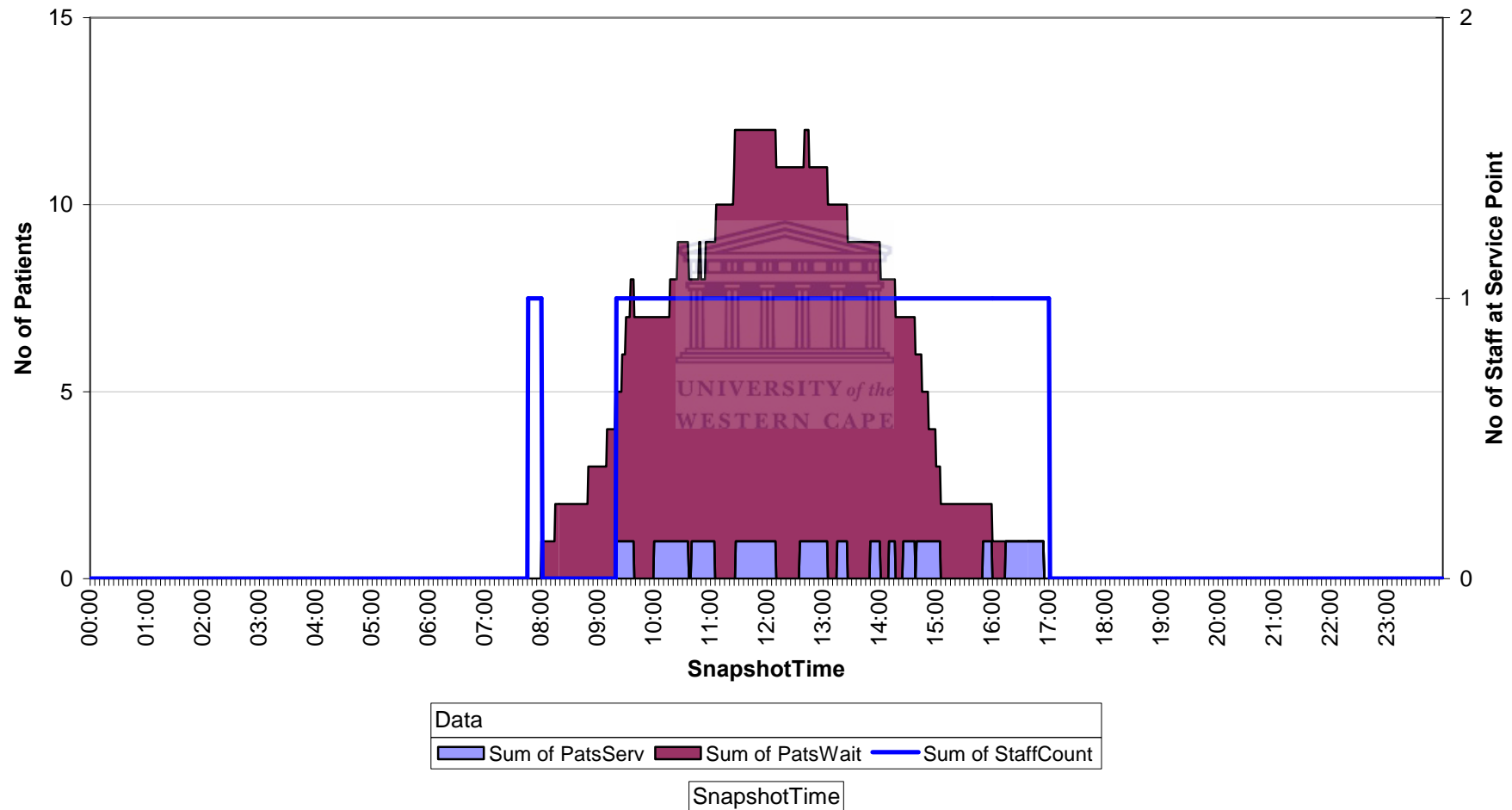
4.6 Summary of causes of high waiting time

The table below (Table 6) presents a summary of service points by the level of waiting time patients experienced at each of the service points and the causes of high waiting time where it occurred. In order to arrive at this summary, a detailed analysis of each service point was undertaken considering the daily Detailed Service Points Reports (Tables 5.2 to 5.6), the Detailed Arrival Reports (Appendices 4.1 to 4.5) and the Detailed Snapshot Reports (Appendices 5.1 to 5.5). Two examples of how this was done was shown before. The complete detailed analysis matrix is as shown in Appendix 3.

The major causes of high waiting time were mismatch, lack of efficient use of time and logistics problems. Overwork was not a problem at all and batching was seldom a problem. For the detailed explanation of the causes of high waiting time, refer to Appendix. 6.0.

4.6.1 Vital signs and triage

The service point had high waiting time for four days in the week of the survey. The staff did not prioritise attending to patients and yet they spent 26% of the time attending to patients during the week of the survey. Patients arrived earlier than staff at the service point on Tuesday, Wednesday and Friday indicating a mismatch.

4.6.2 Antiretroviral Therapy (ARV) Consultation PN

Patients experienced high waiting time at the service point. Staff spent 26% of their time attending to patients indicating a lot of spare capacity. On further analysis data show that there was lack of efficiency as staff did not prioritise attending to patients over other things. Patients arrived earlier than staff on Wednesday and Friday in the morning. This resulted in a mismatch at the service point.

Table 6: Level of waiting time and causes of high waiting time by service point- A summary of the whole week

Service Point	Level of waiting time			Causes of long waiting time prevalent at the service points							Comment
	Low	Acceptable	High	Big Batches	Mismatch	Lack of efficiency	Logistics Problem	Flow Problem	Too high service Time	Quality Of care	
ART Reception And weighing		✓			✓	✓	✓				
Vital signs and triage			✓		✓	✓				✓	Waiting time too high on four days
ARV Consultation PN			✓		✓	✓					Waiting time too high on 3 days
ARV Consultation Dr			✓	✓	✓	✓					Waiting time too high through out the week
Hospital Laboratory			✓		✓	✓					Waiting time too high on four days
Hospital Pharmacy		✓			✓	✓					high waiting time on Tuesday only
ART pharmacy		✓			✓	✓					Mismatch every day
VCT Reception		✓			✓	✓					
HIV Counseling and testing PN		✓			✓	✓					high waiting time on Wednesday only
Food distribution		✓			✓	✓			✓		Too high service time on Monday only

4.6.3 Antiretroviral (ARV) Consultation Dr

The waiting time at the service point was very high everyday of the week of the survey ranging from 64 to 202 minutes. There were large batches on Monday and Wednesday and there was a created batch on Thursday. Staff did not prioritize patients such that they do not attend to patients when they are in and the patients are waiting to be seen and that indicated lack of efficiency. There was a mismatch from Tuesday through Friday indicating that patients arrived at the service point before staff arrived. The average workload for the week was 47%. On Monday the percentage time spent attending to patients was 75% and on the rest of the days the range was between 17% and 45 %.

4.6.4 Hospital Pharmacy

The data on this service point shows that the workload was low with staff spending 11% of the time attending to patients. Lack of efficiency was also found to be a problem at this service point
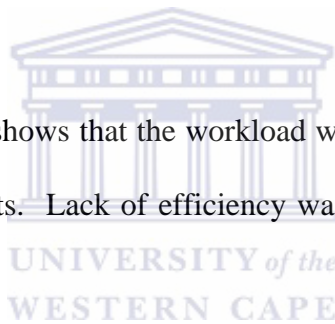
4.6.5 Antiretroviral Therapy (ART) Pharmacy

The ART pharmacy also had low workload of 22% during the week of the survey. A problem of lack of efficiency was identified. Staff arrived after patients had arrived every day creating a mismatch. There is also a batch in patient arrival on Friday.

4.6.6 Food Distribution

The staff working at this service point had a low workload; the time spent with patient in that week was about 29%. There was lack of efficiency and a mismatch on Wednesday

4.6.7 VCT Reception

The workload was very low at the 'VCT Reception' service point. Staff spent 4% of the time in the week of the survey attending to patients. On Tuesday through Friday the staff arrived at the service point after patients had arrived. There were three days in the week when the service point was very efficient. And on the other two day there were inefficiencies.

4.6.8 HIV Counseling and Testing PN

The service point had a batch on Tuesday which posed a potential for high waiting time. The time the staff spent attending to patients was low ranging from16% and 52% with an average of 32% for the whole week of the survey. There was lack of efficiency and mismatch at this service point

4.7 Setting waiting times norm for the HIV Clinic in Swaziland

The survey found out that the clinic had no norm or standard for waiting time set and all the staff thought it would b a good idea to set a waiting time norm for the clinic. Setting norms for patients waiting time involves integrating the perspectives of both the patients and staff with the actual waiting time measured in a facility. Acceptable waiting time differs from individual to individual. Patients tend to be more satisfied if they are meant to wait the shortest time. The service providers on the other hand get stressed if they have to deal with long queues of patients who are experiencing long waits. Often the acceptable patient waiting time differs between themselves and the patients. In order to strike a balance, it therefore becomes important to set norms for patient waiting times which take both views into account.

Patients have been found to define waiting time as the whole time they spend at the health facility and this includes both waiting time and service time. That period is what is acceptable to them and they can tolerate. On the other hand the staff reported acceptable waiting time is the time they feel willing and able to implement as patient waiting time. This is often reflective of what the staff believe is an easily attainable waiting time at each service point.

The process of calculating the norm waiting time for patients requires that the median service time is subtracted from the 'patients' acceptable complete waiting time (which reflects the total time) and that results in a more accurate waiting time norm based on patients' views.
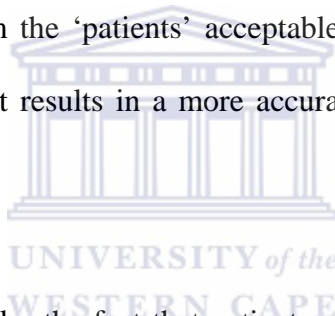
For the staff we have to consider the fact that patients are attended to at more than one service point in the health facility. To establish the acceptable complete patient waiting time for the staff, we add the partial median waiting times for the most frequently attended proportion of service points, and calculate the mathematical average. In the case of this study, the majority of patients were attended to at three different service points during the week of the study. These service points were the 'ARV Reception and weighing', the 'ARV Consultation PN' and the 'ART Pharmacy'. The actual median waiting time is the complete median waiting time derived from the survey.

Finally the three measures stated above will be weighted and the average number arrived at will be the norm patient waiting time at the HIV clinic in the regional hospital. Table below shows the steps followed in calculating the norm waiting time. It is noted that 70 minutes was derived as the norm patient waiting time for the HIV clinic.

Table 7: The norm waiting time for the HIV clinic

Measures of waiting time	Norm
1. Acceptable patient waiting time = 30 minutes Median Service time for the week = 6 minutes	**24 Minutes**

2. Acceptable patient waiting time by the staff
    a. Waiting at service point 1
    b. Waiting time at service point 2
    c. Waiting time at service point 3
                    Total
	
	17
	51
	11
	79
	79/3=**26.3 minutes**

3 The actual median service time during the week of the study	**107 Minutes**
The proposed norm patient waiting time (average of the three)	(24+26.3+107)/3 = **70 minutes**

5.0 DISCUSSION

The discussion section of the report will cover the following topics

- o Patients' profile

- o Daily patient loads

- o Workload and percent staff time utilisation

- o Patient service times

- o High patient waiting time and the causes of high waiting time

- o Setting waiting time norms for the HIV clinic

5.1 Patients' profile

The HIV Clinic, although being a special clinic, provided services to all age groups from young to elderly (under 5 years to over 65 years) but the study findings show that most of the patients who attended during the week of the study were female aged 20-39 years. Males were fewer than females with the majority aged 30 - 44 years. It is not clear whether women felt more comfortable attending the clinic or whether there are other reasons for this, such as a higher prevalence of HIV amongst women.

The data shows that there were very few children who attended the clinic but it is worth noting that there were more children under five years than those age 5 -9 years. Since the HIV prevalence is 5.1% amongst those aged 2-4 years (Swaziland Central statistics Office, 2006/2007) and the ART programme started about three years ago, it is expected that more children aged 5-9 years attend this clinic. The question that arises is – how long do the children who contract the virus at birth and through breastfeeding survive? Is it because of low survival rates that less children aged 5-9 years are attending the clinic.

The clinic seems not to attract teenage boys and girls and the older male youth aged 20-24 years. Very few teenagers and males (and zero males aged 15-19 years) attended for services on the week of the survey. Considering the HIV prevalence rates of 6% among teenagers and 12% among males aged 20-24 years one would expect more patients in these age groups. It would be interesting to find out where teenagers and male youth go for such services.

The elderly were also represented in the study and although it is encouraging to note that they also attend the services, their utilization seems low considering that the HIV prevalence is among this group 9.5% (Swaziland Central Statistics Office, 2006/2007) among the population aged 60 and above.
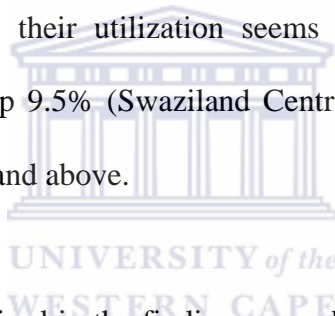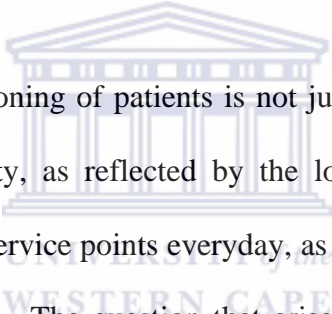
Given the questions that are raised in the findings regarding the differences in profile of the patients, it is recommended that further research be done to ascertain the following:

o Description of the patients profiles in other facilities and compare with the HIV Clinic in Manzini to exclude gaps in reaching out to certain categories of patients.

o Understand why very few youth and children are not attending the Manzini HIV Clinic.

5.2 Daily patient loads

The clinic's policy is to offer different services each day and to control the number of patients on Monday, Tuesday and Thursday. The reason given for controlling the patient numbers was that services offered on other days required more time per patient. Subsequently the study found out that a high proportion of the patients were turned away on some of the clinic days. Unfortunately this has a negative effect on patients in terms of the transport costs incurred and the opportunity cost of time wasted by attending but not receiving a service. Further, implications of this to the employed patient are that they lose out on leave time and the employer loses on productivity.

The stipulated daily intake rationing of patients is not justified because there appears to be a lot of spare staff capacity, as reflected by the low percentage time staff spent attending to patients in all the service points everyday, as well as the fact that the clinic is virtually quiet in the afternoon. The question that arises therefore is, why would staff turn patients away if sufficient staff time is available to attend to those patients?

5.3 Workload and percent of staff time utilisation

Staff at all service points had spare capacity in terms of time allocated to patients. Despite this there seemed to be a misconception among staff that they are overworked. The findings, however, reveal that the time spent attending to patients is low for all service points. This perception may stem from a historical view which uses the 'number of patients seen' per staff member per day as an indicator of workload and unfortunately this is an incorrect way of measuring workload. Although this is a theoretical way of thinking

and often used in health service management, a finer measure of workload would be the 'percentage of time the staff spend attending to patients' for a given time period. Using patients seen per staff member per day frequently results in an over estimation of workload. The staff may wish to give a perception that they are overworked or they may wish to propagate this to appear busy so that they may not be assigned to other service duty stations.

Recommendations:

In view of staffs' perception about workload, it is uncertain to what extent staff would be willing to accept and act on recommendations regarding how to utilize their spare capacity which they do not think they have. However the following recommendations are clearly appropriate.
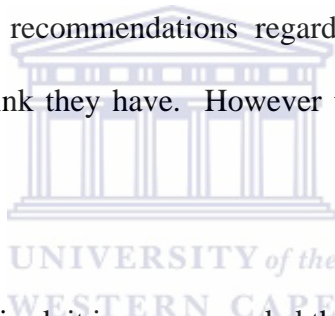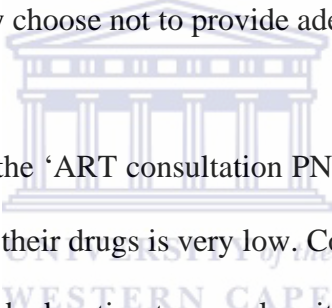
In order to address the issues raised, it is recommended that:

o spare capacity be used to increase service time where appropriate and thereby improve quality of care

o the policy on limiting the daily intake of patient to a low number be reviewed in the light of the findings so that they do not turn patients away from the health facility.

o the clinic management take advantage of the spare (residual) staff capacity for various purposes to improve quality of care for example update training, outreach activities and defaulter follow up.

o Further research is recommended to answer the questions raised

54 Patient service times

The ultimate goal of any health service in Swaziland is to offer high quality services to the patients (Swaziland Government, 2006). Generally the complete service time at the clinic was borderline, although some service points allocated too little service time to allow adequate quality care to be provided. These service points included the vital signs and triage, the 'ART pharmacy' and 'ART consultation PN'. Allocating too short a service time than required for the service being provided compromises the potential to provide quality care as there is insufficient time in which to properly provide the particular service. It is note clear if the staff has the capacity and skill to undertake that service function or whether they choose not to provide adequate service time.

It is noted with concern that at the 'ART consultation PN' service point the service times on the days when patients refill their drugs is very low. Considering that patients on ARV require extensive counseling and education to comply with the treatment regimen, to deal with side effects, stigma and discrimination, allocating adequate time to provide a quality service would go a long way in helping patients adhere to their treatment programme. It is not understandable why the nurses would rush the service when they have spare capacity to attend to patients.

The study confirmed the need for more patient information about HIV and ART as there were no pamphlets or booklets to complement the group health education sessions that were conducted on Tuesdays. Longer patient / staff interpersonal contact becomes even more important to provide a safe space for discussing treatment challenges and to share

more new information about ART. The ART pharmacy is also viewed as another possible service point where patients could get more information and the service provider could take the time to explain how best to take the medication and to listen to any challenges the patient might be having with the treatment. Unfortunately the currently allocated service time is too low to enable that interaction.

In order to address the problem of allocating adequate time to service provision it is recommended that:

o staff allocate adequate time to the services they provide particularly at the service points which have low service time but high spare capacity of staff, namely 'Vital signs and triage', the 'ARV consultation PN' and the 'ART pharmacy'.

o an information, education and communication programme for patients be developed and based on identified assessment of patient information needs.

5.5 High patient waiting time and the causes of high waiting time

The study revealed that high waiting time is a problem in the HIV clinic. Both complete and partial median waiting time were high at several service points. The main causes of the high waiting time were lack of efficiency and mismatch which occurred in all the service points. Only one service point had a problem of batches and another had a logistics problem.

Evidence from the study shows that indeed staff made patients wait unattended, whilst they engaged in doing other things. It appears staff in all the service points frequently prioritized other things rather than making attending to patients their priority. Short breaks in between patients are desired as staff needs to reorganize themselves for each patient they see, but long breaks indicate high inefficiency in service provision. At the ART reception and weighing there were long breaks of 60 to 90 minutes in service provision to patients, which meant that staff were there doing other things whilst patients were waiting and the service point was effectively closed. It is not clear why the service point was effectively closed for such a long period particularly on Monday, Tuesday and Thursday.
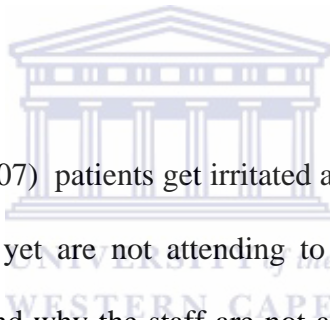
According to Hardon, et al, (2007) patients get irritated and become more anxious if they know that staff are 'in' and yet are not attending to anyone whilst the patients are waiting. They fail to understand why the staff are not attending to them but are instead leaving them waiting. Subsequently they get angry and become dissatisfied with the service and this might make them stop coming to the facility in future. If they stop coming to the facility it means they might not adhere to their treatment regimens. If they default they will probably develop resistance and have to pay more to be managed on the second level of the ARV treatment regimen or they subsequently may become seriously ill and even die.

Looking at the patterns of patient arrival, large number of patients arrived between 6.00am and 10.59am. Thereafter patients trickled in until 13.00hrs leaving the afternoons

completely free. It is encouraging to note that the available staff capacity was adequate to clear the crowds of patients arriving in the morning , thereby preventing batches from happening. However batches occurred in one service point, the ARV consultation Doctor. Unfortunately all the batches that occurred at this service point could have been prevented if the patients had been given appropriate appointments. Batches have a tendency to make patients wait longer because the numbers cannot be dealt with within the given time. Batches are a powerful reason for high waiting time and therefore when present it dramatically increases waiting time.

Patients arrived as early as 5.00am to make sure that they were at the head of the queue and staff also started earlier than the official opening time. Therefore surprisingly mismatch was a problem everyday and at almost every service point. Unfortunately patients who arrived early at the clinic experienced long waiting times. It is not clear what motivated the patients to arrive early given that the travel time to the clinic is relatively short and public transport is good within the Manzini HIV clinic drainage area. Could it be that the patients were employed and they did not want to miss work? Or that they had other businesses to attend to in the afternoon? Also it could that the policy of the HIV clinic influences patients to arrive early, considering that the staff also go out of their way to see patients before official opening hours? It is unfortunate that the 'preference' by patients of arriving early at the clinic contributes to high waiting time.

Clearly, mismatch coupled with inefficiency and to a lesser extent batching is prevalent at the HIV Clinic. It is therefore recommended that:

- o staff make a conscious effort to prioritise spending time attending to patients when it is time to do so and when patients are already there. This could be achieved through establishment of a participatory programme where all staff can be made to understand how to treat patients as clients with a high degree of dignity and deserving of their immediate attention. This involves staff participating in meetings and workshops on the issues; participating in the assessment of patients waiting time surveys, and making recommendations on how to prioritise attending to patients.

- o open the clinic at fixed and convenient times and strictly adhere to those times.

- o and introduce an appointment system that encourages patients to spread their arrival times throughout the day.

- o establish and information, education and communication programme that promotes patient arrivals throughout the day and devise a strategy to occupy patients whilst they wait.

- o The clinic could introduce a flexible work shifts that would adequately cater for employed patients based on the preference of patients. This will make it more likely that they will get a timely service and consequently be less likely to miss work.

- o Undertake research to establish the patients' preferences in arrival at the clinic as well as establish the motivating factors for early arrival at the clinic.

5.6 Setting waiting time norms for the HIV clinic

The HIV clinic does not have a set norm patient waiting time and the staff thought it would be a good idea to set it. This indicates willingness on the part of the staff to do something about high waiting time if it were to be a problem. Based on the data from patients and staff, a patient waiting time norm for the HIV clinic is proposed. This norm provides a target that the clinic can work towards in their efforts to reduce the high waiting time. In view of the high level of waiting time in this clinic, it is believed that the proposed norm is practical and can be achievable

It is appreciated that norms are not fixed and stationery targets. They change as the situation changes. The need therefore to develop a programme which is geared towards reducing the waiting time and a process of regular monitoring of the target cannot be overemphasized.
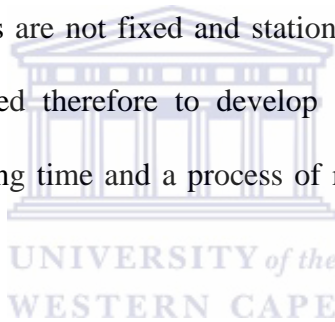
To make meaning out of the findings of the survey it is recommended that

- o management and staff of the clinic need to develop a programme with objectives that are time bound. The steps in development of the programme would require that the results of the survey are shared with management and staff to sensitize them on the high waiting time and to develop consensus on the set norm. To develop an action plan to address the causes of high waiting time as identified by the survey. There will also be need to share the information with the patients so that they also can be informed of the changes

the clinic will institute. A regular programme of assessment of the programme

will be drawn and the norm adjusted according to the findings.

5.0 LIMITATIONS, CONCLUTIONS AND RECOMMENDATIONS

5.1 Limitations

5.2.1   Although the study was a success there were a few limitations that can be highlighted. The study was carried out successfully with active participation of the staff in the clinic who in fact were the chief data collectors. In this case staff could have shown reluctance to complete the data, they have entered data incorrectly and they may have deliberately falsified data. The study therefore provided for prior sensitization and meetings to ensure the staff understood their role in the study. Although the managers and staff were sensitized, the X-Ray service point did not consistently fill in the patient forms the first day and the second day inspite of frequent reminders. A decision had to be made to stop the survey at this service point. The effect of this was that the total picture of the waiting times for patients attending the HIV clinic is not complete. If the programme to reduce waiting times is implemented, the X-Ray department will lack the basic information to work with. The reasons for lack of cooperation from this service point are not know but it is speculated that the sensitization that was done was not enough and in future more meetings should be undertaken particularly with the junior staff to make sure they buy-into the process. There were also staff that did not see any patients and it is not clear if they did not complete the form or they really did not see any patients. This might mean there was an undercount in the number of patient seen at those service points.

5.2.2   The other limitation is that the pilot testing of the patient questionnaire was not undertaken. The major reason was that the process of sensitization of the staff to gain entry into the facility was time consuming and costly.   The resources at hand to conduct the pilot were limited. As a result of the lack of a pilot, one of the questions in the patient questionnaire which was meant to get information on the 'place of residence' could not yield that information because of poor structure.   If the pilot testing was done this problem would have been identified and proper measures instituted to restructure the question.

5.2.3   Patients were asked to indicate their opinions about waiting times at the facility. This might have introduced a level of bias because patients may have been scared to indicate their true opinions because of the proximity to the service area. The ideal thing to do would have been to administer the questionnaire outside the premises of the facility.

5.2.4   Another limitation could be the 'best behaviour' because they are being observed and this would give an incorrect picture of the way the clinic normally operates.

5.2.5   There is a possibility that by chance (pure bad luck) the week of the survey was not an average week. This could be avoided by comparing staff and patient numbers with the routine data.

5.2 Conclusion

The HIV clinic of the Regional Hospital in Manzini is accessible to both males and females of all age groups but there appears to be more females than males accessing the clinic. Few children, teenagers, male youth and the elderly seem to be accessing services at this facility. Most of the patients who seek services at the clinic reside in the catchment area of the clinic and patients are dependent on public transport to reach the facility. Although the majority of the patients were employed, there is still a high proportion of unemployed patients.

The clinic patient load varies each day of the week ranging from 70 to 373 patients. There appears to be more patients attending the clinic on the days for refilling drugs than the days when patients are examined and initiated on ARVs.

The staff workload and the percent time staff spend attending to patients is generally low. However the staff hold the perception that they are overworked. The study confirmed that there is an appreciable level of spare staff capacity which can be utilized effectively on various activities.

It was also found that patients arrive very early with some arriving three hours before the official opening time and before the staff arrives . This results in mismatch and unfortunately in most cases the patients who arrived early experience the highest waiting time. The clinic is busy only in the morning whilst the afternoons are very quiet. This contributes to the low percentage time staff spent attending to patients.

The service time in the clinic varies according to the service provided and it was found that some service points allocated adequate service times to provide high quality care whilst other service points did not. Those service points which allocate too little service time and hence provided a less time to provide quality of care included the 'Vital signs and triage', the ARV consultation PN' and the 'ART pharmacy'.

Patient complete median waiting time at the HIV clinic was found to be 107 minutes and this is considered very high. Some patients wait for as long as 300 minutes in some of the service points. The service points where patients wait a long time include 'Vital signs and Triage', ARV Consultation room PN', 'ARV consultation Dr', and the 'Hospital laboratory'. The causes of high waiting time are, to a large extent, mismatch (patients arriving before the staff arrive at the service point) and inefficiency (lack of prioritizing attending to patients by staff whilst the patients are waiting.). All the service points experience inefficiency and mismatch whilst the 'ARV Reception and weighing' and the 'ARV consultation Dr' experienced a logistic problem and batching respectively. Batches and logistics problems do contribute to high waiting time in the clinic but to a lesser extent.

Based on the opinions of the staff and patient a norm patients waiting time was established and is proposed to be 70 minutes.

5.3 Recommendations

Based on the findings that there is high patient waiting time at the HIV Clinic at the Regional Hospital in Manzini, the recommendations are:

o Adopt the proposed set norm for waiting time and establish a participatory programme that will target reducing patient waiting time at the HIV clinic.

o Prepare staff to prioritise attending to who are waiting.

o Establish a patient appointment system that will enable the patients' arrival at the clinic to be spread throughout the day. This will offset the large number of patients arriving in the morning and will ensure staff are more effectively occupied in the afternoon.

o Utilize staff spare capacity by engaging them during times when the clinic is quiet to attend staff meetings, engage in outreach and patient follow up programmes, help in other parts of the hospital as required and engage in continuing education.

o Undertake further research to answer the following questions that were raised in this study:

- What are the reasons for the low utilization of the HIV clinic by children teenagers, youth and the elderly?

- What are the reasons for the high proportion of patients turned away at the HIV clinic?

- What would be the preferred time for patients to arrive at the clinic and what are the motivating factors for patients arriving early at the HIV clinic?

- What are the information, communication and education needs of patients attended at the HIV Clinic?

o Ensure the ART Reception and weighing service point facilitates three or four staff to provide services simultaneously by adding more weighing scales and opening a wider service window.

o Establish a patient information education and communication programme that will ensure patients get more information about their treatment and HIV and AIDS

o Share the waiting time survey results with management, staff and patients.
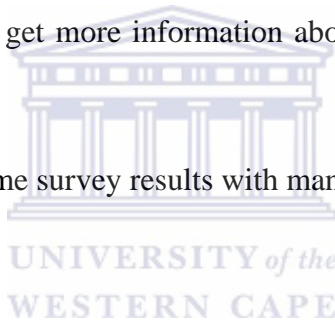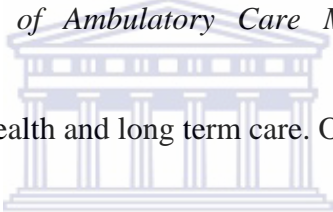
REFERENCES

1. Aldana, MJ. Piechuck, Helga. & Al-Sabir Ahmed. Client satisfaction and quality health care in rural Bangladesh. Bulletin of the *World Health Organization*, 2001,79(6) :512-17.

2. Assefzadeh, S. Patient flow analysis in a children's clinic. *Eastern Mediterranean health Journal.* Vol 2, issue3, 1996: 412-417

3. Bachiller, P. Arrando, R. Liceaga, G. Iribarren, J.A., Olloquiegui, E, Ariz, M. C., Odriozola, B., & Barcia, M. J. (1998). Adherence to antiretroviral therapy in HIV-infected patients. *International Conference on AIDS*, 12: 600'

4. Coetze, D., Boulle, A., Hilderbrand, K., Asselman, V., Van Cutsem, G. & Goemaere, E. (June 2004). Promoting adherence to antiretroviral therapy: the experience from a primary care setting in Khayelitsha, South Africa. AIDS,18 (30)71: 31.

5. Colebunders, R. Bukenya, T., Pakker, N., Smith, O., Boeynaems, V., Waldron, J. , Mugadzi Muganga, A. Twijukye, C., Mcadam, K. & Katabira, E. , (2007) Assesmment of the patient flow at the infectious disease institute outpatient clinic, Kampala, Uganda. *AIDs care*; 19(2): 149-151

6. Dahab, M., Charalambous, S., Hamilton, R., Fielding, K., Kielmann, K., Churchyard, G.J. & Grant, A.D. (2008). That why I stopped the ART: patients and providers perspectives on barriers to and enablers of HIV treatment in a South African workplace programme. *Biomedical Central Public Health Journal,* 63doi:10.1186/1471-2458-8-63. [Online], Available: Http://www.biomedicalcentral.com/1471/2458/8/63 [Downloaded: 2007].

7. Davis, M.M., Heineke, J. (1989) How disconfirmation, perception and actual waiting times impact customer satisfaction. *International journal of service industry management* Vol.9 No. 1 1998:64-

8. De Vaus D. (2002) *Surveys in social science*. 5th edition Routledge, London pp 53

9. Genitourinary Medicine Clinic (GUM). GUMS waiting times audit: a national audit of access to genitourinary medicine clinic. Downloaded

http://www.hpa.org.uk/infections/topics_az/hiv_and_sti/epidemeology/wtimes.htm

10. Hardon, A.P., Akurut, D. & Comoro, C. (2007) Hunger, waiting times and transport costs: time to confront challenges to ART adherence in Africa. *AIDs Care*. May; 19(5):658-665.

11. Haussmann, RK (1970) *Waiting time as an index of quality of nursing care, Health service research,* McKinsey and Company, New York. PP 93-105

12. Health Systems Trust. (2002). *National Report on the Assessment of the Public Sector's Voluntary Counselling and Testing programme*. Unpublished report.

13. *http://erc.msh.org/mainpage.cfm?file=2.3.3b.htm*(Reducing waiting time) Down loaded article 2005

14. Huang, XM. (1994) Patient attitude towards waiting time in an outpatient clinic and its applications. *Health Serv. Manage Res*. Feb; 7(1):2-8.

15. Interview with ART senior nursing officer, (2007) Manzini Swaziland

16. Isaac, S.& Michael, W. B. (1995) *Handbook in Research and Evaluation for Education and the Behavioural Sciences*. 3rd Edition Educational and industrial testing services, California. pp165

17. Kuguoglu, S., Aslan, F. E., & Icli, G. (2006). Are patients in Western Turkey content with Healthcare Services? A quality assessment study. *Journal of Nursing Care Quality,* 21(4): 366-371.

18. Kwan, M. (1994) When the patient is the King. *Planned parenthood challenges*, 11(4): 468-478.

19. Lowe O., (2000) *An assessment of patient waiting times at clinics in Tygerberg, Western District in Cape Town, Metropolitan*. MPH Masters Theses public health programme, faculty of community health sciences. University of the Western Cape

20. Lynam, P. (1993) COPE: Helping to improve the quality of family planning services in Africa*. QA Brief*. Jun; 2(1): 7-8.

21. Management Science for health. Reducing client waiting time. (1992) *Family Planning Manager* mar-April; 1(1) 1-8.

22. Manzini regional Hospital *Annual hospital report, 2004*. Unpublished.

23. McCathy K.M; McGee H & O'Boyle C.A. Outpatient clinic waiting times and Non attendance as indicator of quality. *Psychology, health and medicine*, Vol 5,Number3, Aug,2000:287-293

24. Miles, F.A. & Naumann, S.E. (2004). The English patient: model of patient perceptions of triage an urgent care department in England. *Management*, Vol 7, No.1, 2004:1-11

25. Mohammed , H &Bachmann, M.O. Block appointments in an overloaded South African Health Centre: Quantitative evaluation. *International Journal of Health care quality Assurance*. 1998 11 (4) : 123-126

26. Murphy, C. Doyle & Clieaf. Out Patient Chemotherapy decreasing wait time for patients and families. *Journal of pead. Onco. Nurs*. 2005; 22(1):31-37.

