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Title: Measuring the underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times, at a public sector primary health care facility in Cape Town

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Abstract

Long waiting times before receiving a health service, give rise to long queues and congested health facilities, both of which are unnecessary and avoidable. Since patients in part judge the quality of the service by the length of time they spent waiting for it, it is imperative to measure waiting times, and determine and mitigate the immediate and underlying causes of lengthy waits. The facility under investigation was known to have excessively long waiting times. Since the immediate causes of long waiting times were known, it was thus required to research and understand the underlying causes of long waiting times and consequently whether there were any barriers to implementing recommendations to reduce waiting times at this primary health care facility.

Aim: The aim of the study was to determine the underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times.

Methods: A quantitative cross-sectional analytical study with a small qualitative component was undertaken. The qualitative study took a workshop format by piggy-backing onto feedback sessions held to present the results of the previously conducted waiting time survey to staff. Staff commentary at the workshops on possible underlying causes and barriers to recommendations to reduce them, were then used to develop a questionnaire for the quantitative portion of the study. The population and sample for the qualitative part of the study were all staff working at the facility who attended the feedback sessions.

The cross-sectional descriptive quantitative study intended to uncover what underlying causes affected long waiting times, what recommendations could be explored to mitigate long waiting times and improve the patient experience, and if there were any barriers to these recommendations. The quantitative study population and sample were all staff who worked at the facility for more than six months and all patients who had utilised the services at the facility for three or more times. Data was collected using structured questionnaires, which were different for staff and patients. A detailed descriptive analysis was conducted.

Results: The study found a number of potential underlying causes for each immediate cause of long waiting times at the facility. For early morning batching the underlying causes found were: 45% of patients were given early appointments which caused clients to arrive early; 100% of patients with appointments after 10H00 arrived before 10H00; and 43% of the patients stated that they arrived early because they feared being turned away.

The results for mismatch very early in the morning showed that 59% of the patients did not know the opening time of the facility and due to this lack of knowledge 13% of this group arrived at the facility

before it opened. Concerns about safety prevented many others from arriving very early as 64% of the patients who utilise public transport and 87% who walked to the facility, believed that it is dangerous to use public transport and walk between 04H00 – 05H59, and presumably because of this belief 0% arrived at the facility before 07H00. Additionally, the results showed that 95% of reception staff made appointments, but 85% only made appointments when their window was quiet.

Underlying causes for illogical queueing were that 23% of patients were not orientated where to go when they arrived at the facility for the first time, and 25% of the reception staff inappropriately immediately assisted patients who arrived very early for their appointments, which then had a knock-on effect of other patients waiting. Clinical staff additionally bypassed patients in the queue, if they were still waiting for their folder.

For lack of efficiency the results showed that 52% of staff frequently prioritized administrative duties instead of attending to patients who were waiting at the service point.

The study also suggested workable recommendations of which 66% of staff stated that a short message service (SMS) reminder of their appointment time to the patients, would assist with reducing batching early in the morning. Provision of appointments later in the day would also prevent batching and this is possible for 70% of the patients. Sixty five percent of the patients suggested that the facility should have extended hours from Monday to Friday and 100% suggested that the facility should open on Saturdays. The results show that 53% of staff stated that patients should make telephonic appointments to assist in reducing mismatch and batching, and it further showed that 93% of patients have access to a telephone. Reception staff identified some barriers to making telephonic appointments, with 67% stating that it would be difficult to explain important information over the telephone and 50% stating that clients waiting in the queue would get frustrated while staff were busy on the telephone. The results further show that 73% of staff stated that a queue marshal will improve the queuing problem and seventy two percent of staff stated that they can have meetings later in the day, even though the logistics are difficult as 42% of staff said that some staff had to leave early due to shift work and 33% of staff did their administrative duties later in the day.

Conclusion and Recommendations: The study identified a number of underlying causes of long waiting times at the health facility that are likely to apply to similar facilities as well, and produced practicable recommendations that could be implemented to reduce long waiting times at public health facilities.

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Declaration

I, Warren Darron Caesar, hereby declare that the work on which this dissertation is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

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Date: 27 November 2017

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List of abbreviations

AIDS – Acquired Immunodeficiency Syndrome

C²AIR² - Caring, Competence, Accountable, Integrity, Responsiveness, Responsibility

CHF - Community Health Forum

DMAIC – Define, Measure, Analyse, Improve and Control

DOH – Department of Health

EC – Emergency centre

HIV – Human Immunodeficiency Virus

HAST – HIV, AIDS, Sexually transmitted diseases and Tuberculosis

MOU – Maternity and obstetrics unit

NDOH - National Department of Health (NDOH)

PGWC – Provincial Government of the Western Cape

PGWCDOH - Provincial Government of the Western Cape Department of Health

PHC – Primary health care

RCA – Root Cause Analysis

SMS – Short Message Service

WHO – World health organization

WT – Waiting time

WTS – Waiting time survey

Chapter 1 Introduction

1.1 Introduction

Long waiting times for health services translates into patients' queueing for services for excessive time periods with most of the waiting time being unnecessary and avoidable. Fortune (1980) expresses waiting as frustrating, demoralising, agonising, annoying, time consuming and incredibly expensive; which articulates waiting as being a negative experience for patients who are ill and who are expected to wait for a service which they need. This frustrating wait contributes to poor staff patient relationships with many staff starting the interaction disconcerted, when upon being asked by the patients why they had to wait so long, they attempt to explain in a defensive manner the reasons for the long wait, which rather than curtailing just adds to the patients' frustration. According to an article published in October 2013 by the Western Cape Government on waiting times, long waiting times and long queues, coupled with bad staff attitudes form the majority of patient complaints and result in a negative and poor patient experience at Western Cape Government health facilities (Western Cape Government, 2013). It is thus imperative to keep waiting times to the absolute minimum to prevent increasing incidences of patient frustration related to waiting times, and to achieve this, the immediate and underlying causes of long waiting times need to be known. If any attempts to reduce waiting times are to be successful they would need to be based on a thorough understanding of these immediate and underlying causes and it is anticipated that reduced waiting times would translate into an improved health service experience for the patients.

It is known that long waiting times exist at many primary health care facilities and the immediate causes of these long waits are known as well. Arries (2008) also states that outpatients draw their own conclusions about the quality of service delivery based on their experiences of actual services received and by the time they had to wait to receive it (Arries, 2008). Therefore, it was important to measure waiting times of the consumers of health care when they receive services in primary health care facilities, as they judge the quality of service which is indirectly measured by such surveys. Dhar, Michel & Kanna (2011) in their research puts forward that surveys indicate that excessive waiting time is often the major reason for patients' dissatisfaction in outpatient services (Dhar, Michel & Kanna, 2011: 23). Reagon and Igumbor (2010) suggest that Waiting Time Surveys (WTS) can enable Health Departments to gain insights into the performance of health service provisions for both the users and providers. This is confirmed by Syed, Parente, Johnson, and Davies (2013) who states that *"measurement of patient satisfaction has become commonplace in many healthcare settings due to its positive impact on improving real and patient perceived quality of care"* (Syed et al., 2013: 47). It is

further noted that WTS's also essentially measure the accessibility to services at a facility, as the time spent waiting translates into a barrier to accessibility.

Improving waiting times can affect the health care system positively as shown in Syed et al (2013), where they note that "satisfied patients are more compliant with treatment, have greater rapport with the physicians, and honour their appointments", when they experience shorter waiting times and are satisfied with the service of the health care system (Syed et al., 2013: 47).

The primary health care facility at which the study was done is a new facility which was commissioned in December 2014. Although the actual health centre is new the health service is a continuation of services previously provided from a much smaller temporary facility. The new facility offers a much expanded bouquet of services in a new and much bigger permanent structure and serves a much larger community than the previous small temporary facility. The Primary Health Care facility's expanded bouquet of services included health care services such as women's health, child health, HIV, AIDS, sexually transmitted infections and tuberculosis (HAST), pharmacy, chronic health care and rehabilitation services to the drainage communities. The facility employed 80 staff at the time of the survey with the majority of the workforce being from the nursing cadre. The drainage communities are primarily very low to low socio-economic income groups and a small percentage of the population are middle income earners. Many informal housing units are located in the backyard of formal houses and they typically have no basic amenities such as tap water and toilets, although some have an electricity supply. Although the largest proportion of the drainage population of the facility is from the immediate township, which lies within a 2 kilometre radius from the facility, it also services the population from three informal settlements located within a radius of 10 kilometres, as well as three other developed suburbs within the same radius.

A waiting time survey (WTS) for the new health facility was conducted in preparation of this study for all outpatients seen on an average day who were time-tracked from the time they arrived until the time they departed in August 2015 which was when most of the services envisioned in the full bouquet were operational and when 60% of the anticipated full staff complement were recruited and active. A total of 612 patients had their waiting times recorded and assessed on that average day. Their waiting time was assessed in the following manner: Their arrival and departure times were recorded by fieldworkers and at every point at which these patients received a service the times were recorded by the staff who attended to them. Staff completed a staff time-sheet which tracked the time they spent at the service points they worked at from the time they arrived at the facility till the time they departed. Patients were also asked questions on departure about their experience at the facility and staff completed a short questionnaire about logistics and equipment, and their opinion was asked about

suitable waiting times for patients. The sum of the service time and waiting time at all the service points attended by a patient then calculates to the total waiting time and total service time respectively for that patient.

Long waiting times were known to be experienced by the patients at the new facility before the survey was conducted, but crucially it was not known exactly how long they were waiting and hence it was warranted to determine the exact waiting times. Caesar, Piquer and Reagon (2015) in the WTS found that patients experienced long waiting times with the median waiting time for a complete visit to the facility (which is the sum of the waiting time for all services received such as reception services, clinician services, pharmacy services, etc.) being 124 minutes, while the median service time was 17 minutes. The median waiting time was much greater than the waiting times which patients and staff at the facility felt was acceptable, which was 60 minutes and 76 minutes respectively. It was also clear that the ratio between waiting times and service times was poor as patients have to wait more than 2 hours to receive a service of only 17 minutes. The WTS report not only identified the extent of waiting at every service point in the facility, but also uncovered the mix of immediate causes of long waiting times at each service point. Reagon and Igumbor (2010) mention that there are eight possible immediate causes of long waiting times and of these 8 potential immediate causes 6 were identified as actually being present at service points in the facility (see table 1). The immediate causes of long waiting times at service points at the facility, were: patients arriving at the same time in big batches (batching); patients arriving at a time when the service point they are visiting is not open (mismatch); staff choosing to perform other activities rather than attending to patients even though patients are waiting (lack of allocative efficiency); patients waiting for very long periods because they are not seen in the order in which they queued with many patients who arrived after them being seen before them (queuing problems); staff being available to attend to patients but unable to do so as the required equipment, or folder, or room is not available to do so (logistics problem) and high patient loads leading to insufficient numbers of staff being overwhelmed (overworked).

Batching, mismatch, allocative inefficiency and illogical queuing each affected a large majority of the service points, whilst lack of efficiency and logistics affected very few service Batching and mismatch which were very influential causes of long waiting time at many service points were facilitated by patients arriving very early, although it did not identify why patients arrived very early, the survey results however showed that a considerable percentage of patients were turned away at the triage sorting station (those turned away on the day were given an appointment for another date), which was a control mechanism used to prevent too many patients from being admitted into the facility per day, and which ensures that there is a manageable clinician/patient ratio for the day (Standard Operating

Procedure, 2014). This system probably contributed to the findings that patients feared being turned away from the facility; hence the patients to avoid being amongst those turned away, possibly arrived very early. Fomundam & Herrmann (2007) in their review study of queueing theory applications in America, termed this procedure as blocking, and noted that it occurs when a queuing system places a limit on queue length.

High services times and high workload (the other 2 potential immediate causes) were not identified as being immediate causes which contributed to long waiting times at the facility. In addition to the 8 immediate causes, *residual staff capacity* was calculated as part of the waiting time survey. *Residual staff capacity* is defined as the percentage staff time which remains unutilised after all time spent on direct services to patients, indirect services to patients and all administrative duties have been accounted for. The survey showed that 60% of the service points had substantial residual staff capacity and that they were not overworked at any of the service points. It is thus clear that staff had sufficient time to attend to patients and to other additional duties without being overworked and still had free time available which could be devoted to any other activities. The WTS report also suggested logical solutions to these immediate causes which are also listed in table 1 (Caesar, Piquer and Reagon, 2015).

Table 1 below describes the immediate causes of long waiting times which were prevalent at service points within the facility and the recommended solutions to counteract these immediate causes. The immediate causes are ranked according to the number of service points affected by the immediate cause. Immediate causes which affected more service points were ranked higher up in the table and those which were less prevalent were ranked lower down in the table. A service point could have been affected by one or more of the immediate causes and although a recommended solution to address it accompanies each immediate cause, it was anticipated that solution would have to be implanted in a modified format based on the peculiar context of each individual service point.

Table 1: Immediate Causes of Waiting Times at the various service points in the facility

Rank Order	Immediate Cause	Number of service points affected	Recommended Solution
1	Batching early in the morning	28 (67%)	Encourage patients to come at less busy times Giving appointments for quieter times and quieter days in the week
2	Queueing problems	23 (55%)	Having a queue marshal directing patients
3	Mismatch early in the morning	21 (50%)	Encouraging patients to arrive later in the day and by staggering staff shifts Meetings could be held at quiet times Staff breaks should be taken at quiet times whenever possible
4	Lack of efficiency	17 (40%)	Make attending to patients the number one priority
5	Logistics	4 (10%)	Provide more equipment and rooms
6	Flow problems	1 (2%)	Solve the problem at the prior service point. 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.

The underlying causes of the above-mentioned immediate causes of long waiting times at the health facility were unknown, and hence attempting to identify these unknown underlying causes was deemed to be desirable. Therefore, in order to more efficiently explore potential underlying causes of long waiting times it would be important to try and identify potential underlying causes which might actually be operative in this setting.

Similarly, it was thought important to uncover what recommendations might reduce long waiting times and what barriers might inhibit or prevent the implementation of seemingly logical solutions to reduce long waiting times, in order to be able to recommend contextualised practicable solutions to lower waiting times.

1.2 The Problem Statement

The Primary Health Care facility had long waiting times which frustrated the patients and they linked this to poor quality of care (Bharat and Mohanty, 1999; Sayed et al, 2013). Although the median duration of waiting and the immediate causes of the long waits were known based on the findings of

the 2015 WTS report, this information was not sufficient to effectively deal with the issue (Caesar, Piquer & Reagon, 2015). While a WTS provides extremely useful information which could be used to counteract the immediate causes of long waiting times and thereby reduce the waiting times, there is a depressing probability that these solutions might be temporary, since if one does not address what gave rise to those immediate causes in the first place, then soon after the immediate cause remediation actions have been launched (and are hopefully successful) there might be a gradual drift back to the circumstances which gave rise to the immediate causes in the first place. The underlying causes were not known and therefore recommended solutions would have to be based on immediate causes and hence might not be sustainable and furthermore possible barriers to implementing proposed recommendations to reduce waiting times (if any) were also unknown. To enhance recommendations for sustainable solutions to long waits it was therefore deemed useful to identify the underlying causes of the immediate causes as only then could one be reasonably sure that activities to reduce waiting times would be successful and sustainable in the long term.

1.3 The Purpose of the Study

The study wanted to establish the underlying causes of long waiting times at the facility and to establish which barriers to proposed solutions existed that would possibly prevent the implementation of the proposed solutions. It was presumed that uncovering the underlying causes, coupled with insights into barriers to reducing waiting times, and developing interventions to counteract both of them would most likely result in the operationalization of processes which would ensure sustainable reductions in waiting times. Knowing the underlying causes and barriers, could lead to implementing recommendations that would result in a higher chance of implementing sustainable strategies to reduce waiting times, hence it would be valuable to investigate this. Once the underlying causes and barriers were known, they could be used to tailor recommendations for implementable actions to reduce waiting times, these recommended actions/solutions could then be implemented by management and staff of the health facility to reduce waiting times and consequently improve the patients' experience of health care services at the health facility.

Chapter 2 Literature Review

2.1 Conducting a Waiting Time Survey

Waiting times are a major component of patient satisfaction. Generally, patients do not like to wait excessive times to be seen by a clinician, and waiting times greater than 15 minutes were rated as one of two factors accounting for 94% of patient dissatisfaction (Campbell, 1994). DiTomasso & Willard (1991) in their study found waiting time also accounted for the difference in patient satisfaction. In a study on improving patient satisfaction, the researcher found marked improvement in patient satisfaction with the medical care despite there having been no change in the medical care provided, only a reduction of patient waiting times (Eilers, 2004). A reduction in waiting time will therefore have a general improvement on patient satisfaction.

In summary Reagon and Igumbor states that the effective functioning of Health Systems is reliant on good quality information being available for decision making. Routine waiting time surveys (WTS) could enable health departments to gain valuable insights into the performance of health services when conducting these surveys, which directly responds to the most common complaints users of healthcare services have. The collection, processing, reporting and use of WTS information is certain to improve the functioning of healthcare services (Reagon & Igumbor, 2010). WTS will help to identify problem areas and indicate where improvements in services are required. The WTS primarily measures how long people wait for a service and the amount of service times they receive at health facilities. The survey also identifies the reasons of long waiting times and suggests ways to reduce them. These surveys further measure the workload of the staff, the efficiency of service provision and the percentage of time staff spend attending to patients.

Reagon and Igumbor (2010) describe and conceptualise the methods of conducting a WTS as follows. Patients are tracked from their time of arrival at the facility till the time they depart the facility. The survey should be conducted on an average day within an average week at primary health care facilities as services are homogenous at this level of services. The patient data is collected on a timesheet which the patient receives when he/she enters the facility. The timesheet is completed by every healthcare worker the patient encounters on the day of the survey. Basic questions are asked from the patient when they receive the timesheet and when they exit the facility. The healthcare worker completes a separate personal timesheet which indicates the duty points and the time they spent at the duty point/s, dependant if they work at more than one duty point for the day. The healthcare worker additionally completes a short open questionnaire about logistics of the institution. Both patient and staff timesheets are then captured using a customised database. Using a combination of data from the

patients' timesheets, the patients' questionnaire, the health workers' timesheets and the health workers' questionnaire, the waiting times, service times and patient workload for every service point is then calculated.

A WTS is therefore a good instrument to assess facilities performance and to identify the immediate causes and suggest improvements.

2.2 Contributors to Long Waiting Times and Suggestions to Reduce Waiting Times

Health care is recognized as a crucial service to be delivered to communities, with the health care provider organisation and its employees having clear obligations to practice responsibly and provide the services in a timely, convenient and polite manner. Indeed, the South African health charter obliges health workers to provide health services in a manner which is accessible and equitable. However, with long waiting times and other challenges such as a decrease in resources and budget restrictions, what is desired and expected is often not realized (Arries, 2008). Long waiting times in particular are a deficiency that could probably be easily remedied by addressing the factors that give rise to it such as patient flow. Patient flow represents the ability of health care services to serve patients quickly and efficiently as they move through the stages of care (Hall 2006 as cited by Dhar et al., 2011). Patient flow time is the total amount of time in minutes that a patient spends at a community health centre (Backer 2002 as cited in Dhar et al., 2011). Patient flow problems such as long waiting times for folders at reception delays patients to reach the next service point and will cause staff too idle at next service point which is dependent on the paper folder to record clinical findings. The patient waiting time at reception is now longer than expected and thus increases the overall waiting time for the time spent at the facility. It however will not directly affect the waiting times at the next service point. Bachmann and Barron (1997) in Tegabu (2008) mentioned an inefficient organization with lack of an appointment system, a poor folder retrieval system and the inability to track patients with appointments causes long waiting times (Tegabu, 2008).

Health care is consuming an increasing percentage of our economic product (Chand et al. 2008). Nhlanhla Nene the previous South African Minister of Finance stated in his annual budget speech on 25 February 2015 that the country needs to reduce its expenditure by R25 billion over the next two years. James (2005, as cited by Arries, 2008) implies that the health care industry now finds itself with the challenge of safeguarding the integrity of high quality health care in a financially-restricted environment. The delivery of health care services and the continuity thereof have become a feature of health care policies in many health care organizations worldwide. Killian (1995) further states that decreased resources and budget restrictions are a reality for health care institutions in the Republic of

South Africa; therefore, quality of services has also become an issue. It is therefore important for facilities to find innovative ways of dealing with the increased need for health services and a WTS is one way of discovering possible challenges and solutions for these challenges to ensure continuous quality of care.

It is to be noted that health care cost is rising and budget reductions in this sector is pertinent. Saving in healthcare would mean shifting services from more expensive tertiary and secondary services to primary health care. Cayirli and Veral (2003) stated in their research that healthcare providers are under a great deal of pressure to reduce costs and improve the quality of services provided. They further state that outpatient services are becoming an essential component in health care as hospitals opt for shorter lengths of stay to cut costs (Cayirli & Veral, 2003). This would mean more pressure on primary health care and increase waiting times in this sector of health care and services are forced down from tertiary and secondary levels to primary health care levels. Attempts to save on the national budget would therefore result in lower cost primary health care centres experiencing higher patient loads, which would adversely impact on already long waiting times. Given the drive for economic efficiency, the need to reduce long waiting times will become even more imperative than it already is. Thus to reach the goal of reducing long waiting times the researcher did search for underlying and root causes of long waiting times to ensure long term solutions for this phenomenon, by means of continuous improvement of services.

Research conducted by Bharat and Mohanty (1999) showed that causes of long waiting times which were obviously apparent to patients caused discontent amongst them. Long waiting times are caused by actions of both patients and staff, and it is an indicator of poor quality service needing improvement. A common patient-related cause noted was that a large proportion of them arrived early and a common staff cause was that staff and especially doctors held early morning meetings. It is to be noted that the challenge of long waiting times cannot only be fixed by only focusing on one stakeholder, but that it be solved by implementing recommendations for both the patient and staff causes.

Barlow (2004) based on his research not only makes recommendations for improving the waiting experience and for the management of the waiting process, but also looks into the history of research done on waiting times before making recommendations. O'Keefe (1985 as cited by Barlow, 2004) did operational research on queuing which resulted in many techniques for managing queues, but things did not change and there are still long queues. Barlow (2004) states that there are two types of waiting times with the first stemming from long endless waits for an appointment to it being confirmed, possibly followed by a cancellation and new dates and finally for the day to arrive, and then secondly (and the type of wait which this study will be researching) on the day of the appointment having to

endure unbelievable and unexplained waits before the short but valued consultation. Barlow (2004) also states that many solutions have been tried and tested, research and policies have come and gone, but the patients are still waiting and the queues are only getting longer and not shorter. Nothing seems learnt and nothing seems changed. He states that the last statement is not as true because patients have learnt they have rights and now express themselves and use this to jump queues and are not hesitant in always placing the blame on the staff. O'Keefe (1985 as cited by Barlow, 2004) argues that years of queuing research was often not being implemented, which simply states that one should serve the patients as per the appointment order, but patients were being seen on a first come first serve basis. The researcher feels that this could be due to unknown underlying causes that have not been identified as contributing factors to long waiting times. Once identified and known, the implementation strategy and endurance of management during implementation of change must prevent what Barlow (2004) is referring to that "nothing has changed", will be a critical part of making and maintaining the positive change.