27. Oermann, MH. Effects of educational intervention in waiting rooms on patient satisfaction.. *Journal of Ambulatory Care Management* 2003 April-June; 26(2):150-8

28. Ontario Ministry of Health and long term care. Ontario wait times strategy: data guide.

    http://www.health.gov.on.ca/transformation/wait_times/providers/wt_data.html

29. Reagon, G. 2007, Phumlani Clinic, Cape Town waiting times Survey report. Unpublished

30. Silverster, K. , Lendon, R., Bevan, H., Steyn, R., Whalley, P. Reducing waiting times in the NHS: is lack of capacity the problem? *Clinician in Management* (2004) 12 :1-7

31. Singh, H, Haqq, ED & Mustapha, N. Patients perception and satisfaction with health care professional at primary care facilities in Trinidad and Tobago. *Bulletin of the World Health Organization*. 1999, 77(4) :356-60.

32. Swaziland Central statistics Office. *Swaziland Demographic and health survey report, 2006/2007*. Webster print, Mbabane.

33. Swaziland Government, 2006 National Health Policy. Webster print, Mbabane

34. Swaziland HIV clinic records, 2007

35. Swaziland Ministry Of health and Social Welfare , ART Annual Report. 2004. (Unpublished).

36. Swaziland Ministry of Health and Social Welfare, (2007) UNGASS country report. Webster print, Mbabane

37. Swaziland Ministry of health and Social Welfare (2004). *8ᵗʰ HIV Sentinel surveillance among ANC,*. Apollo Printers, Swaziland.

38. Swaziland Ministry of health and Social Welfare.(2006). *9ᵗʰ HIV Sentinel surveillance among ANC,*. Apollo Printers, Swaziland.

39. Swaziland Ministry of health and Social Welfare (2002.*). Health Information annual report,*. Unpublished.

40. Swaziland Ministry of Health and Social Welfare (1998). **Swaziland health Sector study,**. Mbabane

41. UNAIDS, (2002). *UNGASS Declaration of Commitments*, UNAIDS Geneva

42. UNAIDS, (2002). *Report of the global AIDS epidemic*. UNAIDS. Geneva

43. UNAIDS, (2004). *Report of the global AIDS epidemic*. UNAIDS. Geneva

44. WHO. (*2003). Swaziland 3 by 5 program for Swaziland.*. Unpublished report..

45. WHO. (*2005). Swaziland 3 by 5 program progress report for Swaziland.*. Unpublished .

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Appendix 1.0
Tools

Appendix 1.1b: Data collection tool- Facility assessment form (Service Points and staff)

1. Average number of persons seen per day:						
Monday :						
Tuesday: 90 (50 new ART; 20 VCT; 20 ART patients with side effects**)**						
Wednesday: 320 (300 ART; 20 VCT)						
Thursday: 70 (50 ART, 20 VCT)						
Friday: 220 (200 art; 20 VCT)						
2 . Number of entrances to the clinic: Two entrances (1 ART and 1VCT)						
3. Number of exit doors: The entrances are exits						
4. Number of seats in the Waiting room (if separate list all of them combined): 145						

5. Staff names and category:
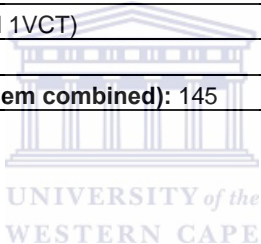
Expert Clients					
Receptionists (Clerks):					
ART Pharmacy:					
Food Distribution:					

Hospital Xray:

Hospital Pharmacy:

Hospital Laboratory:

Room Number	Service point description	Category of staff providing service		Ways in which patients are seen by the category of staff	Minimum service time	Maximum service time
		Category	No.	One patient at a time : √		
	Monday: Register pts; Open files; sorting patients; taking patients to the wards	Clerk	1			
				One patient seen by two people		
	Tuesday: Same	Expert Clients	5			
				Many patients seen in a batch		
	Wednesday: Same					
				Are patients seen twice or more in a day		
	Thursday: Same					
1	**Friday:** Same					

Room Number	Service point description	Category of staff providing service		Ways in which patients are seen by the category of staff	Minimum service time	Maximum service time
	Health Education area	Category	No.	One patient at a time :		
				One patient seen by two people		
				Many patients seen in a batch: √		
				Are patients seen twice or more in a day		
2						

HIV Clinic
Patient waiting and service time survey-pre assessment

1.	How long have you been Clinic Manager or Acting Clinic Manager worked at this Clinic?	Year		Months	
2.	a. How many days a week does this Clinic open to see patients?	Number of days			
3.	b. At what time does staff begin to see patients? On Wednesday some staff start work at 6.00am and Friday 7.00am, generally work starts at 8.00am	Hr		Min	
4.	c. At what time does staff stop seeing patients? Staff do not go lunch- they do not even rotate	**Hr**		Min	
	When does tea time start				
	When does Lunch start (staff do not take lunch at all)				
5.	Which week in a month would you consider a typical week for this clinic?				
6	How many patients do you see approximately each day?				
7	Do you limit the number of patients you see per day?				
	If yes - for which services (List) ? And what are the cut off points				
8.	Do you have a procedure for handling patients' complaints and suggestions?				
9.	If yes, In what form is it? a) Suggestion Box/Complaints Box:				

	b) Complain to staff	
	c) Direct access to the Clinic manager?	
	d) Other, specify:	

10	Other than the Laboratory; X Ray and Accounts Office - Which other service point/s do patients from this Clinic get services from in the main Hospital and please estimate the regularity?		

Service point	Regular (just tick)	Non regular (Just tick)
Hospital Pharmacy		
ANC		
Child Clinic		
PMTCT Clinic		
Family planning Clinic		
TB Clinic		
Chronic diseases outpatient clinic		
General medical / surgical out patients Clinic		
Physiotherapy unit		
Social worker Office		
Emergency Room for rehydration		
Other specify: Card room		

	Infrastructure (Observe)
11	Does the Clinic Have wheel chairs ramps for easy access by people using wheel chairs?
12	Does the Clinic have any exit doors that are wide enough to accommodate a wheel chair?
13	Does the Clinic have a security gate at the door of the clinic?
14	Are there service points which patients have to wait outside? List them (Observe).
15	Is there a condom Bob/ Dispenser?

16	Where are the box/ dispenser placed Female toilets: Male toilets: Reception: Corridor: Waiting area Consultation rooms: Pharmacy Outside entrance Outside exit Other specify;
	Consultation rooms – (Observe)
17	How many consultation rooms does the Clinic have? 7 (Seven)
18	How many of these have the following :

Item	Tick
Examination couch	
Audio privacy	
Visual privacy	
Wash basin/soap/towel - paper /cloth	
Linen (Sheets /pillow)	
Blankets	

	Toilets and safe water facilities
19	Is the male toilet separate from female toilet?
20	Does the male toilet function properly?
21	Does the female toilet function properly?
22	If single toilet-Is it functioning properly?
23	Does the male toilet have toilet paper today?
24	Does the female have toilet paper today?
25	If single toilet-Is it having toilet paper today?
26	Does the male toilet have a hand washing basin with running water?
27	Does the female have a hand washing basin with running water?
28	If single toilet-Is it having a hand washing basin with running water?
29	Does the male toilet have soap?
30	Does the female toilet have soap?

31	If single toilet-Is having soap?			
32	Is there a point other that the toilets in the clinic where patients can have safe drinking water?			
33	Are there drinking cups provided at that point of drinking water?			
	Educational / information materials			
34	Are the following materials present any where in the Clinic (tick appropriately for each)			

Educational material	On the wall	Take home booklet/flyer	Written in local language
Patients right charter			
Diarrhoea/ORS			
Breastfeeding/Nutrition			
Contraception			
TB			
VCT			
PMTCT			
Dental/oral care			
ARVs			
Condoms			
Other Specify: Treatment protocol for STI			

35	Is there a television set in the waiting rooms? a) b)			
36	Are there any DVDs/videos on health issues available in the Clinic?			
37	Does the TV tune into regular TV programmes?			
38	Is there a directional sign about the Clinic at the main gate of the hospital?			
	Equipment			
39	Ask the Clinic manager to show you the following:			
	Adult weighing scale?			
	Infant weighing scale?			
	Emergency Box:			
	Fire extinguisher:			
	Wheel chair:			
	Patient trolley:			
	Functioning of Communication equipment			
40	Ask the Clinic manager to show you the following equipment and observe			
	Telephone lines:			
	Fax Machine:			
	Computer/s;			

	Computer with internet:	
	Drugs and supplies (in the ART pharmacy or any where in the clinic)	
41	1	
	2.	
	3.	
	4.	
	5	
	6	
	Patient information management system	
42	Is there any patient management information system?	
	If yes –Is it paper or computer based: Both	
	Are there any reports produced periodically?	
	How the patient files stored?	
	Filing cabinets: Computer:	

Appendix 1.3: Staff time tracking Tool											
Facility name	**HIV CLINIC (SWAZILAND)**					**Date:**					**Staff Code:**
Gender:			**Age:**				**Staff Category:**				
Arrival Time											
Service Section	**Time In**	**Time Out**		**Time In**	**Time Out**		**Time In**	**Time Out**		**Time In**	**Time Out**
Tea Break											
Lunch Break											
ARV Reception and Weighing											
Health Education area (ARV Waiting area)											
Vital signs Corner and Triage											
ARV Consultation Room PN											
ARV Consultation Room Dr											
VCT Reception											
HIV counseling and Testing PN											
ART Pharmacy											
Hospital Laboratory											
Food distribution											
Outreach Activities											
Meetings, Workshops and Training											
Other Clinical											
Other Non-Clinical											
Departure Time											

Comments:

Facility name: HIV Clinic (Regional Hospital)				**Date:**		**Number:**		
Arrival Time								
Service Section	**Staff Code**	**Time In**	**Time Out**					
ARV Reception and Weighing								
Health education area				Group Health education talk	Individual counseling with the Expert Client			
Vital signs Corner and Triage								
ARV Consultation Room PN				Detailed History taking	Counselling	Refill medication/prescription	Manage side effects and complications	Review Lab results
Not available when called								
ARV Consultation Room Dr				Clinical evaluation	Initiate ARVs	Refill medication	Manage side effects and complications	Review Lab and X-ray results
VCT Reception								
HIV Counseling and Testing PN				Pre-test Counselling	HIV testing	Post-test counselling	Reviewing Lab results	Repeat testing
ART Pharmacy				New Meds	Refill Meds			
Food distribution				Got food parcel	Did not get food parcel			
Hospital Laboratory								
Hospital Pharmacy								
None clinical services								
Outreach								
Meetings and workshops								
Other services (State)								
Departure time				Turned Away :		Left Voluntarily:		
Admitted in Hospital				If turned away was a Referral given or an Appointment made:		No appointment given	Appointment given	

97

Referred to other centre		What was the reason for turning patient away	**Appendix**

1.5: Data collection tool -Patient questionnaire

	Questionnaire No:

HIV Clinic (Swaziland)
Patient waiting time Survey

Patient Questionnaire

Section 1: Informed consent

Introduction: My name is …………. (**Mention your name**). In collaboration with the hospital, a survey is being undertaken to measure how long patient wait for a service as well how much time it takes the service providers to provide a service in this clinic. Findings from this study will contribute towards improving the quality of the HIV clinic programme.

Confidentiality statement: The survey will require you to attach this form (**show the Form**) to your clinic record card and at each of the stations remind the service provider to enter the time when you arrive and the time the service ends. Make sure that if you go to receive any service outside this clinic you ensure the same happens. Spaces have been provided in the form for that. There are other questions I will ask you before you enter the Clinic. When you are through with the services please bring the form back to me or my colleague who will sitting here. A few more questions will be asked before you go. Your answers are completely confidential only I and my supervisor will have access to your answers. Your name will not be written on this form and will never be used in connection with any of the information you tell me. You do not have to answer any question that you do not want to answer and you can withdraw at any time without giving reasons and you can also end the interview at any time you want to. However your honest answers to the questions will help me better understand what you think about waiting time and service time in this clinic. I would greatly appreciate your help in this survey. Would you be willing to participate?

_____
(Interviewer's Signature certifying that informed consent has been verbally given)

If the patient is not willing – Thank him/her and proceed to the next patient

Patient Questionnaire

Patient demographics

Question and instructions	Possible responses
1.2 How old are you in completed years (enter the completed years)	_____years
1.3 Sex of patient (Observe)	**Male____** **Female____**
1.4 Place of residence (ask the patient which area they come from, and whether it is in or outside the Manzini region)	**In Manzini Town---** **In Manzini region but outside town---** **Outside Manzini region---**
1.5 Employment status (tick one most appropriate) Ask this question if Patient is 18 years and older	Formally employed and working full time___ Formally employed and working part time___ Informally employed___ retired___ Student___
1.6 Mode of travel to the facility	Walking__ Bus__ Taxi__ Own vehicle__ Hired vehicle___ Bicycle__ Other (specify)_____
1.7 Cost of transport (How much has it cost you to come to the facility and back home)	E_____ (For bus , Taxi, hired vehicle- if paid for this)
1.8 Type of visit (is it this the first time you are coming to this clinic or this is a repeat visit?)	New attendee___ Repeat attendee___
1.9 If repeat - what is the service have you come for today? **(Tick all relevant services)**	For VCT follow up____ For ART____ For blood tests____ For checking lab/x-ray results____ For starting ART____ For refilling medication other than ARVs____ Developed side effects-____ For follow up visit_____ Other specify_____
1.10 Are you already on ARVs (Treatment status)	On ARVS___ Not on ARVS____
1.11 How long has it taken you to travel from home to this clinic?	Time:_____hrs_____minutes
1.12 Did you have an appointment to come today to the clinic?	Yes_____ No _____
1.13 What was your appointment date and time	Date of appointment: _____ Time Of appointment: _____

Thank the patient and tell him/her you will see them when they finish their business in the clinic

2.0 Patients views (This section to be filled by the interviewer at the exit point)

Question and instructions	Response
2.1 What is your view about the time you spent receiving each of the services today in this facility? Would you say the service time was: Acceptable, too long or short. (**Refer to each of the service point the patient visited and against each service received enter the code of the response option)** **Acceptable time 1** **Too long 2** **Short Time 3** **No response 4**	Service point 1. Dr's Consultation_____ 2. Nurse's Consultation_____ 3. VCT_____ 4. ART Pharmacy _____ 5. Hospital Pharmacy_____
2.2 How long do you think you waited at the HIV clinic today?	_____Minutes
2.3 What would be an acceptable complete waiting time you would expect in this facility?	_____Minutes
2.4 What is your view about the time you spent today waiting to receive each of the services in this Clinic? Would you say the waiting time was acceptable, too long or short time: (**Ask for each of the service point the patient visited and against each service received enter the code of the response option)** **Acceptable time 1** **Too long 2** **Short Time 3** **No response 4**	**Service point** 1. Dr's Consultation_____ 2. Nurse's Consultation_____ 3. VCT_____ 4. ART Pharmacy _____ 5. Hospital Pharmacy_____
2.5 What is the date and time of your next appointment?	Date: Time: Appointment not known :

Thank you for your time.

Appendix 1.6: Data collection tools- Staff questionnaire

RFM hospital-HIV clinic
Patient waiting time survey
Service providers' questionnaire

Section1: Informed consent

Introduction: My name is Marjorie Mavuso. I am a student of the University of Western Cape but I work here in Swaziland. I am undertaking a study to measure patient waiting time in the HIV clinic. The purpose of the study is to find out how long patients spend waiting to receive services as well as how much time they spend receiving services. Secondly to find out your opinion about waiting and service times in the clinic. Although this is part of my studies, the findings from this study will contribute towards improving the quality of the HIV clinic programme.

Confidentiality statement: I have prepared a few questions to ask you. Your answers are completely confidential only I and my supervisor will have access to your answers. Your name will not be written on this form and will never be used in connection with any of the information you tell me. You do not have to answer any question that you do not want to answer and you may end this interview at any time you want to. However your honest answers to these questions will help me better understand what the hospital staff thinks about patient waiting and service times in this facility. I would greatly appreciate your help in this survey. This survey will take about 15 minutes to ask the questions. Would you be willing to participate?

_____
(Interviewer's Signature certifying that

Informed consent has been verbally given)

If the staff member is not willing – Thank him/her and proceed to the next person

Section 2: Staff questionnaire

Question and instructions	Response
1. Have you ever been trained on VCT?	Yes____ No____
2. Have you ever been trained in ART Management	Yes____ No____
3. Have you in the last 12 months had a needle stick injury?	Yes____ No____
4. If yes- How many have you had?	
5. For the most recent needle stick injury- did you receive PEP within 3 days?	Yes____ No____
6. In the service point you are assigned to what equipment is not available to make you do your work better? List if any.	a) b) c) d) e)
7. What is your opinion about staff workload in this clinic- Would you say you are:	Under worked ____ Just right or ____ Overworked _____

8. In your opinion how much time in minutes should patients spend receiving a service at your service station in the HIV clinic? Indicate the minimum, Average and Maximum services time.
 	
Instructions: Each Staff member should indicate the Minimum, Average and Maximum service time in minutes for the place they are assigned in
	ART treatment-(consulting Nurse)
	    Minimum_____ Minutes
	    Average_____ Minutes
	    Maximum _____Minutes
	
	ART treatment - (Dr's consultation)
	    Minimum_____ Minutes
	    Average_____ Minutes
	    Maximum _____Minutes
	Counseling and Testing(VCT)
	    Minimum_____ Minutes
	    Average _____ Minutes
	    Maximum _____Minutes
	ART Pharmacy
	    Minimum _____-Minutes
	    Average_____ Minutes
	    Maximum _____ Minutes

10. How much service time do you think you currently provide to the patients on average at your service point?	Average partial service time_____ Minutes
11. What is your opinion on the average time patients currently spend receiving services at the RFM Hospital HIV clinic? Would you say it is …	Just right 1 Too long 2 Too short 3 No response 4
12. How long do you think patients currently on average wait for the service you provide?	Partial waiting time _____ Minutes
13. In your opinion what is the acceptable total waiting time for patients in the HIV clinic? **Instructions: Indicate total waiting time in minutes**	_____Minutes
15. How long do you think patients currently on average wait during the entire visit to the HIV clinic?	Complete waiting time _____ Minutes
20. Does the HIV clinic have any standards or norms on waiting time?	Yes 1 No 2 Don't know 3

	No response 4
21. If you say Yes, what is the standard waiting time in the HIV Clinic?	Standard complete waiting time_____minutes
22. What is your opinion about setting standard waiting times for patients receiving services at the HIV clinic?	Good idea 1 Not a good idea 2 Don't know 3 No response 4

Thank you for your time

Appendix 2.0

Facility assessment reports

Detailed Facility Assessment report
HIV Clinic
January 2008

Introduction

This section presents the detailed findings from the facility assessment of the HIV clinic. The qualitative assessment of the facility carried prior to the main data collection exercise of the patient waiting time survey (See data collection tools- Appendix 1.1 and 1.2). The purpose of the assessment was to generate data that was to be used to finalise the tools and to better plan for the waiting time survey process. The data was manually analyzed

The topic covered included;

- o Staffing
- o Facility service points
- o Opening and closing times including constellation of services
- o Patient load
- o Appointment system
- o Clinic infrastructure
- o Equipment and supplies
- o Patient information management system
- o Information and education and materials for the patients

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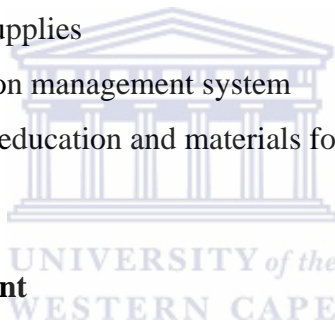
Results of the facility assessment

Staffing

The Clinic operations were managed by a Professional Nurse who had been in the facility serving in this position for three years and three months. The staff complement of the HIV clinic was 20 and comprised of two Doctors; seven professional nurses (five for ART and two for VCT), two nursing assistants; one Pharmacy assistant; five expert Clients and three clerks. From the main hospital services there was three officers attached to the survey: one officer designated at the hospital laboratory, one at the Hospital pharmacy and one at the hospital X-ray.

Facility Service points

There were 11 service points identified for the study where patients could access specific services through out the week.   Three of these service points were in the main hospital. The service points were; the ART reception and weighing, VCT reception, Vital signs and triage corner, Health education area cum waiting area, consultation rooms for seven professional nurses and two doctors, ART pharmacy, Food distribution room, the hospital Laboratory, hospital pharmacy and hospital X-ray. Patients were seen one at a time in all the service pointes except at the Health education area where patients are seen in groups most of the time. The Clerks, Expert Clients and Nurse Assistants were often assigned to the ART reception and weighing and they also helped in other non clinical service areas outside this service point. The list of service points is available on Appendix 1.1.

Opening and closing times including Constellation of services

The constellation of services at the HIV clinic varied each day such that each day becomes a special clinic. The clinic offered ART and VCT services on a daily bases between Monday and Friday 8.00am and 5.00pm. Staff often volunteers to start work earlier than 8.00am on some of the busy days like Wednesday and Friday. One Cleaner cum clerk starts work at 6.00am daily. This staff member provided services at the ART reception soon after finishing cleaning. This practice facilitates early opening of this service area.

ART patients were further categorized into those who were new and those who were continuing clients. New clients were seen on Monday and Thursday when they would be examined, counseled and prescribed ARVs. On Tuesday was the day for reviewing laboratory results and those patients whose CD4 count level requires ARVs would be given a compulsory lecture on the condition and how to comply with their medication regime. They would then be given an appointment date for the following Monday to get their ARVs. On Wednesday the clinic refills medication for continuing patients as well as managed side effects and attended to sick patients. On Friday the clinic attended to those with side effects, sick and refilled medication.

It was established that patients that need further diagnostic examination would be referred to the hospital laboratory and X-ray for further examination. The laboratory has a rule not to accept any patients after 1.00pm and those arriving later were turned away to come back the following day.

Patient load

According to the assessment the patient load varied depending on the day of the week and the service required. The average number of patients per week was estimated at about 770. These were broken into 20 patients who are booked daily for VCT; 50 patients per day on Thursday and Monday and 300 and 200 on Wednesday and Friday respectively. The Clinic reported to have observed a steady increase in the workload such that a resolution was made to refer all new patients to a satellite ART centre which opened in town.

Appointment system

The clinic did not have any appointment system. However patients were given appointment dates to return for specific services but there is no appointment register or book to monitor the booked patient load per day. The practice is to register patients as they arrived and patients had to be turned away once the required number was reached particularly on Monday and Thursday and everyday for the VCT clinic. Patients had to come early to be able to be registered for some of the services.

Clinic infrastructure

The floor plan of the clinic was as shown in the floor plan document (see Appendix 2.2). The clinic had two entrances, one to the ART side and the other to the VCT side. These are also used as exists. The doors are wide in enough for wheel chairs and there was a ramp for easy access on wheel chair. The waiting area is located both inside and outside the clinic with about 145 seats all together. Of note was that the ART reception and weighing service point provided services through one window which only one staff at a time would register the patient and take the weight. Any other staff at this service point could assist by retrieving cards from the Card room, otherwise staff assigned at this point can only rotate to get a chance to service the patients.

Patients and staff had functional separate toilets with running water, males separate from females. On inspection of the clinic, it was observed that there were hand washing basins in the patients' toilets but there was no soap for hand washing. The toilets had no toilet paper. Patients on the ART side had no option for drinking water apart from the toilet whilst those on the VCT side had drinking water provided in water jugs in the waiting area.

Equipment and supplies

There was one adult and one infants weighing scales, three wheel chairs and condom dispensers mounted in the waiting rooms, the toilets and the corridor. It was reported that there was no emergency box or tray nor a fire extinguisher and there was no patient trolley. There was a functional telephone, a computer connected to internet but there was no fax machine. A list of essential drugs was shown to the researcher and a computer based monitoring system was in place to ensure drugs' stock levels are monitored.

Patient information management system

A patient information management system which is both computer and paper based is available. The clinic produced periodic reports about the number of patients, defaulter rates, drug stock levels and expiration dates. Patients' files were stored in lockable cabinets in the card room. Patient information is kept confidential and were accessible to professional members of staff.

Information and education and materials for the patients

A big directional sign to the HIV clinic was seen at the entrance of the main hospital. Within the Clinic there were no booklets /flyers for patients either to read or to take home but there were wall posters on nutrition and VCT. In the consultation rooms there were STI management protocols that are used by staff for reference. A television set was found in the VCT waiting room only. Patients watched prerecorded lectures and other educational films. Regular TV programmes are not tunes in.

Appendix 2.2

Swaziland HIV/AIDS Clinic
Waiting & Service Times Survey
March 2008

110
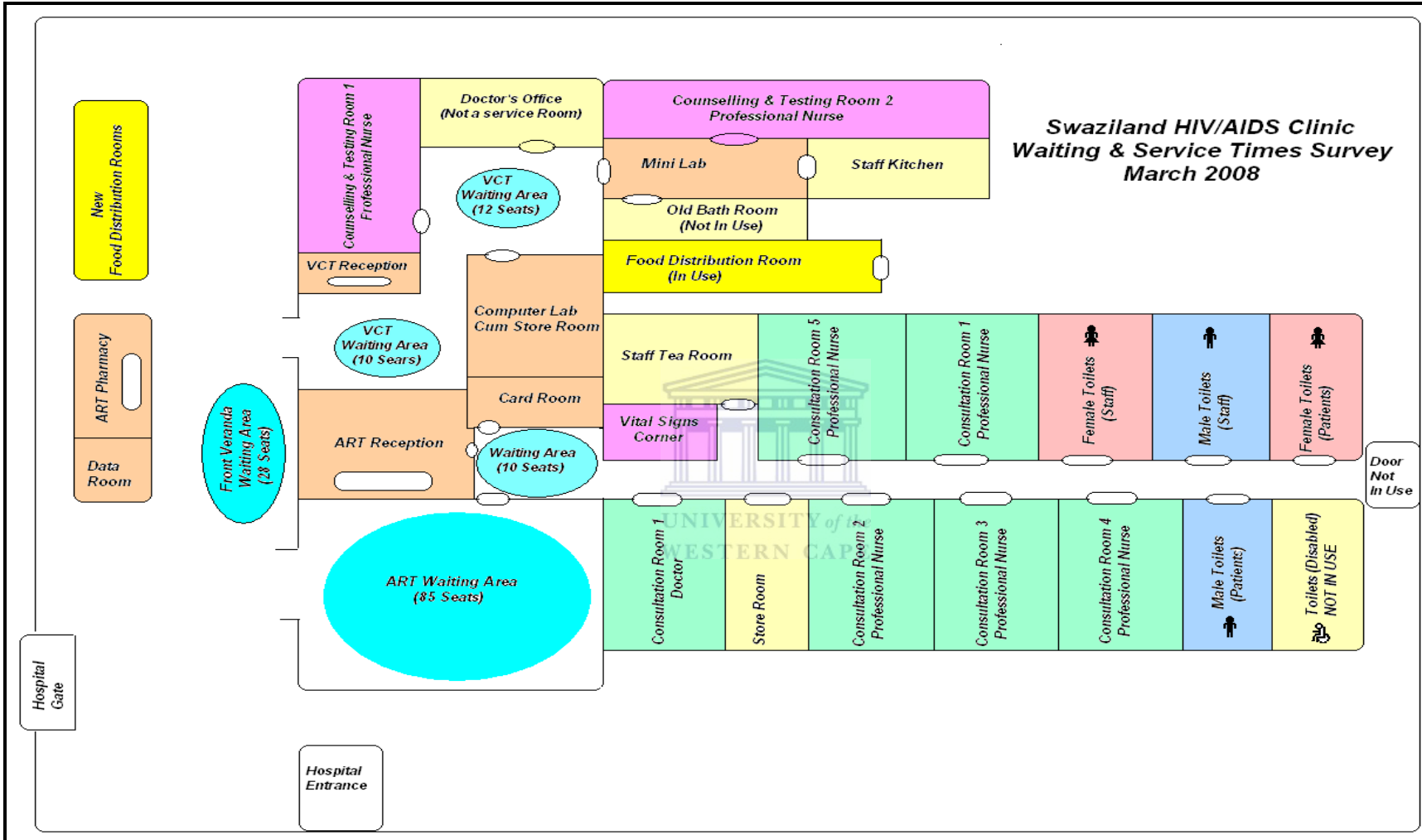
Appendix 3.0

Summary of waiting time and service time report by service point

Appendix:3

HIV Clinic Waiting and service time survey
Summary of waiting time and service times reports and potential reasons for long waiting time Matrix
by service point per day

Service point: ARV Reception and Weighing

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches*	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	Excellent 1	Acceptable 22	Very low		inefficient		6 staff with only one adult weighing scale and al provide service through one window		Adequate time	Allocated good time to provide quality of care
Tuesday	Excellent 1	Acceptable 30	Very low		inefficient		Same as Monday		Same as above	Same as Monday
Wednesday	Excellent 1	Acceptable 25	Very low		inefficient	There is a mismatch in the morning	Same as Monday		Same as above	Same as Monday
Thursday	Excellent 1	Acceptable 28	Very low		inefficient	Mismatch in the morning	Same as Monday		Same as above	Same as Monday
Friday	Excellent 1	Acceptable 7	Very low		inefficient	Mismatch in the morning	Same as Monday		Same as above	Same as Monday
All week Summary	1	17	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: Vital signs and triage

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	Low	Too high	Too Low		Inefficient Staff is in not giving a service and patients are waiting				Service time is low. Staff inefficiency	One minute is not enough time to take temperature, pulse and blood pressure .The time allocated is not adequate to provide quality care
Tuesday	Low	Too high	Very low		inefficient	Mismatch in the morning			Same as above	Same as above
Wednesday	Excellent	Acceptable	Very low		inefficient	Mismatch in the morning and around 9.00am staff leaves pats waiting			Adequate time	Same as above
Thursday	low	Too high	Very low		inefficient				Same as Monday	Adequate time to provide quality of care
Friday	Low	Too high	Very low		inefficient	Mismatch in the morning			Same as Monday	Same as above
All week	1 Low	41	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: ARV Consultation Room PN

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	9 Excellent	46 Too high	Very low		inefficient		No examination couch in one of the rooms		Good service time	The time allocated is good enough to provide quality of care
Tuesday	5 Excellent	28 acceptable	Very low		inefficient		Same as Monday		adequate	Same as above
Wednesday	3 Low	64 Too high	Very low		Inefficient Patients wait whilst staff is in at 14.00hrs and the level of efficiency is not maintained	Yes in the morning	Same as Monday		adequate	Same as above
Thursday	6 Excellent	13 Good	Very low		inefficient		Same as Monday		adequate	Same as above
Friday	2 Low	41 Too high	Very low		inefficient	Mismatch in the morning	Same as Monday		Adequate. (day for refilling drugs)	Same as above
All week	3 Low	28	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: ARV Consultation Room Dr

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	13 Excellent	105 Too high	Excellent 72%	Large batch	inefficient		Dr needs an interpreter – implications on staff time usage		Adequate service time	The doctor allocated enough time to provide quality of care
Tuesday	11 Excellent	202 Too high	Low		inefficient	There is mismatch in the morning	Same as Monday		Adequate service time	Same as above
Wednesday	7 Excellent	78 High	Low	Large batch	inefficient	Same as above	Same as Monday		Adequate service time	Same as above
Thursday	10 Excellent	49 Too high	Low	Created batch	inefficient	Mismatch in the morning	Same as Monday		Adequate service time	Same as above
Friday	8 Excellent	64 Too high	Low		inefficient	Mismatch in the morning	Same as Monday		Adequate service time	Same as above
All week	10 Good	80 Too high	low							

* Refer to Appendix: 9 for batches for each day

Service point: Hospital laboratory

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	3 adequate	Acceptable 27	Very low		Inefficient This service point serves other patients as well		This service point is situated inside the main hospital-would be about 3 minutes walk one way			Have allocated good time to provide quality of care
Tuesday	2 Low	Too high 59	Very low		inefficient		Same as Monday			Same as Monday
Wednesday	2	Too high 70	Very low		Inefficient Service starts at 9am when about 25 patients are waiting	Mismatch in the morning	Same as Monday			Same as Monday
Thursday	2 Low	Too high 51	Very low		inefficient		Same as Monday			Same as Monday
Friday	2 Low	Too high 52	Very low		inefficient		Same as Monday			Same as Monday
All week										

* Refer to Appendix: 9 for batches for each day

116

Service point: Hospital Pharmacy

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	4	13 good	Very low		Inefficient BUT SP serves other patients from the general Out patient departments and other special clinics		Patients have to walk 3 two minutes one way as Service point is situated in the main hospital		The service time is adequate	Have allocated good time to provide quality of care
Tuesday	1	36 Too long	Very low		Inefficient Same as Monday		Same as Monday		adequate	Same as Monday
Wednesday	4	19 Good	Very low		Inefficient Same as Monday	Mismatch in the morning	Same as Monday		Same as above	Same as Monday
Thursday	6	15 Good	Very low		Inefficient Same as Monday		Same as Monday		Same as above	Same as Monday
Friday	2	9 Good	Very low		Inefficient Same as Monday		Same as Monday		Same as above	Same as Monday
All week	3	17 good	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: ART Pharmacy

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	2 Low	4 Excellent	Very low		inefficient	There is mismatch			Service time adequate	time allocated too short to provide quality of care
Tuesday	1 Low	9 Excellent	Very low		inefficient	There is mismatch in the morning			Service time adequate	Same as Monday
Wednesday	1 Low	17 Good	Very low		inefficient	There is a mismatch in the morning			Service time adequate	Same as Monday
Thursday	1 Low	3 Excellent	Very low		inefficient	Mismatch in the morning			Service time adequate	Same as Monday
Friday	1 Low	7 Excellent	Very low	Batch at 10.00-10.59	inefficient	Mismatch in the morning			Service time adequate	Same as Monday
All week	1 Low	11	Very low							On the overall time allocated for the service is low