In a study done by Zhu et al. (2012) analysing factors affecting long patient waiting times it was found that the following factors caused long waiting times in patients; (i) overloaded sessions when too many patients were booked for a session, (ii) late start to sessions by doctors who are preparing for the work day or arriving late, (iii) unevenly distributed appointment slots by some slots having four patients and some as much as 9, (iv) irregular calling sequence when patients with later times are called before the earlier patient, (v) and unused session time while patients are waiting but not being seen. The explanations described by Zhu, Heng and Teow (2012) as factors are the same as the immediate causes of long waiting times described by Reagon and Igumbor (2010) but Reagon and Igumbor (2010) added three other causes of long waiting times at outpatient clinics and 2 more causes operative at emergency units. These three extra causes at outpatient clinics are as mentioned above are high service times, flow problems and logistical problems. The two extra causes at emergency units are waiting for ward/ICU/theatre beds and long diagnostic (laboratory results) and monitoring time.

Wanyenze et al. (2010) researched flow problems in three HIV clinics in Uganda. They examined the clinics efficiency with regard to patient flow and a number of factors were identified which influenced efficiency and caused the convergence of bottlenecks in the clinic system. These factors were (i) the number of patients seen on a daily basis, (ii) the types of clinical problems the patients presented with (stages of care – some need longer consultation time), (iii) the frequency of patient care, (iv) the staff compliment and categories, (v) and the staffing model. Other factors were skewed arrival times as most patients arrived in the morning and staff was consequently overwhelmed in the morning and redundant in the afternoon. In the study at the facility it was found that all clinics gave appointment

dates but no actual appointment times resulting in many patients arriving early in the morning. It was suggested that the appointment system be improved by distributing the appointment arrival times evenly throughout the day to reduce congestion and waiting times for the patient (Wanyenze et al., 2010). The current facility (where the research was conducted) is slowly implementing appointment times as part of their appointment system.

Chand et al. (2009) researched improving the internal operations of clinics in outpatient clinics by using a simulated model in order to reduce waiting times. He suggested appointment scheduling and specifically moving from a traditional appointment system to same day appointments. A traditional appointment system is when patients need to wait 6 to 8 weeks for an appointment and same day appointment system is when an appointment is given within a 48 hour period. More importantly to this study Chand et al. (2009) identified the underlying causes of long waiting times within that context and stated them to be missing records, networks being down, incorrect personal information on records, language barriers, external disruptions of telephone calls to receptionists and random patient arrivals due to travel logistics. Some of these underlying causes were similar to the ones suggested by the staff at the facility we are investigating in the feedback sessions, as previously mentioned in the introduction.

Chand et al. (2009) suggested the following improvements: an appointment system (40% traditional and 60% open access/same day), scattered arrival times, filtered telephone calls to reception, no batches and pooled queues. The theory of pooled queues is to consolidate the arrival processes into a single queue and to grant all the patients an equal access to the reception clerks. Currently at the facility where the study will be conducted patients are queued to access a specific reception window and this leads to a reception clerk idling when he/she has serviced all his/her specific patients, or continue with administration or filing duties. Added to this is that there is no agreement to help the reception window who has a high load of patients in its queue, and these patients thus experience longer waiting times. Pooled queues would allow any patient to attend any reception window and lead to equal sharing of work. Other researchers suggested that waiting times can be reduced by staggering appointments (Wanyenze et al. 2010) and doing other non-clinical activities after clinic hours (Reagon & Igumbor, 2010). Bharat and Mohanty (1999) also suggested that waiting times and over-crowding can be reduced if the types of cases, their contact time and the frequency of visits can be identified, so that it could be managed, by giving those appointments later in the day to keep waiting times lower. With increased patient load a health care appointment system is important in primary health care settings. Effective outpatient scheduling systems have the goal of matching demand with capacity

(forecasting) so that resources are better utilised and patient waiting times are minimised (Cayirli & Veral, 2003).

2.3 Quality Primary Health Care

Quality service delivery to the consumer of health is a legal reality as it is emphasised in the White Paper on the transformation of public service delivery South Africa (1997 as cited by Arries, 2008). The South African Government, the National Department of Health (NDOH) and the Provincial Government of the Western Cape Department of Health (PGWCDOH) have all committed themselves to providing high quality health care services, and particularly primary health care services as a core component of health care. This aspirational high standard of quality of care is documented and gazetted at the National Legislature of the Republic of South Africa in the National Health Care Act, which regulates the health system (National Health Care Act, No. 61 of 2003). Additionally, the National Policy on Quality in Health Care provides the impetus to improve the quality of care in both the public and private sectors. The policy sets out the main objectives of Government to assure quality in health care and to continuously improve the care that is being provided (National Health Care Act, No. 61 of 2003, 2003: 11). The South African NDOH aims for improvement in the quality of health service delivery and while one of its primary aims namely, addressing access to health care, is directly related to waiting times, in addition it specifically insists that waiting times be reduced, although it does not indicate what the benchmark acceptable level of either access or waiting time should be pegged at. Given the need for involvement and coordination of all sectors in the primary health care approach as in Alma-Ata governments were called to formulate national policies, strategies and plans of action to launch and sustain comprehensive primary health care.

The PGWC DOH has responded to its findings that staff attitude needs to be improved. The department has introduced the C²AIR² challenge to improve the staff value system. C²AIR² is an acronym for Caring, Competence, Accountability, Integrity, Responsiveness and Respect. The challenge requires staff to be engaged with these values so that the value system and soft skills of staff are improved and embedded in our daily attitudes. The metrics being measured are; do staff greet patients with a smile, are staff team players, are staff helpful, what are the number of unplanned absent days, waiting times, patient feedback, staff feedback and number of recognition slips given by management to staff, and forecasting workloads to name a few. Each value was measured separately, and then combined to give an overall score. Facilities competed against each other for the ultimate prize for being the facility who lived all the values consistently and for the cash incentive for the overall winning facility. The facility participating in this study did participate in the challenge in 2015/2016

financial year as a new player. The program wants to achieve positive impact on staff value systems which will ultimately lead to a more positive experience for the patient and less complaints.

A WTS can show if primary health care services offered to the community is accessible, and if not, what the causes are of its inaccessibility. It will also give researchers an indication of whether the primary health care system is meeting the pre-requisites of a well-functioning health system, as set out by National Policy on Quality in Health. These results might be good to know, but to solve these identified challenges the underlying causes need to be known. Known underlying causes can lead to suggested solutions which would save the health care sector money and impact the National Fiscal budget positively and inevitably improve the quality of care standards, in conjunction with department programs like the C²AIR² club challenge.

2.4 Root Cause Analysis (RCA)

Root cause analysis is a problem solving process for conducting an investigation into an identified incident, problem, concern or non-conformity (Wikipedia, 2009). Sarkar and Mukhopadhyay in their study in the engineering field defines root cause analysis as a process of identifying root causes in a structured approach (Sarkar & Mukhopadhyay, 2012). It is a technique for undertaking a systematic investigation that looks beyond the individual concerned and seeks to understand the underlying causes and the organisational context in which the incident happened. Retrospective and multidisciplinary in approach, it is designed to identify the sequence of events, working back from the incident, or in the case of this research from the immediate cause, to prevent the problem from happening again (Woodward, Rejman &Hill, 2004).

The benefits of RCA are identification of permanent solutions, prevention of recurring failures, and introduction of a logical problem solving process applicable to issues and non-conformities of all sizes. In research done by Arnheiter (2008) on the Toyota way and the Ohno RCA principles, he highlighted the importance of how management should question traditional ways of doing things. It is assumed that historical ways of doing things at the facility forming part of this study can be a reason to a number of immediate causes identified in the previous study conducted in 2011. The outcome of the study by Arnheiter (2008) is to substitute the traditional way of management with a lean way of management which encourages managers to properly identify and understand the root cause of any problem.

Although Arnheiter (2008) described Ohno's 5 why's technique, the researcher will apply both the 5 why's and the fishbone technique to identify and display the underlying causes of long waiting times at the facility. The fishbone is a cause and effect analysis using a diagram to help display all the causes of a problem. First the problem is identified (long waiting times), followed by the factors (immediate

cause of long waiting times) and thirdly the possible causes (underlying and root causes) of each factor. The diagram is then analysed and solutions brainstormed and applied. Arnheiter (2008) describes how Ohno encouraged workers to investigate problems encountered by using a hands-on approach to arrive at root causes and ultimately the solutions.

The Toyota way (Arnheiter, 2008) principles might not be all applicable in the health care industry but certain principles can most definitely be applied. Principle 2 states to create continuous process flow to bring problems to the surface. By creating processes for the administration and records department we can identify the root causes of long waiting times. These processes can then be modified and improved overtime as the environment changes. Principle 4 (heijunka) states to level our workload and this can be applied by pooling queues (Chand et al. 2009) which will prevent unequal workloads as it currently is. Principles 9 and 10 which is growing leaders and developing exceptional people respectively can be adopted as this will add to the value of any organisation and strongly ties in with principle 14 which is to become a learning organisation through relentless reflection (hansei) and continuous improvement (kaizen). Managers of the facility should adopt principle 12 (genchi genbutsu) which is to go and see for yourself to thoroughly understand the situation.

2.5 Reducing Waiting Times

Dinesh et al (2013) researched reducing waiting times by using a six sigma approach. They defined patient waiting times as the length of time from when the patient entered the facility to the time the patient actually leaves. Six Sigma seeks to improve the quality of process outputs (patient care) by identifying and removing the causes of defects or errors which lead to part of a process being replaced, or the full process is replaced (Burt, Petcavage & Pinkerton, 2009). The process uses the five step DMAIC system to try and keep processes free from defects. DMAIC is an acronym for define, measure, analyse, improve and control. Essentially, Six Sigma would achieve 99.9% of products defect free. In healthcare 99.9% of our patients should not experience long waiting times and the DMAIC system can assist with identifying errors in processes and systems so that they can be replaced and waiting times reduced, for example a manual numbering system can be replaced with an electronic numbering system which is less biased and prone to errors humans tend to make.

After the underlying causes are known this approach can be used to put potential solution systems in place to measure, improve and control these potential processes and systems.

2.6 Aim

To assess the underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times at a primary health care facility in the Western Cape area, South Africa.

2.7 Objectives

1. To investigate the underlying causes of long waiting times at the primary health care facility
2. To investigate the barriers to implementing recommendations for reducing waiting times at the primary health care facility

Chapter 3 Methodology

3.1 Study design

A quantitative cross-sectional analytical study with a small qualitative component was undertaken.

Qualitative study design

The analysed results of the WTS which showed the duration of wait and the immediate causes of long waits at each service point were presented to staff in feedback sessions. The WTS feedback sessions with the staff were used to piggy-back a small qualitative study to try and ascertain what possible underlying causes they thought could be responsible for the immediate causes of the long waits at the health facility. The participants were prompted verbally to suggest possible underlying causes which could then later be assessed quantitatively using a structured questionnaire. Staff were also presented with generic recommendations for reducing waiting times based on logical responses to immediate causes and were thereafter asked if they agreed with it or not, and where they did not agree staff had to provide possible barriers to implementing these recommendations. Staff were additionally asked to suggest solutions to long waiting times based on the immediate causes. These logical solutions or recommendations were explored during the sessions and included as viable recommendations if no barriers were ascertained. The intention was to obtain an overview of potentially operative underlying causes and possible barriers to proposed solutions to long waiting times, in order to target and further investigate these and other potential underlying causes and barriers to solutions obtained from the literature in the quantitative study.

Quantitative study design

The cross-sectional descriptive study assessed whether any of the staff and literature postulated underlying causes and barriers to solutions were present at the facility. The study intended to determine what underlying causes affected long waiting times, what recommendations could be explored to mitigate long waiting times and improve the patient experience and if there were any barriers to these recommendations.

3.2 Study population

Qualitative population

The qualitative study the population were all staff working at the facility as this component was piggy-backed onto feedback sessions on the results of the previously conducted WTS and hence all staff working at the facility would be at these sessions.

Quantitative population

The quantitative study had two populations. The first population were the staff working at the facility. Staff must have worked at the facility for more than six months to be included in the study. Staff who have worked at the facility for less than six months were deemed not to have sufficient experience to give contextualised input into the study. The level of staff experience of working at the facility was crucial as those with greater experience would have thought of and discussed barriers to implementing possible solutions to reducing waiting times, and they are more likely to be aware of any underlying and root causes of long waiting times.

The second population for the quantitative study was the patients from the drainage population who utilise the services at the facility. Only patients who have visited the clinic three or more times will be included into the study. Patients with less than three visits are excluded as they were deemed not to have sufficient experience of the system at the facility and will be unlikely to give contextually useful answers during the study.

3.3 Sample size

Qualitative sample size

All staff working at the facility were included in the sample.

Quantitative sample size

All staff members currently employed at the facility who met the inclusion criteria were included in the sample. There were 80 staff working at the facility of which 69 were frontline staff who attended to patients and who were eligible to participate in the study and this size did not require sampling. Staff were informed about the study in general meetings and during the health forum meetings and were invited to participate; with the proviso that they were assured that they have the absolute right to refuse to participate. Staff willing to participate was given a letter notifying them of date of the study and how they should participate. Further to this a single stage time delimited sampling process was used to provide a sample of the population of who utilise the facility. All patients who arrived at the facility on a chosen day (average day of the week of an average week of the year when all services are provided) were asked to participate in the study; with the proviso that they were assured that they have the right to refuse. A sample size of 255 was calculated at an expected frequency of 50% (of the sample will complete the questionnaire) and an error of 4%, using Epi Info version 7.

3.4 Data Collection Methods

3.4.1 Data Collection Tools

Qualitative tools

No tools were designed for the qualitative process as the data was collected in staff feedback sessions with the purpose of designing the quantitative data collection tools. Department staff were invited to the feedback sessions and were encouraged and prompted for possible underlying causes of previously identified immediate causes of long waiting times, possible barriers to proposed recommendations to reduce waiting times (see table 1) and additional recommendations to reduce long waiting times. The feedback was captured by a scribe during the feedback sessions. The information was collated into a table to easily identify content themes related to the immediate cause (see table 2).

Quantitative tools

Interviewer administered structured questionnaires were used with staff and patients having their own separate questionnaires with questions relevant to each of these two groups. The questions were constructed based on the potential underlying causes and recommendations to reduce waiting time gleaned from the qualitative study and from the literature. The patient questionnaire determined if the patient had an appointment or not, the type of appointment and also determined the modes of transport, arrival patterns, and preferences of patient appointments. It further used statements to describe potential barriers which might exist to recommendations to reduce waiting times and assessed patients' views on an acceptable duration of waiting time. It also assessed the presence of potential underlying causes of long waiting times and attempted to connect them with their corresponding immediate causes of long waits. The staff questionnaire elicited staff opinions of the underlying causes of long waiting times, and assessed the presence of potential staff barriers to recommendations for reducing waits. This questionnaire not only focused on organisation management as described by Tegabu (2008) but also enquired from the patient what underlying causes contributed to long waiting times and additionally the recommendations were tested to ascertain if it was feasible and if the barriers indeed were present.

3.4.2 Data Collection Process

Qualitative data Collection process

All staff members were informed that the WTS survey results would be discussed and were invited to participate in the process. Staff were further advised that they would be requested to participate in a discussion about the findings of the survey, the immediate causes and proposed recommendations. Staff were advised that they could respond to the suitability of recommendations and advise if any

barriers existed to proposed recommendations and that they could also provide further recommendations.

Quantitative data collection process

All staff members were informed timeously about the study at the facility using emails, meetings and forums. Each staff member received a letter of notification explaining the study and the reason for the study, and were requested to participate and complete the questionnaire anonymously.

The patients were informed via the Community Health Forum (CHF), which is a platform between the facility and the community run by community leaders. Notifications were placed in the local community newspaper. The survey took place on the most average day of the week, a day not affected by exceptional events and extremely high or low workloads. Patients arriving on the selected day of the survey were informed of the survey in the local language by research assistants and were requested to participate. Research assistants were recruited from volunteer workers at the facility and from the local community. Research assistants were trained on conducting the survey by the researcher. Research assistants administered the questionnaire to the patients for completion. The research assistants helped the patients with completing the questionnaire when the patient had difficulties doing so.

3.5 Piloting of Questionnaire

Quantitative study

Piloting was the first step in practical application for the study. It allowed for research tools and questionnaires to be tested, so that errors could be improved for the actual study. The following tools did benefit from a pilot study i.e. questionnaires and the data collection process. The aim was not only to test the tool but to prepare the fieldworkers for the main study. The questionnaire was piloted separately. Phase one tested the questionnaire with a few patients at the facility and where patients could not answer the question amendments were made to remove ambiguity. The staff questionnaire was piloted at a different facility which offered the same services and had the same staff categories. The pilot study tested the repeatability of questionnaires and waiting time tool.

3.6 Validity and Reliability

Validity and Reliability of the Quantitative study

To ensure the validity of the study the following were accurately done; (i) Adequate training was given to volunteers, staff and supervisors on carrying out a survey, (ii) The questionnaires were pre-tested and customized for the facility.

The researcher believes that by achieving the following sufficiently helped to ensure reasonable study reliability; (i) provision of adequate training to data collectors, (ii) the use of clearly defined measurements and questionnaires, (iii) standardizing and piloting the questionnaires and patient flow form.

Questions were drafted in such a way as to assist with extracting sensitive information. Patients and staff were also briefed and asked to be as honest as possible when completing the questionnaire and will be assured of anonymity.

Validity/Trustworthiness of the Qualitative Study

To enhance the validity/trustworthiness of the study, the suggestions provided by the staff were comprehensively captured and recorded. The data was checked by a second researcher and the research supervisor who were present at the feedback sessions to ensure that the recorded responses of the participants accurately reflected what was said during the session. Member checking was also done to assess if the summarized information properly reflected the views of the participants by getting participants to comment on written summaries. Triangulation was done by utilising feedback meetings of different categories of staff.

3.7 Generalizability

The facilities context and setting, the type of services delivered, the socio-economic profile of the patients, the organisation of the services, the transport options and costs should be taken into consideration when ascribing the generalizability of this study. The knowledge gained in this setting can therefore probably be applied to health centres in Cape Town and health centres in other urban settings in South Africa. The results could possibly be applied to similar health system settings in similar urban areas in other countries, but with caution.

3.8 Data Analysis

Qualitative data analysis

A thematic content analysis approach was used to analyze the data. Staff feedback were recorded and then arranged into content themes which took the form of the 8 immediate causes of long waiting times. All statements related to a specific immediate cause were tabulated in the immediate cause theme. Each key theme (immediate cause) had one or more underlying causes, proposed recommendations and barriers allocated to if it was relevant to that theme. These themes were then used to construct the quantitative questionnaire.

Quantitative data analysis

Once the research data was collected the process of preparing the analysis began with the data being sorted and coded. During the coding process the research data was classified into categories as answered by the units of analysis (study participants). A number system categorised each response into each category i.e. 1 = yes and 2 = no. Yes/no options were mainly used where possible as it allowed for easy categorical statistical analysis. The coding of data was carried out at the end of the data collection period, after all the codes have been finalised (Bowling, 2002).

The questionnaires were field coded on the questionnaire and then transcribed later onto an electronic format. This allowed for easier and quicker detection of errors. The data from the questionnaires were captured onto Microsoft Excel into composite tables and then analysed. Analysis for patient questionnaires and staff questionnaires were done separately. Patient questionnaires were analysed together as there were no sub-categories for patients. For staff questionnaires combined analysis were done for all staff and separate analysis were done for different categories of staff i.e. reception and helpdesk staff, general staff (enrolled nurses and nursing assistants) and consulting staff (doctors and clinical nurse practitioners). The data was searched for patterns in composite tables (immediate, underlying causes, recommendations and barriers to recommendations) and various types of graphs and the presence and nature of trends were discussed.

3.9 Ethics

No harm was inflicted on the patients and staff as the study only used participant's time. Some good should ensue as the outcome might provide a positive contribution to the facility by reducing patient waiting time and by improving patients' experiences in the future. A potential problem was that patients might have lost their place in the queue while they were completing the questionnaire but we ensured that this did not happen.

Information was provided to staff in meetings, and to the population via the Community Health Forum (CHF) and via health promoters. All participants had the right to refuse to participate in the study, including staff. There were no adverse consequences for patients or staff who decided not to participate. Full confidentiality for all patients was guaranteed and all staff data was anonymous.

Informed consent was obtained from all participants. Staff provided written consent while clients provided verbal consent after they received an explanation from the field workers on what the purpose of the study was. Participants were allowed to withdraw at any point during the study and this was further emphasised on the day of the study. Group permission was requested from the CHF and professional groups at the clinic prior to the commencement of the study. Permission for the study

was received from Western Cape Government Department of Health. Feedback of the study results will be provided to appropriate groups and forums such as the community health forum, staff forums, and management forums and will be published in community newspapers. The confidentiality of the facility and community will be maintained by withholding the name of the facility in all reports.

Ethical clearance was received from the UWC Research and Ethics Committee and from the Provincial Government of the Western Cape Research Committee.

Chapter 4 Results

Fifty two staff, out of the 69 frontline staff who directly attend to patients, turned up at the feedback workshops held to present the results of the previous survey and to explore potential underlying causes of long waiting times and barriers to reducing them. All the staff at the workshops agreed to participate in the study. Six hundred and twenty nine patients attended the facility on the day of the survey, with 205 of these meeting the study eligibility criteria of having had 3 or more visits to the facility previously, and of these 200 agreed to participate and responded to the structured questionnaire, giving a response rate of 98%. Despite achieving a high response rate the total participants (200) on the actual day were less than the expected sample size of 255 participants, because fewer than the assumed 50% of patients attending on the day met the criterion of having previously visited the facility 3 or more times. Quantitative questionnaires were distributed to all 69 staff and 66 completed forms were returned, giving a staff response rate of 96%.

Table 2 summarises the comments from the staff feedback session (qualitative study) and captures the comments in 6 themes which are the 6 immediate causes of long waiting times as found in the WTS. In the feedback sessions staff were asked to provide recommendations and where none were provided the researcher provided his own recommendations or recommendations were extracted from the literature. Most recommendations were either suggested by staff or the researcher, with very few found in the literature review, as this level of root cause analysis was seldom done for waiting time surveys previously. Each theme had many underlying causes and each underlying cause was given a rationale to clarify the mentioned underlying cause. Each theme was then further expanded with recommendations for each underlying cause and potential barriers to recommendations made if staff objected to the suggested recommendation. Staff suggested that possible underlying causes for batching were only one staff member making appointments, high number of walk-in patients arriving early in the morning and inappropriate arrival patterns by appointment patients. Staff also suggested that patients who do not arrive at their appointment time or are arriving early in the morning were a few of the reasons for mismatch. Staff also stated that queueing problems were caused by patients who received preference above other patients and that the lack of efficiency was caused by staff who did other functions while patients were waiting for a service. Recommendations for batching were that patients should be encouraged to make appointments at less busier times and encourage walk-in patients to arrive throughout the day. The table further shows the recommendations made by staff in the feedback session related to the underlying causes and immediate causes. Recommendations for mismatch were for staff to stagger staff break times and encourage staff meetings to take place when the clinic was quieter later in the day. A queue marshal was recommended to direct patients to the correct service point and to allocate 3 or less folders to clinicians so that queueing problems could be avoided. Staff also stated that patients should be made the number one priority to address

the lack of efficiency. Staff also warned that there are likely barriers in implementing the potential recommendations i.e. patients feared travelling during quiet times, patients feared being turned away and the lack of relief staff for staff break times. These and many other barriers and recommendations are tabulated in table 2 below. The information in the table below was utilised to create the questionnaires for the quantitative study to further assess the underlying causes and recommendations given in the staff feedback session.

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Potential Barriers and Feasibility of implementing the Recommendations
Batching (early in the morning)	Only one staff member making appointments	One staff member was working at the helpdesk and all patients were informed to make appointments at the helpdesk, causing an artificial batch as many patients piled up with only one person attending to them	All reception staff with access to the appointment software to make appointments	Staff belief that making appointments will take up a lot of their time
			Encourage patients to phone in for appointments	Patients have limited access to telephones and airtime
	Patients not arriving on their appointment times	Patients with appointments were arriving early and some very early despite having an appointment for later in the day. These patients are not helped earlier as staff want to encourage patients to arrive at the correct time.	Encourage patients to arrive on appointment date and time	Patients reluctance to change arrival patterns despite appointment time due to historical practice
			Encourage patients to make appointments at less busier times of the day	Patients do not want to use public transport later in the day due to safety concerns
	High number of walk-ins early in the morning	A high number of walk-in patients arrived at the facility early in the morning but they are only attended to by a few reception staff who are designated to attend to walk-in patients	More reception staff to attend to walk-in patients	Reception staff are not willing to see all types of patients at their window as they believe they are already overworked
	Inappropriate arrival patterns of patients	Patients with and without appointments are arriving early in the morning with the hope that they will not be turned away but rather get a service at the time they arrived	Encourage patients to make appointments at less busier times of the day	Patients fear of travelling during quiet times
			Provide employed patients with appointment times which suits their working hours	Working class patients would prefer early morning appointments
			Encourage patients to arrive throughout the day	Caregiver of sick child is not willing to come in later due to concern for the child's health
			Encourage walk-in patients to arrive later in the day	Patients fear being turned away and will continue to arrive early until facility stops turning away the patients

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Barriers and Feasibility of Recommendations
Mismatch	Patients are arriving early in the morning	Several patients were arriving early and some very early before the facility opened	Encourage patients to arrive later in the day	Patients fear being turned away and will continue to arrive early until the facility stops turning away some of the patients
	Patients are not arriving at their appointment time	Patients with appointments were arriving early and some very early despite having an appointment for later in the day. These patients are not helped earlier as staff want to encourage patients to arrive at the correct time.	Encourage patients to arrive on their correct appointment date and appointment time	Patients reluctance to change arrival patterns despite given a different appointment time, due to historical practice
			Provide working class patients with appointment times which suits them	Patients fear of travelling during quiet times
				Working class patients would prefer early morning appointments
				Patient resistance to accept appointment date and time given to them due to work or other commitments or just personal preference
	Staff are away from their service point	Staff are away from the service point even though patients are waiting as they have important administration to complete and deadlines to meet	Staff must have meetings later in the day when the facility is less busy	Some staff leave early in the morning due to shift work
			Staggered staff breaks and provision of relief staff for lunch and tea times	When staff are off sick there might be no relief staff
			Allocate more reception staff from 08:00 – 12:00 to very busy service points from less busy service points	Back reception staff have duties to perform i.e. drawing folders and act as runners for clerks appointed to work at the reception windows
			Provide working class patients with appointment times which suits them	Working class patients would prefer early morning appointments
			Encourage patients to arrive on their correct appointment time	Caregiver of sick child is not willing to come in later due to concern for the child's health

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Barriers and Feasibility of Recommendations
Queueing Problems	Emergency patients open folders at helpdesk and are prioritized by allowing these patients to jump the queue	This does not affect the waiting time of patients as there are very few such cases, and their frequency of arrival is not often	Allocate a queue marshal to direct the patients who need emergency assistance and to keep patients who are waiting informed	A second staff member will be required at helpdesk and have a dual function of queue marshal and making appointments when marshalling is not required, while the first clerk will be dedicated to making appointments
	Helpdesk is the primary service point for all patients to make an appointment in the morning	A high number of patients arrive at the facility early in the morning and are only seen by dedicated staff who attend to certain patients due to separate work allocation for different types of Patients (walk-in vs appointment and adult vs children and emergency vs non-emergency)	Place a second staff member at helpdesk during the busy period (08H00 – 12H00) of the day	The reception team is big enough to allocate a second reception clerk to helpdesk and assist with various functions
	Walk-in patients were given preference and fast tracked because they had a patient card which indicated they were known to the facility and meant administration processes were minimal for the clerk	This system is no longer being practiced, currently patients are admitted due to how sick they are according to the South African Triage Score	E-reception is an automated queueing system which will automatically allocate walk-in patients a service slot in a logical order as they arrive. Appointment patients will be allocated in an electronic queue as per their appointment time	The system will require a queue marshal to initially educate the patients how to use the system
				The system works on first come first serve basis and triaging of walk-in patients by a nurse will still be required to assess how sick the patient is and to direct the patient accordingly

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Barriers and Feasibility of Recommendations
Queueing Problems	Patients are not arriving on their appointment times	Early arriving appointment patients were not helped at the early arrival time but had to wait in the queue until the correct time	Encourage patients to arrive at the correct time	Patients reluctance to change arrival patterns despite appointment time due to historical practice
	Walk-in patients with cards are attended to at a different reception window and are fast tracked from reception to the next service point	Admitted patients with cards have a medical folder at the facility and the administration process is quicker for these patients, hence they are guided to a different window, whereas admitted patients with no medical folder are guided to separate window because opening a folder for a new patient takes a longer time	E-reception is an automated queueing system which will automatically allocate walk-in patients a service slot in a logical order as they arrive.	The system will require a queue marshal to initially educate the patients on how to use the system
			Allocate a queue marshal to direct the patients to the correct reception window	The reception team is big enough to allocate a second person to helpdesk to assist with various functions
	5 patient folders were given per clinician for consultation	Each clinician is given 5 folders so that they do not have to collect folders all the time, this however can inconvenience the patient last in the batch if other patients in the batch require longer service time.	Allocate one folder per clinician or a smaller batch of 3	Clinician reluctance to receive less folders and perceive walking to collect folders from the triage area as a waste of time
	Patients are not seen in order which they arrived	Early arriving appointment patients were not helped at the early arrival time but had to wait in the queue until the correct time and walk-in patients with a minor ailment who arrive early are seen after the scheduled appointment patient or the very sick patient	Introduce an appointment and E-reception queueing system for all departments	Electronic queueing systems are expensive and can take a long time to be implemented at each service point
			Allocate a queue marshal to direct the patients to the correct reception window	The reception team is big enough to allocate a second person to helpdesk to assist with various functions

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Barriers and Feasibility of Recommendations
Lack of efficiency	Important administration tasks need to be completed by all categories of staff	Staff have to complete a number of administration tasks during the day as part of their daily tasks	Make attending to patients the number 1 priority	When staff are off sick the administration load is increased for the remainder of staff members
	Frontline reception clerks leave the service point to draw folders	When the support staff are on breaks during the day then the frontline staff need to vacate their service point to search for the patient folder	Pre-draw folders the previous day for patients with appointments	Pre-drawing of appointment patient folders the previous day is currently implemented at the facility
Logistical problems	Some services are underutilised due to lack of instruments and equipment	At the time of the survey some departments were still waiting for certain instruments and equipment	Procure the required instruments and equipment	The required instruments and equipment have been procured and the service is fully utilised
	Lack of space	The adult triage area is one big room which can accommodate many patients and many staff but it lacks privacy Due to lack of rooms in the child health area professional nurses are working two in one room to accommodate the high number of babies and children who requires immunisation services	Provide more rooms and space to ensure the Patient privacy is maintained in the triage areas	Financial constraints exist and is preventing renovations to be done to the affected areas

Table 2: Suggested underlying causes of the immediate causes and proposed recommendations to address them and reduce waiting times

Immediate Cause	Underlying Cause	Rationale	Recommendations	Barriers and Feasibility of Recommendations
Flow problems	Patients are not arriving in a logical order as they are held up at another service point	Patients are delayed at previous service point due to lack of resources and affects the arrival pattern at the next service point	Solve the problem at the prior service point	Quality improvement culture exists in the organisation and improvements can be implemented
			Idling staff can help out at the prior service point to improve flow	Staff reluctance to help out and do an extra function, believing they are already overworked

Table 3 provides the results of the patient and staff questionnaires which investigated the potential underlying causes of ***Batching.*** Several potential underlying causes were investigated and are denoted as variables and the various aspects of the variable are described as a measurement. The result of the measurement indicates which one or more aspects of the variable is a contributing factor of the potential underlying cause of ***Batching***. The table shows that 45% of patients were given early appointments and lists the reasons why patients arrived early at the facility. It further shows that 70% of patients with appointments before 10H00 arrived on time and 0% arrived late. One hundred percent of patients with appointments after 10H00 arrived early and before 10H00, which indicates that irrespective of the appointment times patients arrived early at the facility, thus they increase the waiting time for all patients who arrive after them as these patients then have to wait until they (the batch of patients) are processed, before they (the later arrivals) can be attended to. A total of 71% of staff also believed that batching was caused at their service point because patients did not arrive on their appointment times. Forty-six percent of patients with appointments arrived early because they were hoping to be helped sooner, and this was further confirmed by 56% of patients who also stated that other patients were hoping to be helped sooner being the reason why they arrived early. Forty three percent of the patients stated that they feared being turned away. Staff were asked their views as to why patients arrive early and 91% of staff stated that patients arrived early because they were hoping to be helped sooner and 11% stated that patients arrived early due to transport logistics. None of the patients reported that transport logistics caused them to arrive early for their appointment. A total of 71% of staff also believed that batching was caused at their service point because patients do not arrive on their appointment times.

Table 3: Measurement of the potential underlying causes of batching

Immediate cause of long waiting times: BATCHING (Large numbers of patients arrive together early in the morning)					
Potential Underlying Cause	**Variable**	**n**	**Measurement**		
Patients arrive early in the morning despite having an appointment for later in the day	Patients with an appointment	**105**	Patients with appointment times before 10H00	Patients with appointment times 10H00 and later	
			45%	**55%**	
	Arrival patterns of patients with appointments before 10H00	**48**	Patients with an appointment before 10H00 and arrived > hour early for their appointment	Patients with an appointment before 10H00 and arrived on time	Patients with an appointment before 10H00 and arrived late
			30%	**70%**	**0%**
Patients arrive early in the morning despite having an appointment for later in the day	Arrival patterns of patients with appointments later than 10H00	**59**	Patients with an appointment after 10H00 but arrived early and before 10H00	Patients with an appointment after 10H00 and arrived on time	Patients with an appointment after 10H00 but arrived late
			100%	**0%**	**0%**
	Arrival patterns of patient with an appointment at any time of the day	**105**	Patients who had an appointment but irrespective of the appointment time arrived before 10H00		
			100%		
	Patients who had an appointment but irrespective of the appointment time arrived 1 or more hours early for their appointment	**105**	Patients with an appointment and arrived an hour early for their appointment	Patients with an appointment and arrived between 2 and 7 hours early for their appointment	
			27%	**73%**	

Table 3: Measurement of the potential underlying causes of batching

Immediate cause of long waiting times: BATCHING (Large numbers of patients arrive together early in the morning)			
Potential Underlying Cause	**Variable**	**n**	**Measurement**
Walk-in patients arrive early in the morning	Arrival patterns of walk-in patients	**84**	Arriving early in the morning before 10H00 **26%**
Reception staff perceptions about the proportion of patients arriving early for their appointment	Reception staff estimate of arrival patterns of all patients	**14***	Percentage of staff who believe at least more than 50% of patients arrive early **78%**

* The question was pitched at the reception staff only as they are more aware and alert to patient arrival time being the first point of contact

Table 3: Measurement of the potential underlying causes of batching

Immediate cause of long waiting times: BATCHING (Large numbers of patients arrive together early in the morning)							
Potential Underlying Cause	**Variable**	**n**	**Measurement**				
Early arrival patterns of appointment and walk-in patients	Views of Patients who arrived early for their appointment on why they arrived early in the morning before 10H00	**63**	Hoping to be helped sooner	Fear of being turned away	Were helped sooner previously	Had an early appointment	Transport Logistics
			46%	**43%**	**3%**	**8%**	**0%**
	Views of Patients with an appointment on why other patients with an appointment arrive early in the morning before 10H00	**104**	Hoping to be helped sooner	Fear of being turned away	Were helped sooner previously	Told by staff to arrive early	Transport Logistics
			56%	**27%**	**29%**	**13%**	**4%**
	View of walk-in patients on why other walk-in patients arrive early in the morning before 10H00	**71**	Hoping to be helped sooner	Fear of being turned away	Were helped sooner previously	Told by staff to arrive early	Transport Logistics
			59%	**11%**	**31%**	**6%**	**1%**
	Staff views on why patients arrive early in the morning before 10H00	**66**	Patients hope to be helped sooner	Patients fear being turned away	Were helped sooner previously	Told by staff to arrive early	Transport Logistics
			91%	**21%**	**0%**	**6%**	**11%**

Table 3: Measurement of the potential underlying causes of batching

Immediate cause of long waiting times: BATCHING (Large numbers of patients arrive together early in the morning)					
Potential Underlying Cause	**Variable**	**n**	**Measurement**		
Staff beliefs why batching is experienced at their service points	Staff views on why batching takes place at their respective service points	**65**	Patients do not arrive on their appointment time	Too few staff during rush times	Early morning rush caused by high number of patients arriving at this time
			71%	**40%**	**38%**

Table 4 summarises contributing factors to the potential underlying causes of ***Mismatch*** based on the results of the patient and staff questionnaires. There were two types of mismatch; that due to patients arriving very early in the morning and that due to service points being unavailable at times during the day. As was done in table 3 it lists various factors/variables which could have influenced the underlying cause which those variables were presumed to potentially affect. The table shows that 59% of the patients did not know the opening time of the facility and due to this lack of knowledge 13% arrived at the facility before it opened. All of the patients who knew the opening time of the facility arrived after the facility opened. The table also shows the mode of transport of the patients and establishes that 52% utilise public transport to get to the facility while 39% walked to the facility. Of the patients who utilised public transport to the facility 64% believe that it was dangerous to use public transport between 04H00 – 05H59 and presumably because of this belief 0% arrived at the facility before 07H00. The table shows that of the patients who walked to the facility 87% believed that it was dangerous to walk between 04H00 – 05H59 and that 0% arrived at the facility before 07H00. One hundred percent of the patients who walked to the facility stated that the reason they believe it is dangerous, is because they fear being assaulted when walking very early in the morning. Forty six percent of staff also believed that patients do not come to the clinic during quiet times because patients fear being assaulted en route to the facility. The table further shows that 95% of reception staff made appointments, but 85% only made appointments when their window was quiet. Fifty percent of the staff stated that they do not make appointments all the time because it interrupts normal workflow.

Table 4: Measurement of the potential underlying causes of mismatch

Immediate cause of long waiting times: MISMATCH very early in the morning (Patients arrive very early in the morning before the clinic opens)					
Potential Underlying Cause	**Variable**	**n**	**Measurement**		
Community does not know the opening time of the facility and therefore potentially arrive before it opens causing a mismatch	Assessment of veracity of patients who stated they knew the opening time	**109**	Patients who stated an incorrect opening time when asked to list the opening time		
			59%		
	Assessment of guesstimate of patients who did not know the opening time but were asked to guess	**54**	Guessed the opening time incorrectly		
			50%		
Community does not know the opening time of the facility and therefore potentially arrive before it opens causing a mismatch	Arrival patterns of patients who did not know the correct opening time of the facility	**91**	Patients who did not know the opening time and arrived before 07H00 (facility opens at 7H30)	Patients who did not know the opening time and arrived between 07H01 - 09H59	Patients who did not know the opening time and arrived 10H00 and later
			13%	**57%**	**30%**
	Arrival patterns of patients who knew the correct opening time of the facility	**45**	Patients who knew the opening time and arrived before 07H00 (facility opens at 7H30)	Patients who knew the opening time and arrived between 08H00 - 09H59	Patients knew the opening time and arrived 10H00 and later
			0%	**100%**	**0%**
	Opening time knowledge of patients who arrived before 07H00	**12***	Patients who did not know the opening time of the facility		
			100%		

* Only patients who did know the opening and arrived before 07h00 were requested to answer the question

Table 4: Measurement of the potential underlying causes of mismatch

Immediate cause of long waiting times: MISMATCH very early in the morning (Patients arrive very early in the morning before the clinic opens)						
Potential Underlying Cause	**Variable**	**n**	**Measurement**			
Public transport safety concerns might cause	Mode of transport to the facility	**190**	Public Transport	Walked	Own Private vehicle	Lift with private vehicle
			52%	**39%**	**4%**	**5%**
	Views on safety of public transport of patients who used public transport to travel to the facility	**98**	Patients who believe public transport is unsafe very early in the morning (04H00 - 05H59)	Patients who believe public transport is unsafe early in the morning (06H00 - 09H00)	Patients who believe public transport is unsafe during less busy times of the day 09H00 - 14H00	Patients who believe public transport is unsafe during afternoon peak hours 14H00 - 17H00
			64%	**14%**	**2%**	**14%**
	Arrival patterns of patients who believe it is unsafe to use public transport very early in the morning (04H00 - 05H59)	**63***	Patient who believe public transport is unsafe very early in the morning (04H00 - 05H59) and arrived before 07H00			
			0%			

* Further analysis of the previous variable of patients who indicated that public transport was unsafe very early in the morning

Table 4: Measurement of the potential underlying causes of mismatch

Immediate cause of long waiting times: MISMATCH very early in the morning (Patients arrive very early in the morning before the clinic opens)						
Potential Underlying Cause	**Variable**	**N**	**Measurement**			
Walking safety and patient arrival patterns might cause patients to arrive early in the morning if that is the safest time period to arrive	Patient views on safety when walking to the facility	**74**	Patients who believe walking is unsafe **very early** in the morning (04H00 - 05H59)	Patients who believe walking is unsafe early in the morning (06H00 - 09H00)	Patients who believe walking is unsafe during less busy times of the day 09H00 - 14H00	Patients who believe walking is unsafe during afternoon peak hours 14H00 - 17H00
			87%	**29%**	**5%**	**5%**
	Arrival patterns of patients who believe it is unsafe to walk very early in the morning (04H00 - 05H59)	**13***	Patient who believe walking is unsafe very early in the morning (04H00 - 05H59) and arrived before 07H00			
			0%			
	Why is it dangerous to walk to the facility at certain times of the day	**13***	Patients fear of being assaulted			
			100%			
	Why are certain patients unable to attend at quiet times according to reception staff beliefs	**13****	Staff believe it is dangerous for the patient to walk or travel to the facility	Staff believe patients are at work later in the day	Staff believe patients have a preference to come early in the morning	
			46%	**31%**	**23%**	

Table 4: Measurement of the potential underlying causes of mismatch

Immediate cause of long waiting times: MISMATCH when service points not available throughout the day (The service of 'providing an appointment for the patients' next visit' is not available throughout the day)					
Potential Underlying Cause	**Variable**	**n**	**Measurement**		
Staff don't provide all services all day: Reception staff don't make appointments throughout the day	Do reception staff make appointments at all	**14****	Make appointments		
			93%		
	Do reception staff make appointments throughout the day	**13****	Make appointments when their window is quiet	Make appointments throughout the day	
			85%	**15%**	
	Reasons why some reception staff do not make appointments throughout the day	**11****	Staff state that it interrupts normal work flow	Staff state that making appointments for new patients takes very long	Staff state that making appointments is time consuming
			50%	**33%**	**17%**

* Only 13 patients answered the follow on questions related to walking to the facility
** Only reception staff were requested to answer the questions

Table 5 provides the results of the patient and staff questionnaires which investigated the potential underlying causes of ***Illogical queueing.*** Several potential underlying causes are summarised in the table below showing the contributing factors of the potential underlying causes of ***Illogical queueing***. The table has some variables whose percentage total adds to more than 100% as respondents could choose more than one answer to those specific questions. The table shows that 77% of patients knew where to go when they arrived at the facility and 44% of patients firstly stated that this was the case because they were familiar with the surroundings at the facility, and secondly that staff informed them which service point to attend when they made the appointment for them. Of those patients who were not orientated, 50% stated that the facility was busy and confusing and 10% stated that staff did not inform them where to go for their next visit. The table further shows that ***Illogical queuing*** occurs as 75% of reception staff do not attend to early arriving patients and staff let these patients wait until their appointment time before assisting them. All clinical staff stated that they served patients who arrived early for their appointment. Seventy three percent of staff stated that patients who are waiting in the front of the queue are being bypassed due to these patients waiting for folders, and 27% of staff stated that if patients' folders lacked information, then they are bypassed by patients who arrived after them.

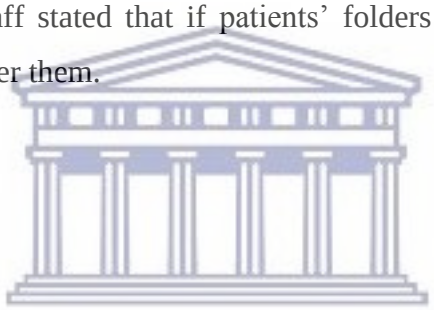

Table 5: Measurement of the potential underlying causes of illogical queueing

Immediate causes of long waiting time: Illogical Queueing (when patients are attended to by staff in an illogical order)					
Potential Underlying Cause	**Variable**	**N**	**Measurement**		
Patients are not orientated on where service points are in the facility	Did patients know where to go in the facility on arrival	**186**	Yes		
			77%		
	Reasons why patients did know	**110***	The facility has good signage	The patient is familiar with the surroundings of the facility	When making an appointment staff informed the patient where to go for the next visit
			25%	**44%**	**44%**
	Reason why patients didn't know	**10****	The facility has poor signage	The facility is busy and confusing	When making an appointment staff did not inform the patient where to go for the next visit
			0%	**50%**	**10%**
Reception staff let early arriving appointment patients wait until their scheduled appointment time	Do ***Reception*** staff attend to early arriving patients	**16*****	Reception staff who let patients who arrive early for their appointments wait till their appointment time before serving them	Reception staff who serve patients who arrive early for their appointment	
			75%	**25%**	

* 142 patients stated they did know but only 110 answered the follow-on question.