* Refer to Appendix: 9 for batches for each day

Service point: Food distribution

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	10 Too high	5 Excellent	Very low		inefficient		Food is not pre-packed- this adds on service time unnecessarily		The service time is higher than the acceptable service time	The time allocated is too high for provide quality of care
Tuesday	No food was distributed this day						There was no food in stock on this day			
Wednesday	2 excellent	16 Good	Very low		inefficient	There is a mismatch in the morning at lunch time	Same as Monday		Adequate time	
Thursday	2 Excellent	6 Excellent	Very low		inefficient		Same as Monday		Adequate	
Friday	2 Excellent	6 Excellent	Very low		inefficient		Same as Monday		Adequate	
All week	2 excellent	5 Excellent	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: VCT reception

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	Excellent (3)	Excellent 9	Very low		efficient				adequate	Have allocated good time to provide quality of care
Tuesday	Excellent(1)	Excellent 11	Very low		inefficient	There is mismatch in the morning			adequate	Same as Monday
Wednesday	Excellent (1)	Excellent 1	Very low		Inefficient just after arrival	Same as above			adequate	Same as Monday
Thursday	Excellent (1)	Excellent 5	Very low		efficient	Mismatch in the morning			adequate	Same as Monday
Friday	Excellent (1)	Excellent 12	Very low		efficient	Mismatch in the morning			adequate	Same as Monday
All week	(1)excellent	6 Excellent	Very low							

* Refer to Appendix: 9 for batches for each day

Service point: HIV Counseling and testing PN

Clinic day	Median Service Time	Median waiting Time	% time staff spend attending to patients	Big batches	Lack of efficiency	Mismatch	Logistical problem	Flow problems	High service time	Quality of care
Monday	32 Good	4 excellent	Very low		efficient				Service time is high as VCT require more time – it matches what the staff recommended	Service time adequate to provide quality care
Tuesday	25 Good	22 Good	Very low	Small batch	inefficient				Same as above	Same as above
Wednesday	25 Good	56 Too high	Very low		inefficient	Slight in the morning			Same as above	Same as above
Thursday	23 Good	8 Excellent	Very low		inefficient	Mismatch in the morning			Same as above	Same as above
Friday	35 Good	29 good	Very low		inefficient				Same as above	Same as above
All week	25 Good	22 good	Very low							

* Refer to Appendix: 9 for batches for each day

Appendix 4.0
Detailed arrival time reports

HIV Clinic Monday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

123
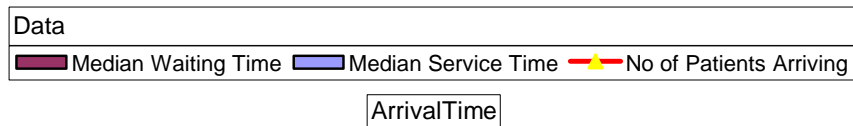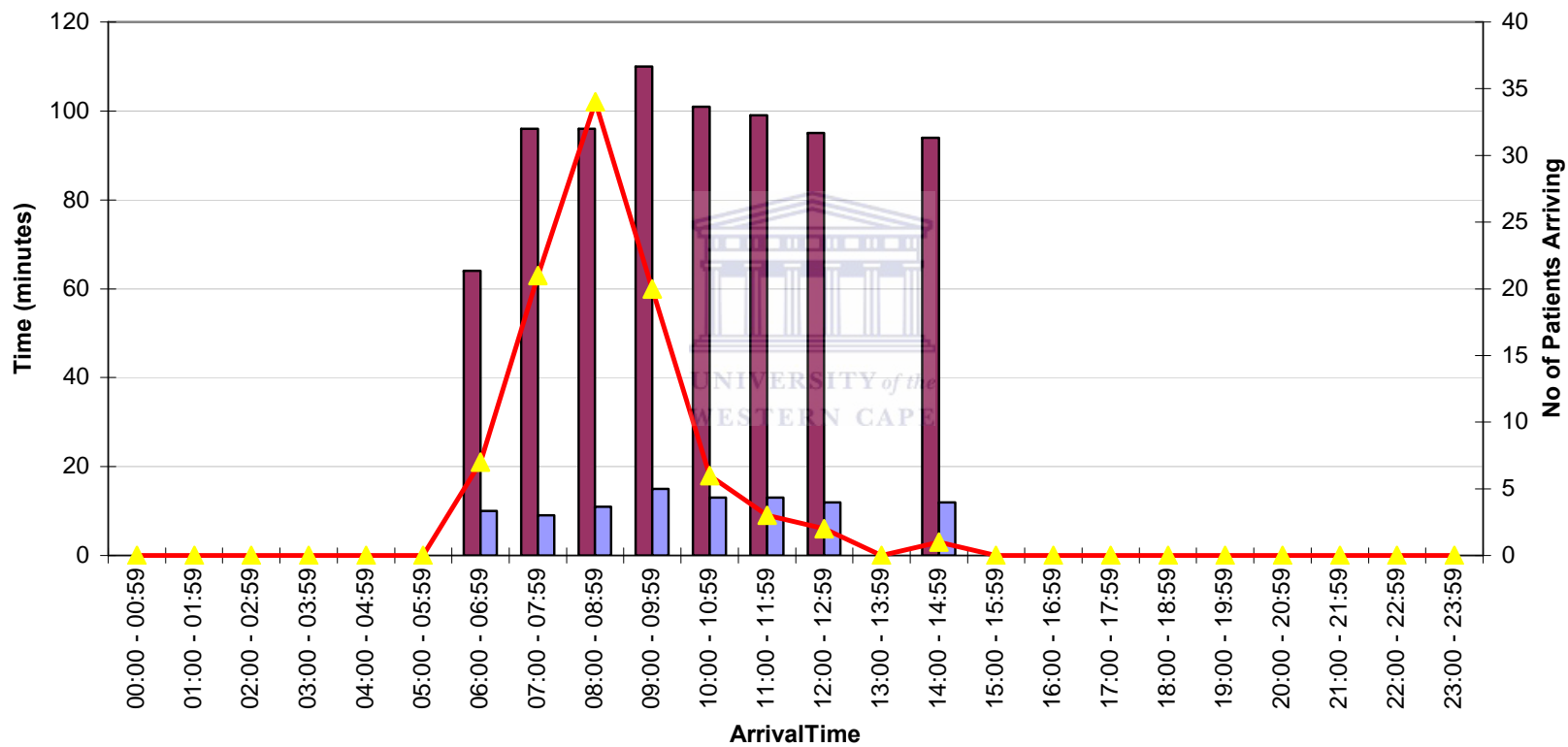
Figure X1:
HIV Clinic Monday : ARV Reception and weighing
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : Food distribution
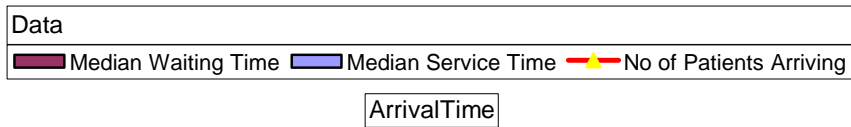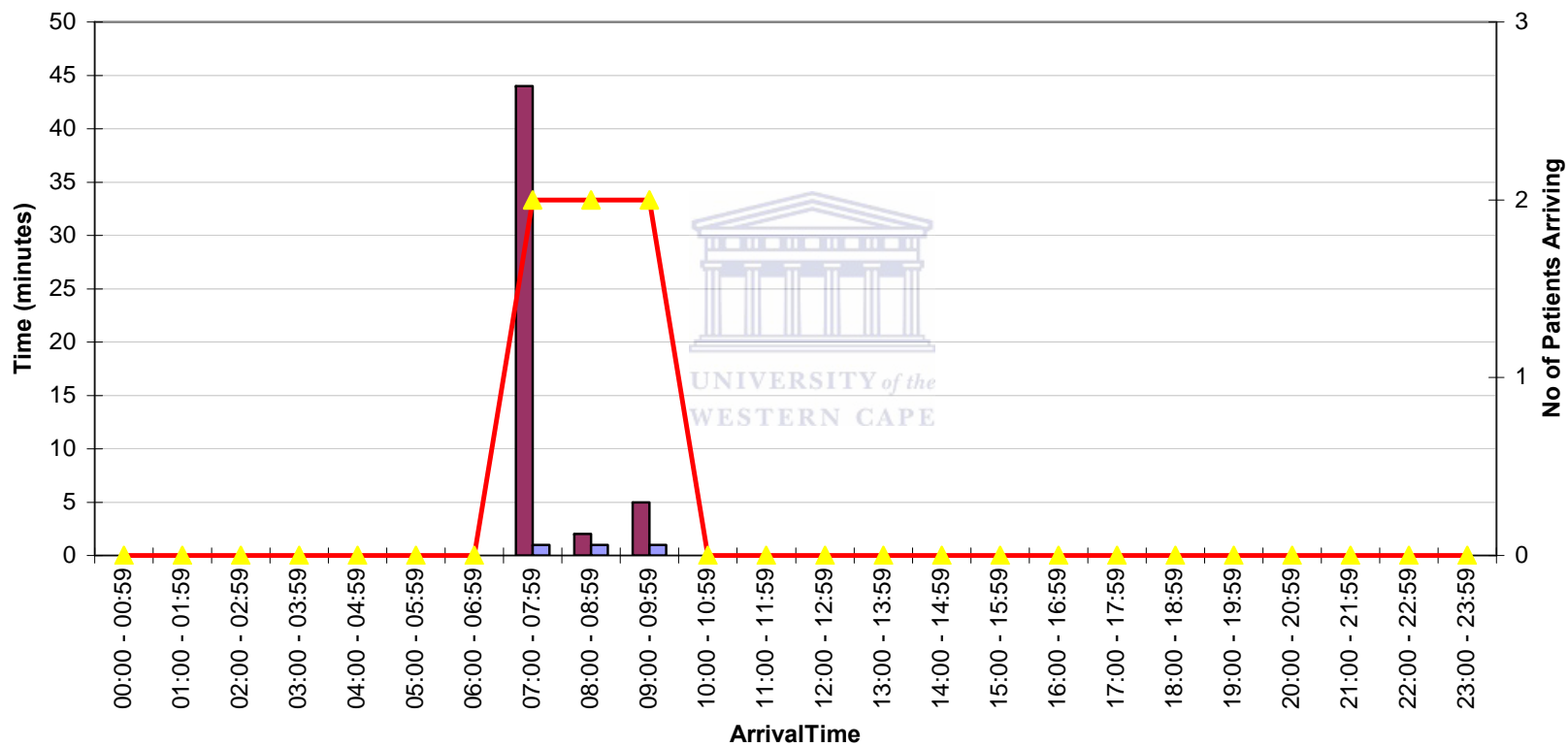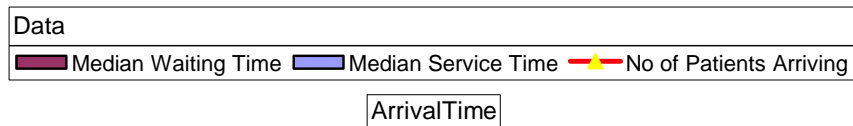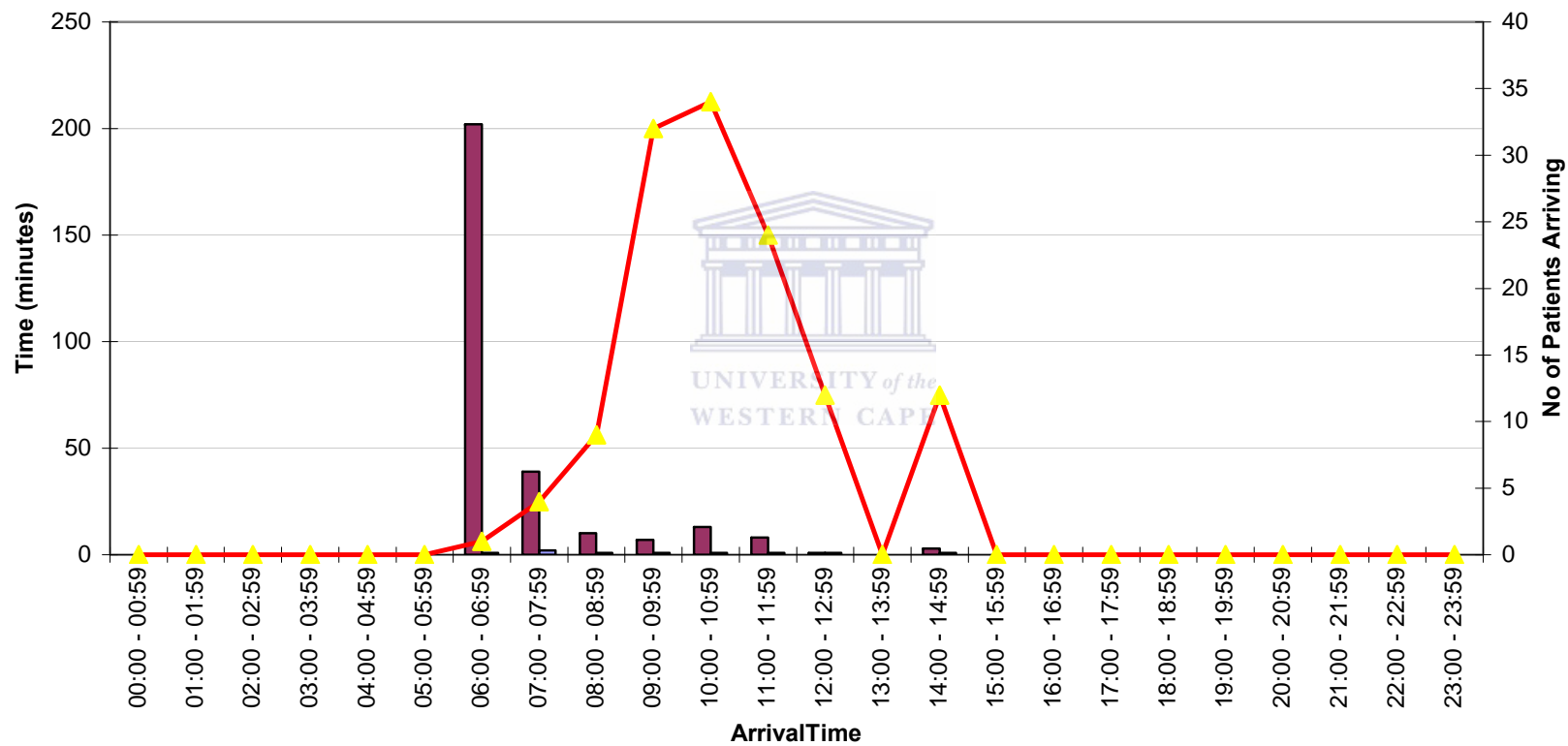## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : Hospital laboratory
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : Hospital Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : VCT_ reception
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : Vital signs corner and Triage
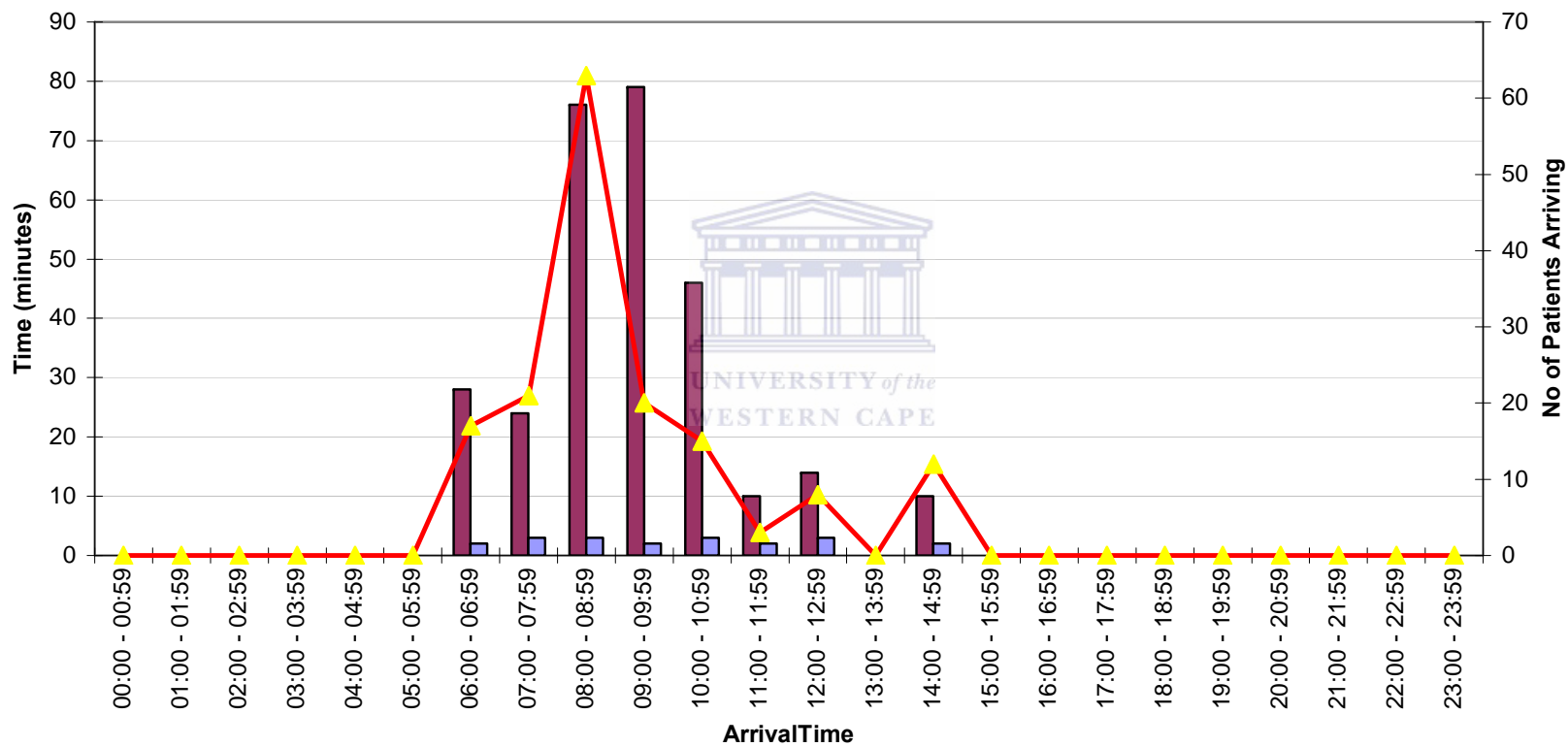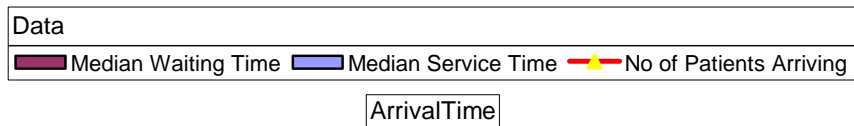## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

ArrivalTime

Data

Median Waiting Time Median Service Time No of Patients Arriving

ArrivalTime

HIV Clinic Monday : HIV Counselling and Testing_ PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

Data
Median Waiting Time | Median Service Time | No of Patients Arriving

ArrivalTime

130

**HIV Clinic Monday : ART Pharmacy
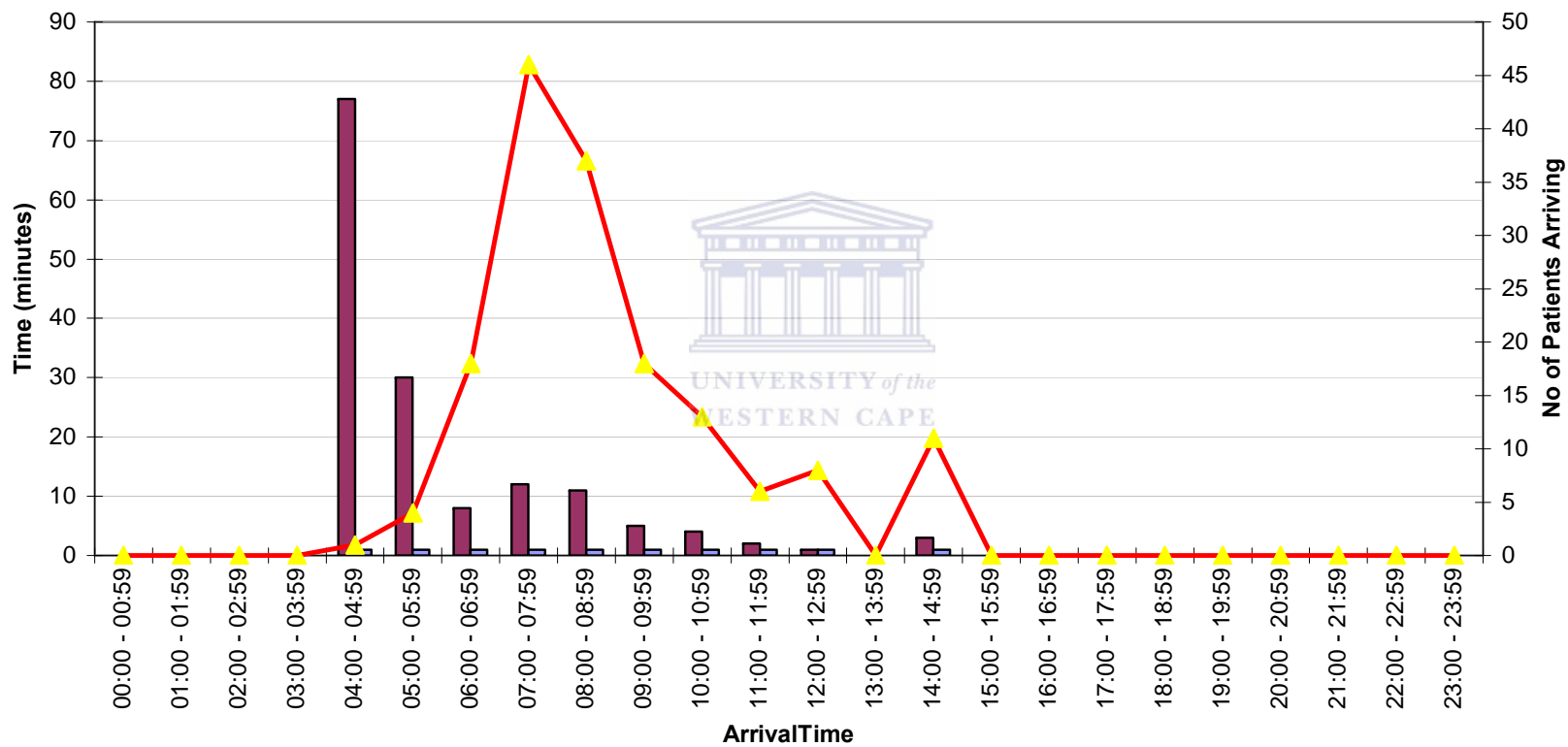Waiting Time, Service Time & No of Patients Arriving By Arrival Time**

Figure X3:
HIV Clinic Monday : ARV Consultation Room Dr
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Monday : ARV Consultation room PN
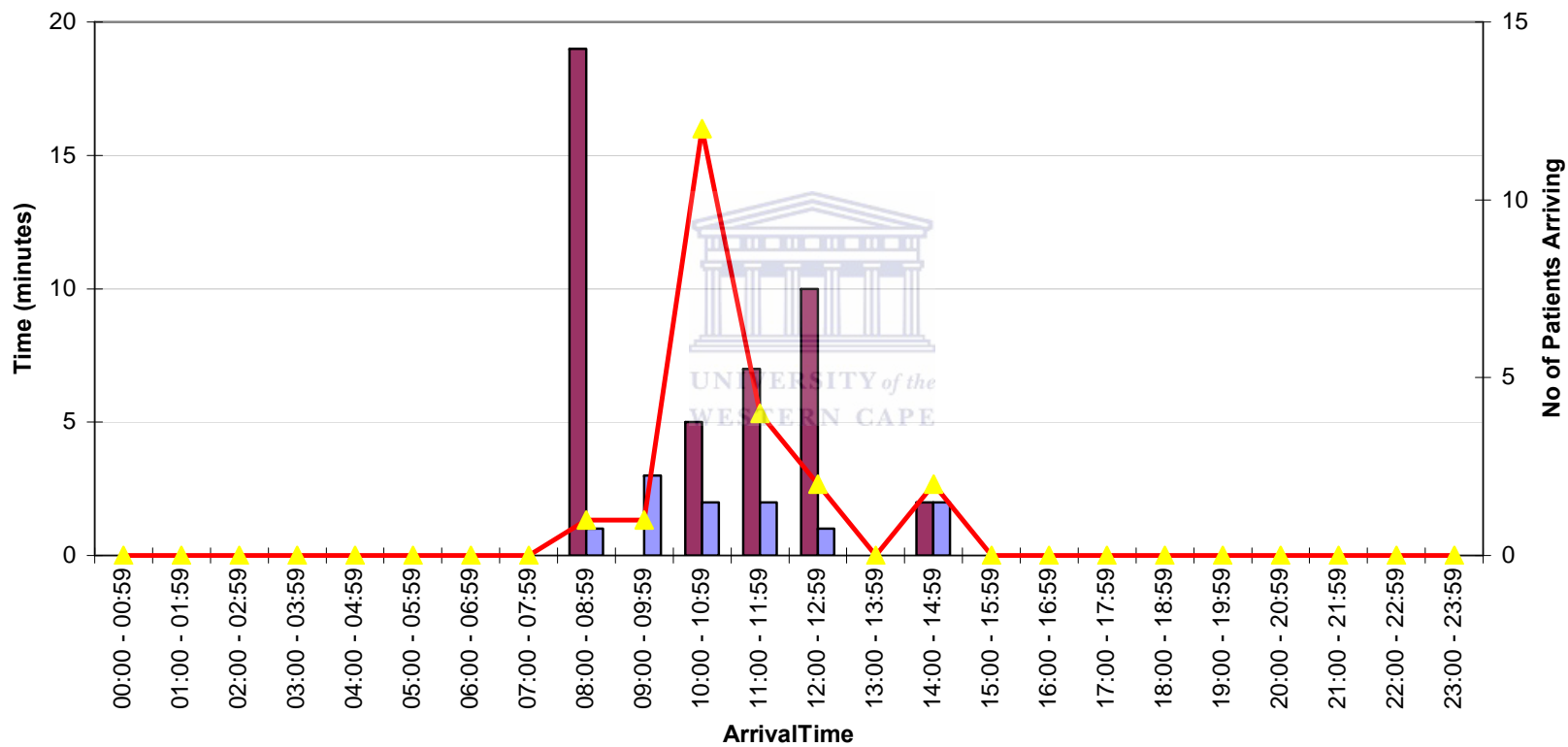**Waiting Time, Service Time & No of Patients Arriving By Arrival Time**

133

HIV Clinic Tuesday : HIV Counselling and Testing_ PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

134
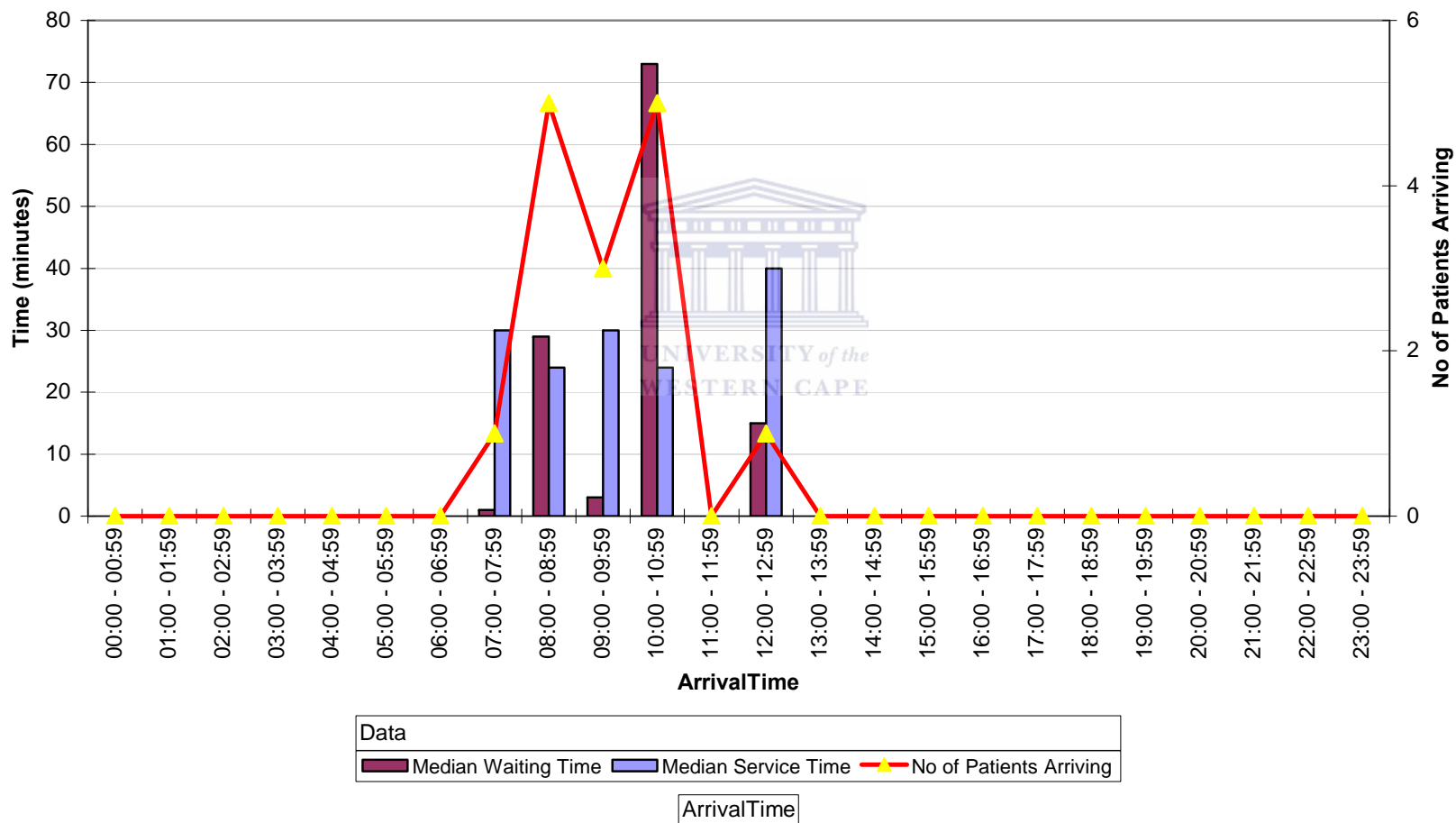
HIV Clinic Tuesday : ART Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Tuesday : ARV Consultation Room Dr
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Tuesday : ARV Reception and weighing
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Tuesday : Consulting Room - Prof Nurse
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

Data

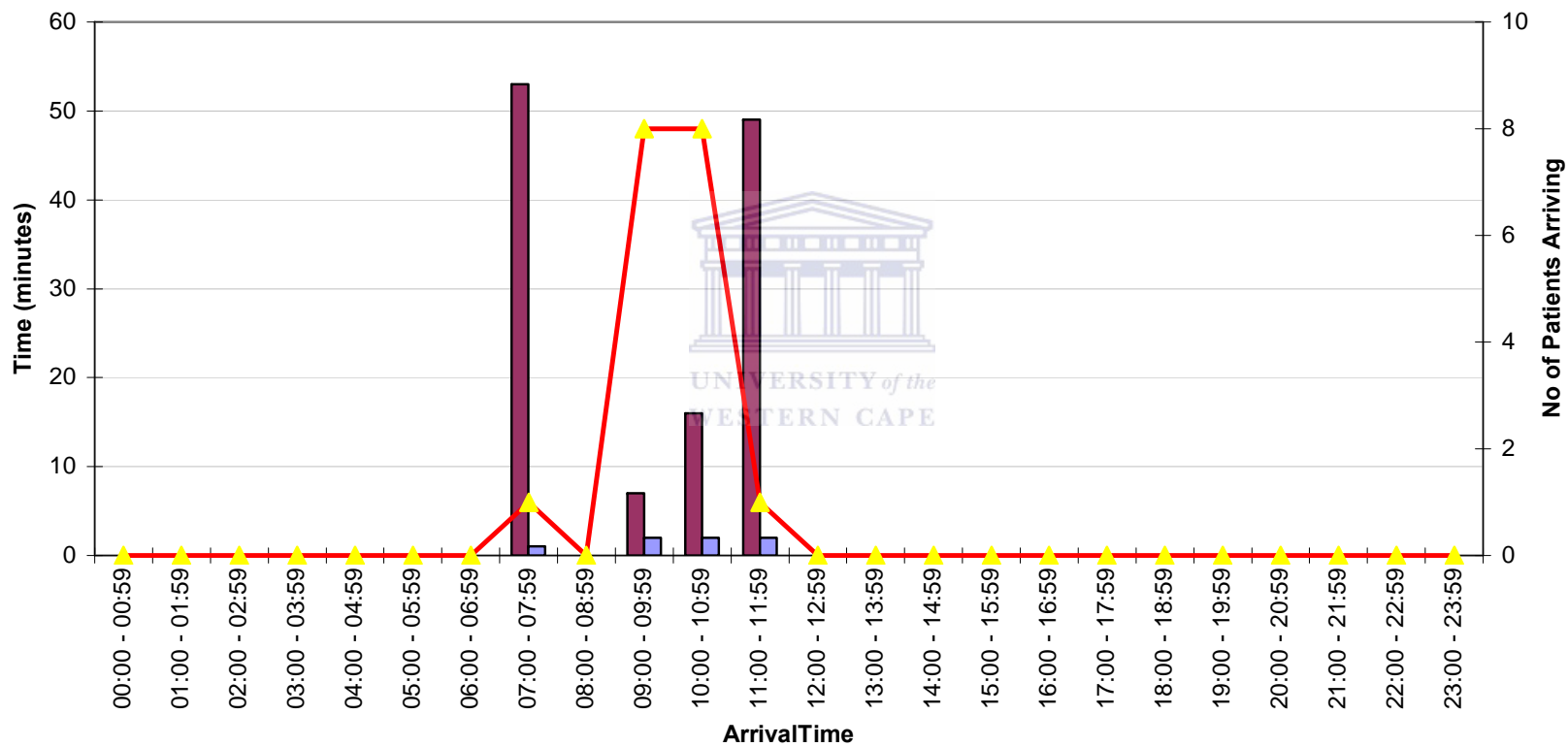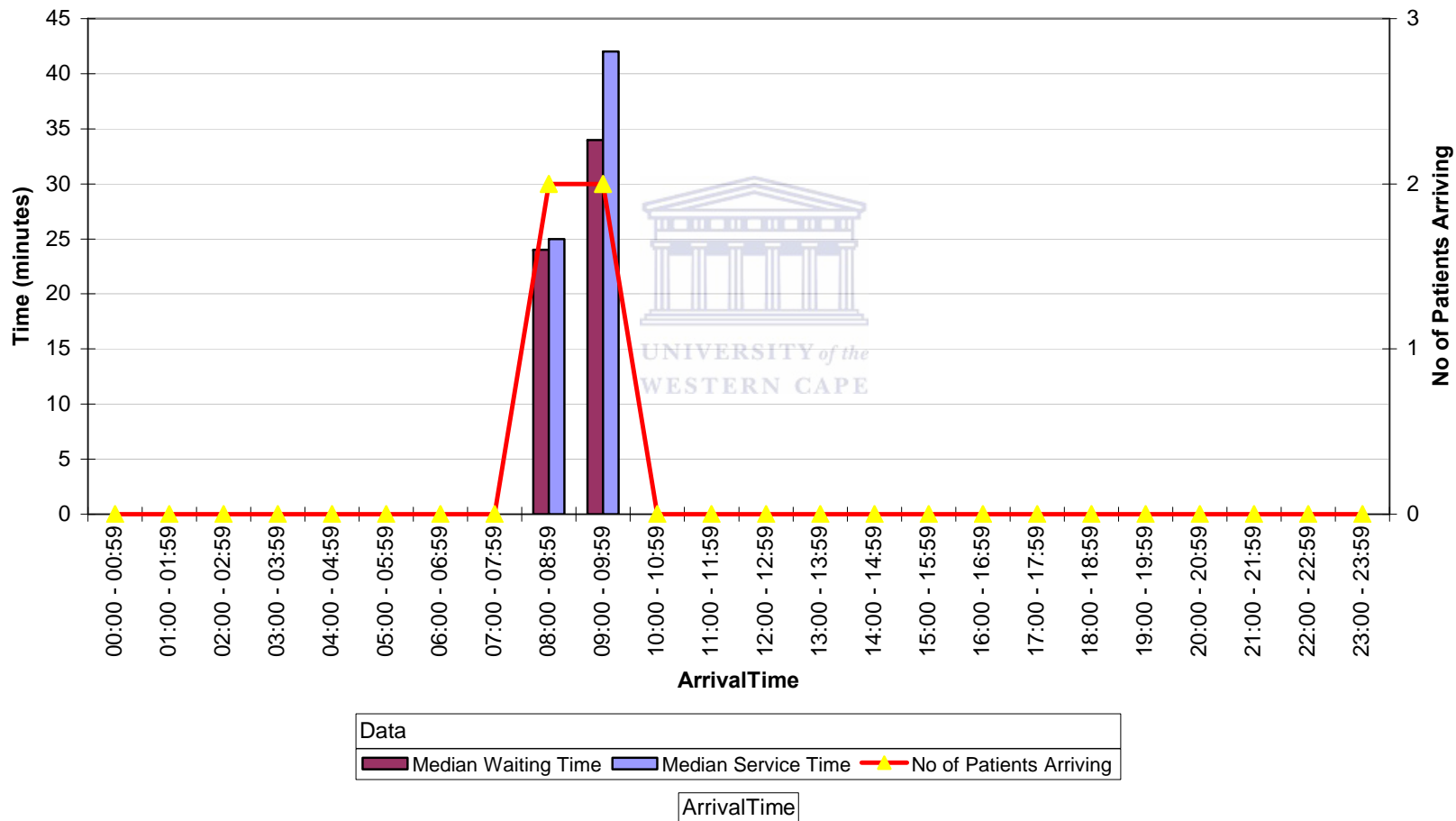Median Waiting Time ▮ Median Service Time ▮ ▲ No of Patients Arriving