* Patients could choose more than one answer thus percentage would be more than 100%

** 44 patients stated they did not know but only 10 answered the question

*** Analysis done for reception staff only

Table 5: Measurement of the potential underlying causes of illogical queueing

Immediate causes of long waiting time: Illogical Queueing (when patients are attended to by staff in an illogical order)						
Potential Underlying Cause	**Variable**	**N**	**Measurement**			
Clinical staff let early arriving appointment patients wait until their scheduled appointment time	Do ***Clinical*** staff attend to early arriving patients	**10******	Clinical staff who let patients who arrive early for their appointments wait till their appointment time before serving them	Clinical staff who serve patients who arrive early for their appointment		
			0%	**100%**		
Staff are bypassing some patients even though they are next in line to be seen	Reasons why some patients are bypassed by staff	**28**	Lack of information in the folder of the patient who is next in the queue	Waiting for folder of the patient who is next in the queue	Computer malfunction disabling ability to find results of the patient who is next in the queue	Patient who is next in the queue will only be seen at their appointment time
			27%	**73%**	**27%**	**19%**

**** Analysis done for clinical staff only

Table 5: Measurement of the potential underlying causes of illogical queueing

Immediate causes of long waiting time: Illogical Queueing (when patients are attended to by staff in an illogical order)						
Potential Underlying Cause	**Variable**	**N**	**Measurement**			
Reception staff are bypassing some patients even though they are next in line to be seen	Reasons why some patients are bypassed by *reception staff*	**15*** **	Lack of information in the folder of the patient who is next in the queue	Waiting for folder of the patient who is next in the queue	Computer malfunction disabling ability to find results of the patient who is next in the queue	Patient who is next in the queue will only be seen at their appointment time
			7%	**33%**	**27%**	**33%**
Clinical staff are bypassing some patients even though they are next in line to be seen	Reasons why some patients are bypassed by *clinical staff*	**13**** **	Lack of information in the folder of the patient who is next in the queue	Waiting for folder of the patient who is next in the queue	Computer malfunction disabling ability to find results of the patient who is next in the queue	Patient who is next in the queue will only be seen at their appointment time
			38%	**38%**	**24%**	**0%**

* 142 patients stated they did know but only 110 answered the follow-on question.

* Patients could choose more than one answer thus percentage would be more than 100%

** 44 patients stated they did not know but only 10 answered the question

*** Analysis done for reception staff only

**** Analysis done for clinical staff only

Table 6 shows results in the similar format as tables 3, 4 and 5 above and provides the results of the patient and staff questionnaires which investigated the potential underlying causes of ***Lack of efficiency.*** The table shows recorded variables and its relationship to the underlying causes of ***Lack of efficiency***. The subsequent measurements indicate which one or more aspects of the variable is a contributing factor of the potential underlying cause of ***Lack of efficiency***. The table below had very few respondents to certain variables as questions related to these variables were follow on questions to a root question, and only if the respondent selected a certain choice in the preceding root question could they proceed to answer the next question. The table shows that staff were not prioritizing attending to patients even though they were waiting at the service point. The table shows that 52% of staff infrequently and 11% of staff frequently prioritized other duties instead of attending to patients who are waiting at the service point. Staff also stated that for the times they did stop attending to patients, they would always (100% of the time) stop to do administration tasks. The table further shows the reasons why staff made other tasks a priority, i.e. 52% of staff stated that the facility was always busy and admin tasks had to be completed and 33% of staff stated that they received pressure from management to complete administrative tasks.

Table 6: Measurement of the potential underlying causes of lack of efficiency

Immediate causes of long waiting time: Lack of Efficiency (Patients are not efficiently attended to even though staff members are present at the service point, as they are busy doing something else other than attending to patients)					
Potential Underlying Cause	**Variable**	**n**	**Measurement**		
Staff are not attending to and prioritizing patients even though patients are waiting at the service point	Do staff prioritize other duties instead of attending to patients who are waiting	**63**	Frequently	Infrequently	Never
			11%	**52%**	**39%**
	Which interjections stop staff from attending to patients	**18***	Administration tasks	Tea and lunch break	
			100%	**17%**	
	What reasons exist for making other tasks a priority above patients	**18****	The facility is always busy and admin tasks must be completed	My service point has many functions and I am required to fulfil all functions	Pressure from management to complete administrative tasks
			56%	22%	33%

* Only 18 of those staff who said they frequently and infrequently prioritize other duties above patients responded to this question

* Percentages is more than 100% as some staff selected more than 1 option

** Question is a follow on question from the previous question hence only 18 responses were received

Table 7 shows results for recommendations from staff and patient questionnaires which were designed from table 2. The intention was to ascertain collectively from staff and patients if the recommendations could possibly mitigate underlying and immediate causes of long waiting times. The recommendations are shown as variables which are depicted as percentages to show whether staff and patients agree that the recommendations might offer a resolution to the problem of long waiting times or not. Variables/recommendations which had a high number of staff /patients disagreeing with it were further analysed for potential barriers, which are also depicted as percentages. The table shows that 66% of reception staff believed that an SMS reminder will improve patient attendance. The results also show that 96% of patients had access to a telephone and 75% of the patients had sufficient funds to make a telephone call for an appointment date and time to be seen at the health facility. Only 53% of the staff wanted the facility to make telephonic appointments and 67% of staff stated that it would be difficult to explain important information to the patients telephonically, while 50% believed that patients waiting in the queue to be seen will become frustrated if they have to wait while staff deals with telephone calls. All staff stated that they could provide patients with their requested preferred appointment time and 100% of patients stated that their preferred their appointment was between 07H00 and 10H00. However, 70% of patients stated that they would accept appointments between 13H00 and 15H00. Seventy three percent of staff stated that they believe a queue marshal will assist with the queueing problem and 72% stated that they could have meetings later in the day when the facility is quiet rather than in the mornings when it is busy. Seventy one percent of patients suggested that the clinic open its outpatient's services at 07H00, while 50% of patients indicated that the clinic should remain open until 18H00. The table also shows that 41% of staff stated that patients should be apportioned to separate queues for each group of patients (walk-in patients and appointment patients) and 46% stated that there should be separate queues per group but that more clinicians should be allocated to the appointment patients as there are more of them and they should be attended to more rapidly given that they have an appointment.

Table 7: Recommendations for remedying underlying and immediate causes of long waiting times

Recommendations to mitigate Potential Underlying and Immediate Causes of Long Waiting Times						
Underlying and Immediate Cause	**Recommendation**	**Variable**	**n**	**Measurement**		
Batching occurs due to patients arriving early in the morning despite having an appointment for later in the day	The use of an SMS system to remind patients of their appointment times	Reception staff views on whether a SMS reminder will improve patient attendance on their appointment date and time?	**15**	Reception staff who believe it will improve attendance at the correct time		
				66%		
Mismatch occurs as staff do not provide all services all day: in particular, reception staff don't make appointments throughout the day	The facility should allow patients to make telephonic appointments and thereby avoid having to wait in an appointment queue at the facility	Does the patient have access to a telephone?	**196**	Patients who have access to a telephone		
				96%		
		Does the patient have airtime or money to make a 5 minute telephone call	**191**	Patients who do have airtime or money		
				75%		
	The facility should allow patients to make telephonic appointments and thereby avoid having to wait in an appointment queue at the facility	Would reception staff like the facility to allow patients to make telephone appointments	**15**	Staff who stated the facility should allow patients to make telephonic appointments		
				53%		
		What barriers exist for telephonic appointments according to reception staff	**15**	Difficulty with explaining important information to the patient	Other patients waiting to be attended too will get frustrated	Difficult to validate if patient details are correct
				67%	**50%**	**42%**

Table 7: Recommendations for remedying underlying and immediate causes of long waiting times

Recommendations to mitigate Potential Underlying and Immediate Causes of Long Waiting Times							
Underlying and Immediate Cause	**Recommendation**	**Variable**	**N**	**Measurement**			
Early arrival patterns of appointment patients results in batching	Patient select preferred appointment time	Is the facility able to offer the patients their preferred appointment time?	**14***	Yes			
				100%			
		Patient preferred appointment time	**109**	Preferred time between 07H00 and 10H00			
				100%			
		Reasons for preferred appointment time	**99****	Patients who state that it is a comfortable time to come to the facility	Patients who believe that if they arrive between these times they will be helped sooner	Patients who stated that they still have to return to work or school	
				32%	**25%**	**26%**	
Patients do not arrive throughout the day but rather arrive in batches early in the morning	Appointments to be made during quiet times	Would the patient accept an appointment during quiet times between 13H00 - 15H00	**178**	Yes			
				70%			
		Times for which patients assert that it is impossible for them to come to the clinic	**97**	08H00 - 10H00	10H00 - 12H00	12H00 - 14H00	14H00 - 16H00
				29%	**9%**	**18%**	**26%**
		Patient reasons why it is impossible to come to the clinic between 08H00 - 10H00	**8*****	unsafe to travel or walk this time	I am working/at school	Have to fetch child from School	Too late to attend the clinic
				38%	**25%**	**0%**	**38%**
		Patient reasons why it is impossible to come to the clinic between 10H00 - 12H00	**3*****	unsafe to travel or walk this time	I am working/ at school	Have to fetch child from School	Too late to attend the clinic
				0%	**75%**	**25%**	**0%**

Table 7: Recommendations for remedying underlying and immediate causes of long waiting times

Recommendations to mitigate Potential Underlying and Immediate Causes of Long Waiting Times							
Underlying and Immediate Cause	**Recommendation**	**Variable**	**n**	**Measurement**			
Patients do not arrive throughout the day but rather arrive in batches early in the morning	Appointments to be made during quiet times	Patient reasons why it is impossible to come to the clinic between 12H00 - 14H00	**5*** **	unsafe to travel or walk this time	I am working/ at school	Have to fetch child from School	Too late to attend the clinic
				0%	**80%**	**0%**	**20%**
		Patient reasons why it is impossible to come to the clinic between 14H00 - 16H00	**12*** **	Unsafe to travel or walk this time of the day	The patient is at work or school	Have to fetch child from School	Too late to attend the clinic
				8%	**50%**	**8%**	**42%**
Patients are not orientated as to where service points are in the facility resulting in queueing problems	Using a queue marshal to improve queue logistics	Will a queue marshal improve queueing?	**63**	Staff who believe a queue marshal will improve queueing			
				73%			
Staff are not attending to and prioritizing patients even though they are waiting at the service point resulting in inefficiency	Staff meetings should be held later in the day when the facility is quiet	Are staff able to have meetings later in the day	**64**	Staff who are able to have meetings later in the day			
				72%			
		Why certain staff are unable to have meetings later in the day	**24** **	The clinic is never quiet	Some staff leave early in the day due to shift work	Staff do additional administrative tasks later in the day	
				62%	**42%**	**33%**	

Table 7: Recommendations for remedying underlying and immediate causes of long waiting times

Recommendations to mitigate Potential Underlying and Immediate Causes of Long Waiting Times							
Underlying and Immediate Cause	**Recommendation**	**Variable**	**n**	**Measurement**			
High number of employed walk-in patients arrive early in the morning resulting in batching	Patient suggestions on proposals to extend clinic operational hours to allow patients to attend before work hours commence or after working hours	Patient proposed clinic *normal* opening hours	**24*** **	06H00	07H00	08H00	
				17%	**71%**	**4%**	
		Patient proposed clinic *normal* closing hours	**24*** **	17H00	18H00	19H00	
				17%	**50%**	**17%**	
		Patients wanting extended clinic operational hours Monday to Friday	72	Yes, to extended hours			
				65%			
		Patient proposed *extended* clinic operational opening times Monday to Friday	**70**	05H00	06H00		
				13%	**11%**		
		Patient proposed *extended* clinic operational closing times Monday to Friday	**70**	18H00	19H00	20H00	21H00
				40%	**17%**	**13%**	**24%**
		Patients wanting Saturday Services	**172**	Yes, to Saturday services			
				100%			
		Patient proposed clinic *Saturday* opening hours	**169**	07H00	08H00	09H00	
				27%	**46%**	**19%**	
		Patient proposed suggested clinic *Saturday* closing hours	**166 ******	14H00	15H00	16H00	17H00
				40%	**16%**	**13%**	**31%**

* Analysis done for reception staff only

** This was a follow on question with few patients/staff selecting the option which required an answer in the follow on question

*** This was a follow-on question with many options and respondents selected the option most suited to them

**** Not all the clients who responded to the question about Saturday opening hours responded to the question related to Saturday closing hours

Table 7: Recommendations for remedying underlying and immediate causes of long waiting times

Recommendations to mitigate Potential Underlying and Immediate Causes of Long Waiting Times						
Underlying and Immediate Cause	**Recommendation**	**Variable**	**n**	**Measurement**		
Appointment patients are competing for service time with walk-in patients as they all arrive at the same time	How should staff be apportioned to attend to appointment and walk-in patients	How should staff be apportioned to attend to appointment and walk-in patients	**59**	Separate queues and clinicians for each group	Separate queues and clinicians for each group, but more clinicians allocated to patients with an appointment	Start appointments later in the day
				41%	**46%**	**14%**

Chapter 5 Discussion

5.1 Introduction

It was found in the results that there were underlying causes for each immediate cause which had a marked effect on service delivery and which led to long waits at the healthcare facility. Each immediate cause is discussed separately as this would provide for improved understanding of the underlying causes related to it (the immediate cause) which will allow for specific linked recommendations which could potentially reduce the long waits at the facility. Batching is discussed as a problem between 07H30 and 10H00 as it was most prominent as a problem at the facility during these times. Mismatch and its underlying causes are discussed for the time period earlier than 07H30 as this immediate cause occurs when clients arrive before the facility opens. Illogical queueing and its underlying causes which affected the sequence in which patients were seen throughout the day are elaborated upon and discussed. The underlying causes of logistical problems are highlighted in the discussion and show a few challenges related to infrastructure and physical resources at the new health facility. In addition to the discussion on the underlying causes of long waiting times, the barriers to recommendations to reduce waiting times are discussed under each of the immediate causes sub-headings, listed above.

5.2 Underlying Causes of Batching early in the morning (between 7.30 and 10.00am)

The survey found that batching affected more than half of the service points at the facility and nearly three quarters of the staff stated that batching was caused by patients who arrive before their appointment time. Interestingly just short of half of the patients provided with appointments were given an appointment time for before 10H00 in the morning, thus systemically creating a batch early in the morning. Similarly, Mavuso (2008) in her study also found that batching early in the morning was prevalent and she noted that the problem was compounded by staff actually giving 45% of the patients an appointment time for early in the morning.

Nearly three quarters of the patients with appointments before 10H00 arrived on time, while a quarter arrived more than an hour early for their appointment, causing an early morning batch. In addition, all patients given appointments for after 10H00, actually arrived before 10H00, further increasing the size of the early morning batch of patients. The nett result was that all (100%) of the patients given appointments arrived at the health centre before 10H00 in the morning. This phenomenon of early arrival despite having an appointment for later in the day was much greater than staff had anticipated, as most staff thought that only half of the patients with appointments arrived before 10H00. It was

further compounded by the large percentage of these patients arriving more than an hour before their appointment, as noted above, thus increasing the numbers arriving quite early in the morning between 06H30 and 09H00. To exemplify the point, a quarter of those patients who arrived early and before 10H00 had an appointment between 10H00 and 13H00 and a third of those early arriving patients had an appointment between 13H00 and 15H30, which demonstrates that patients arrived up to seven hours early for their appointment. The direct result of many early arriving patients is the formation of big batches of patients early in the morning, who are only attended to and cleared much later in the day (often being attended to only by the afternoon), and thus they increase the waiting time for all patients who arrive after them (both appointment and walk-in patients), as these patients then have to wait until they (the batch of patients) are processed, before they (the later arrivals) can be attended to. A similar result, although not as exaggerated as the current study, was found by Harper and Gamlin (2003) in their study undertaken to reduce waiting times by improving the appointment system at ear, nose and throat out-patient clinics in the United Kingdom. They found that most patients arrived before their appointment time. These participants experienced long waiting times because they arrived up to an hour early for their scheduled appointment and this led to more than half of the patients experiencing longer waiting times, due to arriving too early for their appointment. However, in our current study this effect is exaggerated as three quarters of the patients with appointments arrived more than an hour early and as much as seven hours before their appointment time.

Although it was anticipated that walk-in patients would form the bulk of patients who arrive early in the morning, as they were expected to fear being turned away and referred to come back on another day, unexpectedly, only a quarter of walk-in patients actually arrived before 10H00. Indeed, the expectation that they would fear being turned away from the facility if they arrived later in the day was also unfounded, as a minority of them (11%) reported having this fear. Paradoxically then, the group of patients (those with appointments) who could most easily be diverted to attend the facility at a time during the day when there are lower numbers accessing the services (mainly during the late morning and afternoon), and hence avoid or minimise batching, were in fact the ones who were directly causing the batching.

Reagon and Igumbor (2010) in a large study in Cape Town found that in all 120 clinics and health centres surveyed, that high waiting times were consistently linked to a lack of appointment times being given to repeat visit patients (patients were given an appointment date on which to return, but were not given an appointment time for that date), who then by default arrived early at the facility competing with walk-in patients who typically also arrived early, which resulted in a flood of patients arriving at facilities in large batches in the early hours of the morning. Although in our current study we similarly

had an early morning flood of patients at the facility, it is to be noted that the facility had an appointment system in place that did allocate specific times of attendance, and yet batching still occurred. As noted above, early morning batching in our study was mainly caused by a combination of the inappropriate provision of appointment times for early in the morning and by patients with later appointment times disregarding their appointment times and arriving early. Thus the appointment system itself partly contributed toward batching, as previously mentioned, and the disregard for appointment times by patients contributed the rest, raising the question as to why this occurred.

In attempting to answer this question we noted that surprisingly almost half of the patients stated that they arrived early as they were hoping to be helped sooner and even more surprisingly that nearly half of patients with appointments actually feared being turned away despite having an appointment! The practise of turning away patients after the quota number for the day had been reached, is operative, however it only applies to walk-in patients and not to patients with appointments. It was therefore quite astonishing to discover that so many patients with an appointment still feared being turned away. The most likely way this belief took hold is because the patients with appointments witnessed others being turned away and feared that this could happen to them as well, and therefore they arrived early, as they probably also noted that those who arrive early are not turned away, as the quota system only kicks in after the maximum number of patients who can be seen on that day has accumulated, and hence only after that time are patients turned way. This means that all those who arrive before that time, i.e. arrive early, are never turned away. Further the probability that patients who regularly attend the facility are amongst those they witnessed being turned away is high, as this could easily occur when 'regular' patients miss their appointment date and then turn-up some time later (days or weeks later) without an appointment, and hence are treated as walk-in patients. If these patients then arrive after the quota is applied, then they would be turned way. Those other patients then with an appointment for that day, might identify themselves as being similar to those 'regular' patients and hence view themselves as also at being risk of being turned away, as they are unlikely to know that the 'regular' patients (and hence likely to be appointment patients) have in fact for that particular visit actually become walk-in patients.

All *clinical* staff stated that they help early arriving patients at the time that they arrive even if they have an appointment time for later in the day and a quarter of the *reception* staff stated that they also assist these patients, yet only 3% of the patients had reported that they had been helped sooner at a previous visit to the facility when they arrived early for their appointment. Reception staff who do not usually assist these patients when they arrive as a matter of course, however indicated that they would assist there early for appointment arriving patients, if there were no other patients waiting. The effect of staff assisting patients who arrived early (for their appointment) previously, might cause the patients

with an appointment to repeatedly arrive early with the false hope of being helped sooner. Even though so few patients stated they were helped sooner previously, in comparison to nearly half of the patients who stated they feared being turned away, the real underlying cause is probably the hope of being helped sooner, and this hope is similar to that of a gambler hoping to win, even though his chances of winning is very slim. Gamblers despite their slim chance of winning will typically persist with gambling, and similarly in the case of this study, the patients persist in arriving early with the hope of being helped sooner, probably because they are persistent optimists and suffer from an illusion of control, as found by Griffith (1990) in two groups of gamblers in the United Kingdom. The analogy of the patient and the gambler illustrates that the patient is under the illusion of control and persists to come earlier than their appointment time, even though they only have a 3% chance of being helped sooner. The impact is that patients will continue to arrive very early causing a batch early in the morning, as was the case with all appointment patients in this study, and the nett effect is that they ultimately experience longer waiting times.

Several staff had the notion that patients arrived early because of problems with transport logistics. On the contrary transport challenges did not affect any of the patients at all, with zero patients reporting that travel logistics prompted them to arrive early. The facility is quite accessible because it is situated on a main road which links the communities to the facility and it accommodates three of the four major transport services offered by local government or private business owners. The patients have access to minibus taxis, standard bus services and municipal bus services. All three of the public transport services stops very close (5m to 100m) from the facility's entrance. Although transport was not a challenge, the fear of being assaulted very early in the morning was very prevalent. Most of the patients did not believe that walking and using public transport during quieter times i.e. later in the morning (09H00 – 11H00) or early to late afternoon (12H00 – 17H00) was dangerous, hence for the majority of the patients', safety whilst walking or commuting later in the day was not a deterrent to arriving at the correct appointment time, yet all of the patients with an appointment arrived early in the morning. However, nearly three quarters of patients who walked or travelled with public transport to the facility stated that they feared being assaulted during the *very early* hours of the morning (04H00 – 05H59), while a much lower proportion (14%) feared being assaulted in the *early* morning (06H00 – 09H00). Hence fear of assault did not deter patients from arriving *early* in the morning, however it clearly did prevent them from arriving *very early* at the facility, as all of those who feared travelling very early in the morning did not arrive at the facility before 07H00.

The probable underlying causes of batching early in the morning, as discussed above, hence were the *ineffective* implementation of the appointment system at the facility, which provided patients with

appointments early in the morning; the early arrival patterns of patients with appointments and specifically those patients who had appointments for later in the day, because they hoped to be helped sooner and (incorrectly) feared being turned away from the facility; and the hope of being helped sooner was positively (and perversely) reinforced by staff attending to patients who arrived early for their appointments.

5.3 Underlying Causes of Mismatch very early in the morning (before 7.30 am)

This facility opens its doors at 07h30 for out-patient services and a mismatch occurs when patients arrive to be seen but staff is not yet at their service point (Reagon and Igumbor; 2010). In the quest to ascertain if the community knew the opening time of the facility, more than half the patients stated the incorrect time when asked if they knew the opening time. The results further show that of the patients who knew the opening time, zero percent arrived before 07H00 and of those who did not know the opening time, nearly fifteen percent arrived before 07H00, thereby causing a mismatch early in the morning. Tegabu (2008) in his research of the assessment of waiting and service times in public and private health care facilities in Gondar district, North Western Ethiopia, found that the patients who arrive before the opening time waited longer than those who arrive during the operational hours. These patients who wait longer even though they were 'being good' by arriving early, become less satisfied with the quality of care (Sayed et al, 2013).

Nearly a third of the patients who utilise public transport stated that it was unsafe to travel *very early* in the morning (before the opening time of the facility) and of the patients who indicated this, zero arrived before the opening time, with these patients preferring to travel when it is busier on the public transport route. Of the patients who walk to the facility more than three quarters stated that it is unsafe to walk *very early* in the morning and none of these patients arrived before the opening time of the facility. Moreover, nearly half of the staff stated that patients believe it is dangerous to travel during quiet times of the day, and very few patients indicated that it is dangerous to travel during busy times of the day. Therefore, these findings indicate that travelling throughout the day is not a concern for most patients and that they can arrive throughout the opening ours of the facility because they do not fear being assaulted then. A very small cohort of patients stated that walking or travelling to the facility during less busy times (09H00 – 14H00) and afternoon peak hours (14H00 – 17H00) was unsafe and thus they (the patients) arrived early and before the facility opened. Although some patients arrived before the facility opened, causing a small mismatch, many feared being assaulted and this deterred them from arriving *very early*, hence safety concerns deter patients from arriving very early and hence

mitigates against mismatch occurring early in the morning. Fitzpatrick (2004) in his study of access to healthcare among the elderly in 4 communities in America, assessed which barriers prevented the elderly from accessing healthcare, and found that nearly a quarter of elderly patients could not access healthcare, because they feared being assaulted on the streets (Fitzpatrick et al, 2004). More than half of the patients utilise public transport and nearly forty percent walked to the facility, thus a large majority of the patients attending the facility are exposed to potential acts of assault, compared to patients using private vehicles who are not exposed to these threats. This seemingly has both negative and positive effects, as the fear of being assaulted is deterring patients from arriving very early before the facility opens and at the same time deterring patients from travelling during later and quieter times of the day, and thus causing these patients to arrive earlier for their appointments.

The facility does not have a telephonic appointment system in place and patients are thus requested to make a new or follow-up appointment at any of the 4 reception windows, or at the helpdesk. Although half of the reception staff made appointments, only 15% of these reception staff make appointments all day. The effect of this lag in service provision is that it causes a mismatch as patients need to make appointments throughout the day. When reception staff were asked why they do not make appointments throughout the day, half stated that it interrupts their work flow and for this reason they do not make appointments at certain times of the day, specifically when their windows are busy. Making appointments forms part of the service function of reception staff and it would be imperative to provide this service throughout the day, to reduce mismatch at the service point.

5.4 Underlying Causes of Illogical Queueing

The waiting time survey found that illogical queueing affected more than half of the service points at the facility because patients were attended to by staff in an inappropriate order, with patients who were next in the queue being bypassed and hence having to wait longer for a service. Nearly three quarter of staff stated that they bypass patients if reasons exist for them to do so, even when patients are next in the queue. Reasons given by nearly three quarter of staff as to why they saw patients in an illogical order, were that they bypassed those patients who did not yet have their folders and hence it would be awkward to attend to them without knowing their prior history and previous management, and hence they preferred to let them wait until their folders became available. These patients are then repeatedly bypassed which then results in them having a long waiting time. More than a quarter of staff stated that they bypassed patients if their folders lacked information and if the computer malfunctioned, disabling its ability to find results of the patient who is next in the queue. Due to these challenges with the patient's folder and computers ability to remain functional, patients who were supposed to be seen

in sequence were not, and this led to patients waiting longer and becoming increasingly dissatisfied with the health service (Arries, 2008).

The facility had an appointment system in place at the time of the study and patients were supposed to be seen on their appointment time and not when they arrived at the facility. In this study it was found that patients were not attended to at their appointment times, because all clinical staff and a quarter of reception staff stated that they served patients who arrived early for their appointments at the time they arrived. This meant that the patients who arrived at the correct appointment time were made to wait until staff were available, after they completed assisting patients who arrived early for their appointment. Mondschein and Weinstraub (2003) in their literature review on appointment policies stated that the appointment system has a direct effect on customer waiting times and patient satisfaction if applied correctly. Thus, in the current study the appointment system was not applied correctly as patients arriving very early were being seen before their appointment time and it had a subsequent effect of increasing batching early in the morning as previously discussed.

In contrast to the quarter of reception staff that assisted early arriving patients, three quarters of reception staff did not assist patients who arrived early for their appointment. This helped to decrease the batching problem early in the morning, as early arriving appointment patients were correctly requested to wait until their appointment times to receive a service, and the patients who were next in the queue were assisted instead.

Some patients were not orientated on the whereabouts of the service points in the new facility and they were accessing incorrect queues which led to queueing problems. Half of the patients stated that they were not orientated on where to go in the facility, because the facility was busy and confusing, and for a tenth of them the reception staff did not inform them where to go for their next visit, when making their appointment. This meant that patients waited in the incorrect queue and when they reached the service point they were informed to join the correct queue, which led to extended waiting times and dissatisfaction for these patients.

In contrast more than three quarters of patients stated that they knew where to go when they arrived at the facility. Nearly half stated that they were orientated because they were familiar with the surroundings at the facility and that staff informed them which service point to attend at their next visit, when they made the appointment. Thus the majority of the patients were finding themselves at the correct service points and in the correct queues in the facility.

5.5 Underlying Causes of Logistical Problems

The waiting time survey found that logistical problems affected a tenth of the service points and occurs when 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 (Reagon, 2013). Daniels (2008), in his study assessing the impact of a waiting time survey on reducing waiting times in primary care clinics, found that logistical problems were caused by equipment malfunction, lack of equipment and non-availability of consulting rooms. At the time of the survey not all the services were fully commissioned at the facility and more staff were allocated to certain areas, which led to there being a lack of equipment for a proportion of staff working in a specific area. The adult medical triage and prep areas were one of the areas which had more staff allocated than required, and only sufficient equipment was available for the stipulated amount of staff members, hence the extra staff seemed to be challenged with lack of equipment. The pharmacy had four service windows but only had one microphone installed at the time of the survey, hence only one window was open at the time of the survey, and only one pharmacist was dispensing medication, whilst the other pharmacist was assisting with capturing and picking medication, or acted as relief if the main dispensing pharmacist was on a break.

The HIV counsellors did not have enough consultation rooms and two counsellors had to utilise one room to test and counsel patients. Each counsellor saw alternative patients which meant that there was always one counsellor challenged with logistical problems and unable to consult patients.

The only probable underlying causes of logistical challenges therefore were the lack of equipment and space challenges. This was in line with Bachmann and Barron (1997) who stated in their study on the analysis of waits, queues and work in a South African urban health centre, that the inevitable result of long queues were caused by scarce resources (lack of equipment) and inefficient organisation.

5.6 Barriers to Recommended Solutions to Long Waiting Times

The waiting time survey provides recommendations for the immediate causes of long waiting times, but not for the potential underlying causes of long waiting times. Recommendations were investigated for underlying causes which affected most of the service points, staff and patients, and which had a larger impact on the quality of service delivery.

More than half of staff stated that a short message service (SMS) reminder would assist with reducing batching early in the morning if a reminder SMS of the appointment date and time was sent to the patient in advance, which would result in patients arriving closer or on time for their appointment. Literature reviews found on SMS reminders were for patients who do not arrive or defaulted on their appointment dates such as in the study of Hallsworth et al. (2015) on reducing missed appointments in

England, which showed that 5800 less patients missed their appointments due to an SMS reminder being sent to the patient, which is contrast to this study, as patients are arriving for their appointments but arriving very early. In this current study patients did not relate forgetting their appointment time as a challenge, but rather highlighted other reasons relating to arrival time preference and fear of being late, as inducements for arriving early at the facility. However, an SMS reminder might serve to remind the patient of their appointment date, to reduce defaulting, as found in Hallsworth et al. (2015) study and to remind the patient to arrive at the correct time at the facility, as is the case in the current study.

It was recommended that patients should arrive throughout the day at less busier times to reduce batching at the facility (Reagon 2013). All reception staff stated that they are usually able to provide patients with their preferred appointment time. Nearly three quarter of the patients (178 respondents) stated that they are able to arrive at the facility during quiet times (13H00 – 15H00), which indicates that patients are willing to arrive later in the day. Just more than a quarter of the patients stated that it was impossible to come between 14H00 – 16H00 because half of them are at work or school during those times and nearly all of the other half of the respondents said it was too late to attend during afternoon quiet times. This would mean that these patients who are unable to come during afternoon quiet times can be accommodated and be given appointments for earlier in the day as stated by the reception staff previously.

Patients also recommended that the facility adjusts their operational times to accommodate employed patients. Nearly three quarters of patients stated that the facility should open its outpatient services at 07H00 and half of the patients stated that the facility should close at 18H00. This would mean that there would be an additional two hours of service available to the community. Patients were also asked to suggest if the facility should run extended hours and nearly half of the patients stated that the facility should extend its outpatient services to 18H00, which is similar to the previous point and nearly a quarter suggested that services be extended to 20H00, which would calculate to an extra four hours of service time available to the community. Nearly half of the patients further suggested that the facility should open outpatient services on a Saturday from 08H00 and nearly half of the patients said the services should be open until 14H00 on a Saturday and just more than a quarter stated the services should remain open until 16H00. The effect of extended hour services would mean increased accessibility options to healthcare for the community who are unemployed and at home during the day, but more so for patients who are unable to come to the facility during normal operation times (07H30 – 16H30) due to work and other commitments during the day (NDOH, 2007).

One of the underlying causes for mismatch was that reception staff do not make appointments all the time during the day for various reasons previously mentioned. It was suggested that patients should be

allowed to make telephonic appointments which will reduce both mismatch and batching at the reception and helpdesk service points. More than half of the staff stated that patients should make telephonic appointments to assist reducing mismatch and batching. Nearly all the patients stated that they do have access to a telephone and three quarters of the patients stated that they have sufficient financial resources to make a 5 minute telephone call to the facility. This would mean that patients do not have to come to the facility to make a new appointment and this would reduce the number of patients at the facility waiting to make an appointment. Reception staff did however identify barriers to making telephonic appointments and each staff member mentioned more than one possible barrier. Nearly three quarters of reception staff stated that it would be difficult to explain important information to the patient over the telephone and half stated that patients who are waiting to be attended to will become frustrated in the queue, if they are on the telephone making appointments. Nearly half of the reception staff also stated that it would be difficult to validate the information given by the patient via the telephone.

One of the underlying causes for queueing problems was that patients were not orientated when they arrived at the facility. Nearly three quarters of staff indicated that a queue marshal will improve queueing in the facility. The queue marshal will be able to orientate patients to go to the correct service points and the correct queues and in effect reduce the queueing problem at the facility. Another underlying cause was that walk-in patients were competing with the appointment patients to be seen at the facility. Nearly half of the staff recommended that there should be separate queues for each category of patient and nearly another fifty percent recommended that there should be separate queues per category of patient, but more clinicians should be allocated to patients with appointments, so that they could be seen on time.

An underlying cause for lack of efficiency was that staff were at times not prioritizing attending to the patients, but were instead prioritising administrative tasks, while patients were waiting for a service. Staff made this choice due to different reasons of which one was pressure from management to complete important administrative tasks; hence staff felt they had to prioritize administrative tasks over patient service. Reagon (2013) suggests that making patients the number one priority will solve the problem of lack of efficiency. One way of making patients a priority is to do other tasks later in the day. Nearly three quarters of staff stated that they are able to attend meetings later in the day, when the clinic is less busy. From those who stated they cannot attend meetings later in the day, the following barriers were identified. Nearly three quarters stated that the clinic is always busy and a third stated that they do administrative tasks later in the day and this would clash with having meetings

later in the day. Additionally, nearly half of the staff stated that they arrive early and leave early in the day, due to shift work scheduling.

Chapter 6 Limitations, Conclusions and Recommendations

6.1 Limitations

The study was successful but had a few limitations. Many patients refused to participate in the survey fearing that they would lose their place in the queue even after being explained that this would not be the case, which potentially introduced a sampling bias. Given that they were needlessly fearful of losing a place in the queue, they are more likely to have been reticent about criticising the facility. Hence any criticisms of the facility and staff are likely to be more pronounced than if they were included in the sample.

The pilot testing of the underlying causes survey for the staff was conducted at other facilities and tested the flow and clarity of the questions, but the researcher failed to ask the participants if they thought if additional questions should be added. Thus, some questions which should have been posed to the staff were excluded. This probably prevented the elucidation of some underlying causes and recommendations. Additionally, the researcher did not discuss the patient questionnaire with the staff in the pilot study and this led to a lack of asking the patients questions which should have been posed to both the patients and staff. As an example, the researcher did not ask the staff what the benefits of an SMS reminder could be and neither did he ask the patients if a queue marshal was a good solution to help direct them to the correct queue. Hence again this probably prevented the elucidation of some underlying causes and recommendations.

The researcher additionally did not pose the same questions to walk-in patients as he did to appointment patients and vice versa, and it was only realised during the analysis stage that the questions were suitable for both categories of patients. This reduced the number of comments received from the one group about the other group and the opportunity was lost to capture this information, and possibly further lost information on client's experiences when they attended the facility as a different category to what they were in, on the day of the study.

The research assistants did not assist the participants comprehensively, even though they performed well in the pilot study. Some patients did not understand certain questions in the underlying causes survey, as some of the responses given did not make sense to the questions asked. Additionally, the research assistants either did not assist and correct the patients who did not understand the questions, or the patients simply did not ask for assistance in clarifying the questions they did not understand. This meant that the researcher was unable to interpret all the responses effectively and had to exclude 36% of these forms from the study, which reduced the number of completed questionnaires for analysis from 314 to 200.

A key limitation was the probable reluctance of some staff and patients to identify causes and barriers which they were aware of, because they thought that management would take action against staff if they revealed this in their responses. Therefore, for some operational questions many patients might have avoided choosing options which had negative connotations; for example, "staff are not friendly" and "I was told by staff to arrive early", which were selected much less than expected, even though these were mentioned in the staff feedback session. From this it can be discerned that the clients were possibly not fully candid when answering specific questions and hence this affected the depth and frankness of the responses.

The opening time of the facility was not displayed on the facility noticeboard and thus many patients did not know the correct opening time and had to guess the opening time which meant that the correct and incorrect responses could have been either a lucky or unlucky guess respectively. For those that knew the opening time at the facility, the questionnaire did not determine how they knew the opening time of the facility

The researcher had limited access to literature on the subject of underlying causes of long waiting times, as this was fairly new research, which meant that the interpretation was mainly substantiated by the current results of the research.

A final limitation was that the waiting time survey measuring actual waiting times and the current survey assessing underlying causes, recommendations, and barriers to recommendations questionnaires were not done with the same cohort of patients and that it was not done on the same day, as then bivariate analysis comparing risk factors to actual waiting times could have been conducted.

6.2 Conclusions

It was previously found that the facility had long waiting times with the median waiting time being more than 2 hours, which was more than the acceptable waiting time suggested by both patients and staff, and the immediate causes of long waiting times were batching, mismatch, illogical queueing and lack of efficiency. The study found that the significant underlying cause for batching was that patients with appointments were arriving early in the morning hoping to be helped sooner and others feared being turned away, astonishingly even those with appointments. Additionally, patients also stated that it was not safe to walk and travel to the facility at certain times of the day, thus they chose to arrive early at the facility.

It was further found that a large percentage of the community did not know the opening time of the facility and they hence arrive before the facility opens causing a mismatch. Furthermore, reception staff did not provide appointment services all day because they stated it interrupts their normal workflow which led to an artificial mismatch at reception. The study discovered that clinical staff assisted early arriving patients and that all staff were bypassing patients who were next in the queue because they were merely waiting for their folders and this contributed to illogical queuing. The main findings for lack of efficiency were staff stating that they had administrative tasks to complete and they did not make the patient the number one priority because they felt the facility was always busy.

The study also found potential recommendations for the underlying causes of long waiting times and furthermore found barriers to some suggested solutions. The study found that most reception staff believed that an SMS reminder will improve patient attendance. The results also show that nearly all patients have access to a telephone and that most patients have sufficient funds to make a telephone call, which was contrary to the belief of the staff.

The study showed that not all staff wanted the facility to make telephonic appointments because they believed that it would be difficult to explain important information to the patients telephonically and that patients waiting in the queue to be seen would become frustrated if they had to wait while staff were dealing with the telephone calls.

It further found that all staff stated that they could provide patients with their requested preferred appointment time even though the majority of patients stated that their preferred appointment time was in the morning. However, most of the patients stated that they would accept appointments between 13H00 and 15H00 which will assist decongesting the facility in the morning.

The survey also found that staff agreed that a queue marshal will assist with the queueing problem and that this would be a good addition to the team. Most staff stated that they could have meetings later in the day when the facility is quiet as an alternative to having meetings in the mornings when it is busy.

The study found that patients wanted the facility to open thirty minutes earlier and provide services till later in the evening so that employed patients can be accommodated. Additionally, the patients suggested that the service operate on Saturdays.

The staff suggested that patients should be apportioned to separate queues for each group of patients (walk-in patients and appointment patients) but that more clinicians should be allocated to the appointment patients.

The study identified a number of underlying causes of long waiting times at the facility and concluded that patient and staff solutions were feasible for implementation to potentially reduce the long waiting times at the facility.

6.3 Recommendations

1. Institute a SMS reminder system with the date and time of the appointment listed.
2. Reception staff should make appointments at all times during the day and also accept telephonic requests for appointments.
3. The facility should accommodate the walk-in patients in the morning as frequently as feasible, as this is an appropriate push system
4. The facility should commence appointments later in the day as this is a pull system and will decrease early morning batching
5. The clients should be encouraged to make telephonic appointments instead of coming to the facility if they are not very ill or urgent.
6. The facility should implement a queue marshal to orientate patients as to which queue they should join.
7. Staff should make attending to patients their number one priority.
8. Administrative work and meetings should be done and held respectively later in the day, when the facility is quiet.
9. The facility should implement extended hours' services, by opening the facility at 07H00 and closing at 18H00 from Monday to Friday.
10. The facility should implement services on a Saturday from 08H00 – 14H00.
11. Clinical staff should be apportioned to see either walk-in patients or appointment patients, but more staff should be apportioned to see patients with an appointment, to ensure that they are seen at their appointment time.
12. A follow-up waiting time survey should be conducted to investigate if the recommendations, if implemented, have improved waiting times at the facility.

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Appendices

Appendix 1

Waiting Time Survey Report

Waiting Time Survey (WTS)

Report for a Primary Health Care Facility in Cape Town

Survey conducted on 26 August 2015

Survey Overview

A Waiting Time and Service Efficiency Survey primarily measures how long people wait for a service and the amount of service time they receive at health facilities. Importantly in addition to identifying long waiting times the survey identifies ***the reasons why these arose*** and suggests ways to reduce them. The survey also measures the workload of the staff, the efficiency of service provision and the percentage of time staff spent attending to patients.

Survey Methodology

The amount of time that patients spent waiting for a service, and the time taken to provide the service, was calculated for every patient that visited the hospital, on an average day in the week (usually a Wednesday).

As patients entered the clinic/CHC they were handed a timesheet on which their arrival time was recorded. The patients were then asked some survey questions, such as their age, whether they were employed and how they travelled to the health centre. Each of the health workers (such as receptionist, clinician, pharmacist, nurse, etc) who saw the patient on that day, then filled in the time they started seeing the patient and the time they finished seeing the patient. When the patients left the clinic/CHC the departure time was recorded and they were asked questions about how long they are willing to wait at the clinic/CHC for the services which they had just received.

The health workers completed a personal timesheet. On their personal timesheet they recorded the time that they commenced duty at a service point and the time that they completed their duty at that service point. The health workers also filled in a short survey on the amount of time that they think it is appropriate for patients to wait and on whether they had sufficient equipment and space to properly attend to the patients.

Using a combination of data from the patients' timesheets, the patients' survey, the health workers' timesheets and the health workers' survey, the results shown below were calculated.

Facility Description

Facility Type: CHC

Facility Location (Suburb): Milnerton

OPD Opening Time: 07:30

OPD Closing Time: 16:00

Emergency Unit: **Extended hours**

How to Interpret the Results of a Waiting Time and Service Time Survey

The main results of the survey are presented using two summary tables, one composite table and two graphs. A description of the tables and graphs are provided below.

The composite table is called the "**Detailed Service Point Table".**

The graphs are called the:

"Arrival Time Graph"

"Snapshot Graph"

The summary tables are called the: **"Summary Table of High Waiting Times, Quality of Care, Residual Staff Capacity and Causes of Waiting Times"** and **"Summary Interpretation and Suggested Actions for every Service Point".**

Interpretation guidelines for the range of values for waiting times, service times and % staff clinical time usage are then provided.

A list of the potential causes of a long waiting time, are then provided. Using the data from the table and the graphs in conjunction with the list of potential causes, the actual cause of a long waiting time can be established.

1. How to Interpret the Detailed Service Point Table

1.A. For every service point of the facility, this table shows the following:

- Total Number of staff who worked at the service point
- Equivalent staff who worked at the service point. This is calculated based on the amount of time staff spent at the service point with 8 hours equalling one equivalent staff member. So one equivalent staff

member is a staff member who worked for 8 hours; half an equivalent staff member is a staff member who worked for 4 hours, etc).

- Total Number of patients seen at the service point
- Workload: Calculated as patients seen per staff member per day
- Percentage time spent attending to Patients: 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.

1.B. The Meanings of the Waiting Time cut-off points are as follows:

- the median waiting time = 50% of the patients waited for that amount of time or less than that amount of time; this is similar to the average waiting time
- 5% waiting time = 5% of the patients waited for that amount of time or less than that amount of time
- 75% waiting time = 75% of the patients waited for that amount of time or less than that amount of time; or saying it slightly differently 25% of the patients waited for that amount of time or more than that amount of time
- 95% waiting time = 95% of the patients waited for that amount of time or less than that amount of time; or saying it slightly differently 5% of the patients waited for that amount of time or more than that amount of time

1.C. The same principles apply to the Service Time cut-off points

- the median service time = 50% of the patients received that amount of service time or less than that amount of service time; this is similar to the average service time
- 5% service time = 5% of the patients received that amount of service time or less than that amount of service time

- 75% service time = 75% of the patients received that amount of service time or less than that amount of service time; or saying it slightly differently 25% of the patients waited for that amount of time or more than that amount of time
- 95% service time = 95% of the patients received that amount of service time or less than that amount of service time; or saying it slightly differently 5% of the patients waited for that amount of time or more than that amount of time

2. Interpreting the Arrival Time Graph

This graph shows the number of patients who arrive within each hour. It also shows the waiting and services times for these patients. From the graph you can see if you arrive at the health centre at a particular time then how long will you wait to be seen and how much service time will you receive. From the graph you can see how long you will wait if you arrive at various times during the day. Therefore it is easy to see when the best time to visit the health centre is. That time would be the time of the day where one would wait the shortest time.