ArrivalTime

HIV Clinic Tuesday : Hospital laboratory
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Tuesday : Hospital Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time
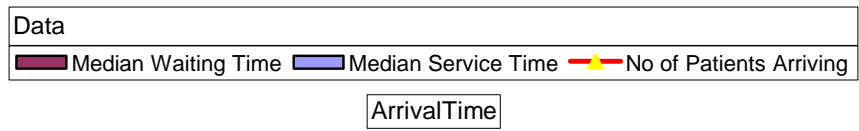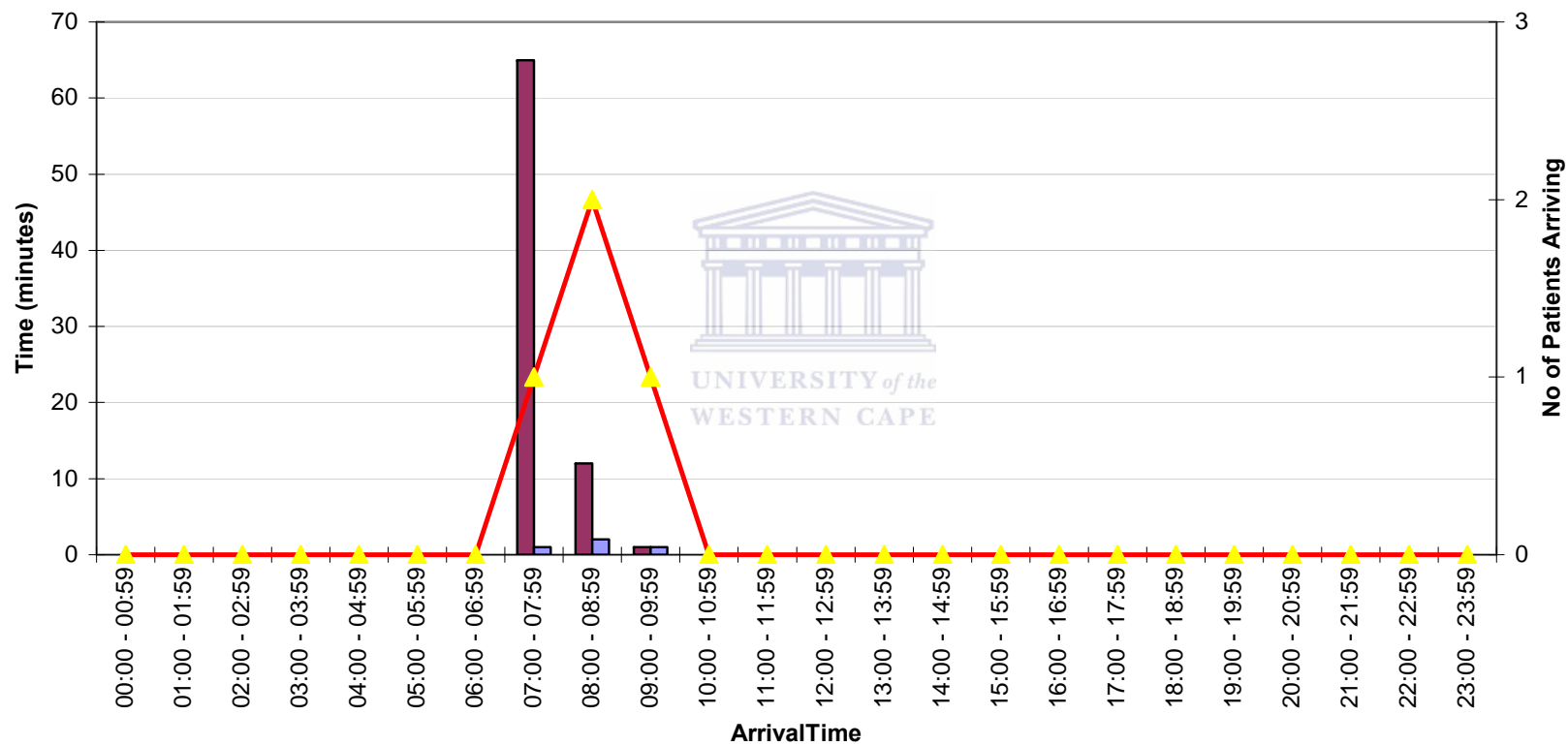
HIV Clinic Tuesday : VCT_ reception
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Tuesday : Vital signs corner and Triage
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : HIV Counselling and Testing_ PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

Data

■ Median Waiting Time ■ Median Service Time ▲ No of Patients Arriving

ArrivalTime

HIV Clinic Wednesday : ART Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

144

HIV Clinic Wednesday : ARV Consultation Room Dr
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : ARV Consultation room PN
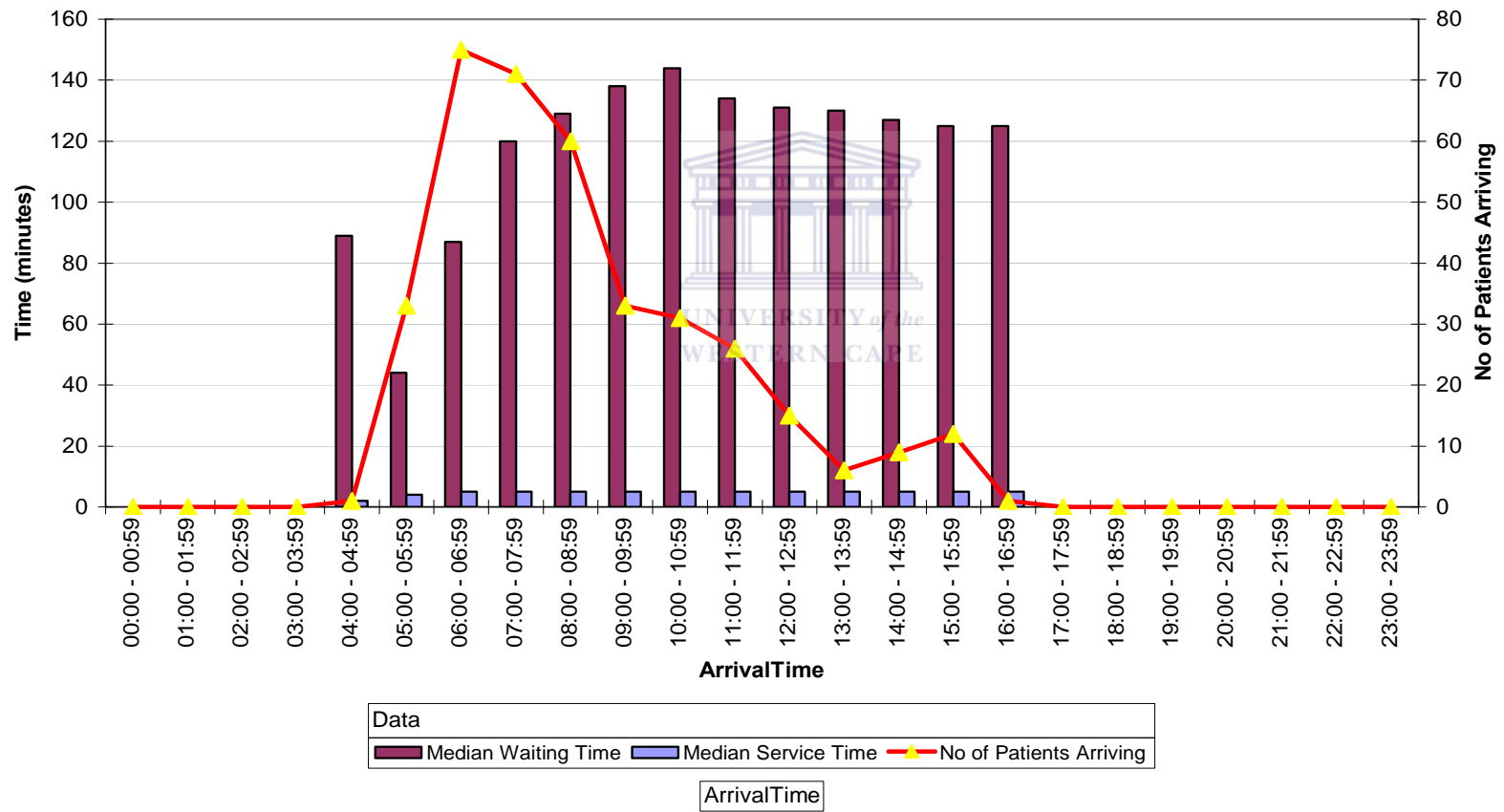## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : ARV Reception and weighing
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : Food distribution
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : Hospital laboratory
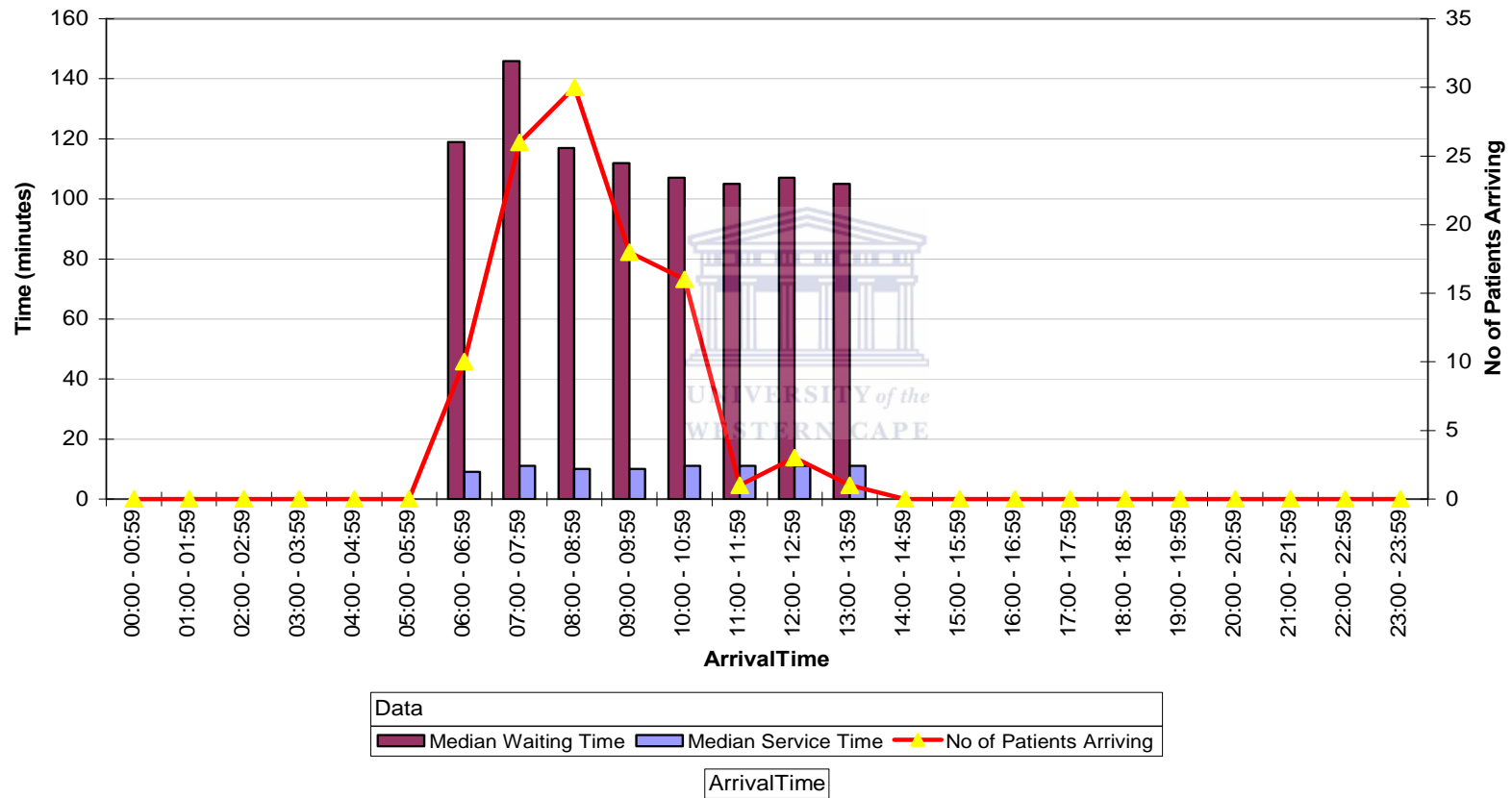## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : Hospital Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : VCT_ reception
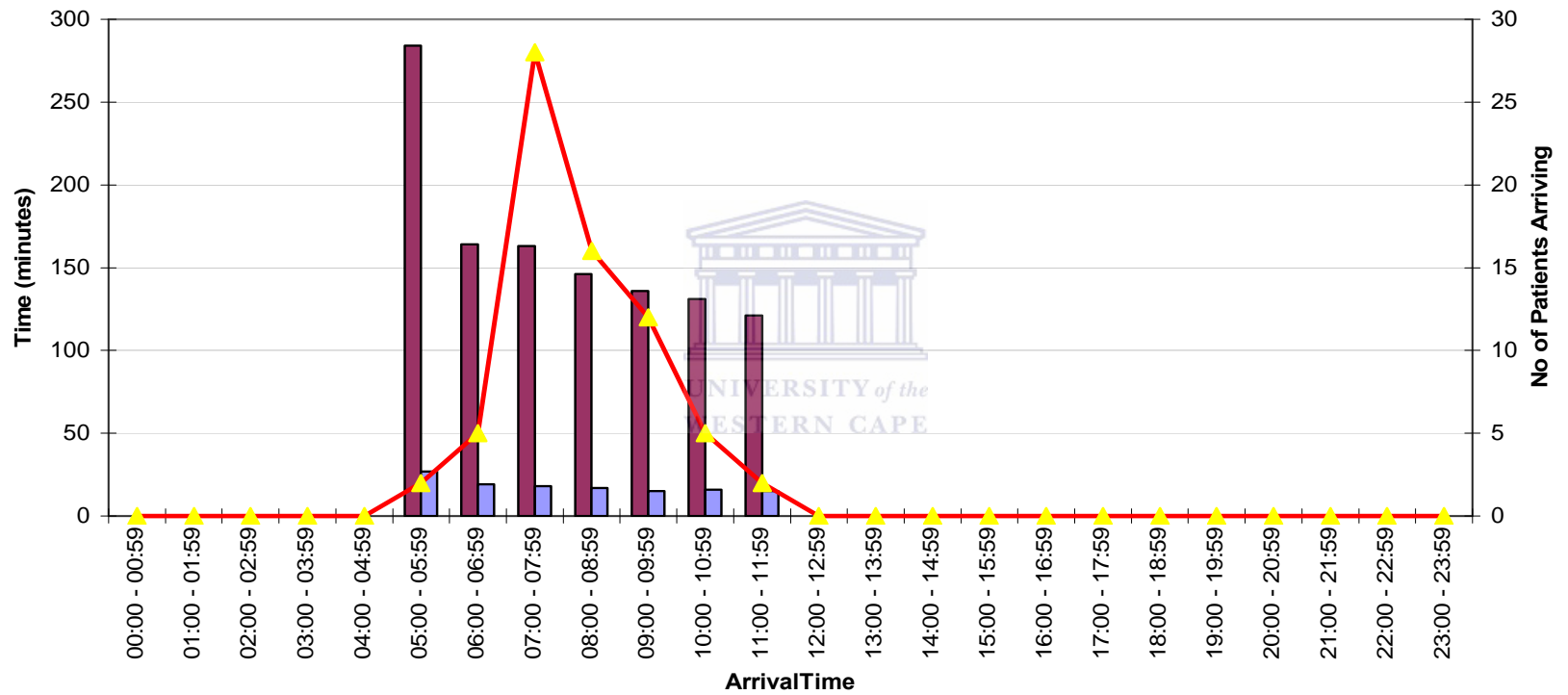## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday : Vital signs corner and Triage
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : ART Pharmacy
## Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : ARV Consultation Room Dr
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : ARV Consultation room PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : ARV Reception and weighing
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : Food distribution
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : Hospital laboratory
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : Hospital Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : VCT consultation room PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

160

HIV Clinic Thursday : VCT_ reception
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday : Vital signs corner and Triage
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

162

HIV Clinic Friday : ART Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : ARV Consultation Room Dr
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : ARV Consultation room PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : ARV Reception and weighing
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : Food distribution
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : Hospital laboratory
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

ArrivalTime

Data
- Median Waiting Time
- Median Service Time
- No of Patients Arriving

ArrivalTime

HIV Clinic Friday : Hospital Pharmacy
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : VCT consultation room PN
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

Data
Median Waiting Time Median Service Time No of Patients Arriving

ArrivalTime

HIV Clinic Friday : VCT_ reception
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Friday : Vital signs corner and Triage
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Wednesday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

Data
Median Waiting Time Median Service Time No of Patients Arriving

ArrivalTime

HIV Clinic Tuesday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

HIV Clinic Thursday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time

176

HIV Clinic Friday
Waiting Time, Service Time & No of Patients Arriving By Arrival Time
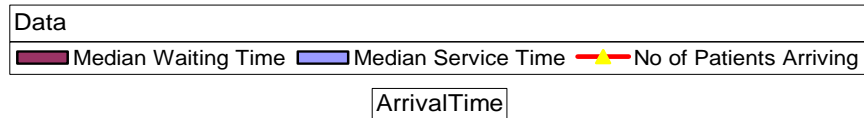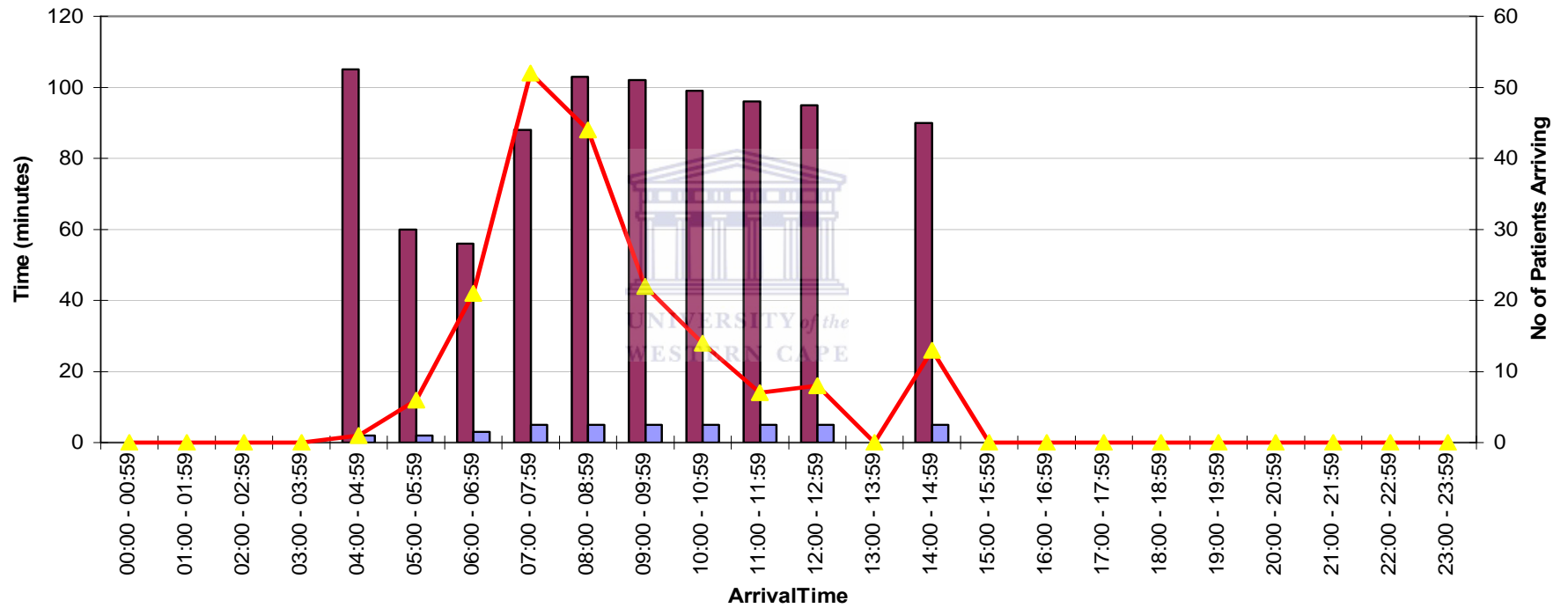
Legend:
- Median Waiting Time
- Median Service Time
- No of Patients Arriving

ArrivalTime

Appendix 5.0
Detailed snapshot reports

HIV Clinic Monday : HIV Counselling and Testing_ PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
- Sum of PatsServ
- Sum of PatsWait
- Sum of StaffCount

SnapshotTime

HIV Clinic Monday : ART Pharmacy
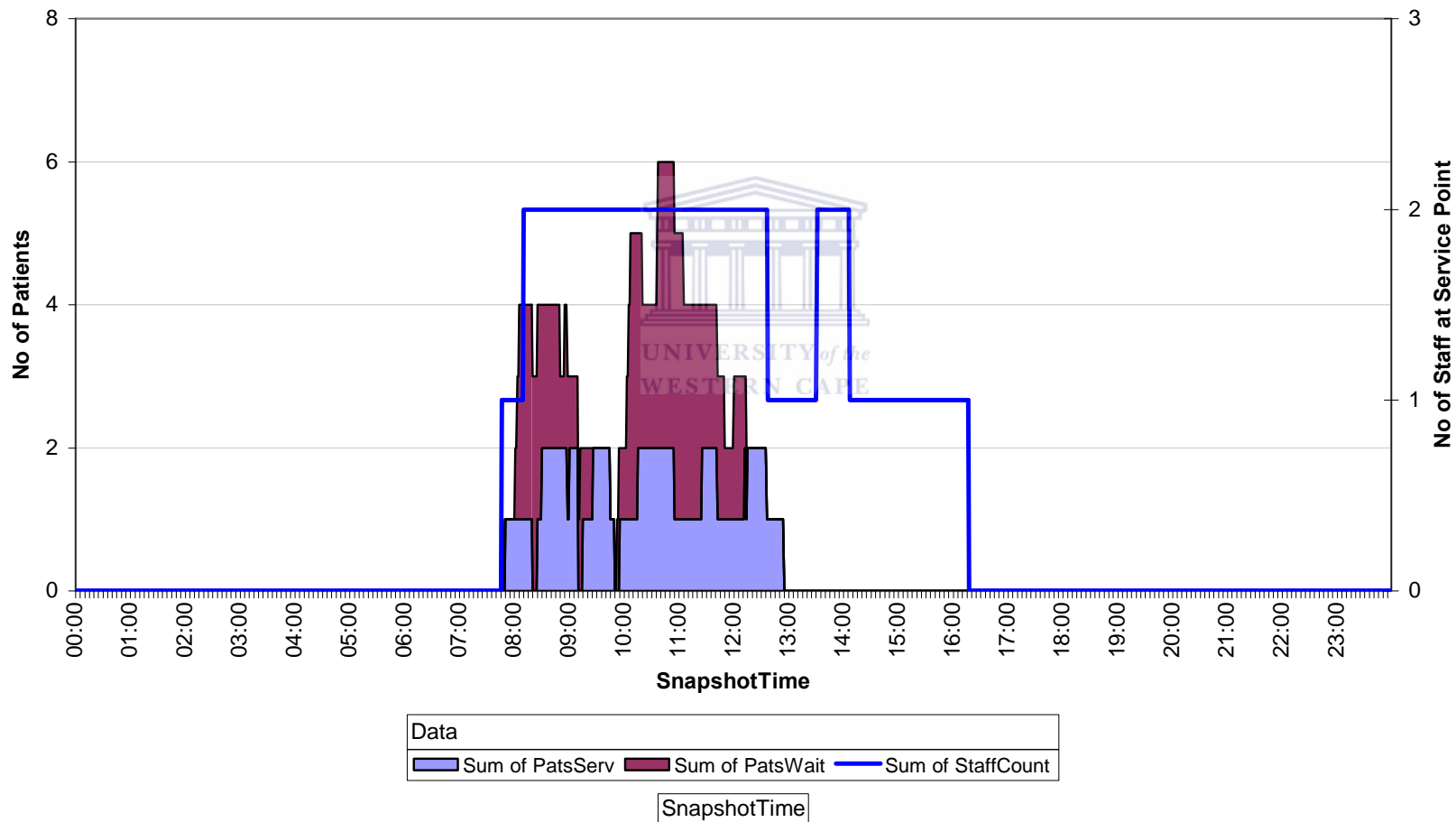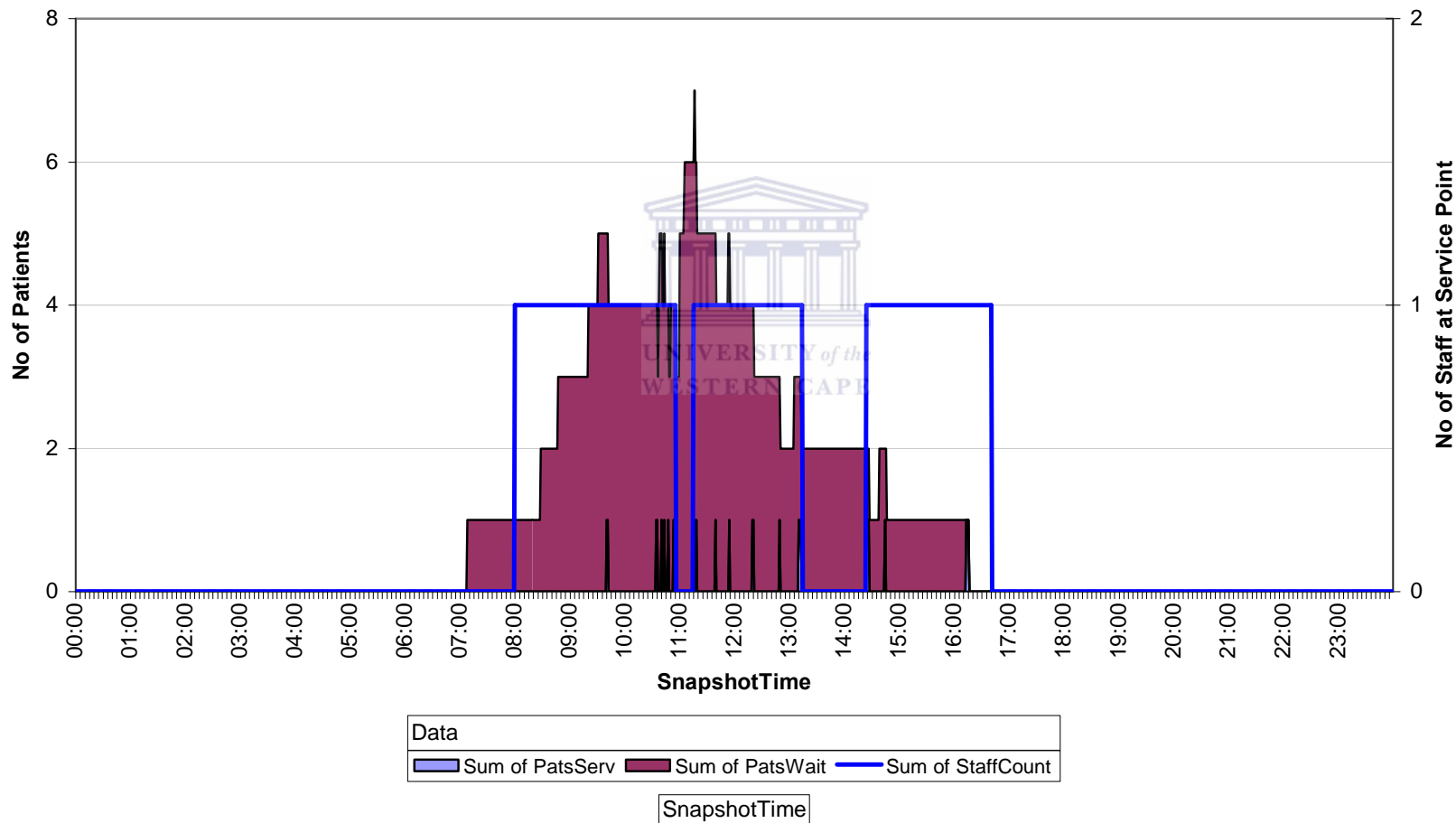## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ Sum of PatsWait Sum of StaffCount

SnapshotTime

HIV Clinic Monday : ARV Consultation Room Dr
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Monday : ARV Consultation room PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Monday : ARV Reception and weighing
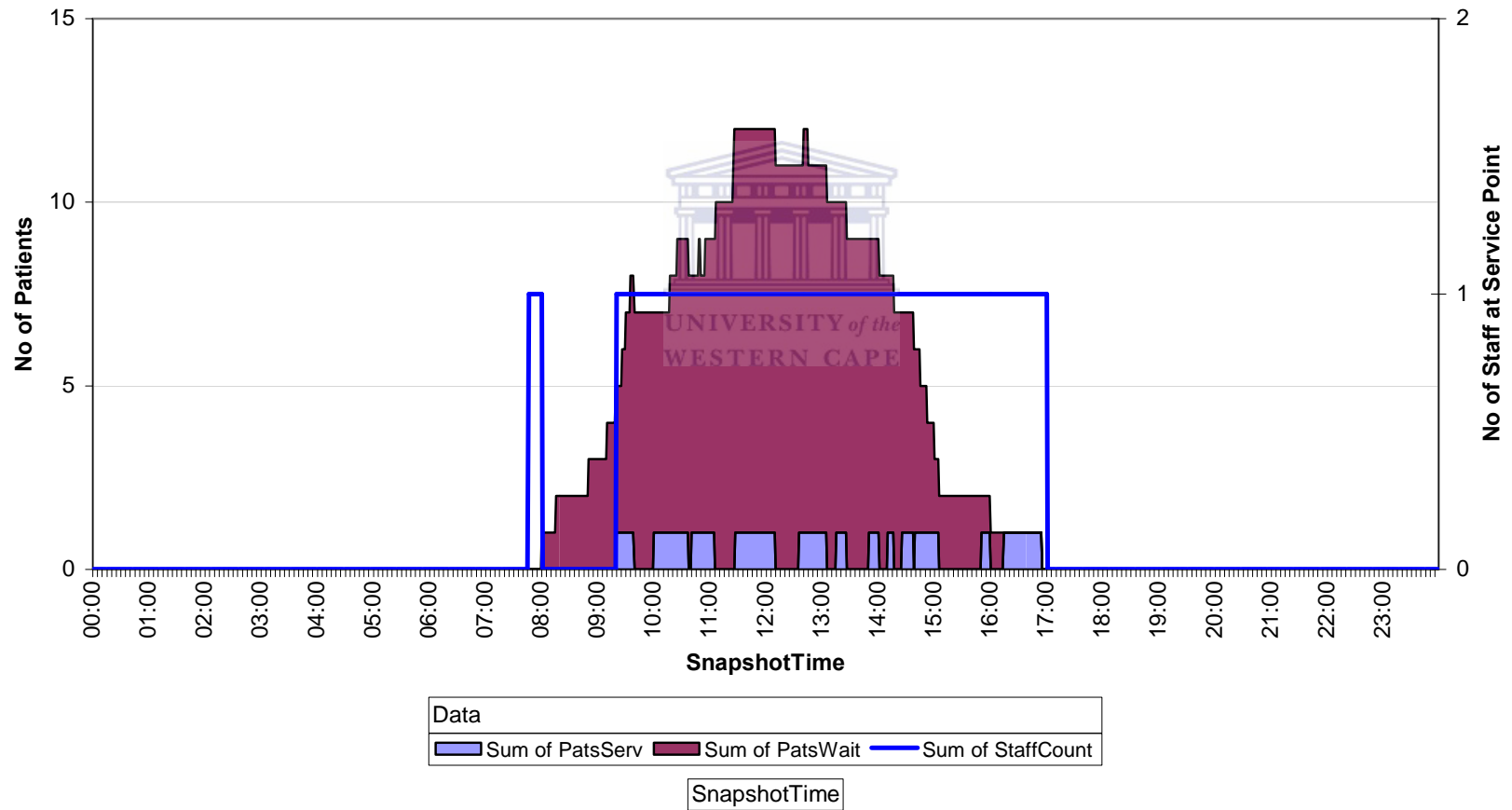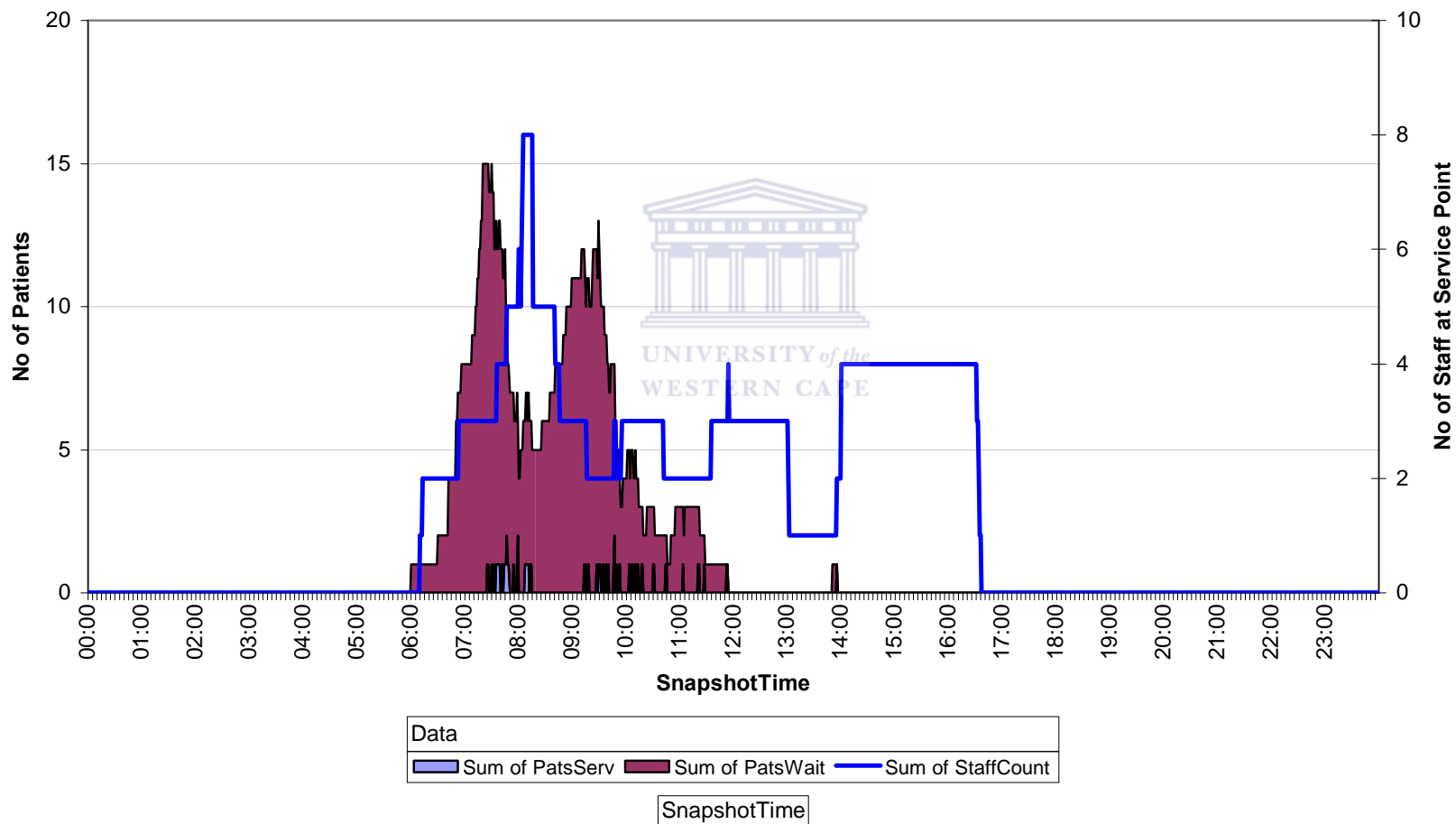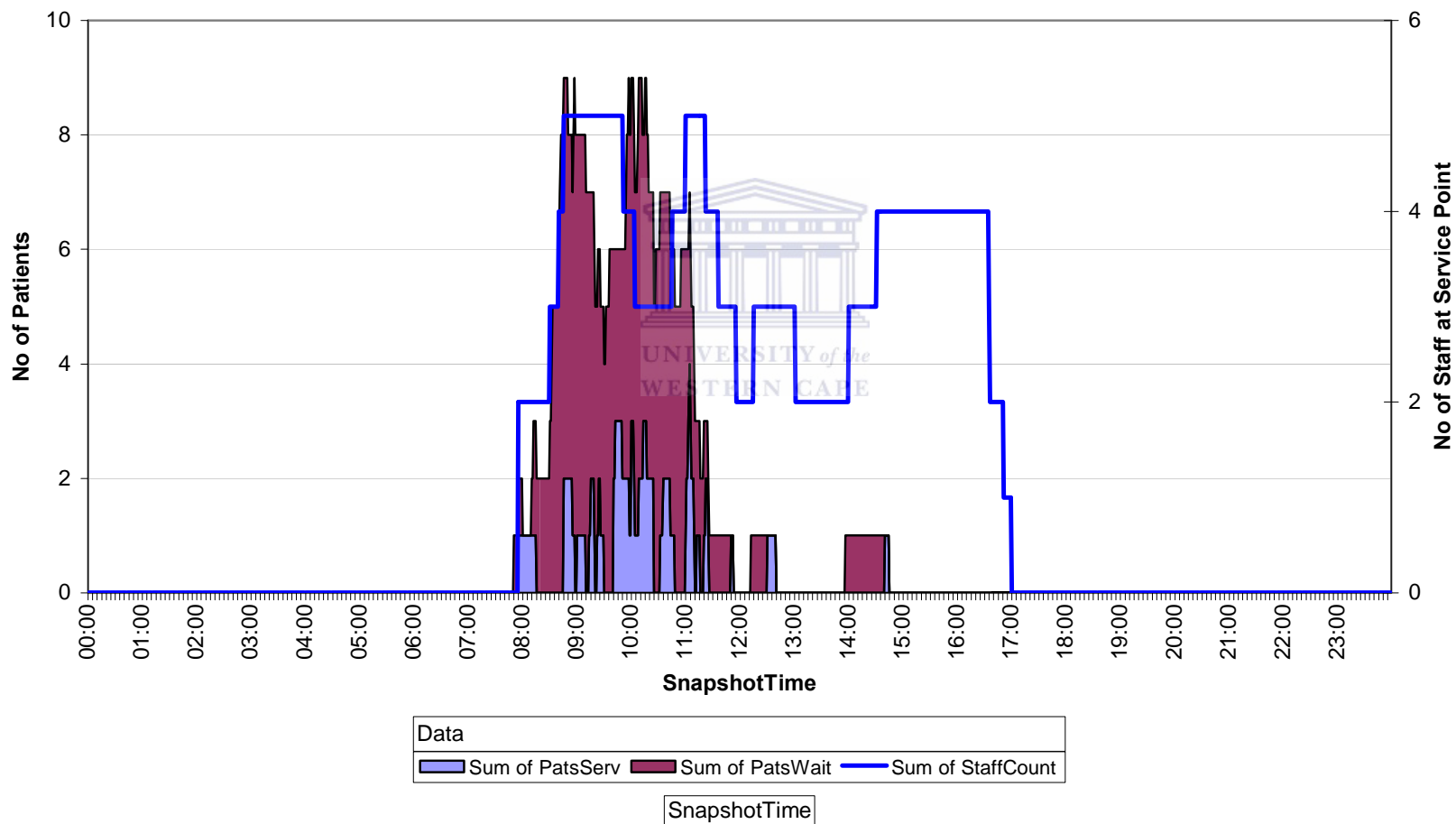## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Monday : Food distribution
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Monday : Hospital laboratory
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Monday : Hospital Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Monday : VCT_ reception
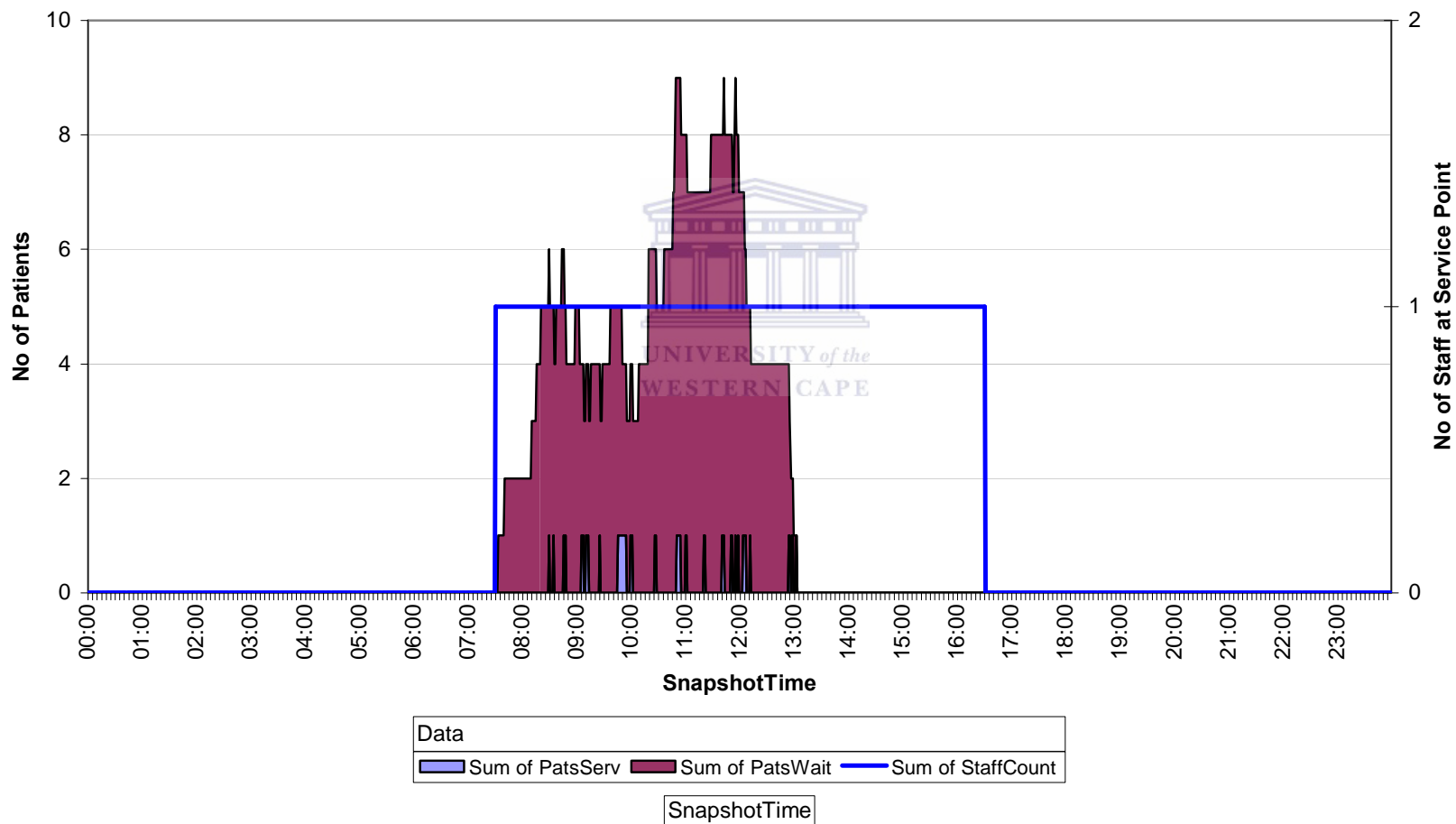## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

| | Sum of PatsServ | Sum of PatsWait | Sum of StaffCount |

SnapshotTime

HIV Clinic Monday : Vital signs corner and Triage
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Tuesday : HIV Counselling and Testing_ PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time
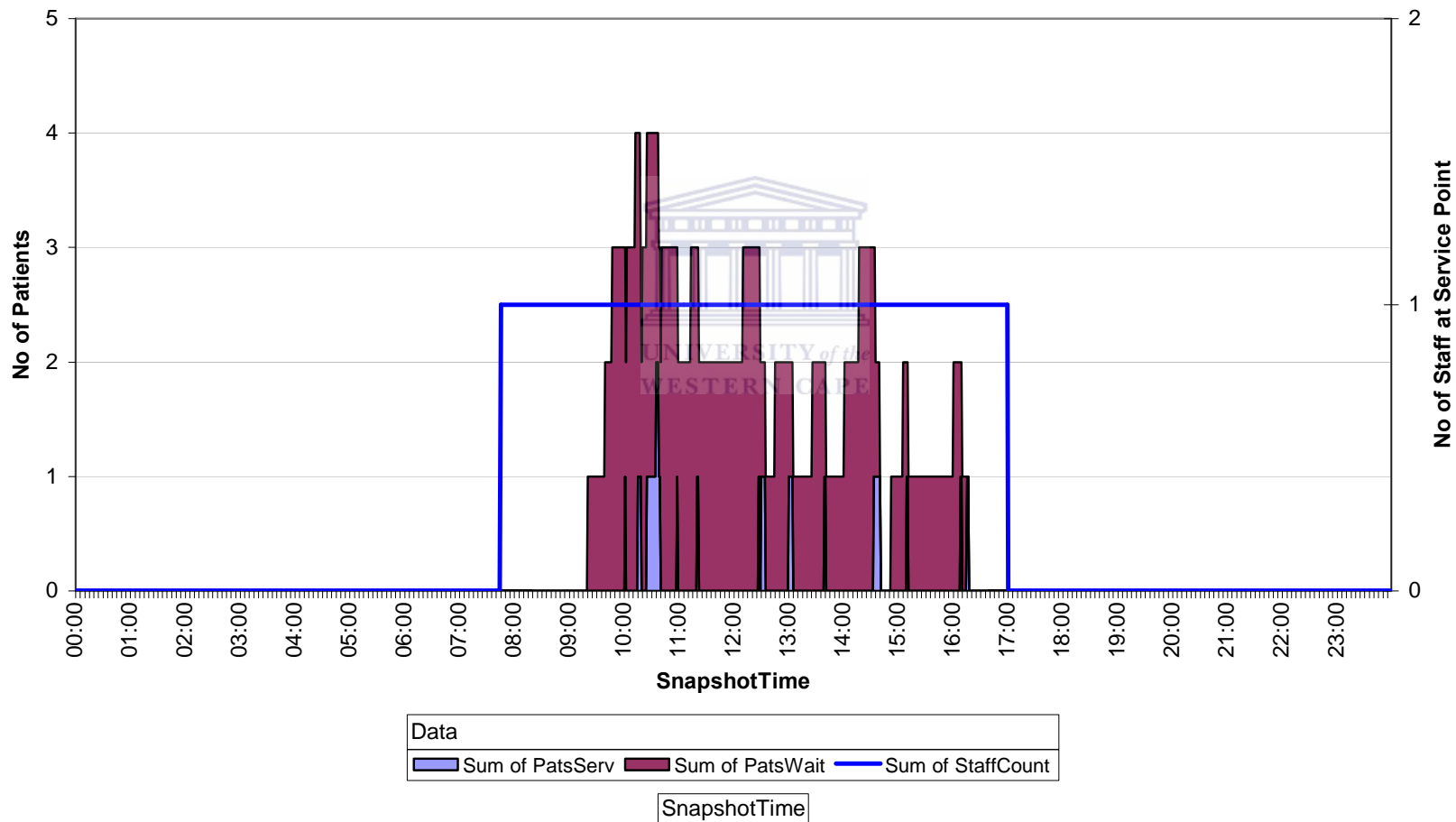
HIV Clinic Tuesday : ART Pharmacy
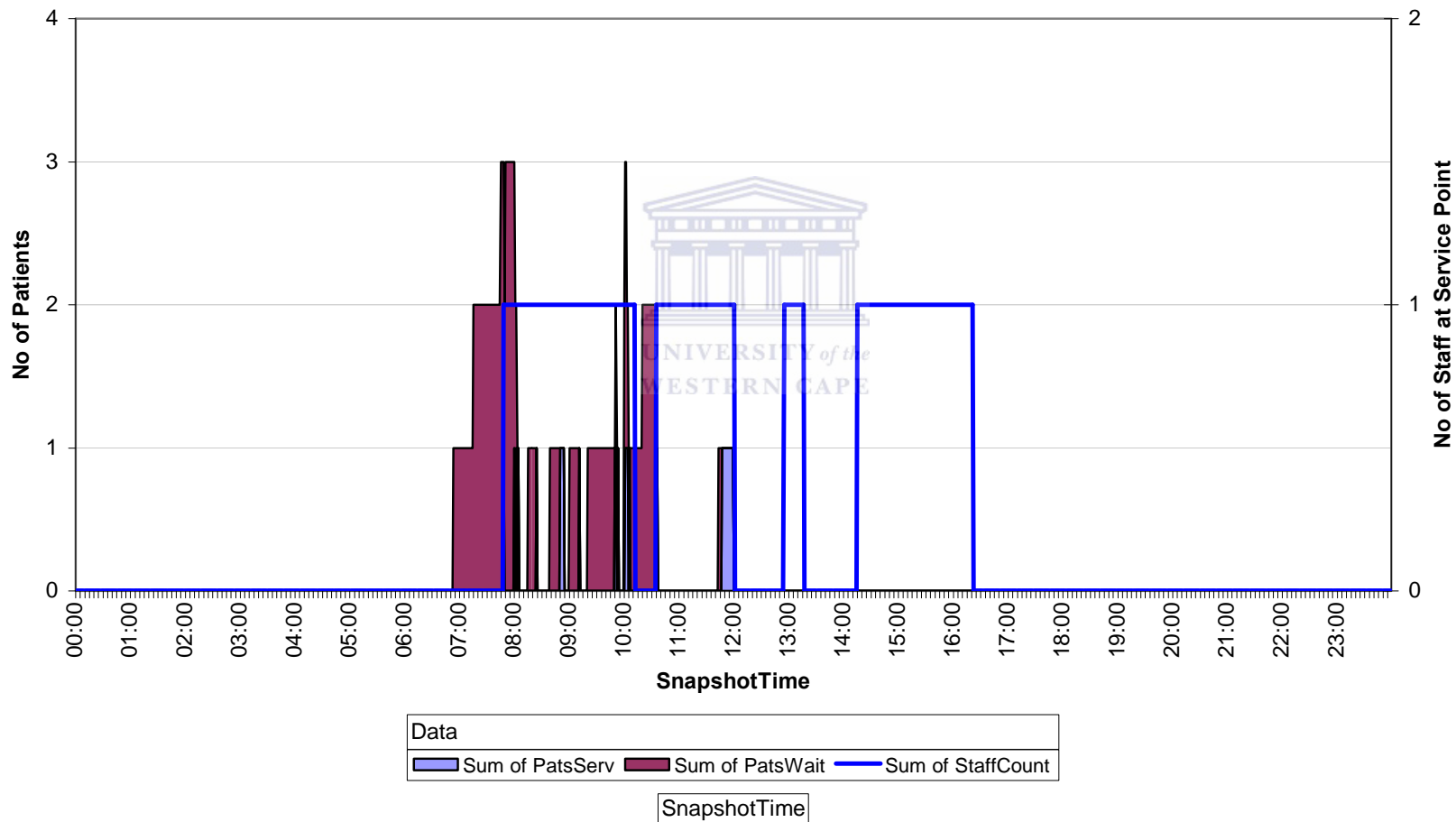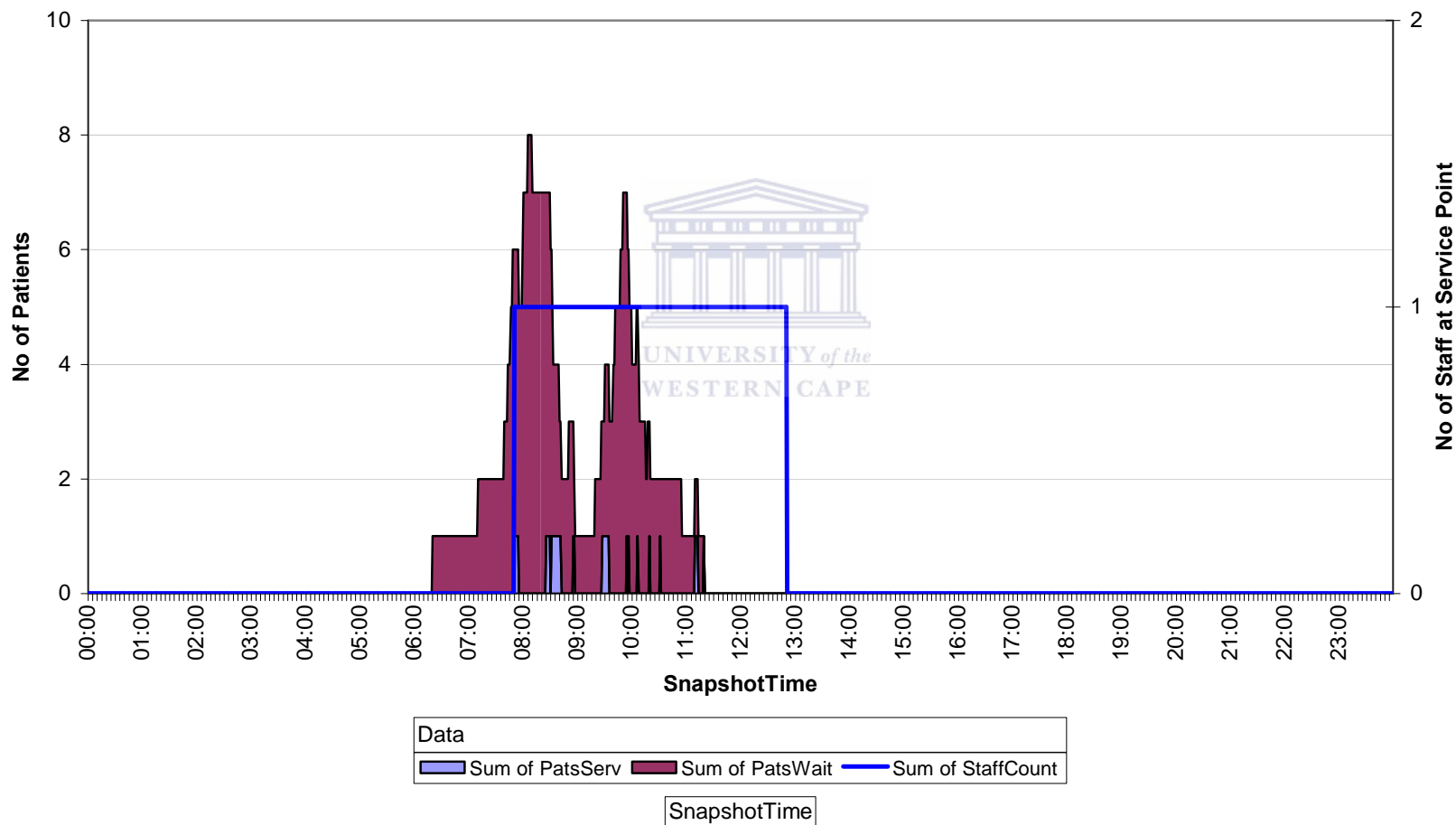## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
Sum of PatsServ   Sum of PatsWait   Sum of StaffCount
SnapshotTime

HIV Clinic Tuesday : ARV Consultation Room Dr
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Tuesday : ARV Reception and weighing
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Tuesday : Consulting Room - Prof Nurse
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

■ Sum of PatsServ   ■ Sum of PatsWait   — Sum of StaffCount

SnapshotTime

HIV Clinic Tuesday : Hospital laboratory
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Tuesday : Hospital Pharmacy
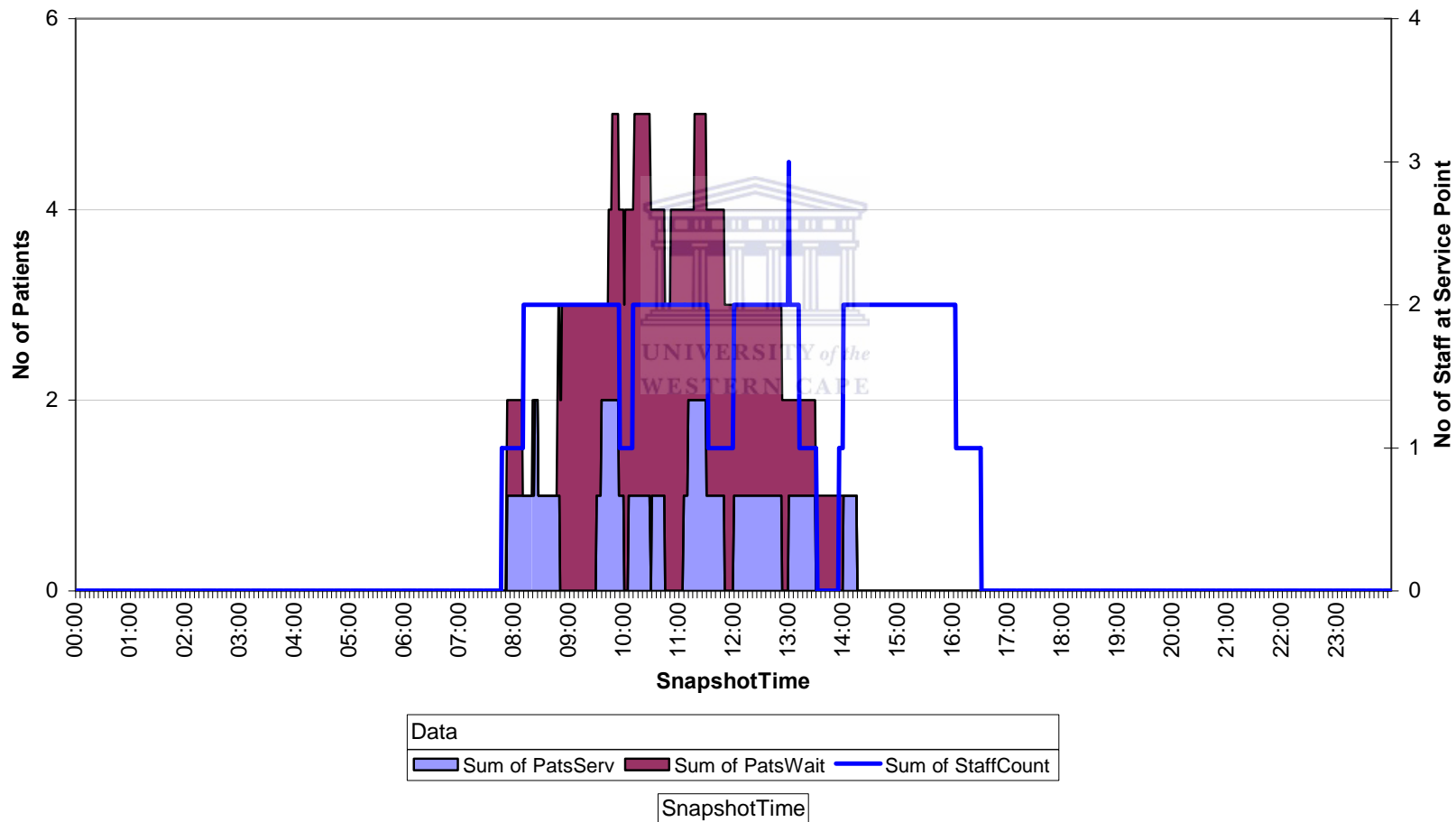## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Tuesday : VCT_ reception
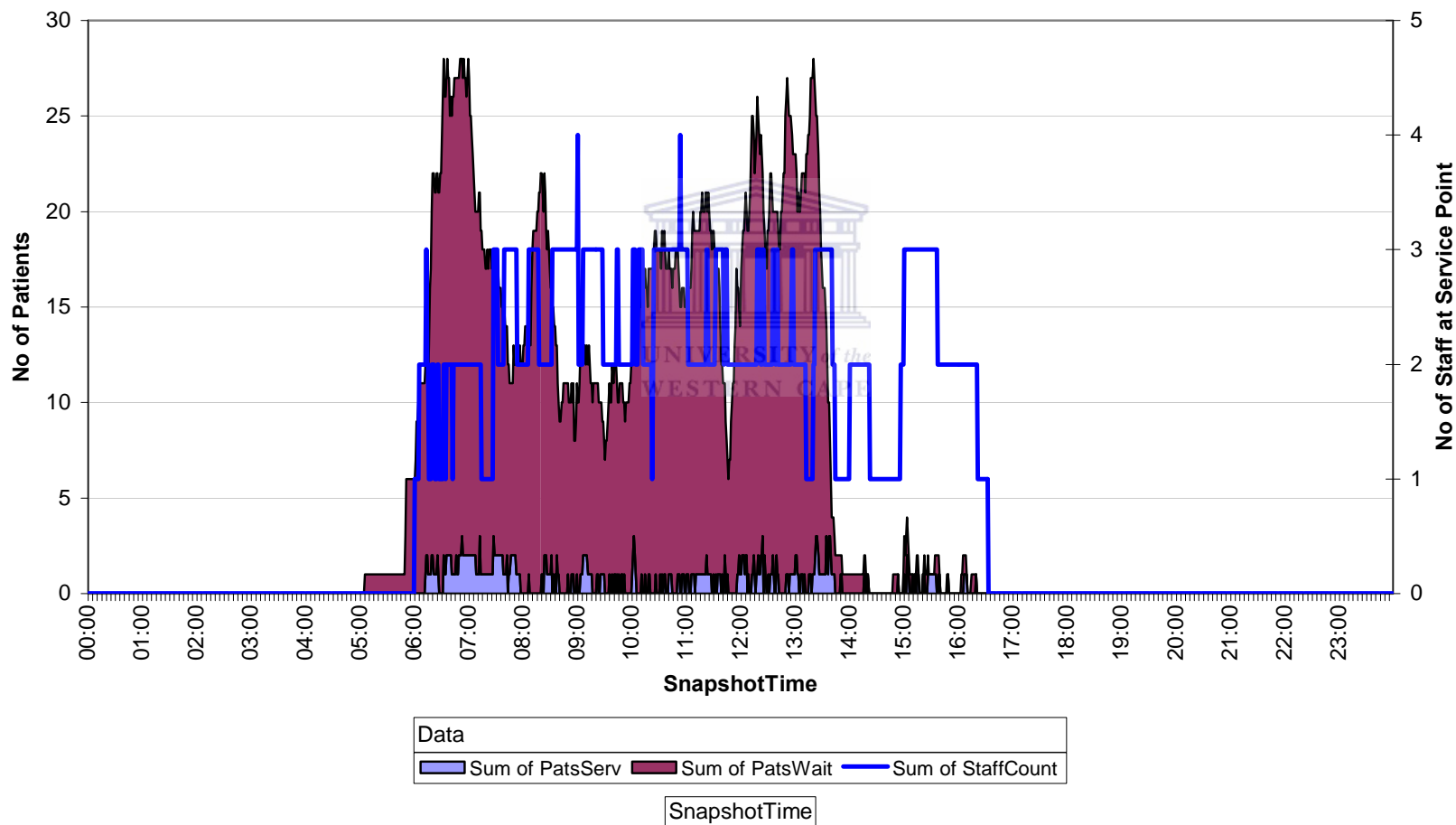## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

| Sum of PatsServ | Sum of PatsWait | Sum of StaffCount |

SnapshotTime

HIV Clinic Tuesday : Vital signs corner and Triage
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time
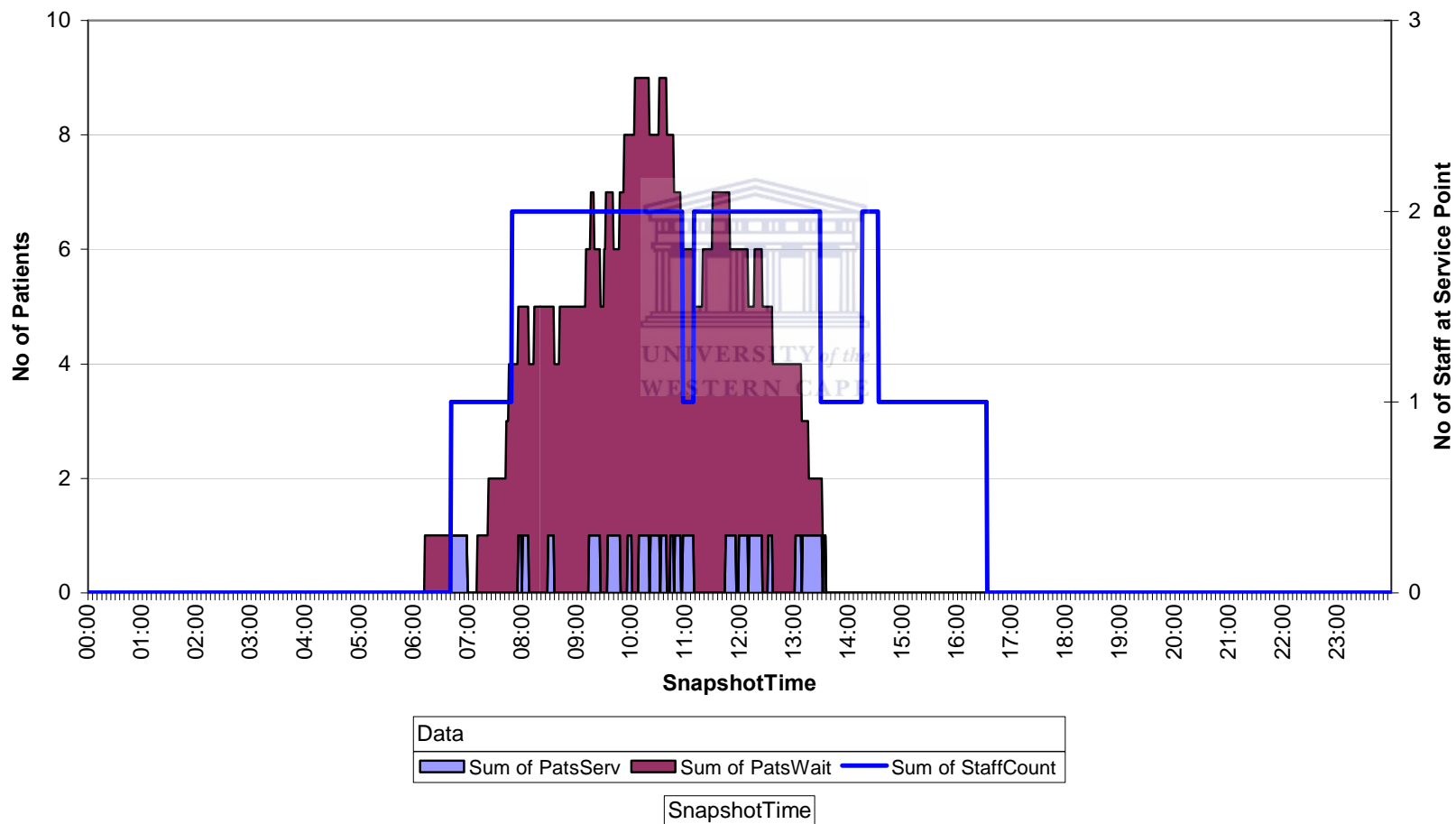
HIV Clinic Wednesday : HIV Counselling and Testing_ PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