The things one could determine from this graph are:

1. The arrival time patterns of patients
2. The relationship between arrival time and the degree of waiting and service time
3. Whether there are Batches and the effect of the Batches
4. How to shift towards the most efficient arrival time patterns
5. When the best time to visit the facility would be if you were a patient
6. Queuing problems using the 'Box and Whiskers' on the waiting time bar

3. Interpreting the Snapshot Graph

This graph shows the number of patients waiting to be seen and those receiving a service at any point in time throughout the day. It also shows the number of staff available to see the patients at any point in time throughout the day.

What the graph shows is a detailed picture of what happened at the service point throughout the day. So, if you were at the clinic for the whole day and you were watching every patient and every staff member all the time, then this graph shows you what you would see. So this graph allows you to have many eyes and to see everything that was happening at the facility throughout the day.

The things one could determine from this graph are:

1. If there is a mismatch of patients and staff
2. If there are inefficiencies in service provision
3. How rapidly staff can clear the waiting crowd
4. Flow problems
5. Suspected Logistical problems
6. How crowded the facility is at different times of the day

4. Summary Interpretation and Suggested Actions Tables

These summary tables can be used in conjunction with the data tables and graphs as they provide succinct commentary on what the figures in the data tables and graphs are "saying". Then based on this succinct interpretation, logically consistent actions to decrease the waiting times are suggested

The first table provides an overall summary interpretation of the entire facility.

The second table provides a summary interpretation for each service point and suggests actions that could be instituted to decrease waiting times.

Guidelines for Waiting Times, Service Times and % Staff Clinical Time Usage

In interpreting the results of this survey, the following range of values are suggested for the **MEDIAN** times for a Hospital.

A. Median Waiting Times:

A.1. For Median Complete Waiting Times:

Workshop Suggested Values		Acceptable values suggested by staff at your facility	Acceptable values suggested by clients attending your facility
If value ranges from:	then interpret as:		
< 15 minutes	Excellent		
16 - 30 minutes	Good		
31 - 60 minutes	Acceptable		
>60 minutes	Too high		

These are just guidelines and will vary based on which services were received.

The Staff acceptable value was calculated as the inter-quartile sum of the waiting time for 4 service points.

The Patient acceptable value was calculated as the inter-quartile range.

Service time was divided by two for Reception

Service time was divided by three for Pharmacy

A.2. For Median Waiting Times per Service Point:

Workshop Suggested Values		Acceptable Values suggested by STAFF at YOUR facility	Acceptable Values suggested by PATIENTS attending YOUR facility
If value ranges from:	then interpret as:		
<10 minutes	Excellent		
11 - 15 minutes	Good		
16 - 30 minutes	Acceptable		
>30 minutes	Too High		

These are just guidelines and the desirable times will vary based on the type of service point.

The Patient acceptable value was calculated as the inter-quartile sum of a quarter of the complete waiting time.

The Staff acceptable value was calculated as the inter-quartile range.

Waiting time was divided by two for Reception

Waiting time was divided by three for Pharmacy

B. Percentage Staff Time Spent Attending to Patients

If value ranges from:	then interpret as:
<50 %	Too low
51 - 59 %	Low
60 - 70 %	Acceptable
70 - 85 %	Excellent
>85 %	Too High

These are just guidelines and the desirable times will vary from service point to service point.

C. Median Service Times and Quality of Care:

Service Times are highly specific to the individual service points and the desirable times will in addition vary based on why patients visited these service points and what service/s they received at these service points. Acceptable and high quality of care cannot be directly determined however low quality of care can be determined using the survey. Low or (poor) Quality of Care is defined as, when the Median Service Time provided is insufficient to have provided an acceptable standard of care for the type of service being provided. This means that the time allocated to the patients was just too low for the services required to be provided to actually be properly provided. The converse however cannot be assumed as even if there is sufficient time allocated to the patient to provide good quality care, we are not sure what quality of services were actually provided in that time. Therefore we can only say that sufficient time was allocated that 'potentially good quality of care' could have been provided, however what quality of care was actually provided is unknown. A list of suggested cut-offs for acceptable service time for each service point is provided in the appendix.

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. **Inappropriate Arrival Patterns and Batching:** if many patients arrive at the same time then most of these patients would have to wait a long time to be seen, 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 **Batch** is defined as a highly inappropriate arrival pattern and is calculated as **25% more 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 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 as there will be a time period (of 30 minutes or more) when patients are available to be seen but no staff are present yet. 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.**

General Survey Results:

Summary tables providing an overview of the findings of the survey and suggested actions that could be implemented to improve service efficiency and decrease waiting time are shown.

Complete Waiting and Service Time

Complete Waiting Time and Service Time						
Description	**(n)**	**5%**	**25%**	**Median**	**75%**	**95%**
Complete Service Time	508	3	10	17	26	48
Complete Waiting Time	508	10	63	126	192	335

Median Waiting Times per Service Point

Workshop Suggested Values		Acceptable values suggested by staff at your facility	Acceptable values suggested by clients attending your facility
16 - 30 minutes	Acceptable	30 Minutes	24 minutes

Median Complete Waiting Times

Workshop Suggested Values		Acceptable values suggested by staff at your facility	Acceptable values suggested by clients attending your facility
31 - 60 minutes	Acceptable	76 Minutes	60 minutes

Staff working at Service Points and Patients Seen				
Staff Present	**Staff Absent**	**Total Staff**	**Full Time Equivalent Staff**	**Absent Equivalent Staff**
71	0 (0.0%)	71	61.5	0.0
Patients Arriving at the Facility on the day of the survey	**Patients already in the Facility at the start of the survey**	**Total Patients seen on the day of the survey**	**Patients Left in the Facility at the end of the Survey**	**Average no of service points visited by patients**
596	0	596	0	5.1
Patients arriving on survey day included in Waiting Times analysis	**Patients arriving on survey day who were Turned Away**	**% turned away who were given an appointment / referral**	**Patients arriving on survey day who Left Voluntarily**	**Patients arriving on survey day with no service recorded (forms not filled in)**
508	63 (10.6%)	0.0%	23 (3.9%)	1

General comments:

The overall waiting time of the patients are high and is highlighted by the high median waiting time, which is over 2 hours;

i.e. of the 314 patients surveyed on the day:

- 5% or less of patients wait for only 10 minutes (or 95% wait for more than 10 minutes - *n299*)
- 25% or less of patients wait for 63 minutes (or 75% wait for more than 63 minutes - *n236*)
- 75% or less of patients wait for more than 124 minutes (or 25% wait for more than 124 minutes - *n79*)
- 95% or less of patients wait for more than 312 minutes (or 5% wait for more than 312 minutes - *n16*)

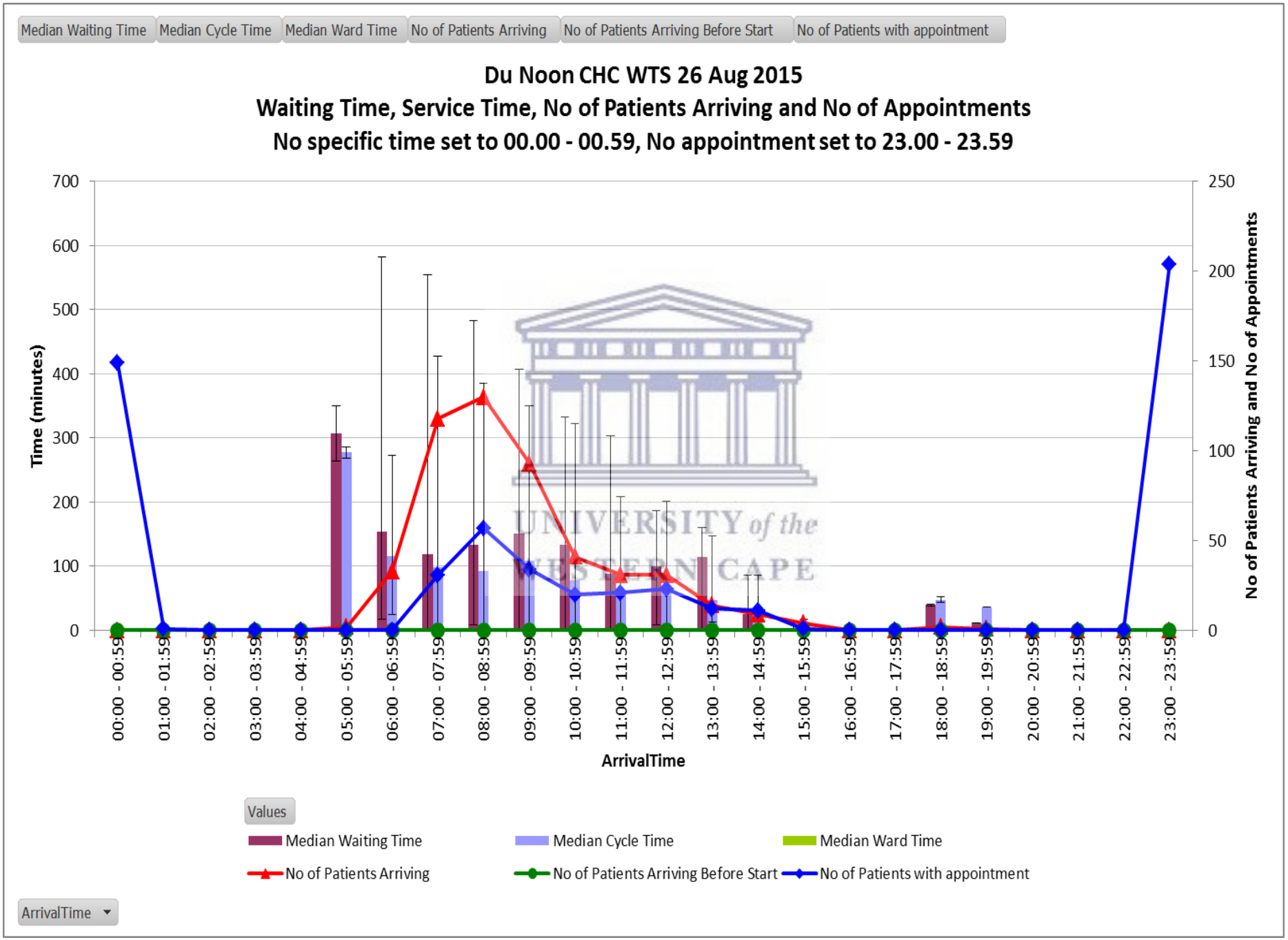
The median waiting time of 124 minutes is not acceptable and should be resolved urgently.

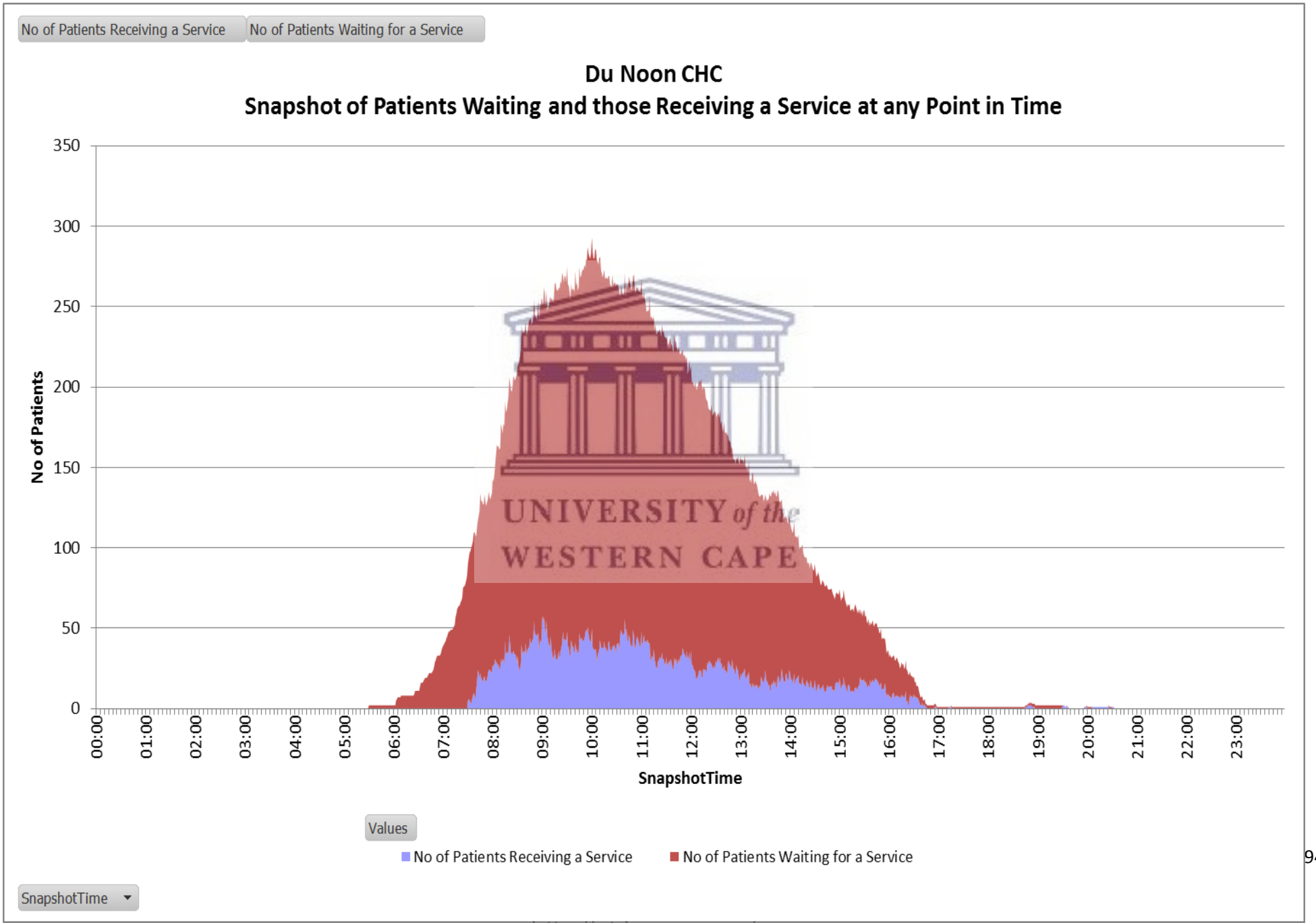
Time to travel to the facility is relatively short as the facility is in close proximity to the community, which is less than 2 kilometres away from the closest suburb.

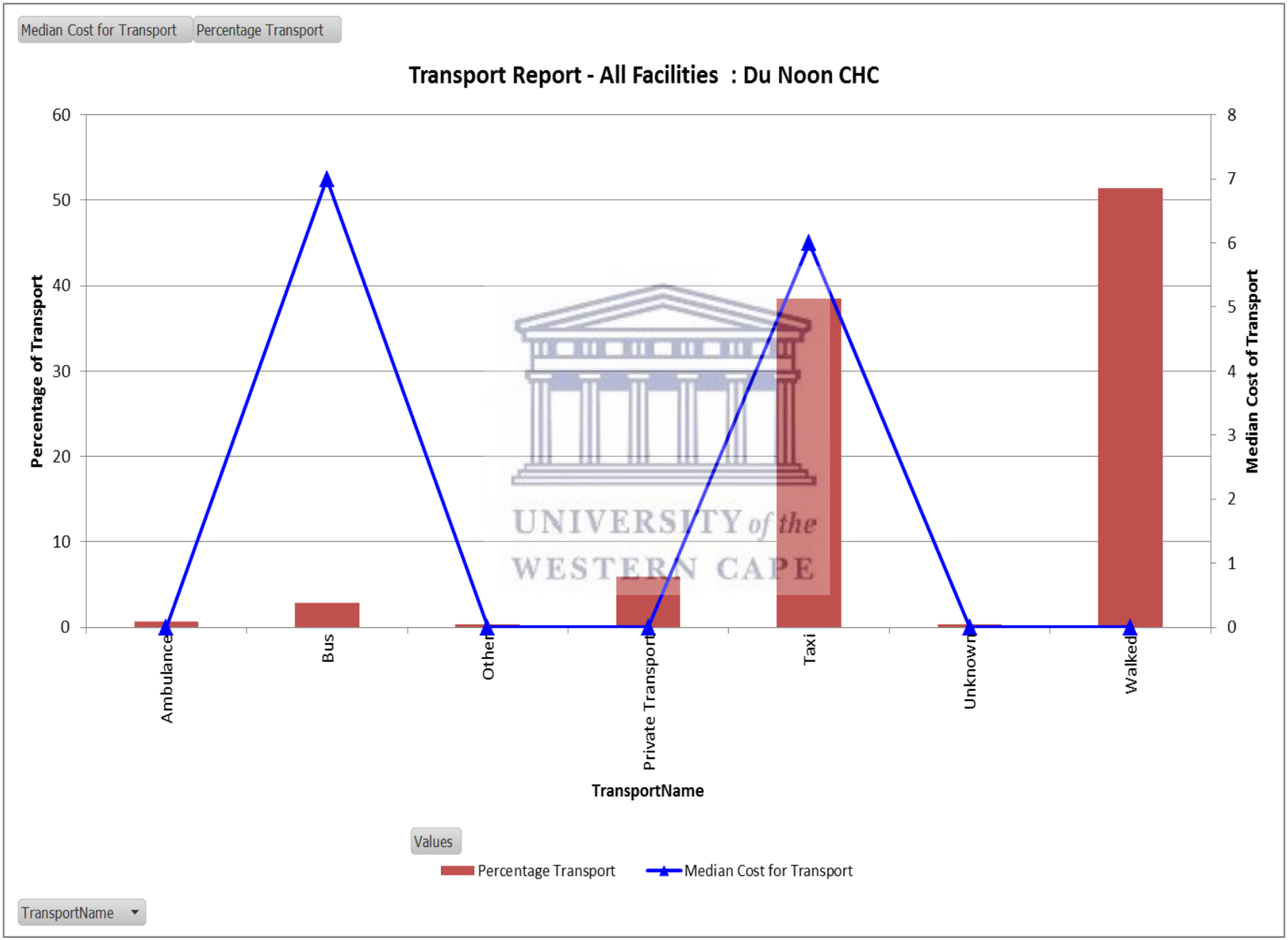
The outcome of the survey showed that patients are turned away or left voluntarily. Several staff forms were not filled in or filled in incorrectly. This could be the result of the staff misunderstanding the instructions on how to fill in the form or it's simply resistance from staff to participate in the survey.

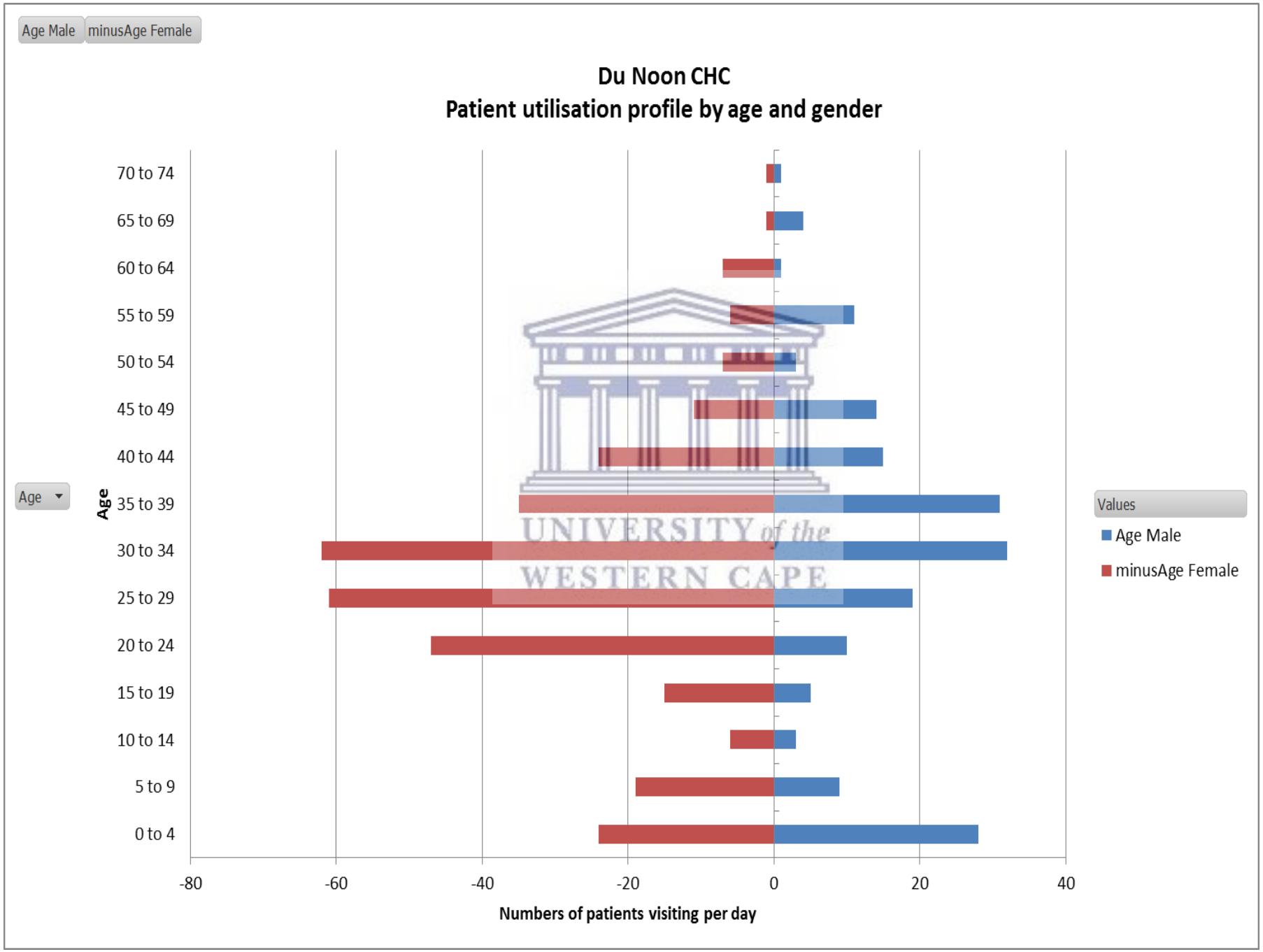
The survey also shows that patients bypassed certain service points. Two thirds of patients have been given appointment dates but unfortunately no appointment times were given. This can be considered as a missed opportunity and it further led to high waiting times at the facility. Data also shows us that there is a high potential to change the patients arrival patterns, which in turn can reduce waiting times, thus, turning it from demand to supply, where the suppliers (facility management) of the services can determine the arrival patterns of patients.