SnapshotTime

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Wednesday : ART Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
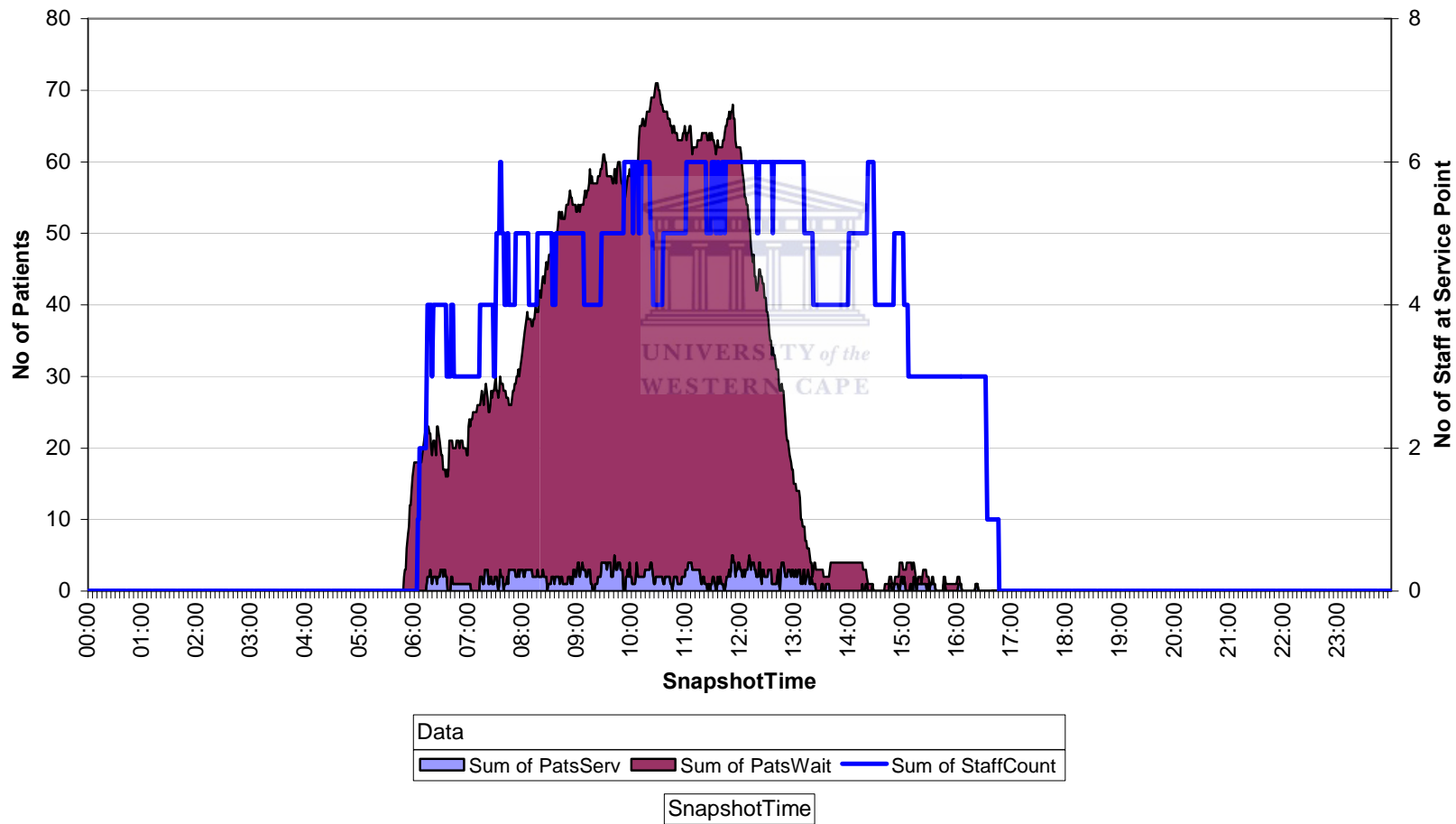|		
Sum of PatsServ	Sum of PatsWait	Sum of StaffCount

SnapshotTime

HIV Clinic Wednesday : ARV Consultation Room Dr
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Wednesday : ARV Consultation room PN
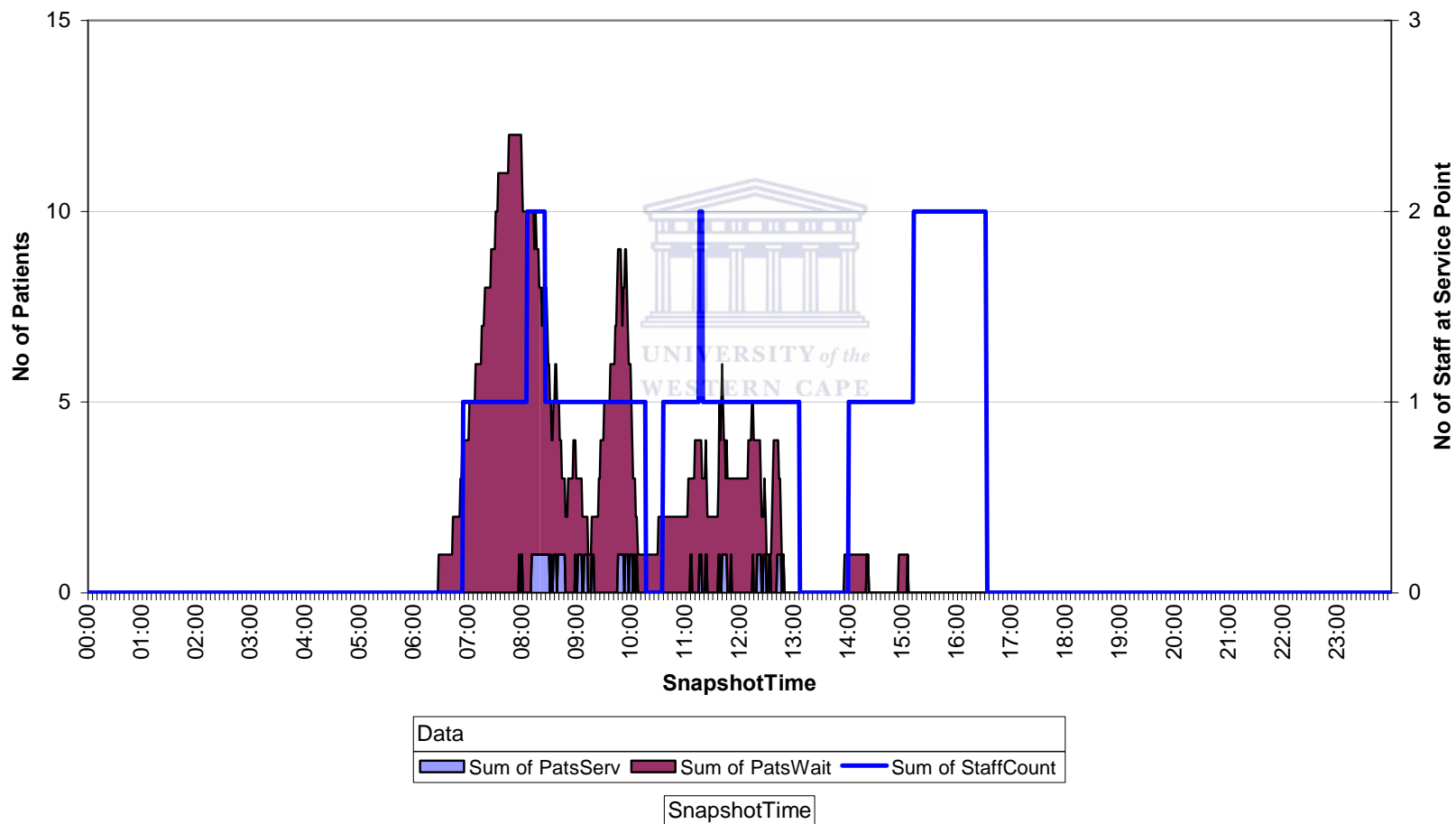## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time
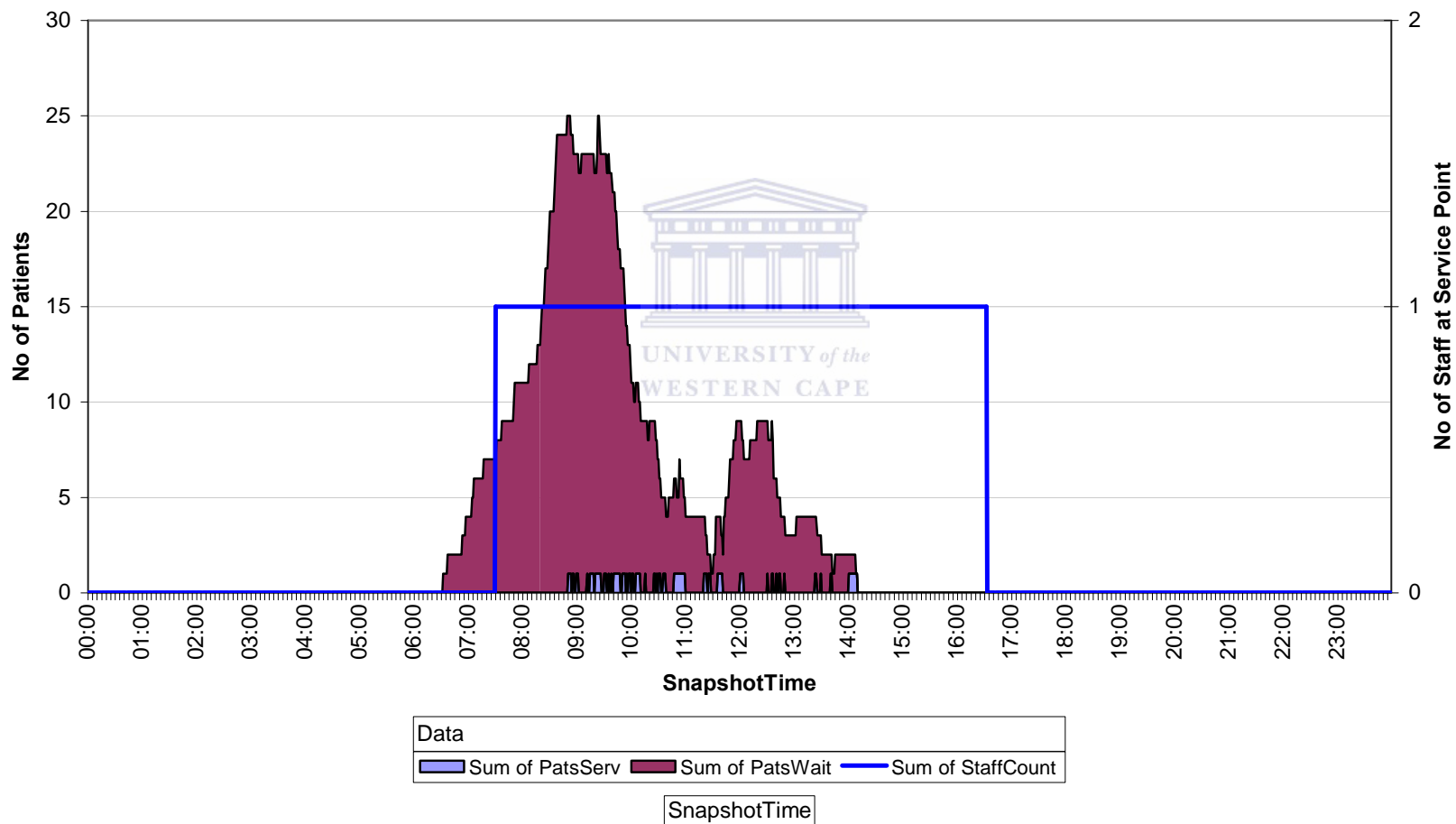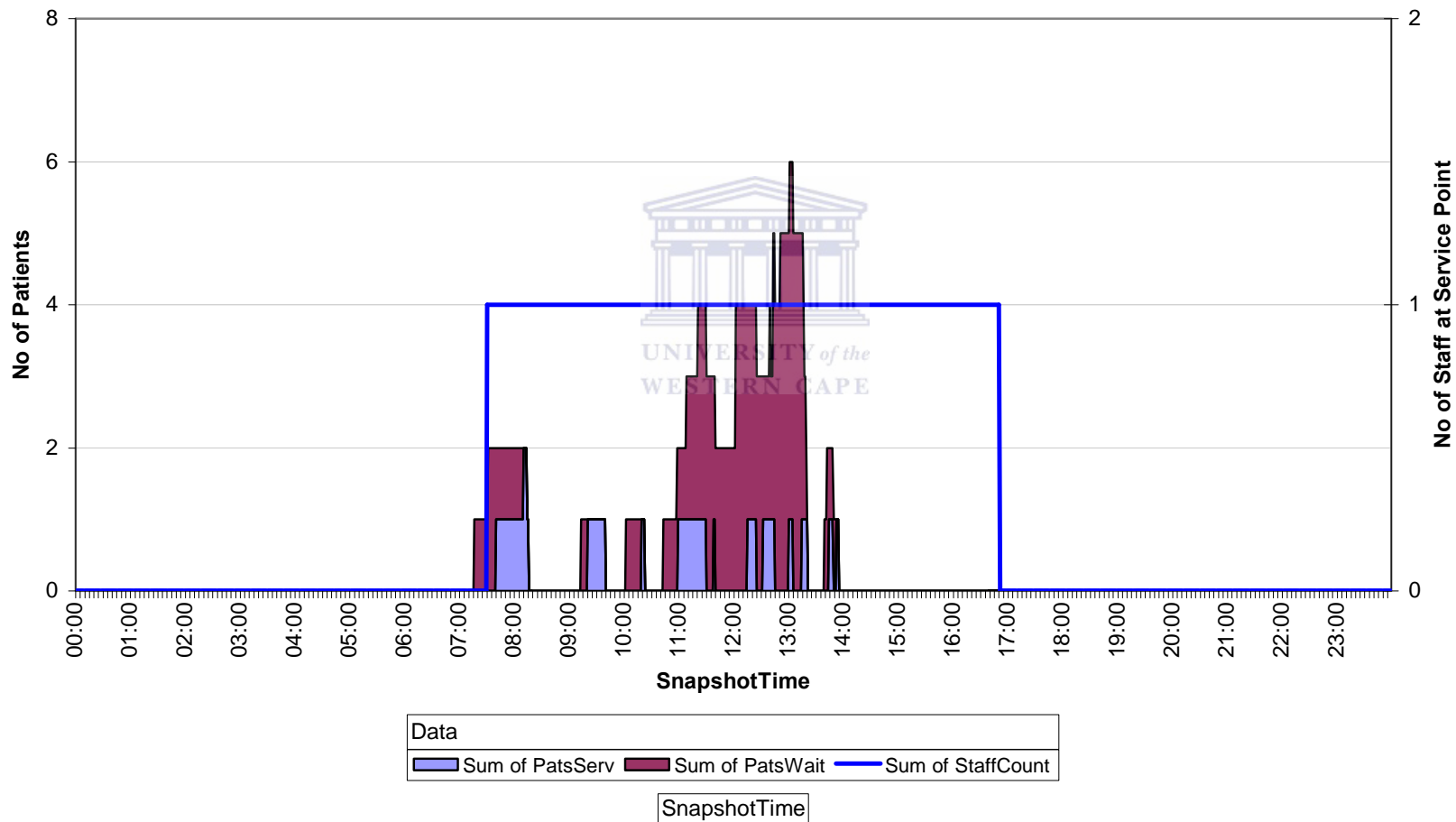

No of Patients (left axis): 0, 10, 20, 30, 40, 50, 60, 70, 80

No of Staff at Service Point (right axis): 0, 2, 4, 6, 8

SnapshotTime (x-axis): 00:00, 01:00, 02:00, 03:00, 04:00, 05:00, 06:00, 07:00, 08:00, 09:00, 10:00, 11:00, 12:00, 13:00, 14:00, 15:00, 16:00, 17:00, 18:00, 19:00, 20:00, 21:00, 22:00, 23:00

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Wednesday : Food distribution
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ | Sum of PatsWait | Sum of StaffCount

SnapshotTime

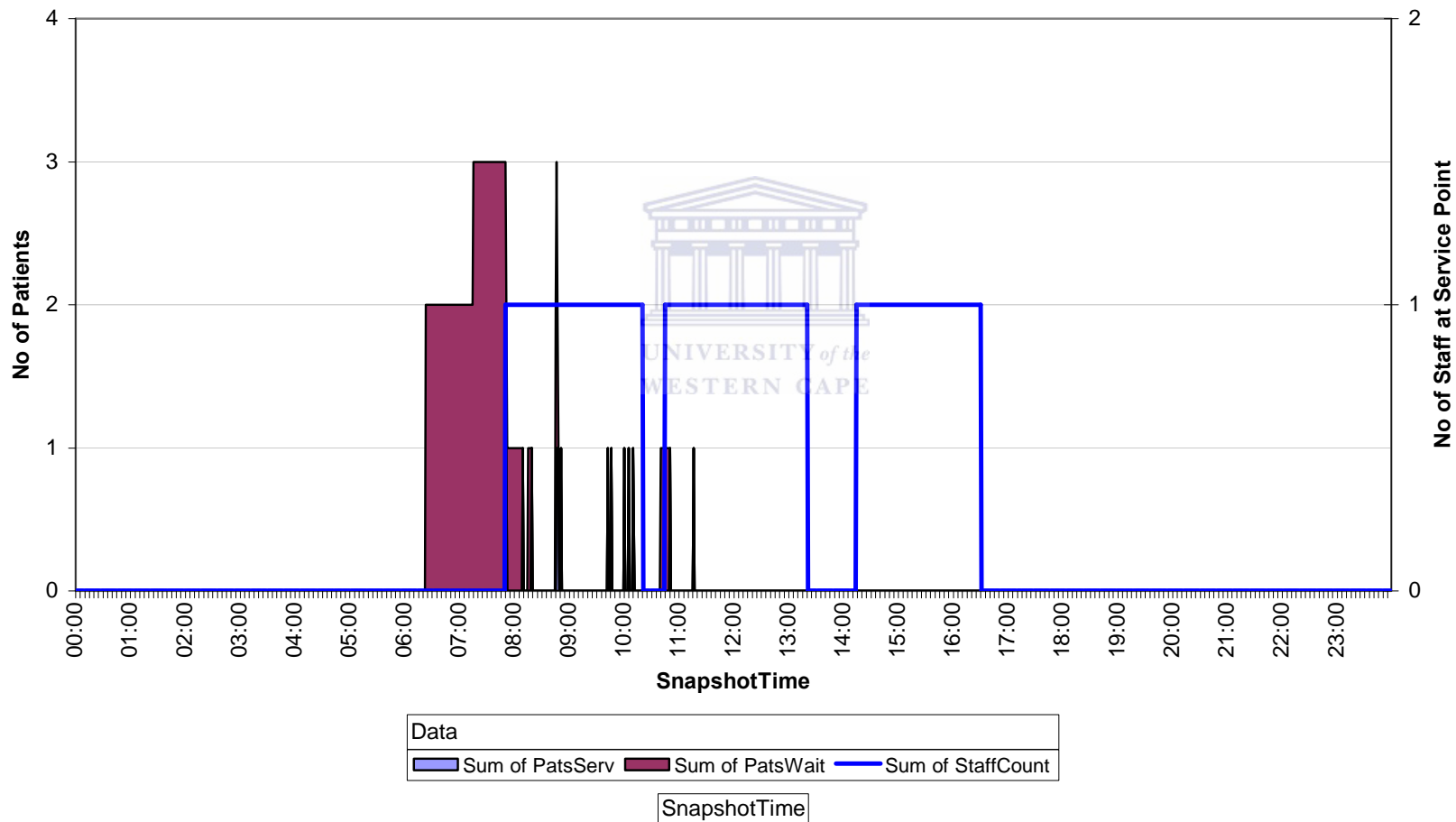# HIV Clinic Wednesday : Hospital laboratory
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Wednesday : Hospital Pharmacy
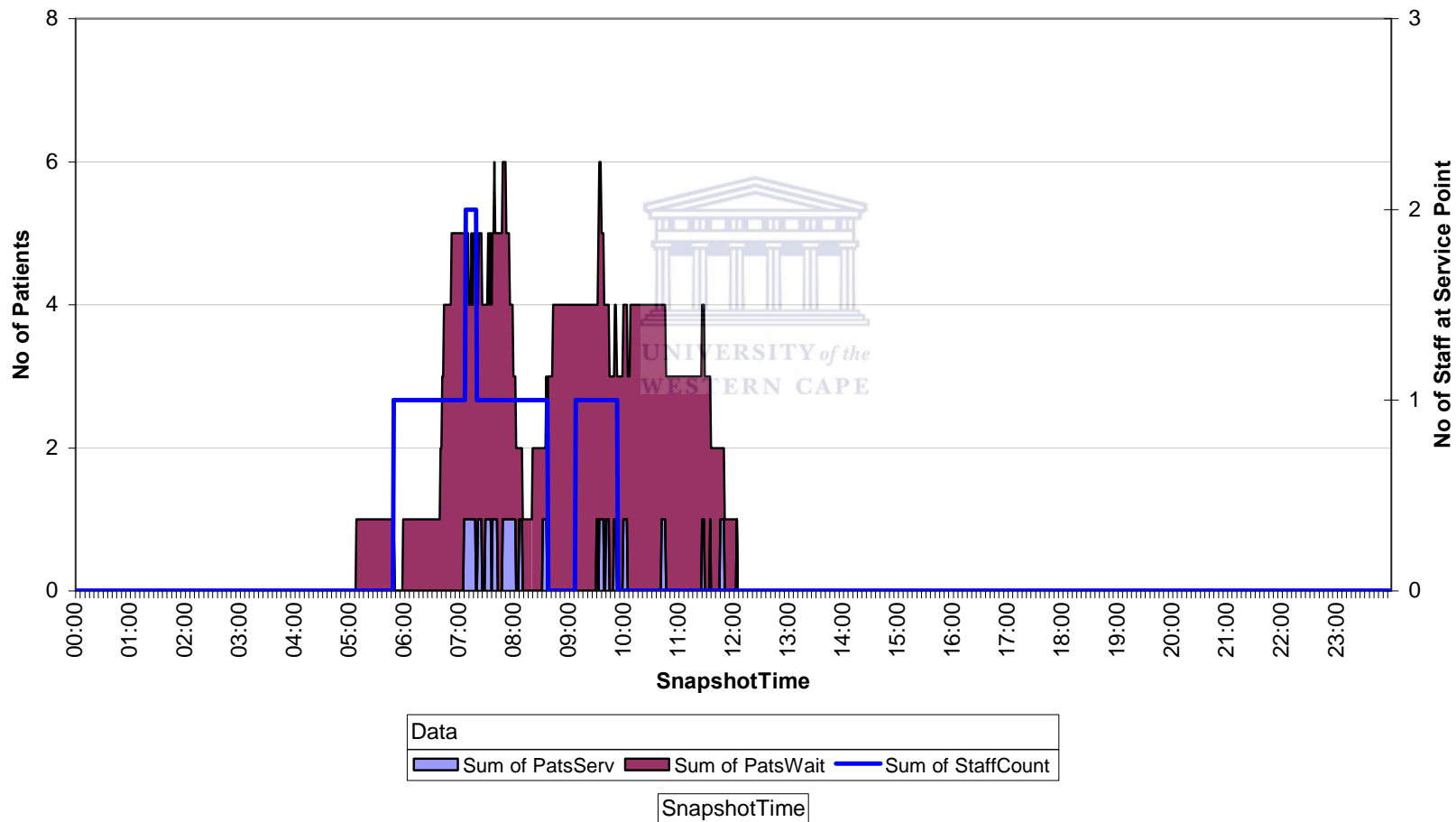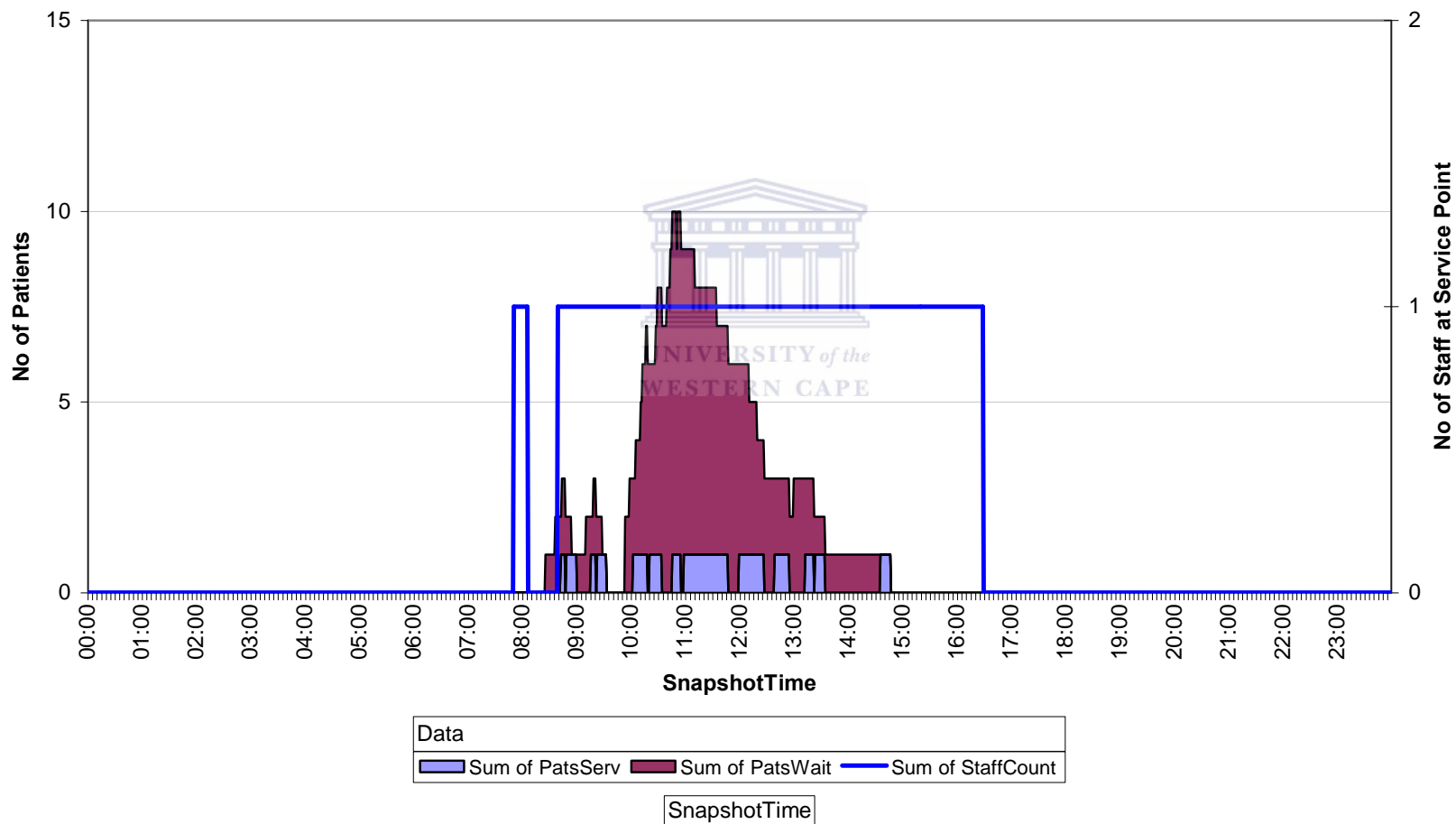## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Wednesday : VCT_ reception
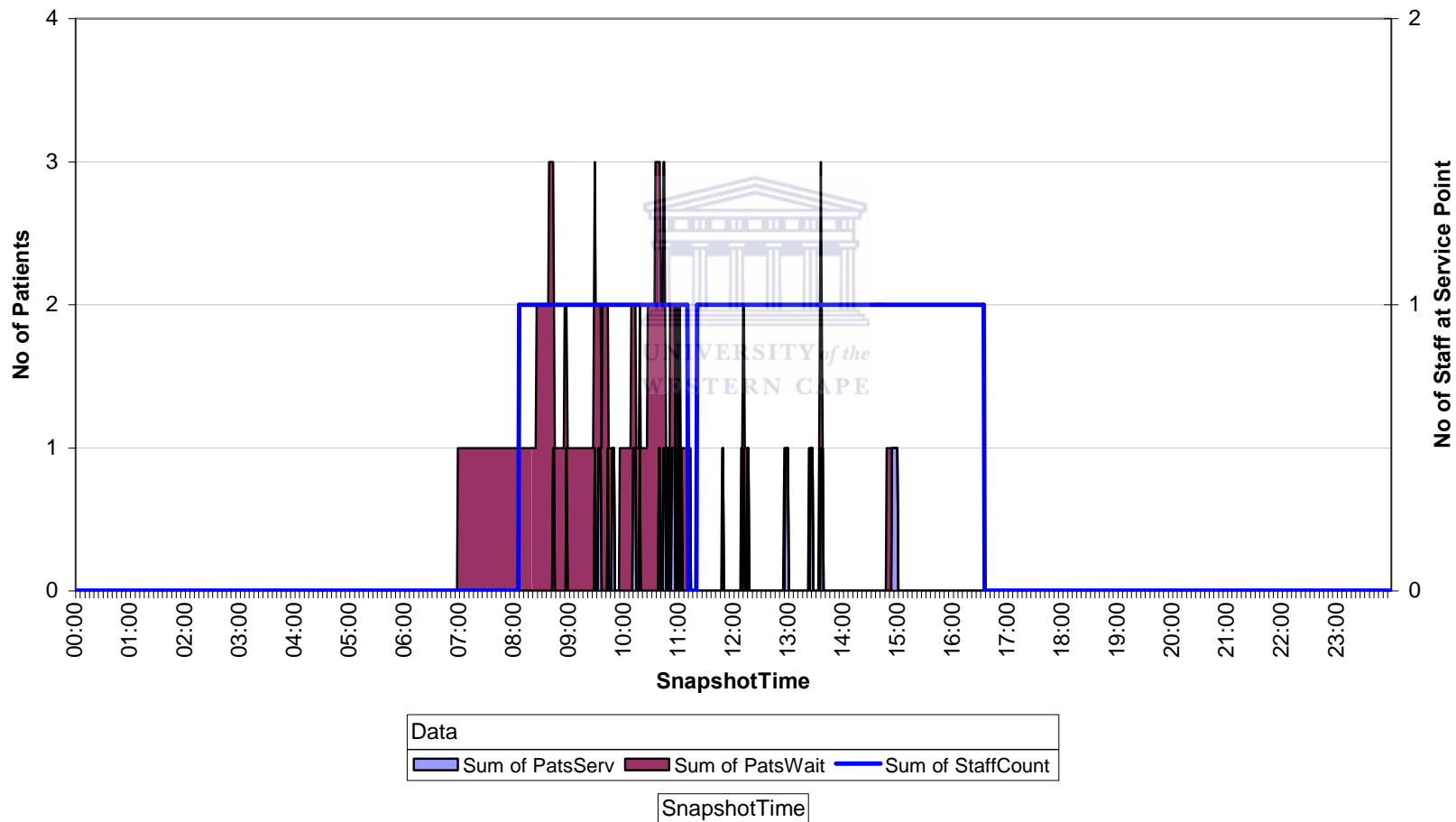**Snapshot of Patients Waiting and those Receiving a Service at any Point in Time**

HIV Clinic Wednesday : Vital signs corner and Triage
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ	Sum of PatsWait	Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : ARV Consultation Room Dr
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : ART Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Thursday : ART Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Thursday : ARV Consultation Room Dr
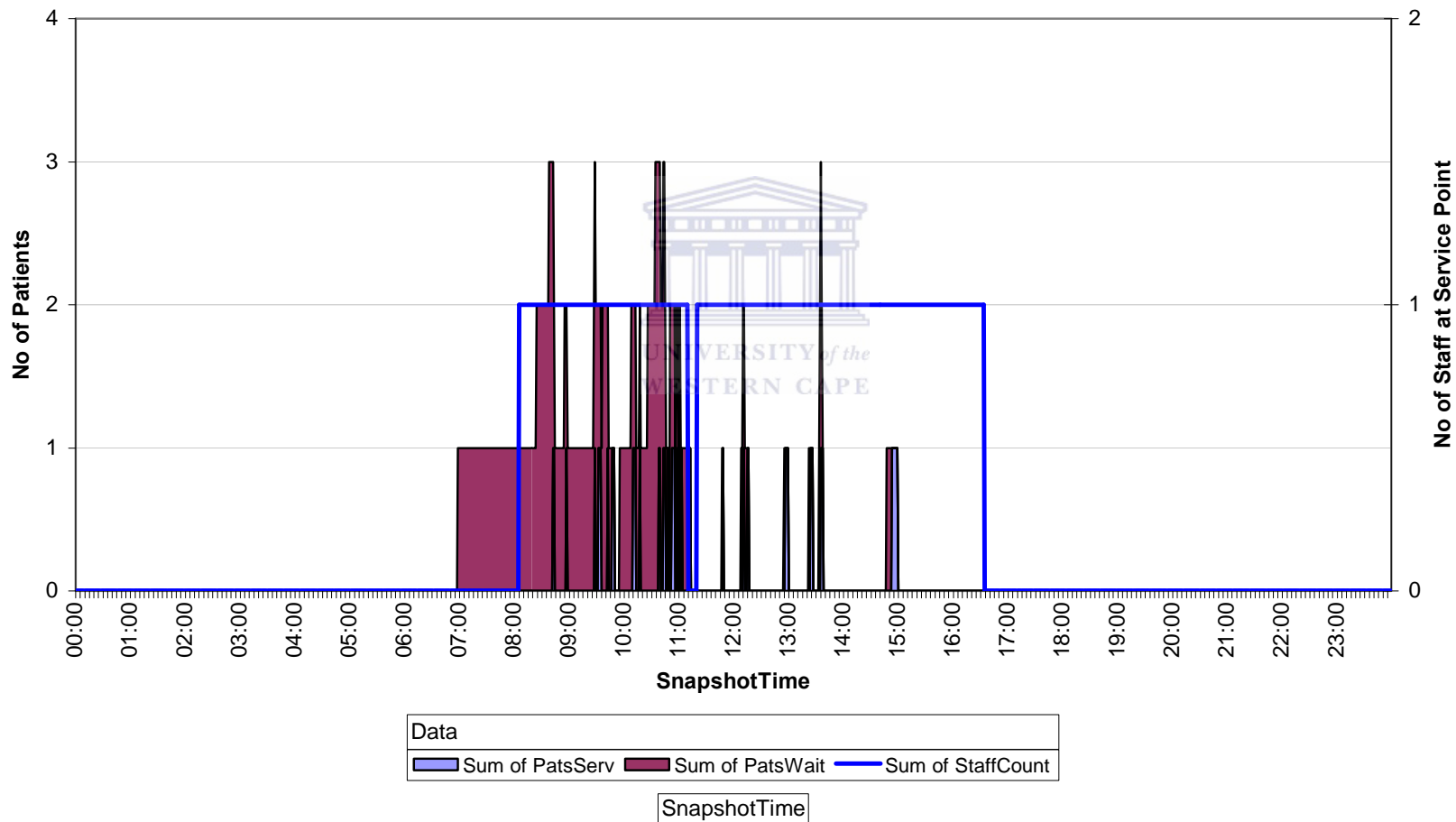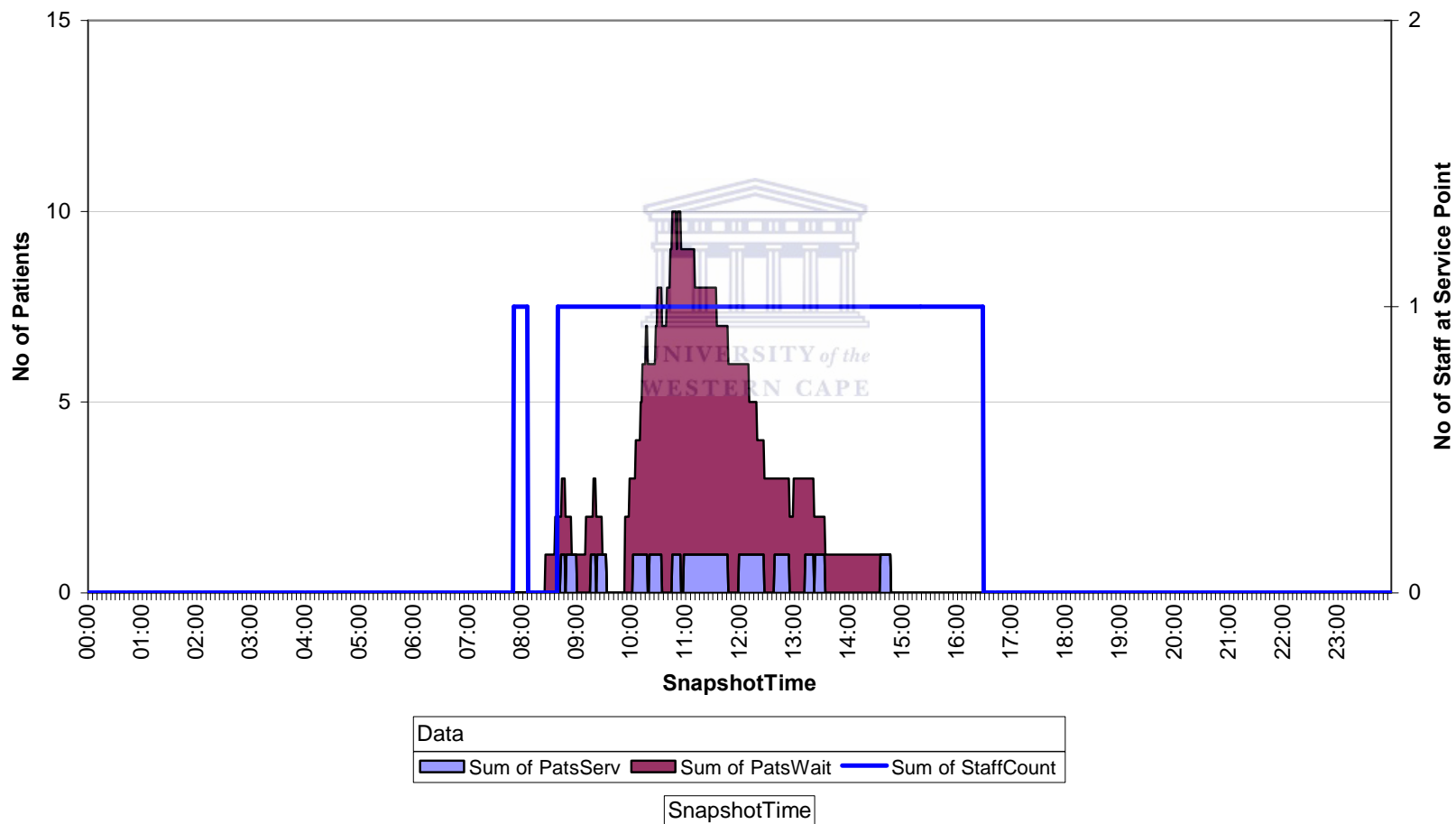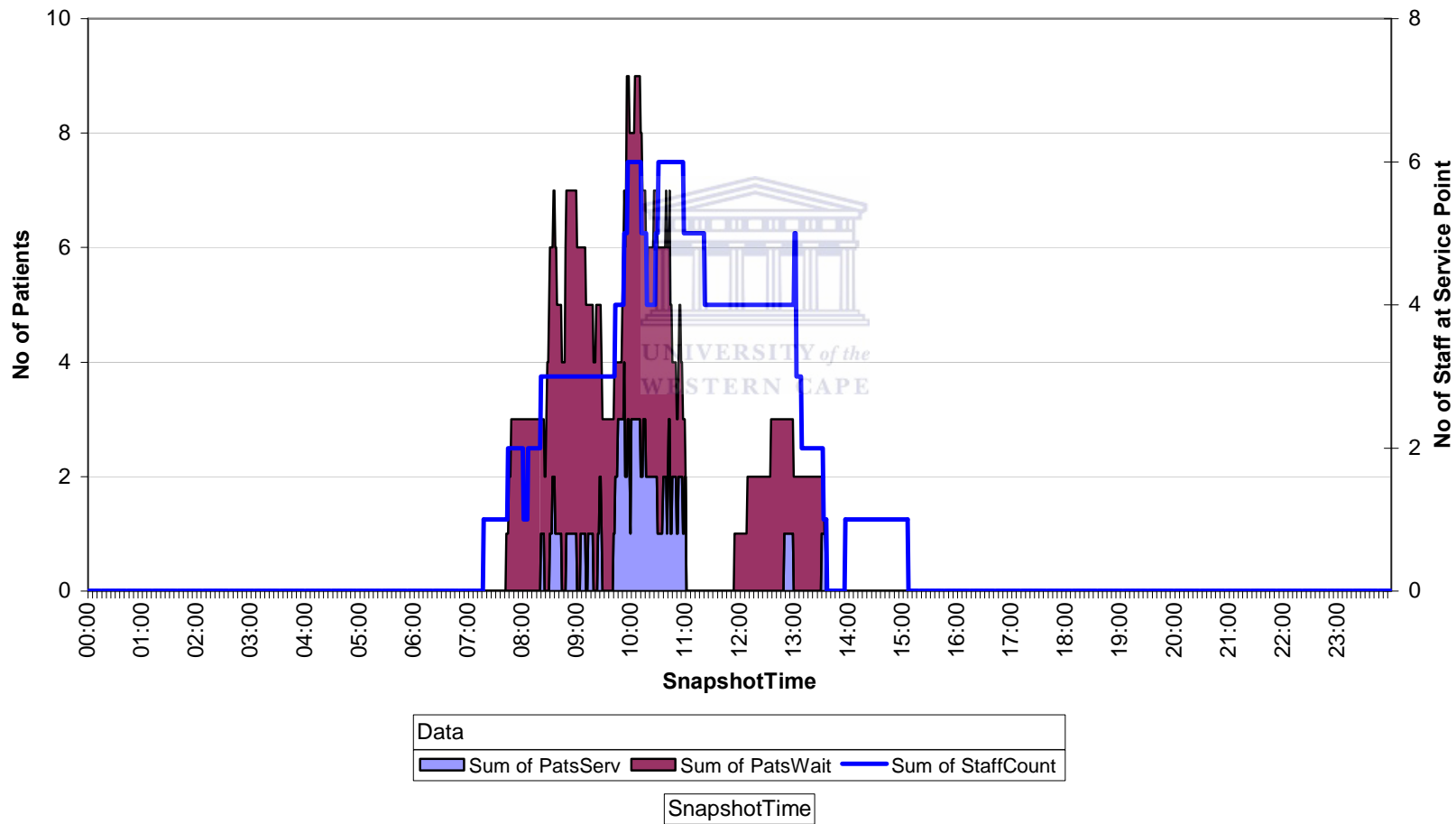## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

☐ Sum of PatsServ ☐ Sum of PatsWait ── Sum of StaffCount

SnapshotTime
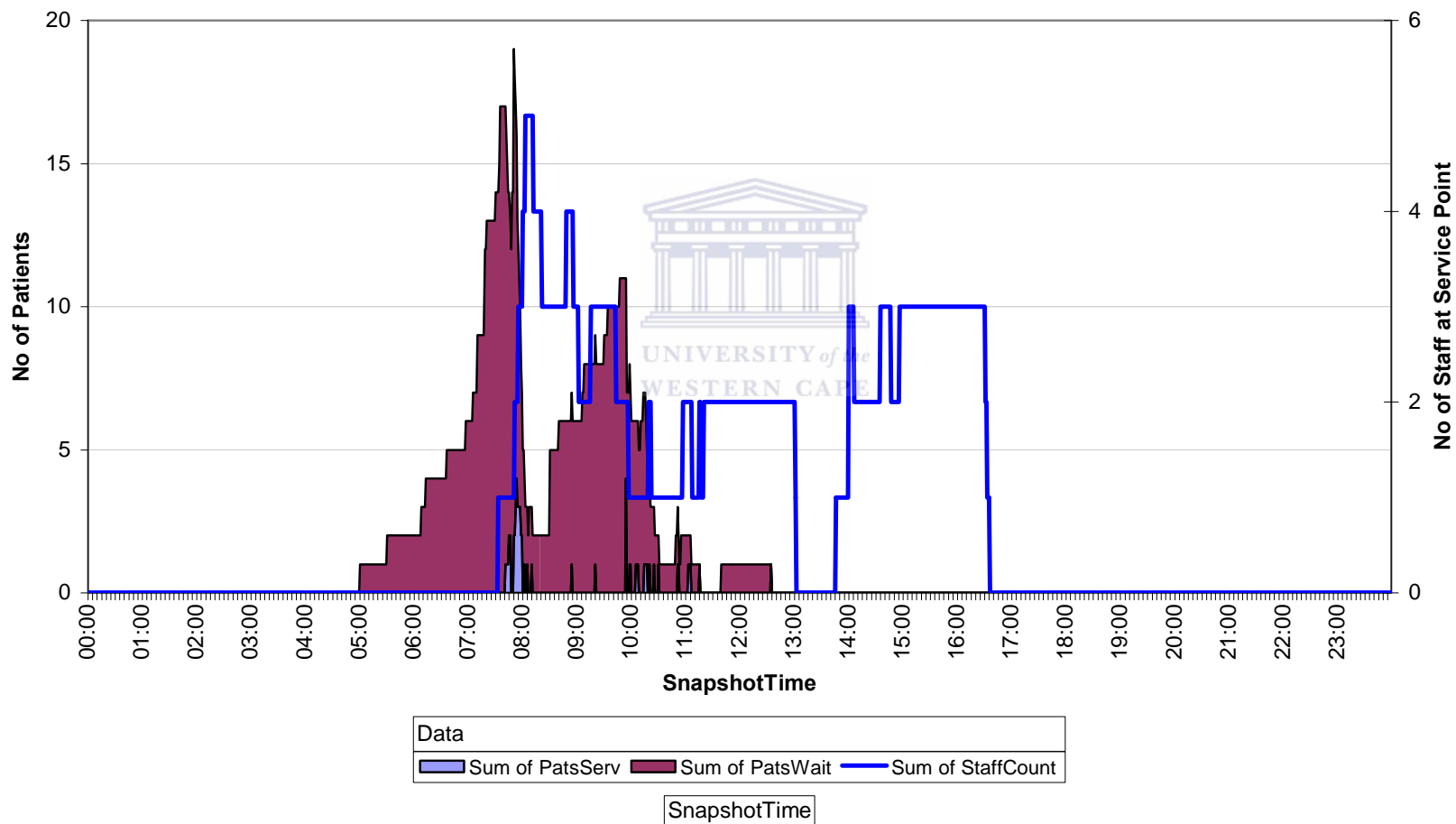
HIV Clinic Thursday : ARV Consultation room PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

No of Patients (left axis)

No of Staff at Service Point (right axis)

SnapshotTime

Data

Sum of PatsServ | Sum of PatsWait | Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : ARV Reception and weighing
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : Food distribution
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
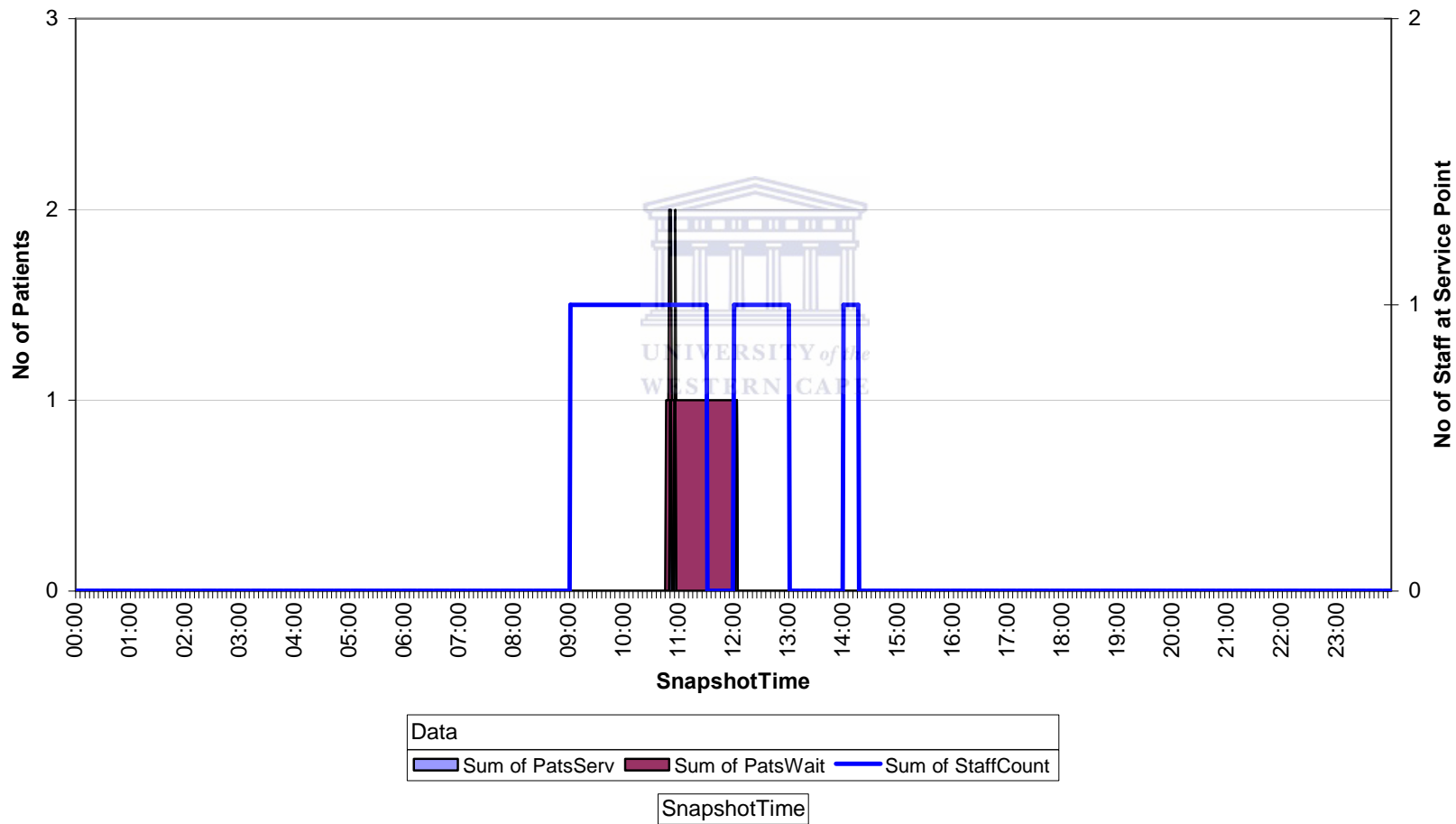| Sum of PatsServ | Sum of PatsWait | Sum of StaffCount |

SnapshotTime

HIV Clinic Thursday : Hospital laboratory
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : Hospital Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

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WESTERN CAPE

Data

Sum of PatsServ | Sum of PatsWait | Sum of StaffCount

SnapshotTime

215

HIV Clinic Thursday : VCT consultation room PN
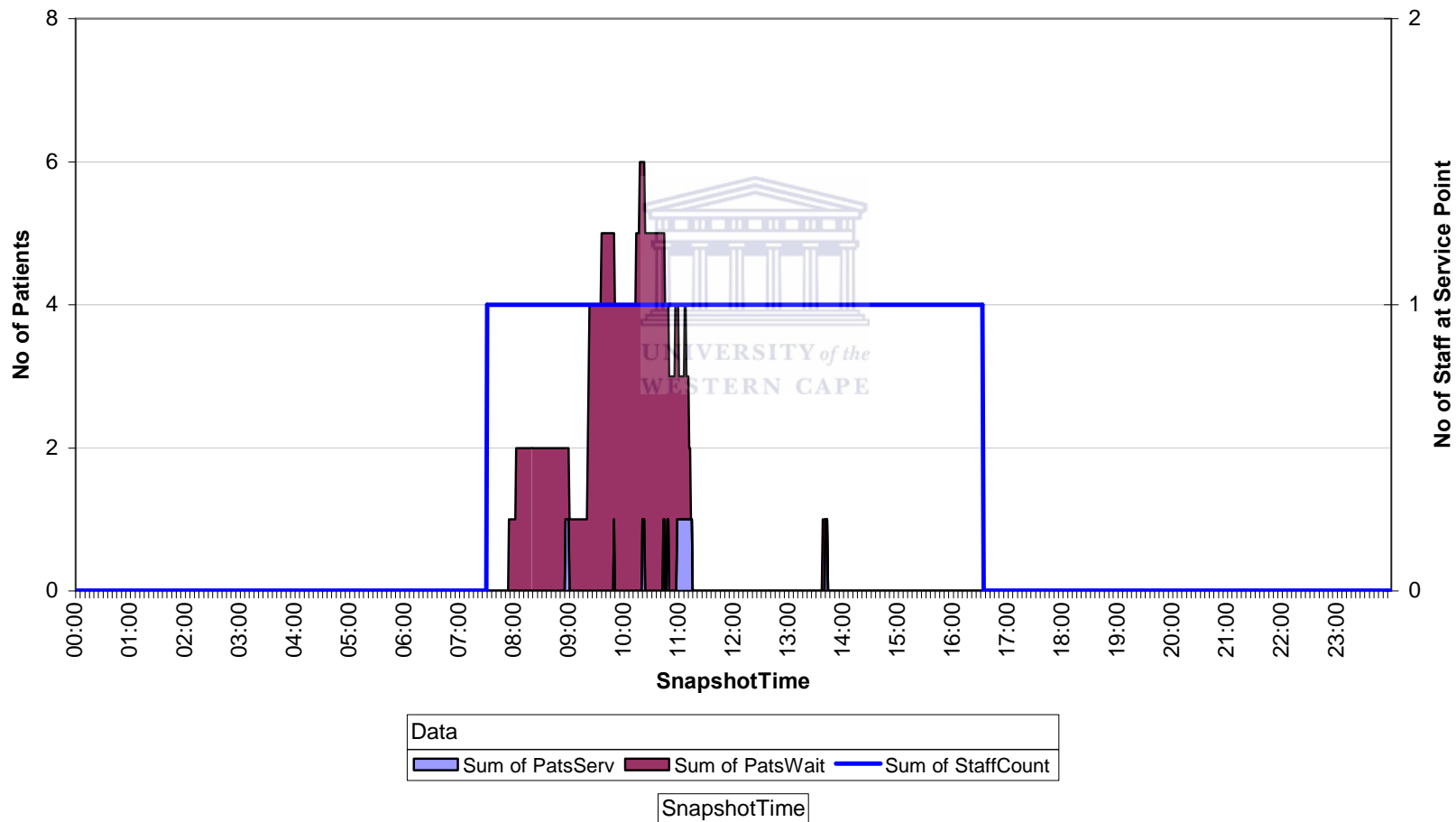## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : VCT_ reception
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

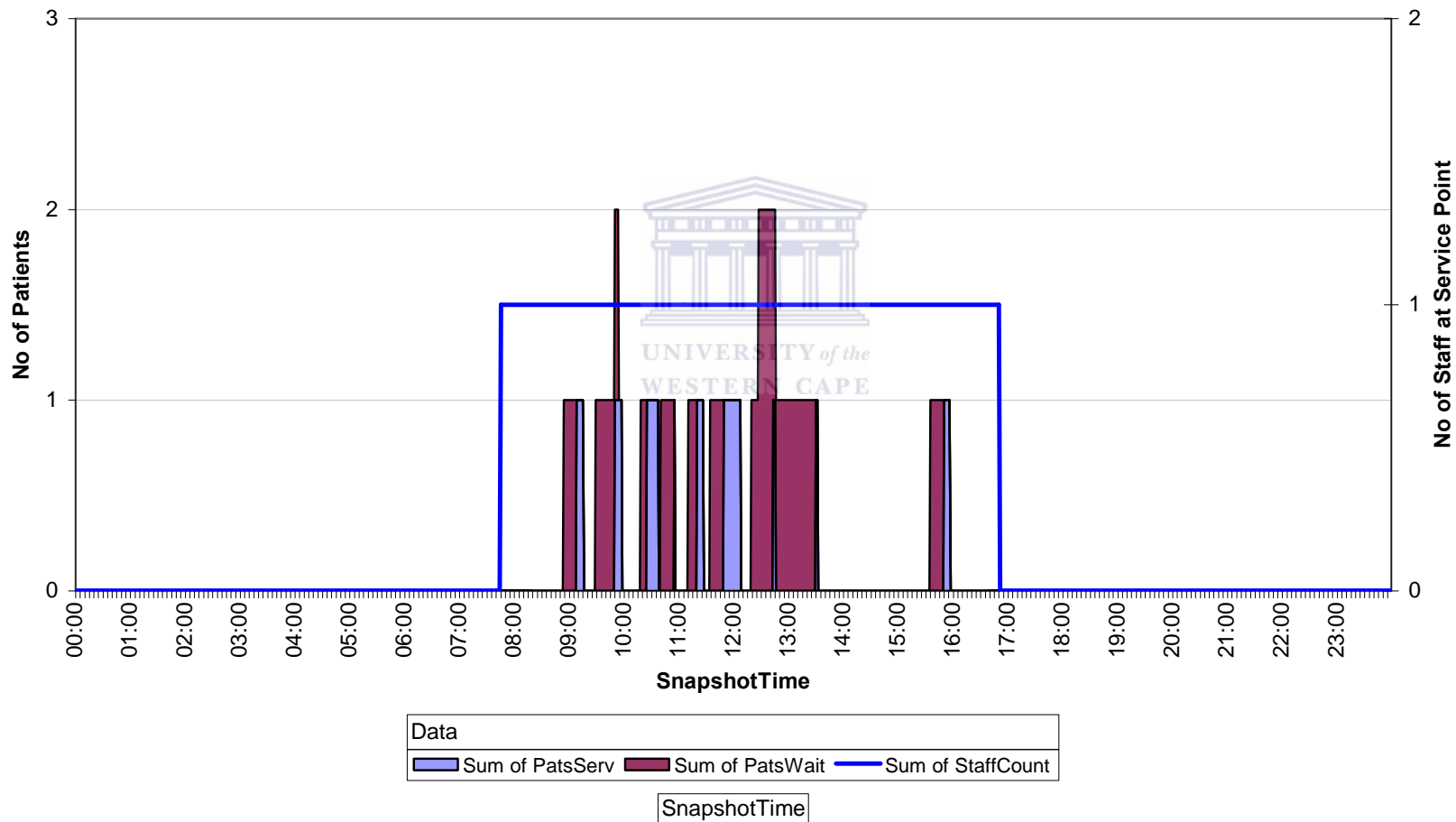**No of Patients** (left axis) vs **SnapshotTime** (x-axis) vs **No of Staff at Service Point** (right axis)

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Thursday : Vital signs corner and Triage
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ | Sum of PatsWait | Sum of StaffCount

SnapshotTime

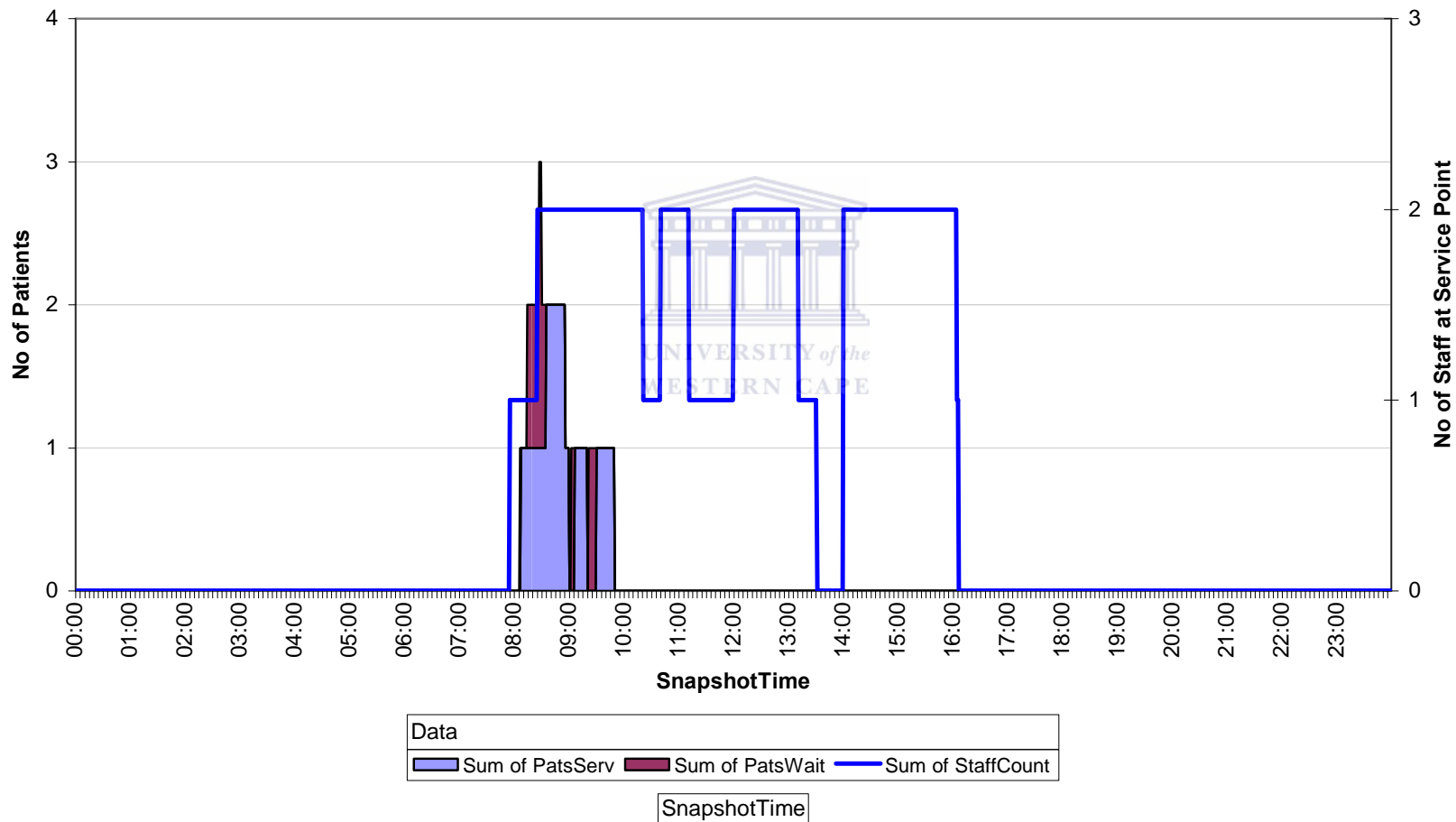# HIV Clinic Friday : ART Pharmacy
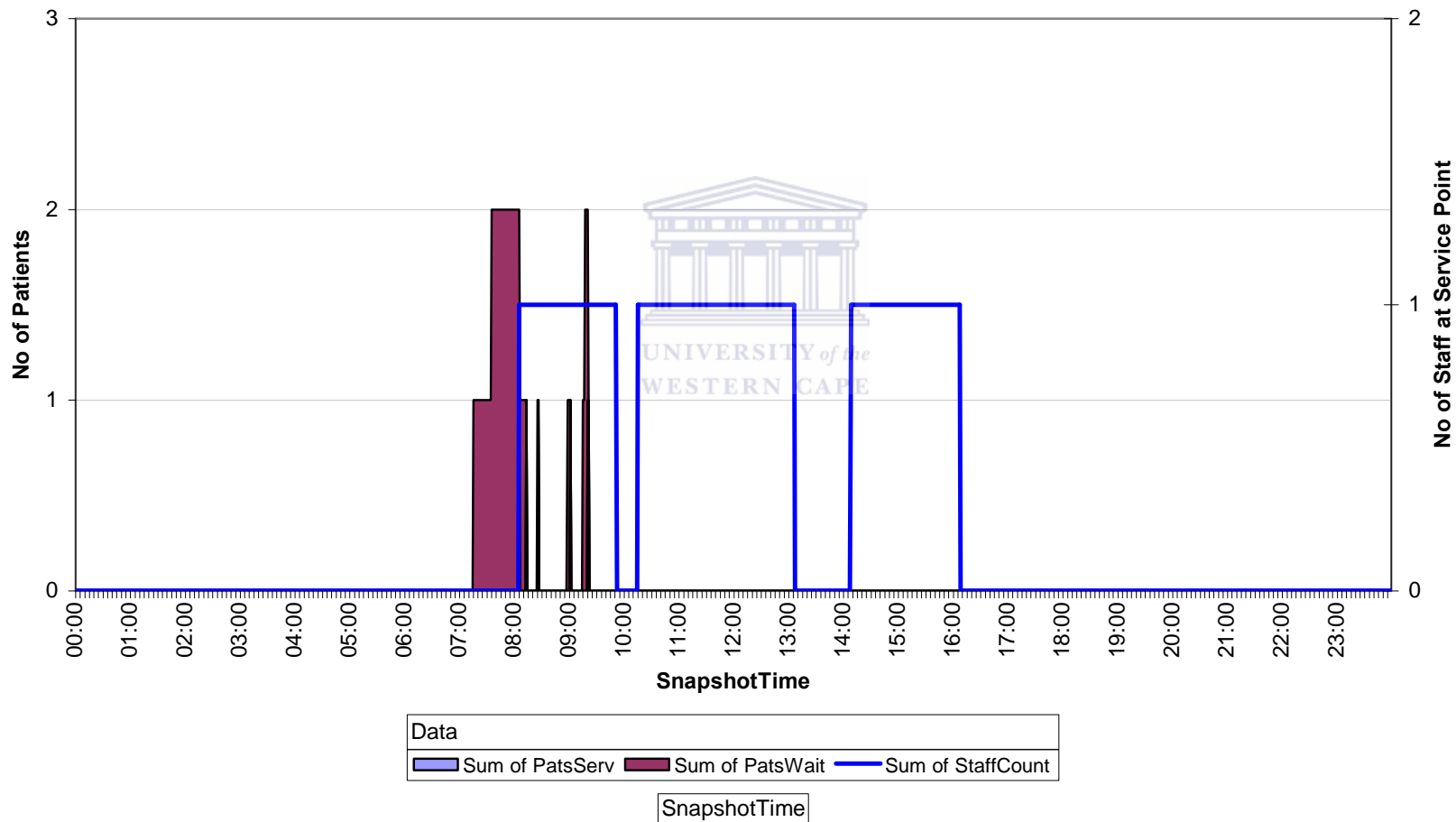## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Friday : ARV Consultation Room Dr
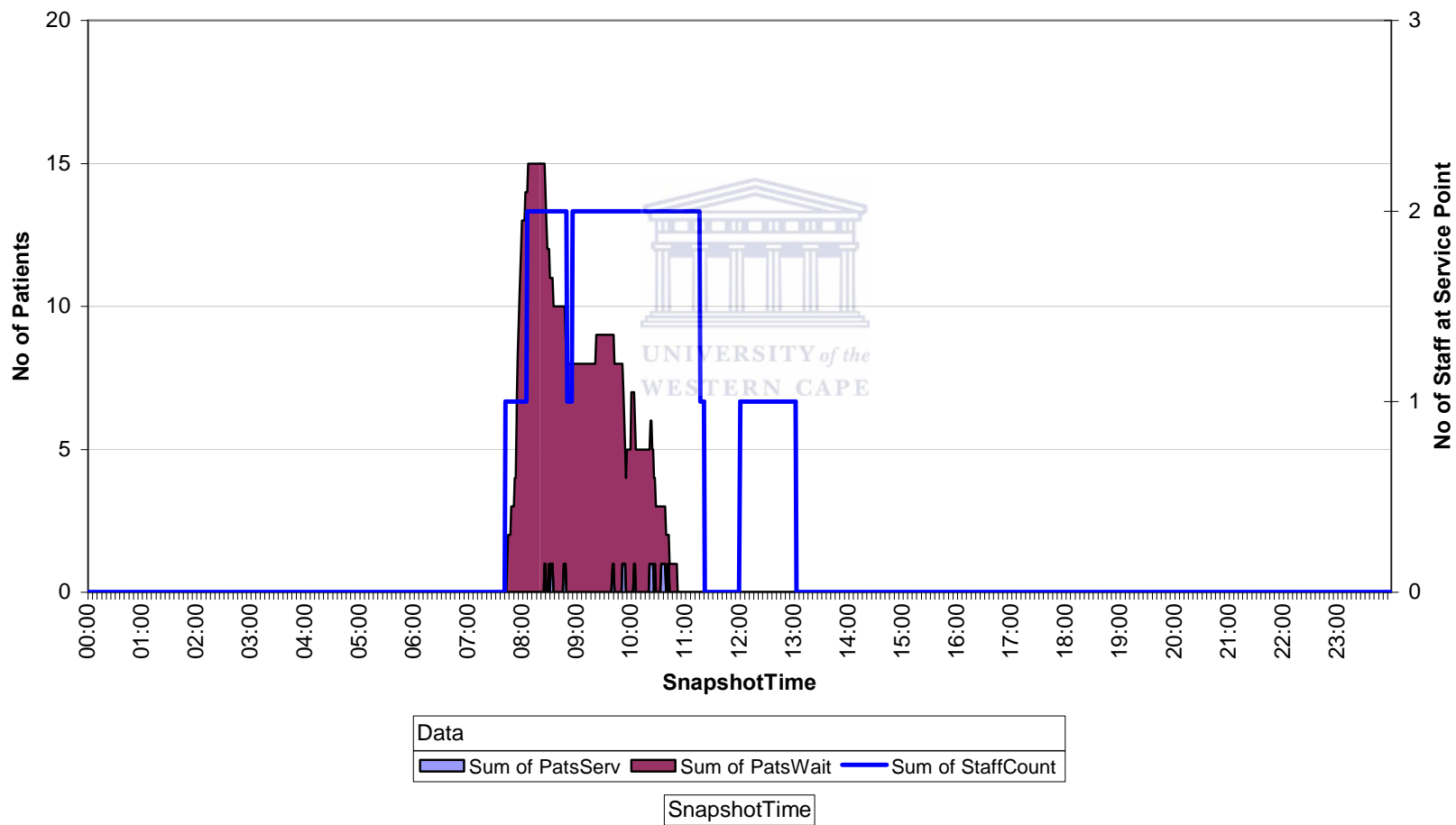## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data		
Sum of PatsServ	Sum of PatsWait	Sum of StaffCount