At Pharmacy a huge number of medicines per script were prescribed by the doctor and had to be prepared by the pharmacist. In theory then, the pharmacist is spending a relatively high time with the patient due to the huge number of medicines per script. A challenge noted was the misunderstanding with items dispensed. The minimum time spent with the patients, i.e. one minute, shows that the quality of care is worrying, however, what should be noted is that the forms were not filled in correctly by the pharmacists.









Appendix 2

Patient questionnaire

Thank you for participating in the survey.

1. Answer each question by ticking the boxes provided at each option
2. You will remain anonymous during this survey

1	Age		
2	Gender	Male	Female
3	Suburb		
4	Do you know the exact time the clinic opens?	Yes	No
5	Please state the time that you think the clinic opens	____H____	
6	Do you have an appointment today?	Yes	No
7	If YES, the appointment is a …	New appointment	Follow-up appointment
8	What time did you arrive?	____H____	
9	What time is your appointment?	____H____	No specific time
10	Some people arrive early for their appointment, why do you think this happens?	Fear of not being seen	I am Hoping to be helped sooner because I arrived early
		Was told by staff to arrive early	Only time I can access a lift with a private vehicle
		I still have to go to work so I want to leave early	Helped sooner when arrived early previously
		Other:	
11	Why did you arrive early today?		
12	When would you prefer your appointment time to be for your next visit?	_____H_____	
13	Why do you prefer the time you indicated?		

14	At which time of the day is it most inconvenient for you to attend the clinic? (Example 09H00 – 11H00)	_____H_____ to _____H_____	
15	Indicate why it is inconvenient for you to attend at the time you listed?		
16	Which mode of transport did you use to come to the clinic today?	Drove myself here by **PRIVATE VEHICLE**	Got a lift in a **PRIVATE VEHICLE**
		Taxi	Bus
		Myciti bus	Walked
		Other	
17	The next question is for clients using **PRIVATE VEHICLE** only. Can you access your **private** vehicle transport anytime of the day?	Yes	**No**
18	If you answered **NO** to the question above, during what times can you only access your private vehicle?	04H00 – 05H59	06H00 – 07H59
		08H00 – 10H59	11H00 – 12H59
		13H00 – 14H59	15H00 – 16H30
19	If you answered YES to using public transport **(bus, taxi, Myciti bus)** Do you believe that public transport is safe **VERY EARLY** in the morning? (between 04:00am and 06:00)	Yes	No
20	If you answered YES to using public transport **(bus, taxi, Myciti bus)** Do you believe that public transport is safe during **EARLY PEAK HOURS** in the morning? (between 06:00am and 09:00)	Yes	No
21	If you answered YES to using public transport **(BUS, TAXI, MYCITI BUS)**. Do you believe that public transport is safe during ***less busy times during the day?*** (between 09:00am and 14:00)	Yes	No
22	If you answered YES to using public transport **(bus, taxi, Myciti bus).** Do you believe that public transport is safe during peak hours in the afternoon? (between 14:00 and 17:00)	Yes	No
23	If you answered **NO** to any of the public transport questions above, state why.		

24	Do you think the public transport charges are affordable?	Yes	No
25	If you answered **YES** to **WALK**. Do you believe that walking is safe **VERY EARLY** in the morning? (between 04:00am and 06:00)	Yes	No
26	If you answered **YES** to **WALK**. Do you believe that walking is safe **DURING EARLY PEAK HOURS** in the morning? (between 06:00am and 09:00)	Yes	No
27	If you answered **YES** to **WALK**. Do you believe that walking is safe during **LESS BUSY TIMES** during the day? (between 09:00am and 14:00)	Yes	No
28	If you answered **YES** to **WALK**. Do you believe that walking is safe during **PEAK HOURS IN THE AFTERNOON**? (between 14:00 and 17:00)	Yes	No
29	If you answered **NO** to any of the **WALK** questions above, state why.		
30	What is the safest time to WALK to the facility? (Example 10H00 to 11H30)	From ____H____ to ____H____	
31	Is there a time during the day when it is impossible for you to come to the clinic?	Yes	No
32	If you answered **YES** to the question above please indicate the time when you **CANNOT** come to the clinic. (Example 08H00 to 16H00)	From ____H____ to ____H____	
33	Why is it impossible for you to come to the clinic during the times you indicated above?		
34	The clinic operational hours are from 07H00 – 16H30 from **Monday to Friday**. Is this operational hours convenient for you?	Yes	No
35	If you answered **NO** above, what time would you like the clinic to open and close **Monday to Friday**? (Example Open time: 08H00 Close time: 18H00)	Open time: ____H____ Closing time: ____H____	

36	If you knew the clinic is **quiet between 13H00 and 15H00**; will you accept this time to come to the clinic to be helped quicker?	Yes	No
37	If **NO**, please state why you would not come during quiet times and be helped quicker?	I cannot get time off at work during these times	Public transport or walking is dangerous during this time of the day
		I cannot get a lift with a private vehicle at this time	Other
38	Would you like to make a telephonic appointment for the next time you need to come to the clinic? (call in from home to get an appointment)	Yes	No
39	Do you have access to a telephone (landline or cellphone?)	Yes	No
40	Do you have money and/or airtime to make a 2 minute phone call (Cost between R4 & R8) to make an appointment?	Yes	No
41	Have you visited and received services from this clinic before?	Yes	No
42	If you answered **YES** to the question above please answer the next question. Were you ever turned away from this clinic before?	Yes	No
43	Staff has other work to do besides seeing patient's. When do you think staff should do their other administrative tasks?	While patients are waiting to be helped	When there are no patients waiting
		Other	
44	When you arrived at the clinic today did you know where you needed to go?	YES	NO
45	If you answered **NO** state why **you do not know** where to report to when you arrived at the clinic.	There is no signage	I did not get good instructions when I made my appointment

		The clinic is very busy and is very confusing	I did not ask because staff are not friendly
		Other	
46	If you answered **YES**, please state **why you knew** where to go.	There is good signage in the building	Staff informed me where to go when I made my appointment
		The clinic staff is helpful and friendly and direct you to the correct place	I regularly come to the clinic and know where my service points are
		Other	
47	Certain patients like the very old and very sick are fast tracked to ensure they get helped quicker. Do you agree that only these **VERY SICK** clients jump the queue to be helped quicker because of their medical condition?	Yes	No
48	If you answered **NO** to the previous question, please state why.	We are all sick and must be treated equally	First come first serve rule must be followed at all times
		Other	
49	Are you employed? If **YES** continue to answer the questions below	**Yes**	No
50	**If YES for employed**. Does your boss or manager know you have to attend the clinic today?	Yes	No
51	**If YES for employed**. Must you return to work today?	Yes	No

52	**If YES for employed**. Does the time you spend at the clinic result in financial deductions from your wages?	Yes	No
53	**If YES for employed**. Would you prefer to have access to clinic extended operational hours, which is outside of your working hours?	Yes	No
54	If you answered **YES** for **extended clinic operational hours**. What time would you like the clinic to open and close Monday to Friday? (Example Open time: 06H00 Close time: 20H00)	Open time: ____H____ Closing time: ____H____	
55	The clinic could operate **SATURDAY EXTENDED HOURS** for clients who are employed. What time would you like the clinic to open and close on Saturdays? (Example: Open: 08H30 Close 12H00)	Open time: ____H____ Closing time: ____H____	

Patient questionnaire IsiXhosa

IMIBUZO EJOLISWE KWISIGULANA

FIELDWORKER TIME SURVEY STARTED: _____H_____ _____

Phendula umbuzo ngamnye ngokwenza uphawu kwibhokisi nganye ngempendulo oyikhethileyo

Alisayi kukhankanywa igama lakho kolu phando

1	Ubudala		
2	Isini	Indoda	Ibhinqa
3	Indawo ohlala kuyo		
4	Uyalazi ixesha elichanekileyo evulwa ngalo ikliniki?	Ewe	Hayi
5	Leliphi ixesha ocinga ukuba ivulwa ngalo ikliniki	____:____	
6	Une-apoyntiment namhlanje?	Ewe	Hayi
7	Ukuba unayo, i-apoyntiment yeye …	I-apoyntiment entsha	i-apoyntiment elandelayo
8	Ufike xeshaliphi?	____:____	
9	Ingabani ixesha i-apoyntiment yakho?	____:____	Akho xesha libekiwe
10	Abanye abantu bafika kwangethuba xa beze kwi-apoyntiment zabo, ucinga kutheni kunjalo ?	Uloyiko lokungancedwa	Ndinethemba lokuncedwa msinyane kuba ndifike kwangethuba
		Ndandixelelwe ngabasebenzi ukuba ndifike kwangethuba	Kuphela kwexesha endinokukhweliswa ngalo sisithuthi sabucala
		Kusafuneka ndiphangele , ngoku ke ndifuna ukuhamba kwangethuba	Ukuncedwa msinyane xa bendifike kwangethuba kwixa elingaphambili
		Okunye:	
11	Kutheni ufike kwangethuba nje namhlanje?		
12	Ulindele ukuba ibe xeshaliphi i-apoyntiment yakho elandelayo ?	_____:_____	

13	Kutheni ukhetha eli xesha ulibekileyo?		
14	Leliphi elona xesha onokukwazi ngalo ukuya ekliniki (Umzekelo ukusuka kwintsimbi yesi-09:00 ukuya kweye-11:00)?	Ukusukela ____:____ ukuya____:____	
15	Itsho ukuba kutheni lilelona xesha elikulungeleyo eli ulikhankanyileyo		
16	Loluphi uhlobo lwesithuthi oze ngalo namhlanje?	**Ndizizisile NGESITHUTHI SAM**	**Ndikhweliswe SISITHUTHI SAM**
		Itaxi	Ibhasi
		Ibhasi kaMyCiTi bu	Ndihambe ngeenyawo
		Okunye	
17	Umbuzo olandelayo ngowezigulana ezihamba ngezithuthi zabucala kuphela. Unako ukusifumana isithuthi sakho sabucala nangaliphi na ixesha lemini?	Ewe	**Hayi**
18	Ukuba impendulo **nguHAYI** kulombuzo ungentla, ngawaphi amaxesha onokusifumana ngawo isithuthi sakho sabucala ?	04:00 – 05:59	06:00 – 07:59
		08:00 – 10:59	11:00 – 12:59
		13:00 – 14:59	15:00 – 16:30
19	Ukuba impendulo yakho ngu-EWE ukuba usebenzisa isithuthi sikawonkewonke **(ibhasi, itaxi, ibhasi kaMyCiTi)** ukholelwa ekubeni isithuthi sikawonke wonke sikhuselekile ekuseni kakhulu (phakathi kwentsimbi yesi-04:00 neyesi -6:00)	Ewe	Hayi
20	Ukuba impendulo yakho ngu-ewe ukuba usebenzisa isithuthi sikwonkewonke **(ibhasi, itaxi, ibhasi kaMyCiTi)** ukholelwa ekubeni isithuthi sikawonkewonke sikhuselekile ngamaxesha kaxakeka asekuseni kakhulu (phakathi kwentsimbi yesi-6: 00 neye-9h00)?	Ewe	Hayi

21	Ukuba uphendule ngokuthi EWE ukuba usebenzisa isithuthi sikawonkewonke**(ibhasi, itaxi, ibhasi kaMyCiTi)**, ukholelwa ekubeni isithuthi sikawonkewonke sikhuselekile ngamaxesha ekungaxakekanga kakhulu ngexesha lasemini (phakathi kwentsimbi yesithoba-09:00 neyesibini-14:00)?	Ewe	Hayi
22	Ukuba uphendule ngokuthi ewe usebenzisa isithuthi sikawonkewonke **(ibhasi, itaxi, ibhasi iMyCiTi),** ukholelwa ekubeni isithuthi sikawonkewonke sikhuselekile ngexesha likaxakeka emva kwemini (phakathi kwentsimbi yesibini neyesihlanu(14:00 -17h00)?	Ewe	Hayi
23	Ukuba impendulo yakho ibe **nguHAYI** nakowuphi kwimibuzo engasentla emalunga nesithuthi sikawonkewonke, utsho ukuba kutheni .		
24	Ucinga ukuba intlawulo yesithuthi sikawonkewonke iyafikeleleka?	Ewe	Hayi
25	Ukuba impendulo yakho ngu-**EWE** ekubeni **uhamba** ngeenyawo , ingaba ukholelwa ukuba ukuhamba ngeenyawo ekuseni kakhulu kukhuselekile phakathi kwentsimbi yesine neyesithandathu (04:00-06:00)?	Ewe	Hayi
26	Ukuba impendulo yakho ngu-**EWE** ekubeni **uhamba** ngeenyawo, ingaba ukholelwa ukuba ukuhamba ngeenyawo kukhuselekile ngamaxesha kaxakeka ekuseni (phakathi kwentsimbi yesithandathu neyesithoba)(06:00-09:00) ?	Ewe	Hayi

27	Ukuba impendulo yakho ngu-**EWE** ekubeni **uhamba** ngeenyawo, ingaba ukholelwa ukuba ukuhamba kukhuselekile ngexesha elingaxakekanga apha emini (phakathi kwentsimbi yesithoba neyesibini(09:00-14:00) ?	Ewe	Hayi
28	Ukuba impendulo **ngu-EWE ekuhambeni**, ingaba ukholelwa ukuba kukhuselekile ukuhamba ngexesha likaxakeka emva kwemini phakathi kwentsimbi yesibini neyesihlanu (14: 00-17:00)?	Ewe	Hayi
29	Ukuba impendulo yakho ngu-HAYI nakweyiphi imibuzo engokuhamba ngeenyawo engentla, itsho ukuba kutheni usitsho nje.		
30	Leliphi elona xesha likhuselekileyo lokuya ngeenyawo kwiziko(Umzekelo ukusuka kwintsimbi yeshumi ukuya kweyecala emva kwentsimbi yeshumi elinanye(10:00-11h30)?	Ukusukela ____:____ ukuya____:____	
31	Ingaba kukho ixesha ekunzima ngalo ukuba uze ekliniki ngexesha lasemini?	Ewe	Hayi
32	Ukuba impendulo ngu-EWE kulo mbuzo ungentla , nceda uxele ixesha ongenakuza ngalo ekliniki (Umzekelo ukusuka kwintsimbi yesibhozo ukuya kweyesine (08:00 - 16:00).	Ukusukela____:____ ukuya____:____	
33	Kutheni ungakwazi ukuza ekliniki ngexesha olikhankanyileyo?		
34	Amaxesha okusebenza ekliniki asukela kwintsimbi yesixhenxe ukuya kweyecala emva kweyesine(7:00 -16:30)?	Ewe	Hayi

35	Ukuba impendulo **nguHAYI** apha ngentla, leliphi ixesha ongathanda ukuba ivulwe ngalo ikliniki ukusukela ngoMvulo ukuya kuLwesihlanu (Umzekelo amaxesha okuvula yintsimbi yesibhozo (08:00); elokuvala yintsimbi yesithandathu(18:00)?	Ixesha lokuvula: ____:____ Ixesha lokuvala: ____:____	
36	Ukuba ubuyazi ukuba phakathi kwentsimbi yokuqala(13:00) kunye neyesithathu(15:00) ikliniki ayixakeki kakhulu ubuyakuza ngelixesha ukwenzela uncedwe msinyane?	Ewe	Hayi
37	Ukuba impendulo nguHAYI, nceda utsho ukuba kutheni ungazokukwazi ukuza ngexesha elingaxakekanga kakhulu ngalo uncedwe msinyane?	Andikwazi kufumana ithuba emsebenzini ngala maxesha	Ukusebenzisa isithuthi sikawonkewonke okanye ukuhamba ngeenyawo ngeli xesha kuyingozi
		Andikwazi kufumana ukukhweliswa sisithuthi sam ngeli xesha	Ezinye
38	Ungathanda ukubhukisha ngefowni (ufowune usekhaya wenze i-apoyntiment) ulungiselela kwixesha elizayo ufuna ukuza ekliniki?	Ewe	Hayi
39	Unayo ifowuni (ifowuni okanye iseli)?	Ewe	Hayi
40	Unayo imali okanye umoya wokuba ungafowuna imizuzu emi-2(eyakuthi idle phakathi kweR4 neR8) ukwenza i-apoyntiment?	Ewe	Hayi
41	Ingaba ukhe weza kule kliniki wafumana inkonzo ngaphambili?	Ewe	Hayi
42	Ukuba impendulo **ngu-EWE** kulo mbuzo. Ukhe wajikiswa kule kliniki ngaphambili, nceda uphendule umbuzo olandelayo?	Ewe	Hayi
43	Abasebenzi banomnye umsebenzi abawenzayo ngaphandle kokubona izigulana. Ucinga ukuba	Lo gama izigulana zilindile ukuba zincedwe	Xa kungekho izigulana ezilindileyo

	kufanele ukuba abasebenzi bayenze nini eminye imisebenzi yabo yase-ofisini?	Ezinye	
44	Xa ubufika ekliniki namhlanje uye wayazi ukuba kufanele uyephi?	Ewe	Hayi
45	Ukuba impendulo nguHAYI , itsho ukuba kutheni ungayazi ukuba mawuyephi xa ufika ekliniki.	Akukho mibhalo echazayo	Xa ndandibhukisha zange ndifumane imiyalelo elungileyo
		Ikliniki iyagcwala kwaye oko kuyaphazamisa	Andizange ndibuze kuba abasebenzi abanabubele
		okunye	
46	Ukuba impendulo ngu-EWE, nceda utsho ukuba kutheni uyazi ukuba mawuyephi.	Kukho imibhalo ecacileyo echazayo kwisakhiwo	Abasebenzi bandixelele ukuba ndingayaphi na xa ndibhukishile
		Abasebenzi basekliniki baluncedo kwaye banobubele bakuthumela nasendaweni efanelekileyo	Ndiza qho apha ekliniki kwaye ndiyazi ukuba kufanele ndiye ndawoni ukufumana inkonzo
		Okunye	
47	Izigulana ezithile njengabantu abadala nabagula kakhulu bayakhawulezelwa ukuqinisekisa ukuba bancedwa msinyane. Uyavuma ukuthi ngaba bantu BAGULA KAKHULU abathi bagqithiswe etyhwini bancedwe msinyane ngenxa yemeko yabo yokugula?	Ewe	Hayi
48	Ukuba impendulo **nguHAYI** kumbuzo ongaphambili, nceda utsho ukuba kutheni.	Besigula sonke kwaye masiphathwe ngokulinganayo	Ngalo lonke ixesha kufanelwe kuhanjwe ngomthetho othi kuncedwa umntu ofike kuqala

		Okunye	
49	Ingaba uyaphangela? Ukuba impendulo **ngu-EWE,** qhubekeka uphendula imibuzo engezantsi.	**Ewe**	Hayi
50	Ukuba impendulo yakho uthe **EWE** uyaphangela, ingaba umphathi wakho okanye umanejala uyayazi ukuba uze ekliniki namhlanje?	Ewe	Hayi
51	Ukuba impendulo **ithi-EWE** uyaphangela, kufanele ubuyele namhlanje emsebenzini?	Ewe	Hayi
52	Ukuba impendulo **ngu-EWE** , ingaba ixesha olichithe ekliniki lenza ukuba utsalelwe imali emvuzweni wakho?	Ewe	Hayi
53	Ukuba impendulo **ngu-EWE** uyaphangela, ungathanda ukuba ube nokufikelela ekliniki ngexesha elongezelelweyo, elingelo xesha lomsebenzi?	Ewe	Hayi
54	**Ukuba, impendulo ngu-EWE ekubeni amaxesha ekliniki okusebenza ongezeleke** ,leliphi ixesha onokuthanda ukuba ivulwe nokuba ivalwe ngalo ikliniki ngoMvulo ukuya ngoLwesihlanu? (Umzekelo ixesha lokuvula yintsimbi yesithandathu (06:00 elokuvala yintsimbi yesibhozo ebusuku 20:00)?	Ixesha lokuvula: ____:____ Ixesha lokuvala: ____:____	
55	Ikliniki kufanele isebenze IXESHA ELONGEZELELWEYO NGOMGQIBELO (Umzekelo : Ixesha lokuvula: 08:30 elokuvala:12:00)?	Ixesha lokuvula: ____:____ Ixesha lokuvala: ____:____	

Appendix 3

Staff questionnaire

Thank you for participating in the survey.

1. Questions should be answered as follows:

a. Selecting one of the options provided, or

b. Selecting all options that you feel may apply, and/or by adding a comment

2. Answer each question by ticking the boxes provided at each option

1	GENDER	Male	Female
2	STAFF CATEGORY	Clinical	Administrative
3	How long have you worked for PGWC Department of Health?	Years: _____ Months:_____	
4	How long have you worked at the CHC?	Years: _____ Months:_____	
5	What is your highest educational level?	Grade 11 or below	Grade12/Matric
		Under-graduate Diploma	Undergraduate Degree
		Post-Graduate Degree/Diploma	
6	Which Service Point do you work at most often? **(Only choose 1 service point)**	Reception W1-3	Helpdesk
		Reception W4	Adult Prep room
		Adult Triage	Adult Nurse (PN)
		Adult Doctor	Adult CNP
		Child Triage	Child health Nurse (PN)
		Child Doctor	Child CNP
		TB reception	Pharmacy
		TB Doctor	TB Nurse
		Oral Health	BANC/Women's Health
		Rehabilitation/Allied health	X-ray
		Blood & Injection room	Dressing room
		Pharmacy	Emergency Centre

		HIV Counselling & testing	Other
7	Patients who arrive early in the morning experience long waiting times. Why in your opinion do patients arrive early in the morning? **(Tick all that you feel apply and/or write other comment)**	Due to transport challenges	They have to return to work or have other commitments
		Fear of being turned away	Staff informed clients to arrive early
		Feel they will wait shorter time	Feel they will be seen sooner
		Not aware of the facilities appointment system	Used to arriving early
		Other	
8	Why do you think the facility still sees a high number of walk-in (non-appointment) clients despite the appointment system being in place? **(Tick all that you feel apply and/or write other comment)**	Clients not aware of the appointment system	Patients don't trust the appointment system
		Patient preference for walk-in	Just coming for a sick note to get off work
		Believe they will be seen sooner	Told by other patients to use the walk-in system
		The facility does not have a telephonic appointment system	Patients are genuinely sick and want to see a doctor the same day
		Other	
9	Some clients have a fear of not being seen therefore they arrive early at the facility. Why do you think this fear exists for some clients? **(Tick all that you feel apply and/or write other comment)**	They have previous experience of being turned away	Other clients told them they will be seen sooner if they arrive early
		Historical practice of the facility having only attended to walk-in clients (no appointment system previously)	Client believes they will not be turned away if they arrive early
		Other	
10	Some patients have a preference to arrive early at the facility. Why do you think they have this preference? **(Tick all that you feel apply and/or write other comment)**	They don't mind waiting long hours	They see coming to the clinic as a recreational outing
		They had a previous bad experience when coming later in the day	Fear of travelling during quiet times of the day
		Other	
11	It is understood that the walk-in clients category is filled with defaulting (ARV club, CDL club) clients. Why do these clients default on their appointment dates and come in as a walk-in client? **(Tick all**	The clinic does not punish the client for defaulting on their date	Clients take advantage of the system knowing staff will allow them to get a service
		Clients feel that the club system exposes their diagnosis	Clients feel that the club system has long waiting times

	that you feel apply and/or write other comment)	Other	
12	Clients believe they will be seen sooner and wait shorter times when using the walk-in system. Why do clients have this belief? **(Tick all that you feel apply and/or write other comment)**	Previous experience of faster service when coming early via the walk-in system	Previous negative experience when coming later during the day via the appointment system
		Other	
13	Why in your opinion do patients not arrive on their appointment time, but instead come much earlier and hence have to wait? **(Tick all that you feel apply and/or write other comment)**	Patient preference to be early	Use of a lift via a private vehicle which is only available at specific times of the day
		Fear of using public transport during quiet times of the day	Fear of walking during quiet times of the day
		Fear of not being seen	Told by staff to arrive at any time
		Other	
14	Some patients arrive late for their appointments although this is a small number. Why do you think they come late for their appointment? **(Tick all that you feel apply and/or write other comment)**	Poor time management	The appointment time is not convenient for them
		Insufficient public transport during quiet times	Inability to leave the workplace earlier
		Fear of walking during quiet times of the day	Other
15	At certain times during the day clients are waiting to be helped but staff is busy with other work (admin, meetings, staff breaks). Why do you think staff sometimes prioritises other duties above patient care? **(Tick all that you feel apply and/or write other comment)**	No lunch and tea time relief and service area must close	No breaks factored into appointment planning (Appointments not blocked out)
		The facility does not have a quiet time during the day and staff are overworked	Pressure from management to ensure admin is done
		Difficult to get staff to meetings early morning or late afternoons	I have many other added functions at this service point which I must attend too
		Other	
16	How often do you stop attending to clients to do other important admin tasks? **(Tick one box only)**	Very often	Often
		Sometimes	Seldom
		Never	

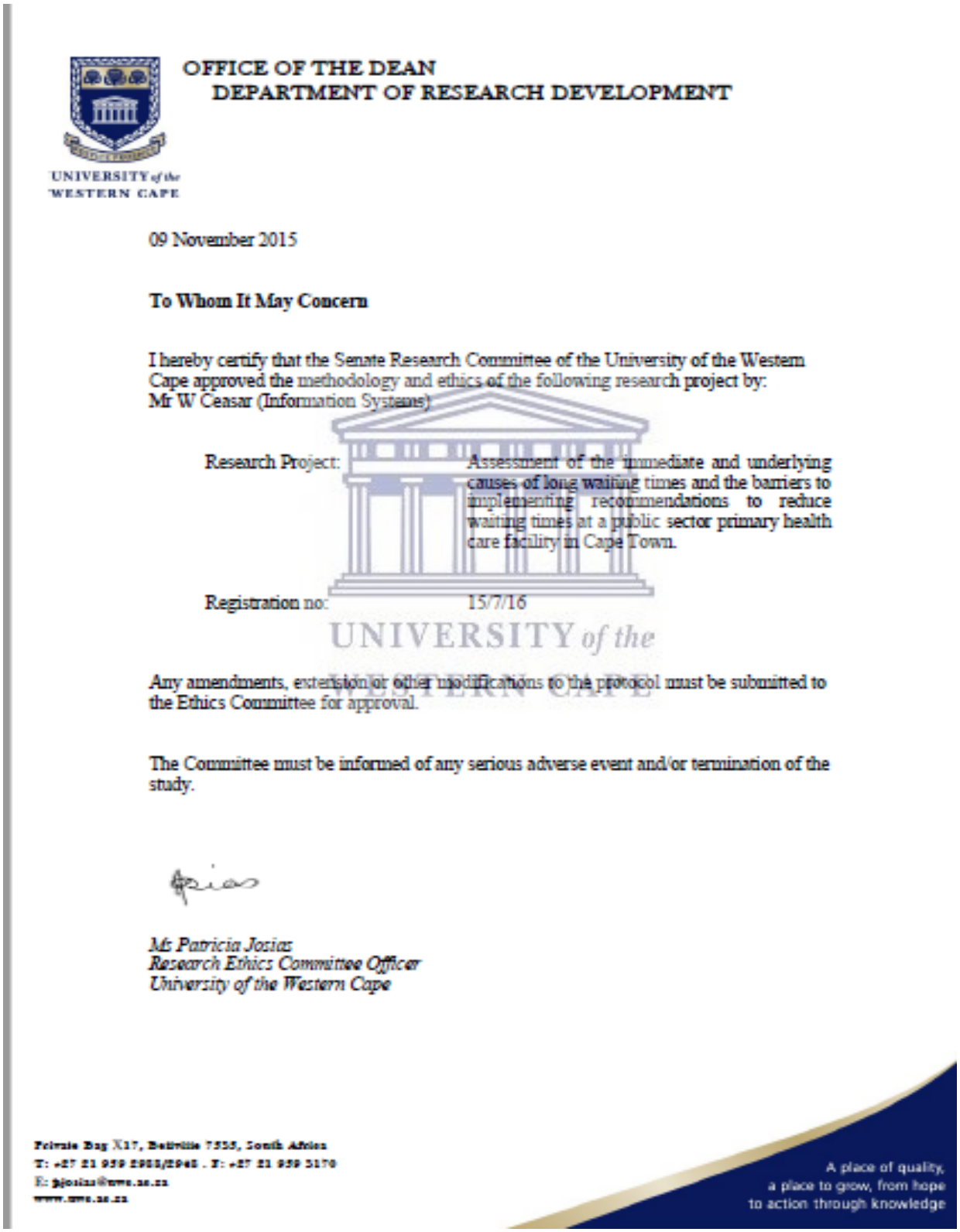
17	For the times that you do stop attending to clients, list the typical tasks you would do.		
18	When in your opinion is the BEST time to do admin tasks and hold staff or team meetings for your department? **(Tick one box only)**	Early Morning	late-morning
		Early Afternoon	Late afternoon
		Midday/lunchtime	
19	Having meetings and doing administration work later in the day when the clinic is quiet won't affect waiting times for clients. Are you able to have meetings later in the day?	YES	NO
20	If you answered NO in question above explain why it could be a challenge? **(Tick all that you feel apply and/or write other comment)**	Additional admin tasks has to be done later in the day	Staff leave early due to shift work or overtime and unable to attend meeting later in the day
		The clinic gets quiet very late in the day	Other
21	A reason for long waiting times is when a high number of clients arrive at your service point at any one time. Why does your service point experience this challenge? **(Tick all that you feel apply and/or write other comment)**	Too few staff member at this service point during the rush time	Early morning rush of patients at my service point
		Patients do not arrive on their appointment time and hence times clash	Other
22	At times during the day you have patients at your service point but are unable to see them. Why are you unable to see patients at certain times of the day? **(Tick all that you feel apply and/or write other comment)**	Computer malfunction	Waiting for folders
		Busy with Administrative tasks which must be completed	Patients are only seen on their appointment time
		Lack of space or equipment	Lack of information in client folder and waiting on requested information from other staff
		Other	
23	How often do you make the patients the number 1 priority above other duties like administration? **(Tick 1 box only)**	Always	Sometimes
		Never	Often

24	To reduce inefficiency at services points, staff and operational meetings should … **(Tick 1 box only)**	Be held on the same time weekly and block appointments	Should be held during quiet times of the day so that clients are not affected
		Not be held when the clinic is busy	Should be held early in the morning
25	If there are patients present at my workstation who has arrived early for their appointment I … **(Tick 1 box only)**	Will let them wait until their appointment time before I help them	Help and accommodate them provided there is no other clients
26	What reasons exist for not accommodating patients who arrive early if you are unable to accommodate them? **(Tick all that you feel apply and/or write other comment)**	Patients must adhere to the facility appointment system hence I only see them at their appointment time	I do other ad hoc tasks during less busy times
		I am instructed not to help early arriving patients	Other
27	When staff is off sick it affects my daily work flow.	YES	NO
28	If answered YES above, state why it affect your work flow? **(Tick all that you feel apply and/or write other comment)**	I have extra duties to fulfil	There is no relief staff and I am requested to do more work
		Other	
29	It would be advisable for clients to arrive throughout the day. Why do clients not arrive throughout the day? **(Tick all that you feel apply and/or write other comment)**	Client preference	Client unaware they can arrive throughout the day
		Client has transport challenges	Other
30	Do you think our facility has queueing problems?	YES	NO
31	If you answered YES to the question above, what is the major cause of the queuing problem? **(Tick all that you feel apply and/or write other comment)**	Clients not arriving on the correct time and hence complicating the queue	Certain priority clients allowed to jump the queue
		Lack of queueing marshal	Clients become impatient and jump the queue
		Patients arriving all at one time and cause a queueing problem	Lack of signage
		Other	

32	A queue marshal is a person who will check on the queue throughout the day to ensure good queue management and advise and direct clients. Would a queue marshal improve queueing at your service point?	YES	NO
33	If you answered YES then please list why a queue marshal will be useful to solve queueing problems		
34	At busy times during the day walk-in clients compete for space with appointment clients. What would you suggest can solve this challenge? **(Tick one box only or provide other suggestion)**	Start appointments later in the day (example 10:00am) so that walk-ins can be attended to first	Have separate queues for walk-in and appointment clients and split clinicians to each queue
		Walk-in clients should have their own clinician but appointment clients should have more clinicians attending to them and be prioritised	Other
35	To ensure good flow of patients in clinical areas clients should be placed outside clinicians doors as follows **(Tick one box only or provide other suggestion)**	In batches of 5	In smaller batches of 3 clients
		One patient at a time and a queue marshal	Other

Appendix 4

University ethics approval



UNIVERSITY of the WESTERN CAPE

OFFICE OF THE DEAN
DEPARTMENT OF RESEARCH DEVELOPMENT

09 November 2015

To Whom It May Concern

I hereby certify that the Senate Research Committee of the University of the Western Cape approved the methodology and ethics of the following research project by:
Mr W Ceasar (Information Systems)

Research Project: Assessment of the immediate and underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times at a public sector primary health care facility in Cape Town.

Registration no: 15/7/16

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

The Committee must be informed of any serious adverse event and/or termination of the study.

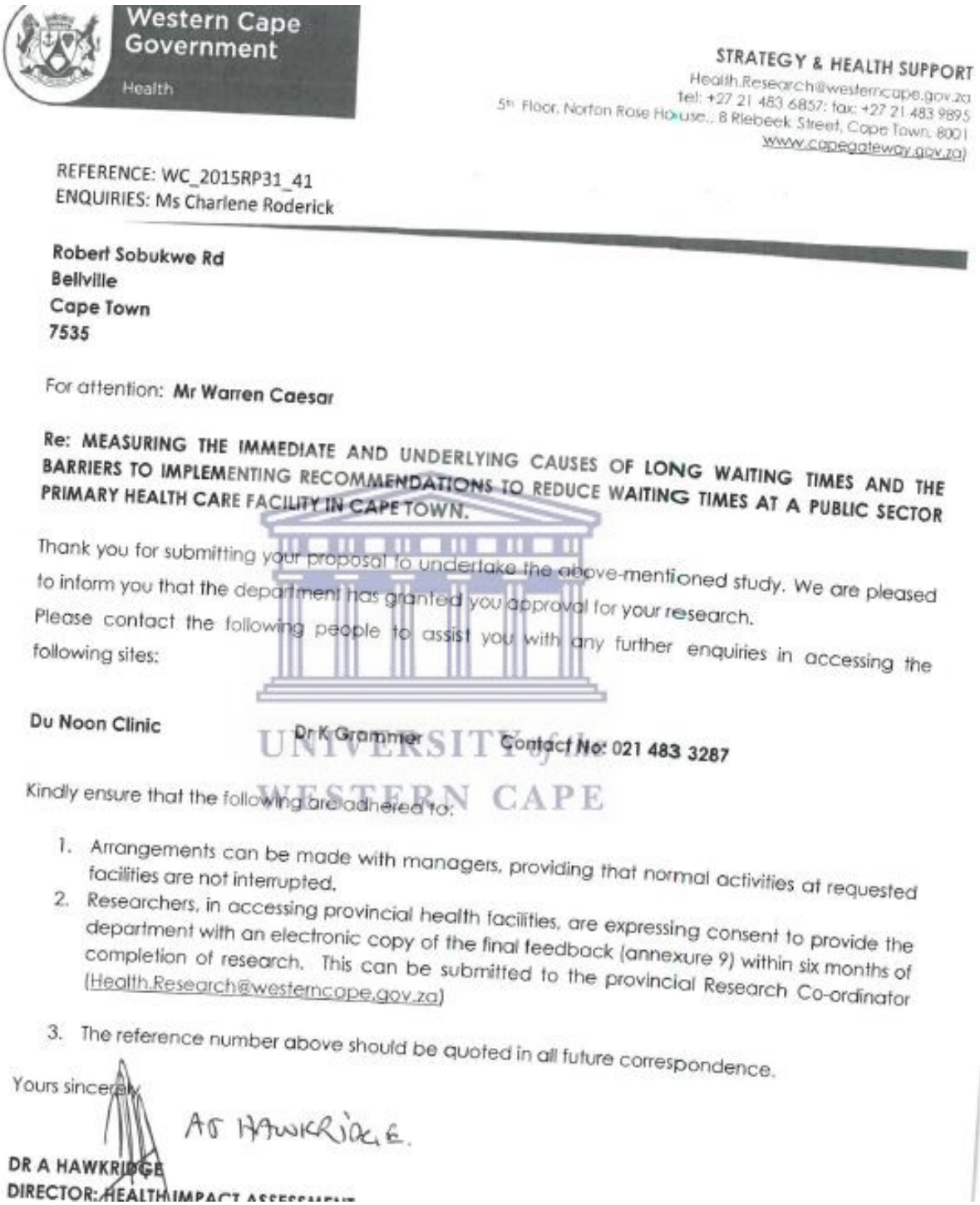
Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape

Private Bag X17, Bellville 7535, South Africa
T: +27 21 959 2988/2948 . F: +27 21 959 3170
E: pjosias@uwc.ac.za
www.uwc.ac.za

A place of quality,
a place to grow, from hope
to action through knowledge

Appendix 5

Department of health approval letter



Western Cape Government
Health

STRATEGY & HEALTH SUPPORT
Health.Research@westerncape.gov.za
tel: +27 21 483 6857: fax: +27 21 483 9895
5th Floor, Norton Rose House, 8 Riebeek Street, Cape Town, 8001
www.capegateway.gov.za

REFERENCE: WC_2015RP31_41
ENQUIRIES: Ms Charlene Roderick

Robert Sobukwe Rd
Bellville
Cape Town
7535

For attention: **Mr Warren Caesar**

Re: MEASURING THE IMMEDIATE AND UNDERLYING CAUSES OF LONG WAITING TIMES AND THE BARRIERS TO IMPLEMENTING RECOMMENDATIONS TO REDUCE WAITING TIMES AT A PUBLIC SECTOR PRIMARY HEALTH CARE FACILITY IN CAPE TOWN.

Thank you for submitting your proposal to undertake the above-mentioned study. We are pleased to inform you that the department has granted you approval for your research.

Please contact the following people to assist you with any further enquiries in accessing the following sites:

Du Noon Clinic **Dr K Grammer** **Contact No: 021 483 3287**

Kindly ensure that the following are adhered to:

1. Arrangements can be made with managers, providing that normal activities at requested facilities are not interrupted.
2. Researchers, in accessing provincial health facilities, are expressing consent to provide the department with an electronic copy of the final feedback (annexure 9) within six months of completion of research. This can be submitted to the provincial Research Co-ordinator (Health.Research@westerncape.gov.za)
3. The reference number above should be quoted in all future correspondence.

Yours sincerely

A/S HAWKRIDGE.

DR A HAWKRIDGE
DIRECTOR: HEALTH IMPACT ASSESSMENT

Appendix 6

Staff consent form

FACULTY OF COMMUNITY AND HEALTH SCIENCES
School of Public Health

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Email: soph-comm@uwc.ac.za
Website:
http://www.uwc.ac.za/faculties/chs/soph

STAFF CONSENT FORM

Title of Research Project: Measuring the immediate and underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times at a public sector primary health care facility in Cape Town

The study has been described to me in language that I understand and I freely and voluntarily agree to participate.

My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name.....

Participant's signature.....

Witness.....

Date.....

Appendix 7

Patient consent form

FACULTY OF COMMUNITY AND HEALTH SCIENCES
School of Public Health

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Website:
http://www.uwc.ac.za/faculties/chs/soph

PATIENT CONSENT FORM

Title of Research Project: Measuring the immediate and underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times at a public sector primary health care facility in Cape Town

The study has been described to me in language that I understand and I freely and voluntarily agree to participate.

My questions about the study have been answered. I understand that my identity will not be disclosed and that I may withdraw from the study without giving a reason at any time and this will not negatively affect me in any way.

Participant's name.....

Participant's signature.....

Witness.....

Date.....

Appendix 8

Participant information sheet

FACULTY OF COMMUNITY AND HEALTH SCIENCES
School of Public Health

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Website:
http://www.uwc.ac.za/faculties/chs/soph

INFORMATION SHEET

Project Title: Measuring the immediate and underlying causes of long waiting times and the barriers to implementing recommendations to reduce waiting times at a public sector primary health care facility in Cape Town

What is this study about?
This is a research project being conducted by Warren Caesar at the University of the Western Cape. We are inviting you to participate in this research project because you either a client who uses the services of this clinic or you are employed at the facility The study wants to establish the underlying causes of long waiting times at the facility and what barriers to proposed solutions exists that can prevent the implementation of the proposed solutions.

What will I be asked to do if I agree to participate?
You will be asked to answer basic questions on how you travelled to the facility, your reasons for coming early to the facility and how you would like the facility to manage your time when receiving treatment. Two questionnaires will be requested to be completed. The first is a survey which will monitor your time at the facility and staff will complete it. The second one will be one which you will complete before you leave and should take less than 15 minutes.

Would my participation in this study be kept confidential?
Your personal information will be kept confidential. To protect your confidentiality, we will put your name or any personal information the questionnaire which can identify you, and we will not name the facility in any form of report to the media.

If we write a report or article about this research project, your identity will be fully protected.

FACULTY OF COMMUNITY AND HEALTH SCIENCES
School of Public Health

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Email: soph-comm@uwc.ac.za
Website:
http://www.uwc.ac.za/faculties/chs/soph

What are the risks of this research?

There are no known risks associated with participating in this research project.

What are the benefits of this research?
The benefits to you include
Shorter waiting times
Improved quality of service

This research is not designed to help you personally, but the results may help the investigator learn more about what is the cause of long waiting times in this clinic. We hope that, in the future, other people might benefit from this study through improved understanding of this facilities processes pertaining to appointment systems and patient flows.

Do I have to be in this research and may I stop participating at any time?
Your participation in this research is completely voluntary. You may choose not to take part at all. If you decide to participate in this research, you may stop participating at any time. If you decide not to participate in this study or if you stop participating at any time, you will not be penalized or lose any benefits to which you otherwise qualify.

Is any assistance available if I am negatively affected by participating in this study?
If you loose your place in your queue we will assist to get you back in the correct sequence in the queue

What if I have questions?
This research is being conducted by Warren Caesar at the University of the Western Cape. If you have any questions about the research study itself, please contact Warren Caesar at: 072-216-0097 or warren.caesar@westerncape.gov.za
Should you have any questions regarding this study and your rights as a research participant or if you wish to report any problems you have experienced related to the study, please

Appendix 9

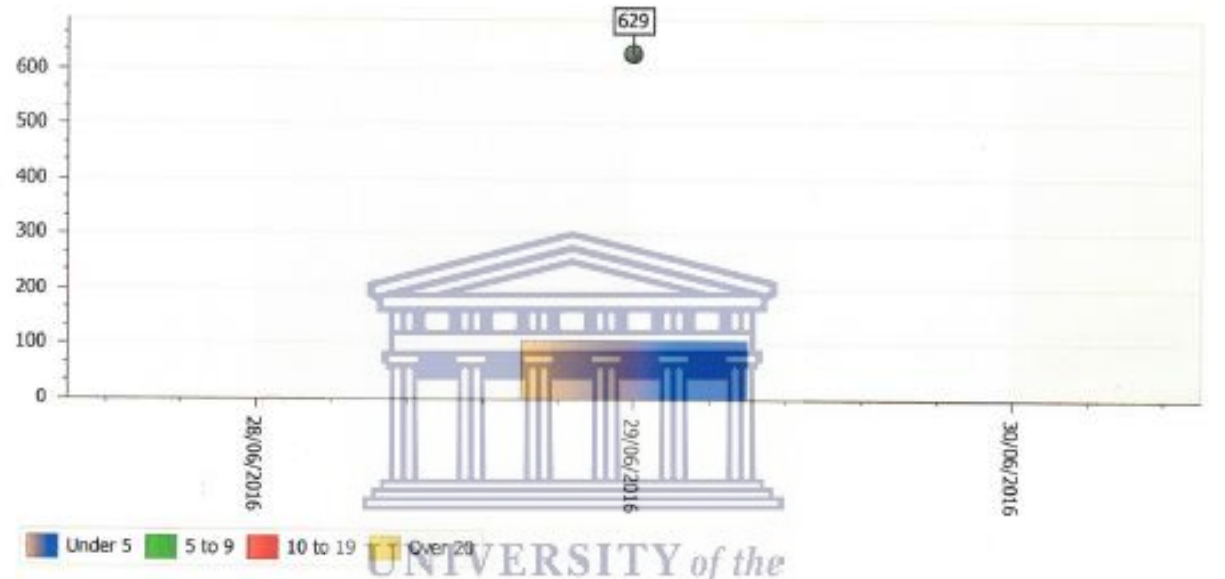
Daily headcount at the Primary Health Care Facility

PHC Daily Headcount

For:

Between

29/06/2016 **29/06/2016**



PHC Daily Headcount

Date	Under 5	5 - 9	10 - 19	Over 20	Total
29/06/2016 Wednesday	108	0	0	0	629
Totals for Period:	**108**	**0**	**0**	**0**	**629**