SnapshotTime

HIV Clinic Friday : ARV Consultation room PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

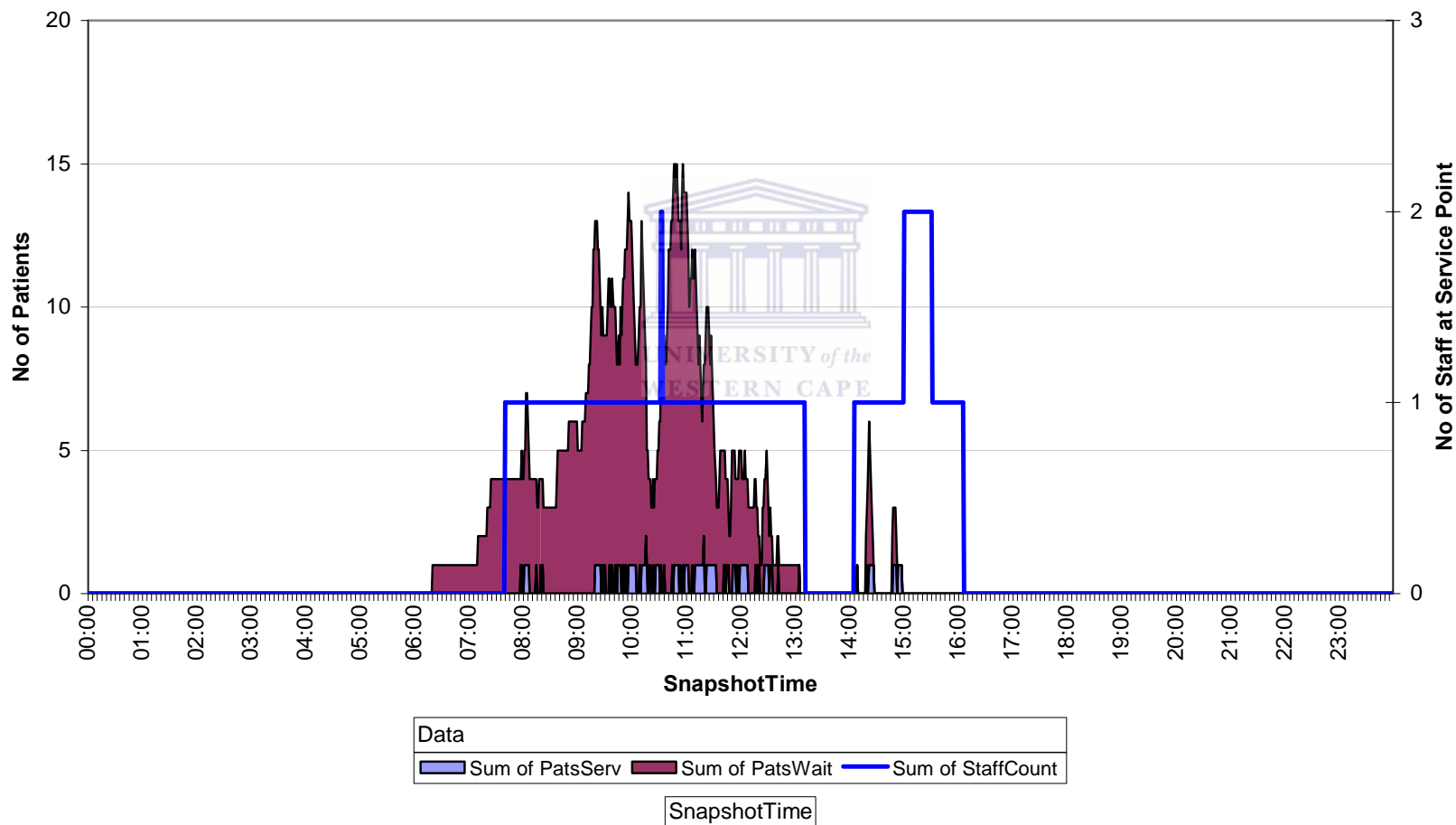| Data		
Sum of PatsServ	Sum of PatsWait	Sum of StaffCount

SnapshotTime

HIV Clinic Friday : ARV Reception and weighing
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Friday : Food distribution
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

HIV Clinic Friday : Hospital laboratory
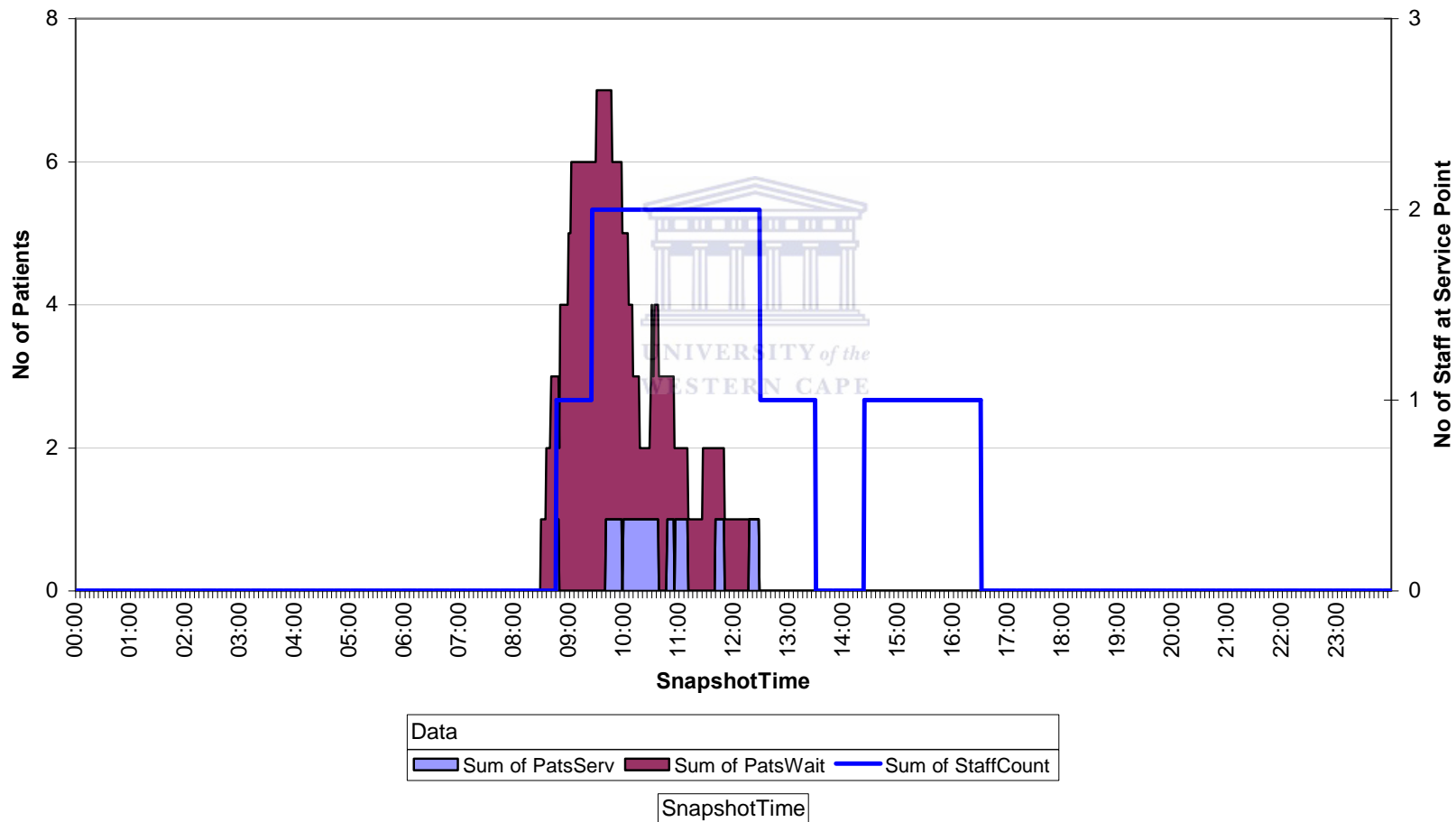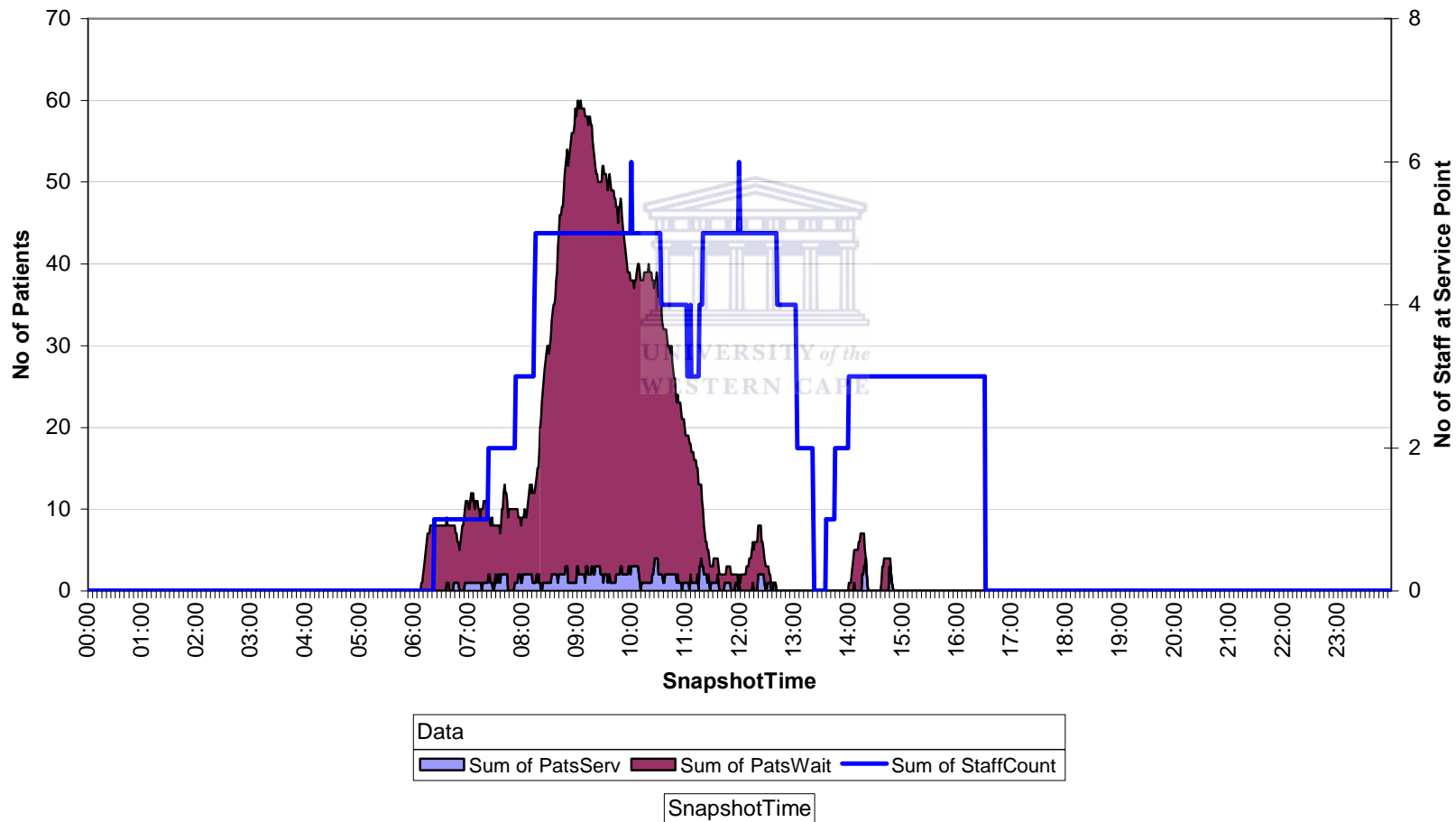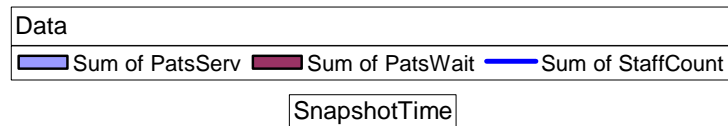## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

Data
■ Sum of PatsServ   ■ Sum of PatsWait   — Sum of StaffCount

SnapshotTime

HIV Clinic Friday : Hospital Pharmacy
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

No of Patients (left axis, 0–6)

No of Staff at Service Point (right axis, 0–2)

SnapshotTime (x-axis, 00:00–23:00)

Data
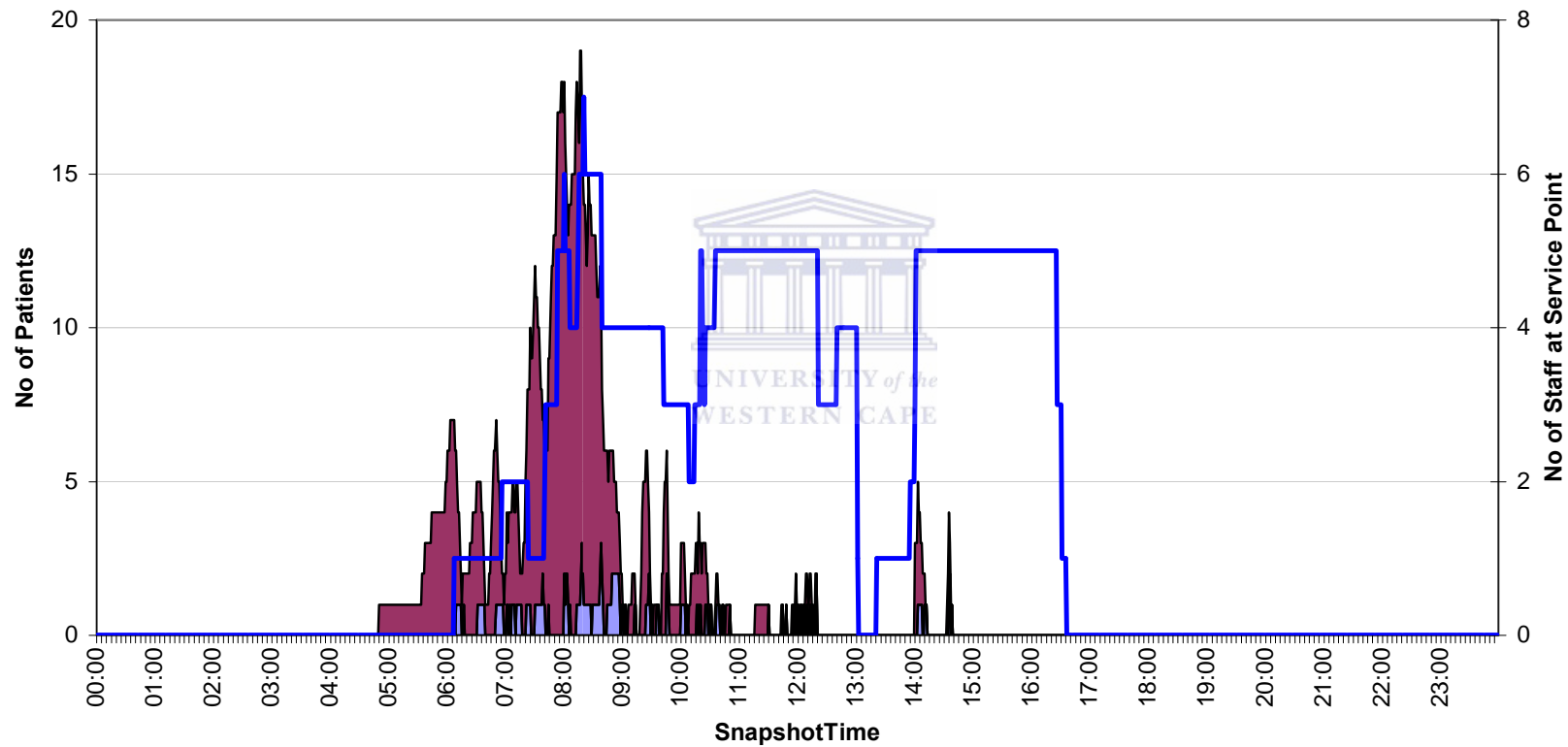Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Friday : VCT consultation room PN
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

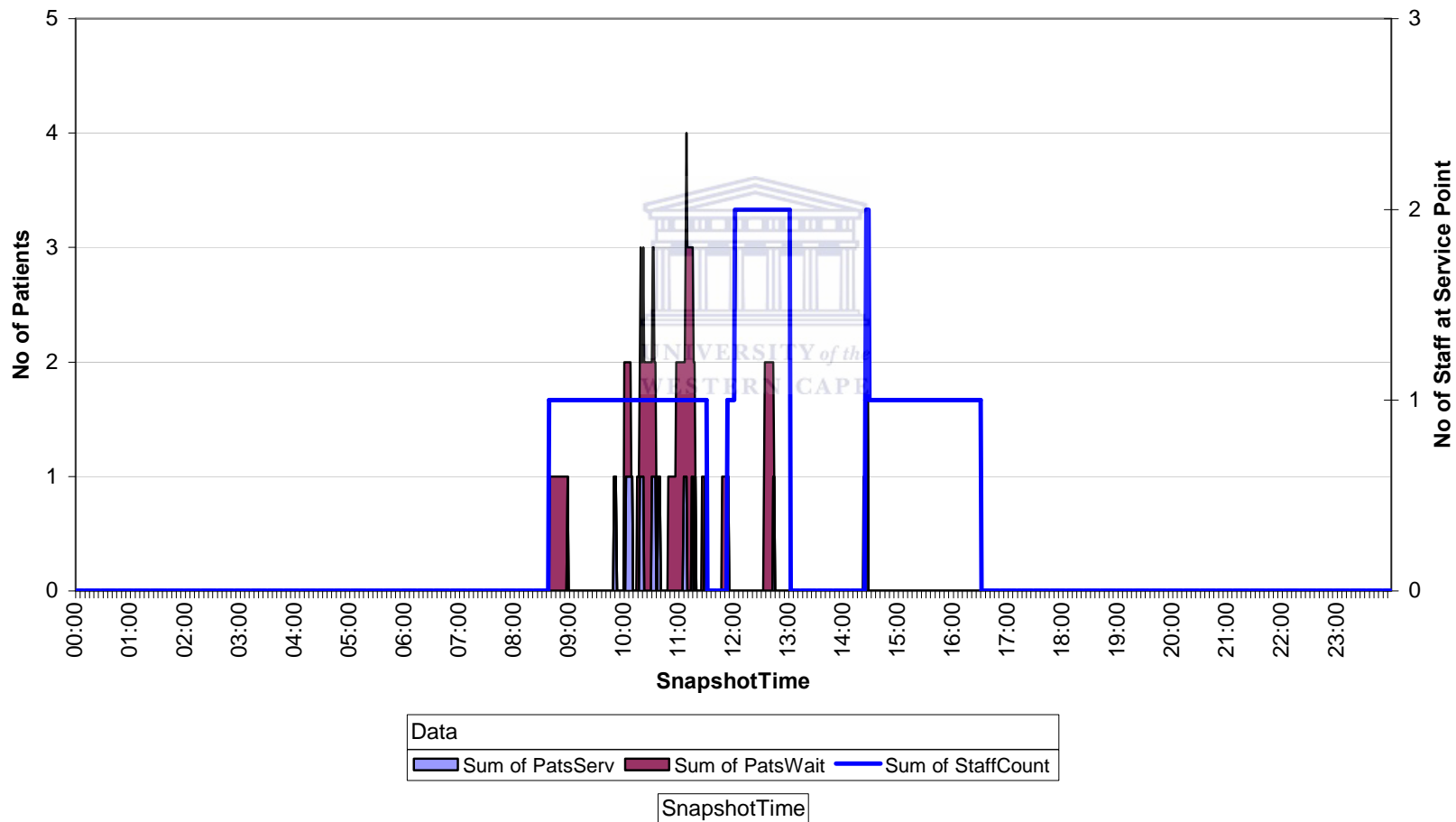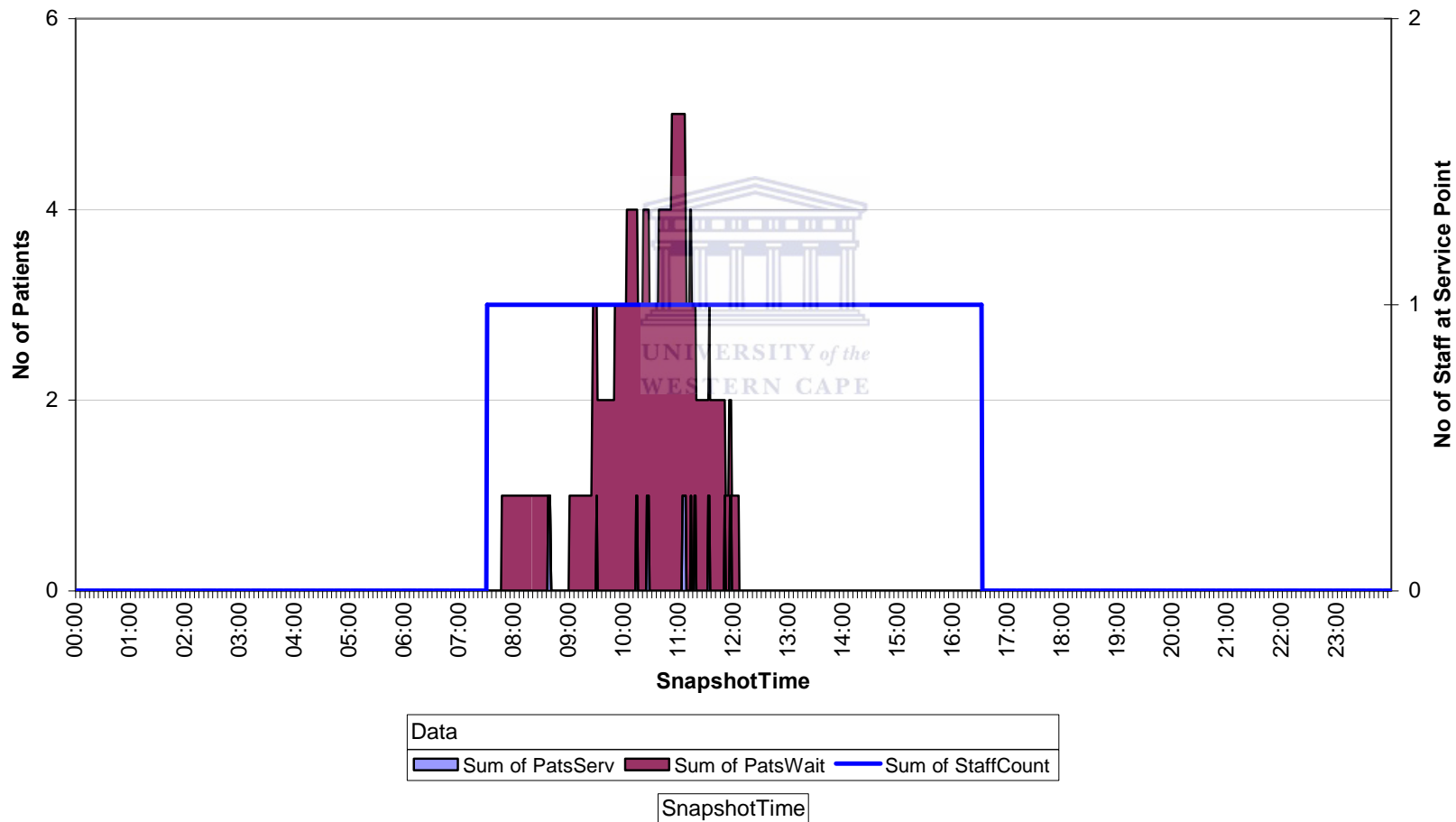**SnapshotTime**

Data
- Sum of PatsServ
- Sum of PatsWait
- Sum of StaffCount

SnapshotTime

HIV Clinic Friday : VCT_ reception
Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

No of Patients (left axis: 0, 1, 2, 3)

No of Staff at Service Point (right axis: 0, 1, 2)

SnapshotTime (x-axis: 00:00 through 23:00)

Data

Sum of PatsServ   Sum of PatsWait   Sum of StaffCount

SnapshotTime

HIV Clinic Friday : Vital signs corner and Triage
## Snapshot of Patients Waiting and those Receiving a Service at any Point in Time

SnapshotTime

Data

Sum of PatsServ	Sum of PatsWait	Sum of StaffCount

SnapshotTime

Appendix 6.0
List of reason for long patient waiting time

Potential Reasons for a Long Waiting Time

The Potential Reasons for a long Waiting Time at any Service Point are

1. **High Workload:** if staff are overworked, then patients have to wait longer as staff have too many patients to attend to. *You can see if staff are overworked on the* ***Detailed Service Point Table***. *The Percentage Patient Time will be high.* **You can solve this problem by decreasing service times (if they are too long); or by providing more staff if service times are appropriate or low; or by shifting staff from facilities with a low workload.**

2. **Patients arriving in a Big Batch:** if many patients arrive at the same time then most of these patients would have to wait a long time as the staff member would be busy seeing the patients who were first in the batch and the rest would be waiting. So if 20 Patients arrive at the same time then the first patient would wait zero minutes if the health centre were empty and the second patient would wait for the time it took the staff to see the first patient (lets say 7 minutes), but the 20th patient would have to wait for the other nineteen to be seen, which would be 19 times 7 minutes or a wait of 103 minutes. A **Big Batch** is defined as **twice as many patients arriving in a time-period than can be seen in that time-period.** *You can see if there is a batch on the* ***Arrival Time Graph****. There will be many patients arriving at the same time.* **You can solve this problem by encouraging patients to come at other less busy times and by giving appointments for quieter times and quieter days in the week.**

3. **A lack of efficiency:** patients are not effectively attended to while staff members are present at the service point but are busy with something else: such as administrative work, or preparation work. This means that the staff are not prioritising attending to the patients. *You can see if there is a lack of efficiency on the Snapshot Graph. There will be patients waiting but no or few patients seen even though staff members are present.* **You can solve this problem by making attending to patients the number one priority.**

4. **A mismatch**: a mismatch occurs when patients arrive to be seen but staff are not yet at that service point. This typically happens before the opening time of the service point when patients arrive before the staff. However it could occur at any time if staff are away from their service point due to outreach activities, meetings, administration, breaks, etc. *You can see if there is a mismatch on the Snapshot Graph. There will be patients waiting but no staff to see them.* **You can solve this problem by encouraging patients to arrive later in the day and by staggering staff shifts. Meetings could be held at quiet times and breaks should be taken at quiet times whenever possible.**

5. **A logistical problem:** patients are waiting to be seen and staff are available to see patients but due to a lack of equipment, rooms or other logistical needs, staff are unable to attend to the patients. *You can see if there is a logistical problem by looking at the Snapshot Graph and the staff questionnaire. There will be staff present but patients waiting and the staff questionnaire shows there is a shortage of equipment or rooms.* **You can solve this problem by providing equipment and rooms.**

6. **Flow problems:** Staff are available to see patients and patients are at the facility but they are being delayed at some other service point. *You can see flow problems on the Snapshot Graph. You will however have to look at 2 service point Snapshot Graphs. There will be staff present but no patients however patients are waiting long at a prior service point.* **This problem can be solved by solving the problem at the prior service point. You can temporarily solve this problem by getting the staff to temporarily help at the prior service point to allow a few patients to rapidly flow through to them.**

7. **Queuing problems:** This occurs when patients are attended to by staff in an illogical order, i.e. the patients are not attended to in the order that they arrive at the service point. This means that those who arrive first are not seen first, but are made to wait while others are seen before them. Illogical queuing *does not usually affect the Median Waiting Time* although it has a large effect on individual patient waiting times. It may however affect the *Median Waiting Time* if large numbers of patients are allowed to "jump queues". This is to be distinguished from "logical queue jumping" or "fast-tracking" where particular patients, e.g. urgent emergency or specific type of service are paced ahead of the general queue.

8. **High Service time:** An inappropriately high service time for a particular service point would result in higher waiting times for the other patients waiting in the queue. Service time *should not however be inappropriately lowered* just to reduce the waiting time of those in the queue. The appropriate service time should be provided.
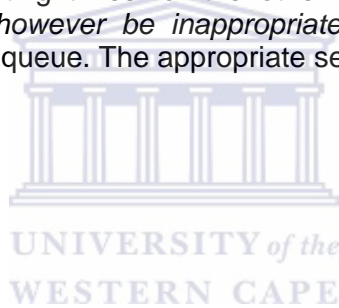
Appendix 7.0
Calculated Batches

Appendix 7.0

Batches and large batches
 The table below shows the batches* and large batches calculated for each service point

using guideline for this study

Service points	Clinic Day									
	Monday		Tuesday		Wednesday		Thursday		Friday	
	Large batch	Batch	Large batch	Batch	Large batch	Batch	Large batch	Batch	Large batch	Batch
ART reception and weighing	507	356	384	259	408	273	281	188	426	285
Vital signs and triage	90	61	90	61	22	16	110	76	45	31
ARV Consultation-PN	33	22	68	46	195	131	44	34	194	130
ARV Consultation Dr	8	6	8	6	14	10	6	4	11	9
VCT Reception	30	21	90	61	90	61	90	61	90	61
HIV Counseling and Testing PN	6	5	6	5	6	5	6	5	4	2
ART Pharmacy	45	31	90	61	270	188	94	61	90	61
Hospital Laboratory	30	21	45	31	45	31	46	31	51	35
Hospital Pharmacy	27	16	45	31	22	16	21	11	52	35
Food distribution	9	7	0	0	92	61	90	61	40	27

 Formula for calculating a batch: (60 minutes/median service time* equivalent staff)*1.5
 A batch is: (60 minutes/median service time* equivalent staff) + 1

Appendix 8.0
Population based HIV prevalence rates for Swaziland

Appendix 8.0: Swaziland population based HIV prevalence rates disaggregated by age groups 2006/2007

Table 14.3 HIV prevalence among population age 2 years and older by age

Among the de facto population age 2 years and older who were tested, the percentage HIV-l positive, by age, Swaziland 2006-07

Age	Women Percentage HIV positive'	Women Number	Men Percentage HIV positive'	Men Number	Total Percentage HIV positive'	Total Number
2-4	4.8	427	5.5	393	5.1	820
5-9	3.6	670	4.8	697	4.2	1,367
10-14	3.3	741	1.9	651	2.6	1,392
15-19	10.1	1,151	1.9	1,272	5.8	2,423
20-24	38.4	922	12.4	779	26.5	1,701
25-29	49.2	648	27.8	553	39.3	1,201
30-34	45.2	536	43.7	380	44.6	916
35-39	37.7	441	44.9	321	40.8	762
40-44	27.9	382	40.7	230	32.7	612
45-49	21.4	342	27.9	229	24.0	571
50-54	24.3	144	28.3	106	26.0	250
55-59	9.6	102	17.4	70	12.7	172
60+	7.0	342	13.3	227	9.5	569
Total 2+	22.1	6,850	14.9	5,906	18.8	12,756
Total 15-49	31.1	4,424	19.7	3,763	25.9	8,187
Total 50+	11.7	588	17.9	402	14.2	990

₁ HIV positive refers only to those infected with HIV-l.

Source: Demographic and Health Survey (SDHS) 2006/2007
Swaziland National Statistics Office and Ministry of Health and Social Welfare